HIV RISK AND PREVENTIVE BEHAVIOURS AMONG THE INTIMATE PARTNERS OF MEN WHO INJECT DRUGS IN MALAYSIA

Rosliza Abdul Manaf

A thesis submitted for the degree of
Doctor of Philosophy
At the University of Otago, Dunedin
New Zealand

October 2014

ABSTRACT

Background: People who inject drugs (PWID) comprise the highest percentage of diagnosed HIV cases in Malaysia. The female intimate partners of such men risk being infected with HIV through sexual contact. There has been no study in Malaysia, and few internationally that have examined the experiences of these women and how they protect themselves against HIV.

Methods: A concurrent mixed-methods study comprising of a survey and interviews was conducted among the intimate female partners of men who inject drugs in the urban and rural areas around Kuala Lumpur and Selangor, Malaysia. Through respondent driven sampling and other sampling strategies, 221 women were recruited in the survey. A subsample of 22 women representing a range of ethnicities, marital status and localities were interviewed individually.

The survey was analysed to examine factors associated with HIV preventive behaviour. The interviews were analysed using thematic analysis to identify recurring themes. Initial data analyses of the survey and interviews were done separately, after which they were combined and triangulated to address the research questions.

Findings: The results found that these female intimate partners of PWID are vulnerable to HIV, reflected by the HIV prevalence (6.3%) reported among them being much higher than that in the general Malaysian population. While 7.7% of women reported having HIV positive partners, nearly half (45.7%) were not aware of their partner's HIV status. Unprotected sex was common, with only 19.5% using condoms regularly with their partners. The high prevalence of HIV among their partners and the low use of condoms in their relationship shows the heightened risk faced by the women. There was a positive response to the possibility of using female-controlled HIV protective methods, with 69.0% agreeing they might use them if available. Nearly two thirds felt they need to ask their partner's permission before doing so, with married women and Muslims more likely to report it important to ask their husband's permission.

From the interviews it was clear that HIV prevention practices were not easy for many of these women. While inability to negotiate condom use was the main issue, factors such as poor risk perception, relationship power imbalances, socio-cultural norms, inadequate knowledge of HIV prevention and socio-economic hardship synergistically increased their vulnerability to HIV.

The challenges of consistent condom use within a long-term relationship call for other preventive strategies for HIV prevention among this population. These need to include strengthening the HIV screening of PWID and encouraging disclosure of HIV status to their partners, while at the same time empowering women by providing alternative prevention methods that women themselves could control.

Conclusion: This thesis has unfolded the realities faced by female intimate partners of PWID in Malaysia, not just in the issue of HIV prevention but also the challenges in their daily lives. The alarming risk faced by the women and the complex nature of this issue demands a well-planned and comprehensive intervention that could improve the resilience of the women towards HIV. It is hoped that the findings from this thesis are able to reflect the women's voices and provide the opportunity for their problems to surface for appropriate attention by the relevant bodies.

ACKNOWLEDGEMENTS

My greatest appreciation goes to my family for their unconditional love, support and tolerance during the entire process of this PhD journey. To my husband, Nizam, who is also my best friend, my soul-mate and my best critique, thank you for always been there with me through thick and thin. You've made me realised that the journey is as rewarding as the destination. To my children, Izzati, Syazani and Farhan, I am immensely grateful to have you here with me, to experience Kiwi hospitality and to enjoy beautiful New Zealand while fulfilling your own dreams. Without all of you, my achievements would be much less meaningful!

My journey in New Zealand would never have been possible without the agreement of Associate Professor Nigel Dickson to supervise my work, my grateful appreciation to Nigel for his tireless guidance and constructive feedback in helping me to improve the quality of my work. I am also very grateful to have had Dr Sarah Lovell as my co-supervisor, whose expertise and passion for qualitative research helped tremendously in the completion of this thesis. To Nigel and Sarah, thank you very much for believing in me and helping me alleviate my self-doubt in the process of becoming a better scholar.

I wish to extend my gratitude to Associate Professor Dato' Dr Faisal Ibrahim, for his advice and insights which helped me to appreciate the complicated HIV scenario in Malaysia and the challenges ahead for this situation. My appreciation also goes to Dr Ari Samaranayaka and Sophia Leon de la Barra for their statistical advice, and to Jenny McDonald, Bible Lee and Tanya Lyders for reading my chapters and providing feedback that helped me to improve my writing.

This project would not have been able to take off without the cooperation of various organizations in Malaysia. I would like to extend my acknowledgements to the Malaysian Health Promotion Board for funding the research, and to the Ministry of Health, Malaysia and the Malaysian AIDS Council for letting me use their facilities during the recruitment process and for conducting the survey and interviews. Also, a special thanks to the outreach workers of Persatuan Insaf Murni and the Ikhlas Project for their tireless effort in helping me to connect to the network of injecting drug users. Their commitment was among the major factors that helped ease the process of the survey and interviews. To my research assistants, Siti Fatimah Shafee

and Norhafizah Nordin, your courage and perseverance kept me going through what was often challenging periods of data collection.

I am indebted to all my participants who were willing to share their thoughts and experiences to help others in the future. I am extremely appreciative for their warm welcomes whenever I entered their homes and personal spaces for interviewing. Their strengths and aspirations are a constant motivator for me to continue this work beyond the production of this thesis.

To my fellow PhD students and colleagues in the Department of Preventive and Social Medicine, I am extremely grateful for the support and the sharing of experiences that we had, which made this journey less stressful.

Last but not least, I would like to express my gratitude to the University of Otago for their financial and institutional support. I would also like to acknowledge the support of my employer, the University of Putra, Malaysia, who granted me a three and a half-year study leave to embark on this wonderful PhD journey.

TABLE OF CONTENTS

ABSTRACT ……iii

ACKNOWLEDGEMENTS v

TABLE OF CONTENTS vii

LIST OF TABLES xiii

LIST OF FIGURES xv

LIST OF ABBREVIATIONS xvi

CHAPTER 1: INTRODUCTION.....1
1.1 Problem statement 1
1.2 Aim and purpose of the thesis 3
1.3 Overview of this thesis 5

CHAPTER 2: SETTING THE CONTEXT- WOMEN AND HIV IN MALAYSIA.....7
2.1 Introduction 7
2.2 Country background 7
2.2.1 Malaysian society.....10
2.2.2 Overview of Malaysian women 11
2.2.3 General overview of HIV and women 13
2.2.4 Epidemiology of HIV/AIDS in Malaysia 15
2.2.5 Mode of transmission.....16
2.2.6 Injecting drug use and HIV 18
2.2.7 Drug use in Malaysia 19
2.3 HIV/AIDS prevention strategies 20
2.4 Summary of chapter 24

CHAPTER 3: LITERATURE REVIEW.....26
3.1 Introduction 26
3.2 Systematic review of studies examining HIV risk and preventive behaviour among the intimate partners of men who inject drugs 26
3.2.1 Systematic review approaches 26
3.2.2 Description of the studies.....29
3.2.3 Summary of systematic review 33
3.3 Theoretical background on preventive behaviour 35
3.3.1 The Health Belief Model 35

3.3.2 Theory of Reasoned Action and Theory of Planned Behaviour 36
3.3.3 Theory of Gender and Power 37
3.3.4 Summary of theories 39
3.4 The conceptual framework 39
3.4.1 Gender and power dynamics 42
3.4.1.1 Decision-making power in a relationship 42
3.4.1.2 Intimate partner violence 44
3.4.1.3 Self-efficacy and sexual communication 45
3.4.1.4 History of drug use 46
3.4.1.5 Summary 47
3.4.2 Social norms and culture 47
3.4.2.1 Summary 49
3.4.3 Individual beliefs about preventive practices 49
3.4.3.1 Summary 51
3.4.4 Women's biological susceptibility to HIV infection 51
3.4.5 Socio-economic factors 53
3.5 Strategies and methods of HIV prevention among women 54
3.5.1 Behavioural change for HIV prevention 56
3.5.2 Couple-based intervention approach 57
3.5.3 Biomedical strategies 58
3.5.4 Male condoms 59
3.5.5 Female condoms 60
3.5.6 Pre-exposure chemoprophylaxis 61
3.5.7 Microbicides 63
3.5.8 HIV vaccine 64
3.5.9 Summary of HIV preventive strategies and methods 66
3.6 Summary of chapter 66

CHAPTER 4: METHODOLOGY AND METHODS 68
4.1 Introduction 68
4.2 The mixed-methods approach 68
4.3 The research design 70
4.4 Philosophical assumptions in mixed-methods approaches 71
4.5 Reflexivity and positionality 74
4.6 Summary of methodology 77
4.7 The methods of enquiry 78
4.8 Study location 81
4.9 Study participants 82
4.10 The quantitative survey 83
4.10.1 Sampling method 83
4.10.2 Recruitment process 86

4.10.3 Survey instrument 90
4.10.3.1 Socio-demographic characteristics 91
4.10.3.2 Socio-economic status 91
4.10.3.3 High risk behaviour....91
4.10.3.4 Condom use and sexual relationship....92
4.10.3.5 HIV screening 92
4.10.3.6 Behavioural risk factors 93
4.10.3.7 Personal and social risk factors....94
4.10.3.8 Female-controlled methods....95
4.10.4 Process of data collection....95
4.10.5 Data analysis 95
4.11 The qualitative study 96
4.11.1 Participants and recruitment....97
4.11.2 The interview methods....98
4.11.3 Data analysis 101
4.12 Final data analysis and interpretation of findings 104
4.13 Ethics and funding....105
4.13.1 Ethical review....105
4.13.2 Funding 105
4.14 Summary of chapter 105

CHAPTER 5: THE SURVEY RESULTS....107
5.1 Introduction 107
5.2 Recruitment of participants 108
5.3 General overview of survey participants....110
5.3.1 Socio-demographic and socio-economic characteristics 110
5.3.2 HIV risk behaviours among the participants 112
5.3.3 HIV status 114
5.3.3.1 Socio-demography of HIV positive participants 115
5.3.3.2 HIV status and high risk behaviour 116
5.3.3.3 HIV status and history of other sexually transmitted infections....116
5.3.3.4 Summary of HIV status 117
5.3.4 Relationship power dynamics....117
5.3.4.1 Decision-making power....117
5.3.4.2 Experience of intimate partner violence 118
5.3.4.3 Sexual communication....119
5.3.5 Perceptions of HIV risk 121
5.3.6 Knowledge of HIV prevention....122
5.3.7 Attitude towards selected social norms....125
5.3.8 Summary on general overview of participants 125
5.4 Preventive behaviour against HIV 127

5.4.1 Condom use 127
5.4.1.1 Condom use according to socio-demographic characteristics 131
5.4.1.2 Condom use according to socio-economic characteristics 132
5.4.1.3 Condom use and relationship power dynamics 133
5.4.1.4 Condom use and women's perceptions of HIV risk 136
5.4.1.5 Condom use and knowledge of HIV prevention 137
5.4.1.6 Condom use and attitude towards social norms 137
5.4.1.7 Summary on condom use among the participants 138
5.4.2 HIV Screening 140
5.4.2.1 HIV screening among women with HIV risk behaviour 142
5.4.2.2 HIV screening and condom use 143
5.4.2.3 HIV screening and relationship power dynamics 143
5.4.2.4 HIV screening and women's perceptions of HIV risk 145
5.4.2.5 HIV screening and knowledge of HIV prevention 146
5.4.2.6 Summary of HIV screening 146
5.4.3 Sex avoidance with current partner 147
5.4.3.1 Sex avoidance and HIV status 148
5.4.3.2 Sex avoidance, condom use and HIV screening 149
5.4.3.3 Sex avoidance and relationship power dynamics 150
5.4.3.4 Summary on sex avoidance 152
5.5 Participant's opinion on female-controlled methods 152
5.5.1 Interest in using a female-controlled method for HIV prevention 153
5.5.1.1 Participants with HIV risk behaviour 154
5.5.1.2 High condom users and women who had avoided sex 155
5.5.1.3 Relationship power dynamics 155
5.5.2 The decision to use a female-controlled method 156
5.5.3 Summary of female-controlled methods 159
5.6 Summary of chapter 159

CHAPTER 6: QUALITATIVE INTERVIEW RESULTS 162
6.1 Introduction 162
6.2 Socio-economic disadvantages erodes women's capacity for prevention 165
6.2.1 Living in poverty 166
6.2.2 Overburdened with multiple responsibilities 169
6.2.3 Lack of social support 171
6.2.4 Intimate partner violence 173
6.3 Women's varied understanding of their HIV risk is shaped by contextual factors 175
6.3.1 Information regarding partner's injecting habits 177
6.3.2 Knowledge regarding HIV 179
6.3.3 Gender norms and religious expectations 181
6.4 Sex avoidance: a preferred but controversial preventive option 183

6.4.1 Conflict with gender roles and social norms....185
6.5 High incidence of unprotected sex resulting from power imbalances and socio-cultural norms....186
6.5.1 Power imbalances affecting safe sex negotiation....187
6.5.2 Condoms as a barrier to intimacy....189
6.5.3 Adherence to socio-cultural norms....190
6.5.4 Alternative methods of HIV prevention....192
6.6 Summary of chapter....195

CHAPTER 7: INTEGRATION OF THE KEY FINDINGS FROM THE SURVEY AND INTERVIEWS....198
7.1 Introduction....198
7.2 Participants' HIV risk....198
7.2.1 Perceptions of HIV risk....198
7.2.2 Vulnerability to HIV....199
7.2.2.1 Socio-economic vulnerability....199
7.2.2.2 Power imbalance....200
7.2.2.3 Limited HIV knowledge....200
7.2.2.4 High-risk behaviour....201
7.2.2.5 Limited information on partner's HIV status....201
7.3 Practices and challenges of HIV preventive behaviours....202
7.3.1 Condom use....202
7.3.2 HIV screening....204
7.3.3 Sex avoidance....204
7.4 Opinion regarding female-controlled methods for HIV protection....205
7.5 Other important findings from the interviews....206
7.6 Summary of chapter....207

CHAPTER 8: DISCUSSION AND CONCLUSION....208
8.1 Introduction....208
8.2 The research process....208
8.2.1 The strengths of this study....210
8.2.2 The study limitations....211
8.3 Discussion of the key findings....214
8.3.1 High incidence of unprotected sex....215
8.3.2 Factors contributing to unsafe sexual practices....216
8.3.2.1 Relationship power imbalances....216
8.3.2.2 Socio-cultural norms not supportive of condom use....219
8.3.2.3 Emotional attachment and personal factors....220
8.3.3 Alternative methods of HIV prevention....222
8.3.4 Socio-economic disadvantages....226

8.3.5 Perceptions of HIV risk 228
8.3.6 Summary 232
8.4 Study implications 233
8.5 Recommendations 238
8.5.1 Health promotion actions 238
8.5.1.1 Policy improvements 238
8.5.1.2 Reorientation of health services 239
8.5.1.3 Intervention programmes 239
8.5.2 Areas for future research 240
8.6 Overall conclusion 241

REFERENCES 243

APPENDIX 1: RESEARCH QUESTIONNAIRE 270

APPENDIX 2: RESPONDENT INFORMATION SHEETS (SURVEY & INTERVIEW) 279

APPENDIX 3: INTERVIEW GUIDE 282

APPENDIX 4: ETHICAL APPROVALS 287

LIST OF TABLES

Table 3.1: Published research on HIV risk and preventive behaviour among partners of men who inject drugs (2000-2012) 28
Table 5.1: Socio-demographic characteristics of the participants (N=221) 111
Table 5.2: Socio-economic characteristics of the participants (N=221) 112
Table 5.3: HIV risk behaviour among the participants (N=221) 113
Table 5.4: High risk behaviour among survey participants (N=221) 113
Table 5.5: HIV status of study participants and their partners (N=221) 114
Table 5.6: Knowledge of partner's HIV status by marital status and study location 115
Table 5.7: HIV status by socio-demographic and socio-economic variables (N=221) 115
Table 5.8: HIV status in relation to high risk behaviour 116
Table 5.9: Perceptions on decision-making power in their relationship 118
Table 5.10: Experience of intimate partner violence among the participants (N=218) 119
Table 5.11: Participant's responses regarding HIV risk discussion (N=219) 120
Table 5.12: Level of comfort in discussing sexual issues (N=221) 120
Table 5.13: Perceptions of HIV risk (N=207) 121
Table 5.14: Perceptions of HIV risk by marital status and HIV risk behaviour (N=174)$^{+}$ 122
Table 5.15: Details on HIV prevention knowledge among the participants (N=221) 123
Table 5.16: HIV prevention knowledge score according to socio-demographic, socio-economic, HIV-risk behaviour and perceptions of HIV risk 124
Table 5.17: Participant's belief on social norms related to condom use 125
Table 5.18: Condom use among the participants (N=221) 128
Table 5.19: Additional information on condom use among participants who had ever used a condom (N=105) 129
Table 5.20: High condom use by HIV-risk behaviours (N=221) 130
Table 5.21: High condom use by HIV status (N=221) 131
Table 5.22: High condom use by socio-demographic characteristics (N=221) 132
Table 5.23: High condom use by socio-economic characteristics 133
Table 5.24: High condom use by decision-making power variables 134
Table 5.25: High condom use by the types of intimate partner violence (N=218) 135
Table 5.26: High condom use by sexual communication (N=221) 136
Table 5.27: High condom use by perception on HIV risk 137

Table 5.28: Condom use according to knowledge scores 137
Table 5.29: High condom use according to selected social norms..... 138
Table 5.30: HIV screening among participants (N=221) 140
Table 5.31: HIV screening by socio-demographic characteristics (N=221) 141
Table 5.32: HIV screening according to socio-economic characteristics (N=221)..... 142
Table 5.33: HIV screening according to HIV risk behaviour (N=221)..... 142
Table 5.34: HIV screening by high condom use (N=221) 143
Table 5.35: HIV screening by decision-making power variables 144
Table 5.36: HIV screening by sexual communication (N=221)..... 145
Table 5.37: HIV screening by perceptions of HIV risk (N=207)..... 146
Table 5.38: HIV screening according to knowledge scores 146
Table 5.39: Socio-demographic characteristics of participants who reported to have avoided sex (N=221)..... 148
Table 5.40: Sex avoidance and HIV status (N=221)..... 149
Table 5.41: Sex avoidance according to high condom use and HIV screening 150
Table 5.42: Sex avoidance by decision-making power variables..... 151
Table 5.43: Sex avoidance by the types of intimate partner violence (N=218^) 152
Table 5.44: Participants' responses to questions on female-controlled methods (N=216)..... 153
Table 5.45: Participants' interest to use female-controlled methods by socio-demographic characteristics (N=216)..... 154
Table 5.46: Interest to use female-controlled methods among participants with HIV risk behaviour (N=216)..... 155
Table 5.47: Interest to use female-controlled methods by condom use and sex avoidance (N=216)..... 155
Table 5.48: Interest to use female-controlled methods by decision-making power and sexual communication variables (N=216) 156
Table 5.49: Participants' perception regarding the importance of partners knowing if they chose to use female-controlled methods for HIV protection according to socio-demographic characteristics (N=216) 157
Table 5.50: Perception on the importance of getting partner's permission to use female-controlled methods according to selected socio-demographic characteristics 158
Table 6.1: General description of interview participants 162

LIST OF FIGURES

Figure 2.1: Malaysia on the world map 8
Figure 2.2: Map of Malaysia. 9
Figure 2.3: Percentage of female HIV cases in selected Asian countries in 2002 and 2011 14
Figure 2.4: Number of newly diagnosed HIV cases in Malaysia from 1990 to 2012 15
Figure 2.5: Number of new HIV diagnoses according to route of transmission from 2007 to 2011 16
Figure 2.6: Mode of HIV transmission among men and women, 2011. 17
Figure 3.1: Conceptual framework explaining HIV preventive behaviour 41
Figure 4.1: Visual diagram of the study design 71
Figure 4.2: Map of the Federal Territory of Kuala Lumpur (KL) and the Selangor districts 82
Figure 4.3: The referral chain for the first six weeks of recruitment 89
Figure 5.1: Details of participants recruited in the survey 109
Figure 8.1: Conceptual framework of the study 214

LIST OF ABBREVIATIONS

AAS	Abuse Assessment Screening tool
AIDS	Auto-immune Deficiency Syndrome
ARV	Anti-retroviral
CAPRISA	Centre for the AIDS Programme of Research in South Africa
CAT	Coding Analysis Toolkit
CI	Confidence Interval
HAART	Highly active anti-retroviral treatment
HARK	Humiliation, afraid, rape, kick
HBM	Health Belief Model
HIV	Human Immuno-deficiency Virus
HSV-2	Herpes Simplex Virus Type-2
MSM	Men who have sex with men
NGO	Non-governmental organizations
OR	Odds Ratio
PrEP	Pre-exposure chemoprophylaxis
PWID	People who inject drugs
QDA	Qualitative Data Analysis
RDS	Respondent Driven Sampling
RM	Ringgit Malaysia
sd	Standard Deviations
STI	Sexually transmitted infection
TB	Tuberculosis
TGP	Theory of Gender and Power
TPB	Theory of Planned Behaviour
TRA	Theory of Reasoned Action
UNGASS	United Nation General Assembly Special Session
USA	United States of America
VCT	Voluntary counselling and testing

CHAPTER 1: **INTRODUCTION**

The incidence of HIV among women in Malaysia is increasing, despite a general decline among the wider population over the past ten years (Ministry of Health Malaysia, 2012f). Malaysian women who are the intimate partners of people who inject drugs (PWID) are at high risk of being infected. This thesis examines the HIV risk and preventive practices among these women to provide necessary evidence for informing future HIV interventions.

1.1 Problem statement

Since the first case of HIV was reported in Malaysia in 1986, HIV has predominantly affected men, with the sharing of injecting equipment being the most common mode of transmission. The epidemic started showing a change in pattern in 2002, when the percentage of individuals infected through heterosexual contact began steadily increasing; nonetheless, the sharing of paraphernalia among men who inject drugs is still the number one cause of HIV infection. HIV diagnoses among women escalated from 197 in 1997, which was 5% of the 3924 HIV cases diagnosed, to 554 in 2009, when the proportion had increased to 18% (Ministry of Health Malaysia, 2010h; Ministry of Health Malaysia & UNICEF, 2008).

Among Malaysian women, 70% contracted the virus via heterosexual transmission. Of these women, 60% were infected by their husbands. The infected women were generally young, with three quarters of them aged between 20 to 39 years old. Most were housewives (40%), while only 2.8% were sex workers (Ministry of Health Malaysia & UNICEF, 2008). As commonly seen in other Asian countries, Malaysian women generally have only one sexual partner and the majority of them are married (Ahmad, 1998; Tong & Turner, 2008). For these women, being married and practicing a monogamous sexual relationship did not protect them from contracting HIV.

While HIV prevalence among the Malaysian general population has been reported as being less than 1%, the prevalence among PWID is high, ranging from 19% to 44% according to different studies (Harvey, 2000; Malaysian AIDS Council, 2009c; Vicknasingam, Narayanan, &

Navaratnam, 2009). Behavioural surveys conducted among PWID revealed risks of onward transmission if they were infected through drug use. This is because about 80% of them were sexually active and 58% had multiple sex partners, with only around 14% to 28% reporting having used a condom during their last sexual intercourse (Malaysian AIDS Council, 2009c; Ministry of Health Malaysia & UNICEF, 2008). About 40% to 60% of PWID were also involved with sex workers or had sexual contact with other men, which meant a higher risk of contracting and transmitting HIV (UNAIDS, 2009).

As reported in the Malaysia 2010 United Nation General Assembly Special Session (UNGASS) Country Progress Report, there is current concern over the increasing number of HIV cases amongst the female intimate partners of PWID (Ministry of Health Malaysia, 2010h). Currently, the HIV prevention programmes that are available, are mainly concerned with the most-at-risk populations (PWID, female sex workers and transgender persons) with very little focus placed on these women (Ministry of Health Malaysia, 2011). For PWID, prevention strategies include a harm reduction programme in the form of the Needle and Syringe Exchange Programme (NSEP) and the Methadone Maintenance Therapy Programme (MMT). Free condoms are available through both NSEP and MMT; however, uptake within these programmes has been low, leading to the intimate partners of PWID being left-out of the current Malaysian HIV response (Malaysian AIDS Council, 2009c; Ministry of Health Malaysia, 2010h).

Women and men are affected differently by the HIV epidemic. Women are more vulnerable to the infection for a variety of biological, personal, social and cultural reasons. Higgins et al., in a review published in 2010, suggested that the risk of HIV faced by women could be explained through a model called the "vulnerability paradigm" (Higgins, Hoffman, & Dworkin, 2010). According to the authors, women are vulnerable to HIV because of biological differences that are related to susceptibility, reduced sexual autonomy and men's sexual power and privilege. The latter two factors were described as "gender related vulnerabilities" by Gupta et al. (2011) and Turmen (2003), who highlighted the importance of gender inequality as a main driving factor of HIV infection among women (Gupta, Ogden, & Warner, 2011; Turmen, 2003). This difference in vulnerability demands specific preventive strategies for controlling the HIV epidemic among women.

The difference in social structure, cultural practices and decision-making power between men and women renders some women more vulnerable to HIV than others. The intimate partners of men who inject drugs are a high-risk group. Their HIV risk presents itself mainly through unprotected sexual contact with their injecting husbands or partners. The risk is also frequently augmented by their often difficult life situations and relationship dynamics.

While there is clear evidence concerning the heightened HIV risk faced by these women, very limited information is available about this issue in Malaysia and internationally. There is a lack of empirical knowledge about women's perceptions of HIV risks, their current prevention practices and the barriers that they face when protecting themselves from being infected. This underscores the need to conduct a study which systematically examines these factors to provide credible facts that will inform the development of an acceptable and effective intervention programme.

The various challenges faced by women when negotiating condom use have led to the development of alternative preventive methods that they themselves can control. These include female condoms, vaginal microbicides and pre-exposure prophylaxis. While these methods have shown promising results for protecting women against the sexual transmission of HIV in sub-Saharan Africa, the acceptance and practicality of their use is very much shaped by the structure of gender relations in any specific region or country (Mantell et al., 2006; Mantell, Stein, & Susser, 2008). In relation to this, it would be beneficial to explore the opinion of Malaysian women about the use of female-controlled methods when considering the possibility of promoting these methods in Malaysia.

1.2 Aim and purpose of the thesis

This thesis describes a study that explores the HIV risk and preventive behaviour of intimate partners of men who inject drugs in Malaysia. The aims of the thesis were three-fold: (1) to understand the HIV risk and vulnerabilities faced by intimate partners of men who inject drugs in Malaysia; (2) to explore the women's experiences and practices in protecting themselves against HIV; (3) to examine the attitudes of these women about female-controlled methods of HIV protection.

A concurrent mixed-methods approach consisting of a survey and in-depth interviews was used to answer the research questions. The survey provided objective measures for the women's preventive practices and the risk environment to give an overview of the situation. The complexity of the issue and the sensitivity of the topic called for the use of individual in-depth interviews to provide rich, context-specific descriptions of the experiences and challenges regarding HIV prevention faced by these women.

The specific objectives of the survey were, in a sample of the intimate female partners of men who inject drugs in Malaysia:

i. To examine the practices that reduce HIV risk including, condom use, HIV screening uptake and sex avoidance and the factors associated with these.
ii. To measure these women's perceptions of HIV risk.
iii. To understand their vulnerability to HIV by exploring their socio-economic and socio-cultural environment in which they live, and their decision-making power.
iv. To identify the acceptability of female-controlled HIV prevention methods for these women.

The specific objectives of the interviews were, among a subset of the women surveyed:

i. To explore their experiences of practices that reduce the risk of HIV and the challenges faced when trying to prevent HIV.
ii. To examine their understanding of HIV and perceptions of their HIV risk.
iii. To explore the acceptability of alternative HIV prevention methods that they could control themselves.

The quantitative survey and qualitative interviews produced different types of data. These data were then combined and triangulated to give a comprehensive description of the risks and preventive practices of these women.

1.3 Overview of this thesis

This thesis describes the research project in eight chapters.

Following this introduction, the second chapter provides a background about the HIV epidemic in Malaysia and the concomitant situation of women. The chapter also provides information about current HIV prevention programmes and an overview of the main authorities and funding bodies that support the HIV prevention programmes in Malaysia.

Chapter 3 reviews the relevant literature. It begins with a systematic examination of published work on HIV risk and prevention among intimate partners of men who inject drugs. Chapter 3 goes on to explain the development of the theoretical framework guiding the research enquiry by considering the factors that could potentially increase women's vulnerability to HIV. Information about a range of HIV protective methods is also explored.

Chapter 4 explains the philosophical considerations that led to this research adopting a mixed-methods methodology and describes in detail the specific methods that were used for conducting the survey and the interviews.

Two chapters then present the study findings; Chapter 5 - the survey results and Chapter 6 - the interview findings.

The survey and interview results are then summarised and integrated in Chapter 7, guided by the main objectives of the research. This is where qualitative and quantitative data are compared and triangulated to provide a comprehensive understanding of the research questions.

The final chapter, Chapter 8, discusses the main findings, strengths, weaknesses, and implications of the study.

This thesis presents work that was undertaken over the last three years to establish a sound understanding of the risk environment faced by Malaysian women and the ways in which they act to protect themselves against the threat of HIV. It is hoped that this work can provide a glimpse of the reality faced by these women and that it will also motivate further research to explore the complexities regarding women's vulnerability to HIV. It is also hoped that the

findings of this thesis will shed light on the development of effective interventions to assist these vulnerable women to become more resilient to the challenging HIV epidemic.

CHAPTER 2: SETTING THE CONTEXT- WOMEN AND HIV IN MALAYSIA

2.1 Introduction

This chapter positions women within the HIV epidemic in Malaysia. It gives an overview of the country and Malaysian women in terms of cultural and gender norms, as well as socio-economic and education status which may have some influence on their risk of HIV infection. The information was gathered from multiple sources that included published research articles, published and unpublished reports, government policy documents, as well as surveillance data from the Ministry of Health, Malaysia.

2.2 Country background

Malaysia is located in Southeast Asia; its closest large neighbours are Thailand to the north and Indonesia and Singapore to the south; it also borders the smaller state of Brunei (Figure 2.1 and Figure 2.2). It is made up of a federation of 13 states and three federal territories located in two main lands: Peninsular Malaysia and East Malaysia, separated by the South China Sea. Its geographical proximity in the north to the Golden Triangle and other Southeast Asia areas that produce heroin has contributed to the longstanding domestic drug problem in the country (Kamarulzaman & Razali, 2008).

According to the latest national census in 2010, the population of Malaysia was about 28.3 million, with 60% of the population living in urban areas (Department of Statistics Malaysia, 2010). As a country, it is classified as a middle income economy by the World Bank.



Figure 2.1: Malaysia on the world map

Source: World map of Asia Pacific at http://www.targetmap.com/viewer.aspx?reportId=16836 accessed 1 February 2013.



Figure 2.2: Map of Malaysia.

Source: Malaysia Map (General) at http://www.malaysiamap.org/map-search-detail08cd.html accessed on the 1 February 2013.

2.2.1 Malaysian society

Malaysia is a multi-ethnic and multi-religion country. Its population is made up of the Malays, Chinese, Indians and Orang Asli (aborigines) in Peninsular Malaysia; and the Dayaks, Kadazans, Ibans, Melanau, Bajau and many other tribes in East Malaysia. Multicultural Malaysia is the result of immigration of Chinese and Indian workers during British colonisation in the 19th century (A. Abdullah & Pedersen, 2006). The Malays, who comprise 67.4% of the population, have resided in the country since the 15th century, originating from the surrounding islands in the Malay Archipelago. The next largest ethnic groups are the Chinese (24.6%) and Indians (7.3%). The Orang Asli represent 0.01% of the total 28.3 million Malaysian population (Department of Statistics Malaysia, 2010).

Malaysia is one of the few multicultural countries in the world with a harmonious multi-ethnic society in which individual groups have managed to maintain their identities, languages and religions. While Islam is the official religion, Malaysia does not prohibit the practice of other religions (Fernando, 2006). While all ethnic Malays are Muslim, other ethnic groups are Buddhist, Hindus, Christians, Confucian or Taoist. The majority of Orang Asli in Malaysia still holds firmly to their animistic beliefs (A. Abdullah & Pedersen, 2006).

Since its independence from Britain in 1957, efforts have been made by the Malaysian Government to promote national unity and a sense of being Malaysian among the different ethnic groups. National economic and education policies were designed to foster closer inter-ethnic and cross-cultural links. Although some friction does occasionally exist between different ethnic groups, a strong commitment from the government towards national harmony, as well as the high tolerance demonstrated by Malaysian society in general, has to date been successful in maintaining peace (R. Lee, 2004; Saad, 2012). Guiding this delicate balance is the Federal Constitution of Malaysia, which serves as a legal document and social contract between different ethnic groups to guarantee and protect their respective interests in multicultural Malaysia (A. Abdullah & Pedersen, 2006).

2.2.2 Overview of Malaysian women

Malaysian society is essentially patriarchal in nature, as is generally the case in other Asian cultures. Adult women are usually married and have children. In the typical setting of a traditional Malaysian family, the man will be the head of the family and the main earner. Women usually take care of the home and they are expected to do house chores and care for the children, hence their title in Malaysian language as *surirumah*, literally meaning 'queen of the house'. In most instances, this relationship is bonded by a legal marriage; families with unmarried parents are almost non-existent (A. Abdullah & Pedersen, 2006; Hossain et al., 2005).

Malaysian women rarely became involved in the formal workforce prior to the country's independence. Subsequently, the number of working women has gradually increased, comprising up to 46% of the workforce in 2010, when women were mainly involved in the education and manufacturing industries, and as clerical and sales workers, while the proportion of women in decision-making positions in the public sector for 2011 was about 21% (Ministry of Women Family and Community Development Malaysia, 2011).

Although women's participation in economic dimensions of Malaysian society has changed over the years, their role in the domestic sphere remains prominent. As aptly described by Omar in a chapter in *Women in Malaysia: Breaking Boundaries* (2003), an educated, urban, married Malaysian woman "still holds strongly to her role as a dutiful wife and mother despite the fact that she is educated, financially independent and holds [an] important position in the public domain" (Omar 2003, p.117). This view is supported by a qualitative study that Omar conducted in 2002 with 60 educated working women in Kuala Lumpur and Petaling Jaya, two metropolitan cities in Malaysia. She reported,

> Observations made in the homes of these women showed that the person who were [sic] doing the housework were the women themselves with the help of foreign maids. Wives are still expected to look after the well-being of their husbands and children. Maids are employed to reduce the burdens of housework. It is expected that the wife do [sic] the cooking [according to] the Malay saying, "*air tangan isteri yang memasak untuk suami, akan mengeratkan hubungan kasih sayang* (the water that drips from the hands of a wife into the food she cooks for the husband will bond the love between husband and wife) (Omar, 2003).

The above findings imply that, despite significant advances achieved by women in their education and career lives, their link to the domestic arena remains significant.

In terms of decision-making, it is an acceptable norm for married Malaysian women to take a passive position and follow the decisions made by their husbands (Ahmad, 1998). This includes the decision-making process involving sexuality issues and reproductive health, where many Malaysian women would prefer to have shared decision-making abilities along with their husbands (Najafi, Rahman, & Juni, 2011). Generally, they do not resist these norms, but rather accommodate and negotiate their way through them. However, this situation has changed in recent years, with more Malaysian couples undertaking mutual decision-making and sharing of responsibilities concerning economic, household and care-taking tasks (Sidin, Zawawi, Yee, Busu, & Hamzah, 2004; Yusof & Duasa, 2010).

This is not particularly the case for rural Malaysian families, where the gender stereotyping of childcare is still strongly associated with women. This situation was described by Hossain et al. (2005) in their study among lower socioeconomic parents in a rural setting, where mothers were heavily burdened with the responsibility of housework and childcare, even in cases where they, too, were employed (Hossain et al., 2005).

The influence of religion on women's position in Malaysia is undeniable. For Muslim women, Islam has been accepted not only as a faith but also as their way of life. Most Muslims in Malaysia are of Malay ethnicity; they were born into Islam, and its cultural beliefs and practices. It is well recognised that there is a complex, intertwined relationship between religion and culture which made the line between religious obligations and cultural norms that influenced daily life practices often unclear (Abu-Nimer, 2001; Yang & Ebaugh, 2001). For instance, while the teachings of Islam acknowledge women's rights as individuals, and has granted women with social, economic and political rights, many Muslim Malaysian women strongly hold to the belief that a husband should resume a dominant position in a marriage compared to their wife (R. Abdullah, 2003). In Malaysia, the stereotype of women's roles is embodied in the religion and culture, thus many women, regardless of their religious affiliation believed strongly that it is their duty to take care of the family and please their husband (Omar, 2003).

To increase women's empowerment and to neutralise gender stereotyping, the Malaysian Government has formulated strategies to create better opportunities for women in education and training, greater participation in the labour market, better access to healthcare and medical facilities, and has reviewed laws pertaining to women and families. While recent data showed a marked improvement in the status of Malaysian women, gender stereotyping is still prevalent, especially in the area of education and employment. As an example, under the national education system, there is no discrimination between male and female students with common enrolment opportunities and similar curriculum and national examinations. Despite equal opportunity for choosing their subjects, female students tend to concentrate on arts and commerce, while male students were more prevalent in technical fields such as engineering (Omar, 2003).

With regards to healthcare, there have been nationwide programmes delivering reproductive health services to women at all levels of society in Malaysia. However, the topic on sex and sexuality has not been openly discussed across all ethnicities within the country. (Ministry of Health Malaysia & UNICEF, 2008). It was also reported that in some parts of rural Malaysia, the community believed that, to remain pure a women should not talk openly about sex and should only learn about it when the time comes for her to get married (Ahmad, 1998). This culture of silence continues to obstruct the ability of women to protect themselves against sexually transmitted infections, including HIV, through information and the practice of safer sex.

In summary, while Malaysian women have made great achievements in educational, economic and political spheres over the years, the embedded cultural norms and expectations, coupled with economic independence which is still a problem faced by many women, pose a significant challenge for promoting safer sexual practices aiming for HIV prevention, especially among married women.

2.2.3 General overview of HIV and women

The World Health Organization (WHO) estimated in 2011 that 34 million people lived with HIV worldwide and about 50% of them were women (Stoskopf & Kim, 2004; World Health Organization, 2012). The epidemic, which began more than 20 years ago, and initially affecting

men, has gradually reached this more balanced gender distribution. In Africa, women represent about 59% of the 22.9 million people living with HIV (World Health Organization, 2013).

The scale and intensity of HIV among women in Asia is not as alarming as it is in Sub-Saharan African countries; none of the countries in Asia had experienced a generalised heterosexual HIV epidemic. In their extensive analyses of Asian HIV/AIDS epidemics in 2008, the Commission on AIDS in Asia projected that the proportion of women affected with HIV will probably not follow the pattern observed in African countries. Their research suggested that it is unlikely for the epidemics in Asia to be sustained within the general population independently of drug injecting, commercial sex and sex between men, with the first and third factors predominantly affecting men (UNAIDS, 2009).

Nevertheless, it is important to highlight that the percentage of affected women in Asia has been gradually increasing from 19% in 2000 to 24% in 2007 (UNAIDS, 2009). The percentage of women infected with HIV, however, varied across countries in Asia. Figure 2.3 demonstrates the changing trends in the proportion of women diagnosed with HIV from 2002 to 2011 in seven selected Asian countries, including Malaysia (Ministry of Health Malaysia & UNICEF, 2008; UNAIDS, 2009, 2011).

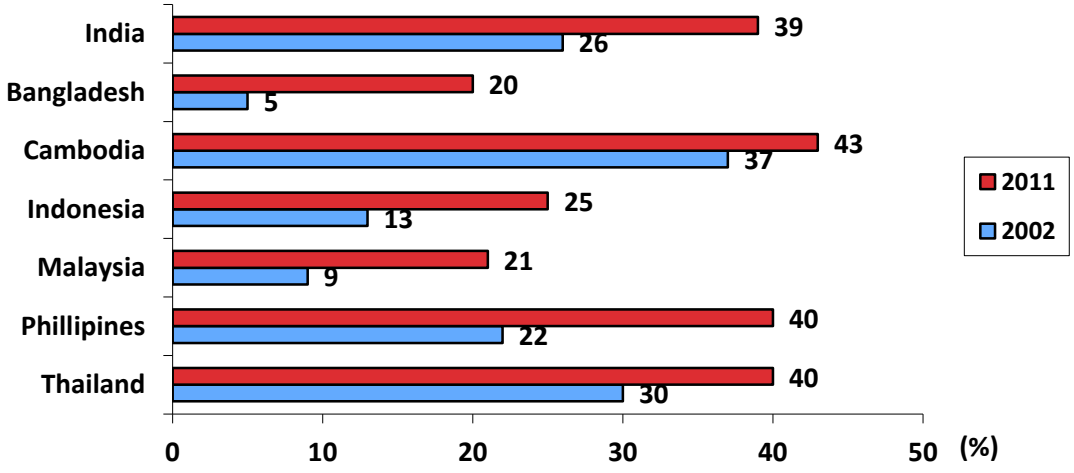


Figure 2.3: Percentage of female HIV cases in selected Asian countries in 2002 and 2011

2.2.4 Epidemiology of HIV/AIDS in Malaysia

Malaysia began to experience HIV infections in the mid-eighties. Starting from only four cases reported in 1986, this number has grown rapidly such that about 90,000 people were living with HIV by end of 2010 (Ministry of Health Malaysia, 2010a). Presently, Malaysia is classified by the WHO as having a concentrated HIV epidemic, i.e., where HIV prevalence remains consistently higher than 5% among the most-at-risk population, such as PWID, sex workers and men who have sex with men (MSM) and is far below 1% among the general population, based on testing of pregnant mothers and blood donors (Ministry of Health Malaysia, 2012a).

The number of HIV diagnoses peaked in 2002, when 6,978 new cases were reported, followed by a steady decline with the number nearly halving to 3,479 in 2012 (Figure 2.4). While overall the total new diagnoses declined, the number and proportion of newly infected women increased from 481 (9.4%) in 2000 to 735 (21.1%) in 2012. Around two thirds (67.9%) of women diagnosed with HIV in 2012 were between 20 to 39 years. Just over half (54.8%) were of Malay ethnicity, 8.7% Chinese and 6.5% Indians, which is roughly similar to the ethnic distribution of the Malaysian population. Foreign-born women constitute almost 20% of newly infected women. Nearly half of infected women were housewives (41.2%), 38.9% were working in various occupations while only 2.4% were recorded as being sex workers (Ministry of Health Malaysia, 2012f).

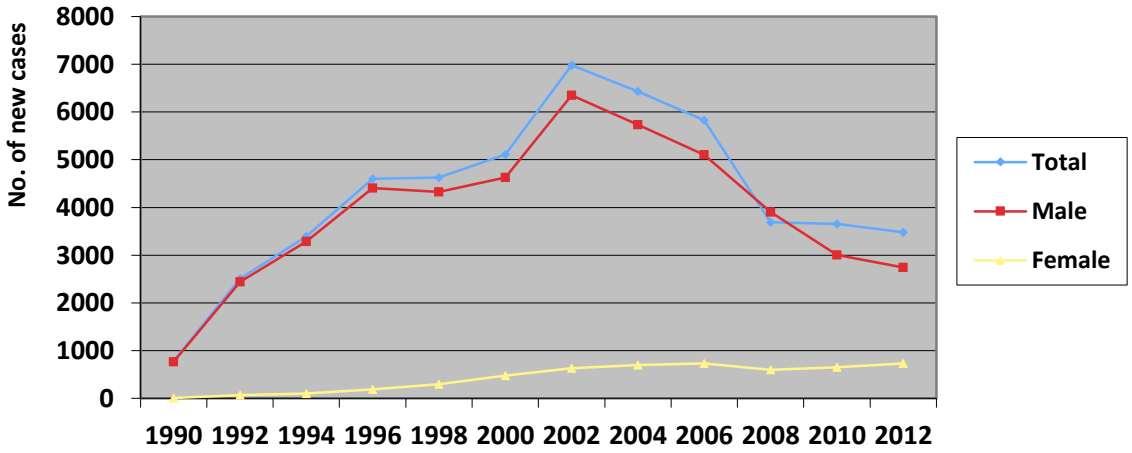
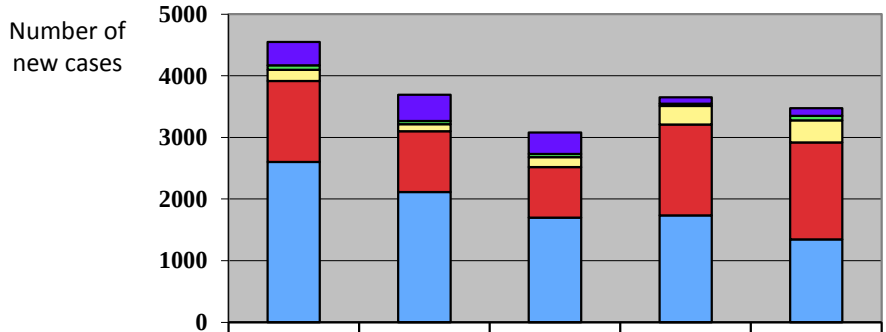


Figure 2.4: Number of newly diagnosed HIV cases in Malaysia from 1990 to 2012

2.2.5 Mode of transmission

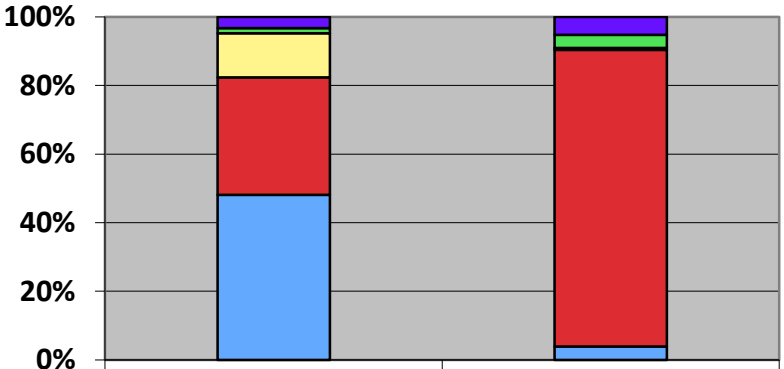
The initial stage of the HIV epidemic in Malaysia had been driven by infections among PWID, the majority of whom were men. For example, in 1996, about 80% of new HIV infections were among PWID who shared needles and syringes (Ministry of Health Malaysia & UNICEF, 2008). The implementation of harm reduction programmes focussing on PWID appeared to have helped in controlling the epidemic. The number of newly infected cases as a result of sharing injecting equipment among PWID has been steadily decreasing over recent years (Figure 2.5). Consequently, heterosexual transmission has started to become more common, leading to 1,573 (45.2%) newly diagnosed cases in 2011, compared to only 1,315 cases (28.9%) in 2007 (Ministry of Health Malaysia, 2012f).



	2007	2008	2009	2010	2011
Unknown	379	426	346	103	124
Mother-to-child transmission	70	50	51	39	70
Homosexual contact	184	113	162	301	358
Heterosexual contact	1315	989	821	1472	1573
Injecting drug use	2601	2113	1699	1737	1348

Figure 2.5: Number of new HIV diagnoses according to route of transmission from 2007 to 2011

Further analyses have revealed marked gender differences in the disease's mode of transmission. Among women who became infected in 2011, 86.4% contracted the virus through sexual contact. Only about 3.9% of women were infected through sharing of injecting equipment compared to men, among whom almost half had been infected through a similar route (Figure 2.6).



	Men	Women
Unknown	3.3	5.2
Mother-to-child transmission	1.5	3.9
Homosexual contact	12.9	0.5
Heterosexual contact	34.2	86.4
Injecting drug use	48.1	3.9

Figure 2.6: Mode of HIV transmission among men and women, 2011.

The number of reported HIV cases from homosexual contact has shown a steady increase over the years. In 2011, 358 cases (10.3%) were reported to have been transmitted via same-sex sexual contact, compared to 184 cases (4.0%) in 2007. Moreover, this number is suspected to be an under-representation as a result of the stigma attached to and the hidden nature of the homosexual community, and homosexuality being illegal in Malaysia (Baba, 2001; Kanter et al., 2011).

In Malaysia, it is unusual for women to have multiple sexual partners, unless they are sex workers. Thus, HIV infection is often transmitted via sexual contact with their primary partners, usually their husbands, who inject drugs or engage in paid-for sex. It was reported that in 2006, about 60% of women who had been infected through sexual contact were infected by their husband (Ministry of Health Malaysia & UNICEF, 2008). Married women who had previously been considered a low-risk group are in fact at a high risk of contracting HIV infection through sexual intercourse within their monogamous relationships when their partners are infected. The

heightened HIV risk faced by female intimate partners of individuals with high risk behaviours was acknowledged by the United Nations in their recent publication on HIV among women in the Southeast Asian that also includes Malaysia (Asian Foundation, UN Women, UNAIDS, & UNZIP the Lips Platform, 2013)

2.2.6 Injecting drug use and HIV

In the National Strategic Plan on HIV and AIDS, several groups were identified as most-at-risk; PWID, sex workers, transgender persons and MSM (Ministry of Health Malaysia, 2011). While the intimate partners of the individuals in these groups were also considered high-risk, they were clustered under one heterogeneous group in the intervention plan.

While it had previously been thought that PWID were not very active sexually as a result of the effect of heroin, recent studies in Vietnam and Malaysia suggested this is not the case (Hammett, Nghiem, Kling, Binh, & Oanh, 2010; L. P. Wong & Syuhada, 2011). In Malaysia, a study of 630 PWID in Kuala Lumpur and Selangor in 2009, revealed that about 80% of PWID were sexually active and around 60% claimed to have multiple sex partners in the year prior to being interviewed (Malaysian AIDS Council, 2009c). The intersection between injecting drug use and multiple sexual partners was also reported by Vicknasingam et al. (2009), where 58.1% of PWID surveyed in five cities across Peninsular Malaysia were involved with more than one sex partners, either through paid sex (34.0%) or mutually consenting casual sex (24.1%) (Vicknasingam et al., 2009).

Sexually active PWID who are at risk of being infected with HIV through sharing needles and syringes may infect their sexual partner or partners if they do not use condoms. Studies conducted in Kuala Lumpur and five other cities in Peninsular Malaysia showed that only a small proportion of PWID (between 14% to 22%) regularly did this (Malaysian AIDS Council, 2009c; Vicknasingam et al., 2009). There is no available data in Malaysia indicating regularity of condom use by PWID when engaging in sex with their intimate partners (wife or girlfriend), as opposed to relations with a casual sex worker. However, the National Family Planning data showed that condoms were not a popular choice of contraception among married couples in

Malaysia; condoms were used by only 14% of active contraceptive users (Ministry of Health Malaysia, 2010a).

An HIV-infected PWID who has unprotected sex with his or her intimate partner will act as a bridging agent in changing the HIV mode of transmission from intravenous to heterosexual. This situation explains the changing pattern of HIV transmission in Malaysia into a balance of both heterosexual and intravenous modes, which has subsequently led to the increasing number of HIV diagnoses among married, monogamous women in Malaysia.

2.2.7 Drug use in Malaysia

Domestic drug use has been present in Malaysia since the early 19th century and became more of a problem with the introduction of heroin into the country in the 1950s. An increasing number of drug related crimes occurred during this time and such drugs were considered a threat to national security. These circumstances led to the establishment of the National Narcotics Bureau in the 1970s, which was later transformed to become the National Anti-Drug Agency in 1996 under the Ministry of Home Affairs a ministry responsible for administering internal security to ensure peace and the well-being of people in Malaysia (Malaysian National Anti-Drug Agency, 2013). Illicit drug use was termed "the country's number one enemy" by Mahathir Mohamed, the Malaysian Prime Minister when he officiated the National Anti-Drug Campaign in 1983 (Government of Malaysia, 1983). Concurrently, the government announced its national campaign of "war against the drug syndicates". Messages associating drug use with bad influences on the communities, national unity and economy of the country were promoted (Reid, Kamarulzaman, & Sran, 2007).

Among the strategies for overcoming the problem of drug use in Malaysia was the implementation and enforcement of severe laws. Under the Malaysian Dangerous Drug Act 1952 (revised 1980), any person found in possession of at least 15 grams of heroin or 200 grams of cannabis is presumed to be trafficking drugs and faces the death penalty. Section 37 of the same act states that the possession of drugs in lesser amounts, or the possession of drug injecting paraphernalia may lead to two years imprisonment or detention in a rehabilitation centre (Government of Malaysia, 1952).

Despite these strict drug laws, drug use has remained a major problem in Malaysia. The law enforcement has resulted in the arrest of 80,893 people in 2000, which increased to 137,159 in 2003. Cumulatively, there were 300,241 people being detained in drug rehabilitation centres or prison between 1988 and 2006 (Kamarulzaman & Razali, 2008; Malaysian National Anti-Drug Agency, 2010). These numbers, however, do not represent the actual prevalence of PWID in Malaysia for that period of time because they were collected based on the number who were in detention for the given period. High relapse rates among attendees of drug rehabilitation centres, estimated between 70% and 80% within the first year following discharge, has resulted in re-detention with one PWID being counted for more than once in the database (Fauziah Ibrahim & Kumar, 2009; Malaysian National Anti-Drug Agency, 2010). Therefore, the actual number of PWID in Malaysia is unknown. The United Nations Regional Task Force on Injecting Drug Use and HIV/AIDS for Asia and the Pacific estimated that there were about 170,000 PWID in Malaysia in 2010 (Bergenstrom, Kamarulzaman, Mohd Khalib, & Cho, 2010). In terms of location distribution, the majority were from urban areas, with Kuala Lumpur and Selangor housing about one fifth (20.7%) of PWID (Malaysian National Anti-Drug Agency, 2010).

National HIV surveillance data in 2010 revealed that about three quarters of the total HIV positive individuals in Malaysia were PWID or ex-PWID (Ministry of Health Malaysia, 2010a). The prevalence of HIV among PWID in Malaysia varies according to different studies. One survey in Kuala Lumpur in 2009 showed 22.1% of the PWID were HIV positive (Malaysian AIDS Council, 2009c), while another that enrolled a sample in five cities in Peninsular Malaysia in 2006 found a higher prevalence of 43.9% (Vicknasingam et al., 2009). The double epidemic of injection drug use and HIV, which synergistically increased the annual incidence of HIV cases, has led the problem of drug use to be viewed as a health issue. In 2004, the Malaysian authorities began to consider harm reduction programmes as an alternative to drug abstinence policy for addressing the issue of drug use in the country (Faisal Ibrahim, 2005; Mazlan, Schottenfeld, & Chawarski, 2006; Reid et al., 2007).

2.3 HIV/AIDS prevention strategies

The Ministry of Health plays a leading role in coordinating HIV/AIDS-related programmes in Malaysia with the involvement of many other government agencies and non-government

organisations (NGOs). The country's responses to the epidemic have been guided by the National Strategic Plan, which is formulated every five years since 2000 (Huang & Hussein, 2004; Ministry of Health Malaysia, 2011).

One of the main strategies is HIV surveillance, in which data are collected, collated and distributed by the Ministry of Health. The data are collected from clinically indicated tests, this includes information from the routine screening of pregnant women, patients with tuberculosis (TB) and sexually transmitted infections (STIs), blood donors, sex workers, foreign workers, drug users in rehabilitation centres and all prisoners. In addition, the Ministry collected cases of HIV diagnosed in the premarital HIV screening programme (Ministry of Health Malaysia, 2010h).

The premarital HIV screening was initially for Muslim couples and began in 2001 in the state of Johor. It was a joint effort between the Johor Islamic Religious Council and the state health department in response to the majority of HIV diagnoses in Johor being among Muslims (Khebir, Adam, Daud, & Shahrom, 2007). The objective of the programme was to allow for early detection of HIV and make available HIV/AIDS education, counselling and treatment at the screening site. This programme was gradually adopted by other states in Malaysia and was offered to non-Muslim couples starting 2008 (Ministry of Health Malaysia, 2010a). Positive rates from the premarital screening ranged from 0.1% to 0.2% according to state governments (Khebir et al., 2007; Ministry of Health Malaysia, 2012f). Despite a number of objections, especially with regards to human rights and issues related to stigma and discrimination, the screening program continues (Barmania, 2013; C. Lee, 2007; Wen, 2011).

In the 1990s, HIV intervention programmes in Malaysia had been based on creating awareness through general health promotion activities, with no specific preventive intervention targeting high-risk groups being put in place. Although health promotion activities and media coverage have successfully created awareness about HIV/AIDS and its various modes of transmission, they did not translate into behavioural change concerning HIV prevention among high-risk groups (Kamarulzaman, 2009), which resulted in a continuous increase of HIV infections, especially among PWID.

The role of NGOs in HIV prevention in Malaysia began in the mid-1980s. They provided advice, information and counselling about HIV/AIDS to the drug using communities, sex workers and transgender men and women. Despite their limited resources, the NGOs managed to initiate the establishment of drop-in centres providing food, shelter and basic medical care (Narayanan, Vicknasingam, & Robson, 2011). In 1992, the Malaysian AIDS Council was established by the Malaysian Government to support and coordinate the efforts of these NGOs. The council facilitates communication and collaborative activities with the government and other funding bodies. Through the Malaysian AIDS Council, the NGOs received resources from the Malaysian Government, corporate organisations, as well as international bodies such as The Global Fund and the International HIV/AIDS Alliance (Malaysian AIDS Council, 2013).

The unresolved drug problems and the increasing number of HIV cases among PWID led to the inception of the needle and syringe exchange initiatives by NGOs in 2003, in line with an international shift in HIV prevention strategy from abstinence to harm reduction. The Pink Triangle, an NGO affiliated with the Malaysian AIDS Council, began to distribute clean needles and syringes to PWIDs in several hot spots in Kuala Lumpur and Selangor (Narayanan et al., 2011). This effort, however, faced significant resistance from the Malaysian authorities, with their zero tolerance drug policies. However, concerted and continuous advocacy by NGOs, persistent reports of high rates of relapse from drug rehabilitation centres and alarming statistics of the HIV epidemic, led the Malaysian Government to approve the nationwide implementation of harm reduction measures in 2005 (Reid et al., 2007).

Since then, harm reduction among high-risk groups has been the main strategy of HIV prevention in Malaysia in the form of methadone maintenance therapy (MMT) and NSEP (Kamarulzaman, 2009; Noordin, Merican, Rahman, Lee, & Ramly, 2008). These act as a driving force behind a wide range of harm reduction related activities, which include the distribution of information and education about risk-reduction, HIV testing and counselling, condom promotion, psycho-spiritual support, life-skills counselling and training and anti-retroviral treatment (Faisal Ibrahim, 2005).

In the MMT programme, liquid methadone is prescribed daily to PWID to control heroin addiction by reducing narcotic cravings and blocks the euphoric effects of illicit opioid use; this has enabled individuals receiving methadone therapy to lead productive lives without being

affected by the symptoms of addiction (Joseph, Stancliff, & Langrod, 1999; Mattick, Breen, Kimber, & Davoli, 2009). Methadone was prescribed through government hospitals and clinics, as well as general practitioners' clinics. It was subsequently scaled up and the services were made available in other settings in addition to health facilities such as drug rehabilitation centres, prisons and outreach points. By the end of 2010, the programme had been successfully implemented in 242 centres, cumulatively reaching approximately 15,869 drug users (both injecting and non-injecting) registered under this programme (Ministry of Health Malaysia, 2010a).

The NSEP programme is mainly conducted by NGOs affiliated with the Malaysian AIDS Council. Clean needles, syringes and other injecting equipment such as filters are distributed by outreach workers to registered PWID in exchange for used paraphernalia for free. There were 6,216 regular clients who had their injecting equipment exchanged at least once a week in 2010 (Ministry of Health Malaysia, 2010a). While the possession of injecting equipment is against Section 37 of the Dangerous Drug Act 1952 and may cause the individual to be subjected to a two-year prison sentence or compulsory rehabilitation, mutual agreement between the enforcement body and NGOs has made it possible to operate the NSEP programme (Kamarulzaman, 2009). It was agreed that no raids would be conducted when outreach workers did their work. There have nonetheless been occasions when miscommunication occurred and outreach workers and NSEP recipients were ambushed in raids; however, these instances were usually quickly resolved (personal communication with Raja, Outreach Worker).

As well as PWID, female sex workers and transgender women in Malaysia have also been included as a target group in the HIV prevention programme. They were served mainly by NGOs, who set up shelter homes and drop-in centres in strategic locations. To help minimise the risk of HIV, these NGOs provide health education materials, free condoms, counselling, HIV testing and basic health care to these groups. The effort has proven to be beneficial, as shown in a study among sex workers and transgender women in Kuala Lumpur, who reported a high percentage of condom use and good knowledge about HIV risks and modes of transmission (Malaysian AIDS Council, 2009c).

HIV intervention programmes in Malaysia have however, been reported to have failed to reach MSM, due to strong negative perceptions towards them (Azrowani Ulia, Azlina, Omar Fauzee,

& Rozita, 2012; Baba, 2001). Malaysian law forbids the practice of homosexuality, even between consenting male adults, and can result in imprisonment for up to 20 years (Baba, 2001). Despite this hostility, homosexual activity has become an increasingly common mode of HIV infection in Malaysia, as shown earlier in this chapter. The prevalence of HIV among MSM in Malaysia was reported to be about 4% in a 2009 survey conducted in Kuala Lumpur (Kanter et al., 2011). This study also revealed poor knowledge concerning the modes of HIV transmission among the participants, indicating that a specific intervention programme is urgently needed for MSM in Malaysia.

A similar issue is faced by the wives and partners of PWID where there has been no specific intervention in place for them. Although the women were recognised as being at-risk, the only prevention activity available that may have benefitted them was free condoms provided to PWID. These condoms were provided through the harm reduction programme; however, the uptake of this offer was poor. Although it was reported by the Ministry of Health Malaysia that there had been an increase in the distribution of condoms among clients of the harm reduction programme (Ministry of Health Malaysia, 2010a, 2012a), several studies documented low percentages of regular condom use among PWID (Malaysian AIDS Council, 2009c; Vicknasingam et al., 2009). The incongruity between the increasing percentage of condoms distributed and the small number of regular condom users suggests that a more effective programme is needed for promoting safer sexual practices among high-risk individuals.

2.4 Summary of chapter

While the HIV epidemic in Malaysia has been considered to be under control due to a decreasing trend in newly diagnosed cases, Malaysian women continue to face the risk of HIV infection from their partners. Despite their achievements in education, economic and political spheres over recent years, the prevailing socio-cultural norms regarding gender roles and responsibilities in Malaysian society poses a significant challenge for promoting safer sexual practices aiming for HIV prevention, especially among married women. Monogamous women who had previously been considered a low-risk group – are in fact at a high risk of contracting HIV infection through sexual intercourse within their relationships when their partners are infected. Intimate partners of PWID are therefore at high risk of HIV due to the high HIV prevalence among PWID.

Currently, the HIV prevention strategies in Malaysia are mainly focussed on PWID with the main strategy focussing on harm-reduction programmes such as the MMT and NSEP. Very little organised effort has been made to implement HIV prevention strategies to other high-risk populations, such as sex workers, transgender women, men who have sex with men and the intimate partners of PWID. Without specific intervention efforts by the authorities, intimate partners of PWID are left vulnerable to the risk of contracting HIV.

CHAPTER 3: **LITERATURE REVIEW**

3.1 Introduction

This chapter provides background information surrounding HIV risk and prevention among the intimate partners of men who inject drugs and among women in general, guided by several established theoretical frameworks.

The literature on HIV risk among women is growing. While there is an increasing body of literature on HIV risk among PWID, empirical studies on HIV risk among women who are intimate partners of such people are limited. Hence, this chapter starts with a systematic review of published research that examined HIV risk and prevention among this group of women to locate existing work that has been conducted in this area. Following on, the theoretical background of HIV prevention is discussed, which led to the development of the conceptual framework for the research enquiry. Based on this framework, the challenges and factors that affect women's decisions and abilities to protect themselves against HIV are explored. Finally, strategies and methods of HIV prevention among women are discussed.

3.2 Systematic review of studies examining HIV risk and preventive behaviour among the intimate partners of men who inject drugs

3.2.1 Systematic review approaches

A literature search in the Medline database through Ovid SP and ProQuest Central was undertaken with the aim to identify published studies on HIV risk and preventive behaviour that focused on the intimate partners of men who inject drugs. The key words used were injection drug users, drug users, men who inject drugs, wife, partner, HIV risk and HIV prevention. The search focused on publications from year 2000 to 2012. The inclusion criteria were: (1) empirical studies using quantitative or qualitative methods, (2) studies that involved the intimate partners of men who injected drugs as the main sample, and (3) studies which reported the HIV risk of the women, their risk behaviour, and/or their preventive behaviour.

The initial search revealed 154 articles with full text. The titles of these 154 articles were reviewed and only 25 were related to the topic searched. The abstracts of the 25 articles were read thoroughly and 14 articles were selected, which described studies on HIV risk and/or prevention among the partners of men who injected drugs. Of the 14 selected articles, five were excluded. One because the sample was a mixture of drug and alcohol dependent individuals and their partners, with no analysis of specific information regarding the female partners (Riehman, Wechsberg, Francis, Moore, & Morgan-Lopez, 2006). The other four articles were excluded because, instead of interviewing the female partners, the researchers gathered information from the men who injected drugs and therefore did not provide information based on the women's experience (Abdala et al., 2008; Kapadia et al., 2007; Liu, Grusky, Li, & Ma, 2006; Sherman & Latkin, 2001). The nine selected articles are summarised in Table 3.1.

Table 3.1: Published research on HIV risk and preventive behaviour among partners of men who inject drugs (2000-2012)

No	Publication	Authors	Type of research	Sample
1.	Correlates of HIV risk among female sex partners of injecting drug users in a high-seroprevalence area. 2001. *Evaluation and Programme Planning*. 24(175-185)	Iguchi MY, Bux DA, Kushner, H, et al.	Quantitative survey	520 female sex partners of PWID in New Jersey, USA
2.	Sexual decision-making and safer sex behaviour among young female injection drug users and female partners of IDUs. 2003. *The Journal of Sex Research*. 40 (1)	Harvey SM, Bird ST, De Rosa CJ, et al	Quantitative survey	94 female PWID or partners of PWID in Southern California, USA
3.	Intra-couple communication dynamics of HIV risk behaviour among injecting drug users and their sexual partners in Northern Vietnam. *Drug and Alcohol Dependence*. 2006. 84(69-76)	Go VF, Quan VM, Voytek C, et al.	In-depth qualitative interviews	11 active male PWID and 11 of their primary sex partners in Northern Vietnam
4.	Risk factors for HIV infection in injection drug users and evidence for onward transmission of HIV to their sexual partners in Chennai, India. 2005. *Journal of Acquired Immune Deficiency Syndrome*. 39(1)	Panda S, Kumar MS, Lokabiraman S, et al.	Quantitative survey	226 couples (male PWID and their regular sex partners) in Chennai, India
5.	Sexually transmitted infections and sexual practices in injection drug users and their regular sex partners in Chennai, India. 2007. *Sexually Transmitted Diseases*. 34(4)	Panda S, Kumar MS, Saravanamurthy PS, et al.	Quantitative Survey	
6.	A rapid situation and response assessment of the female regular sex partners of male drug users in South Asia: Factors associated with condom use during the last sexual intercourse. *International Journal of Drug Policy*. 2008. 19 (148-158)	Kumar MS, Virk HK, Chaudhuri A, et al.	Multicentre quantitative survey	4612 female partners of drug users (injecting and non-injecting) from Bangladesh, Bhutan, India, Nepal & Sri Lanka
7.	Female sexual partners of injection drug users in Vietnam: an at-risk population in urgent need of HIV prevention services. *AIDS Care*. 2010 22(12)	Hammet TM, Van NTH, Kling R, et al.	Quantitative survey	232 female sexual partners of PWID in Hanoi, Vietnam
8.	The intersection between sex and drugs: a cross-sectional study among the spouses of injection drug users in Chennai, India. *BMC Public Health*. 2011. 11:39	Solomon SS, Srikrishnan AK, Celentano DD, et al.	Quantitative survey	400 spouses of male PWID in Chennai, India
9.	Condom use and partnership intimacy among drug injectors and their sexual partners in Estonia. *Sexually Transmitted Infections*. 2011. doi:10.1136/sextrans-2011-050195	Uuskula A, Abel-Ollo K, Markina A, et al.	In-depth qualitative interviews	15 current PWID and 12 main sexual partners of PWID in Kohtla-Jarve, Estonia

3.2.2 Description of the studies

Two of the studies were conducted in the USA, two in Vietnam, two in India, one in Estonia and one study was multi-centred that involved several South Asian countries (Bangladesh, Bhutan, India, Nepal and Sri Lanka). Each of the published works is discussed in this section. The findings are discussed and knowledge gaps are identified, which are subsequently linked to the main purpose of the present study.

In 2001, Iguchi et al. published a paper on HIV risk factors among 520 female sex partners of PWID in New Jersey, USA (Iguchi, Bux, Kushner, & Lidz, 2001). This study was part of a bigger survey (National AIDS Demonstration Research Programme), where recruitment was conducted by community-based outreach workers. A high rate of unprotected sexual intercourse was reported among women, where only about 35% of participants interviewed had ever used condoms with their main partners. It was reported that a history of injecting drugs among the women, history of STIs, being an ethnic minority and involvement in sex work were significant predictors of HIV status among the participants. The findings also revealed that women who were committed in a monogamous relationship with a PWID and who were not sex workers were less likely to use condoms compared to women with multiple partners. This has resulted in repeated unprotected sexual contacts over long periods of time with their partners who inject drugs. With these findings, the authors suggested that interventions promoting monogamy alone may be counter-productive for female partners of PWID if the barriers to condom use in a monogamous relationship were not resolved. However, in this study, contextual factors related to the difficulties of maintaining condom use in a monogamous relationship were not examined.

Harvey et al. (2003) studied 94 young women who were either injection drug users themselves (67), or partners of men who injected drugs (27) (Harvey, Bird, De Rosa, Montgomery, & Rohrbach, 2003). The aims were to examine the role of relationship power and decision-making in safer sex behaviours among the women. Participants were recruited through purposive sampling from needle exchange service centres, drop-in centres for homeless people and street-based sites in Southern California. They reported a strong association between participation in sexual decision-making and condom use. The study also found that involvement in longer sexual relationships was associated with a decreased likelihood of condom use, suggesting the presence of trust in a long-term relationship may act as a barrier to safer sex behaviour, even when

infection in male partners through non-sexual means was a possibility. In their discussion, the researchers highlighted the importance of recognising that condom use is "dyadic in nature and influenced by the male partner" and suggested further research to include the social and cultural contexts of sexual behaviour in order to understand how relationship factors and gender dynamics influenced HIV risk for women.

Another study involving men who injected drugs and their partners was conducted in Chennai, India, in 2003. A total of 226 couples were recruited by outreach workers using the snowball technique. The findings were published in two papers. The first reported on HIV prevalence, that was 30% among PWID, and 5% for their regular sex partners (Panda, Suresh Kumar, Lokabiraman, Jayashree, & Satagopan, 2005). All women who were HIV positive had HIV positive partners. The analysis, however, focused on risk factors associated with HIV status among the men who injected drugs and did not describe the risk factors associated with HIV status among women due to low numbers. However, in general, there was poor knowledge and poor HIV risk perception among the women who were regular sex partners of PWID, with just over half (52%) not perceiving any chance of being infected with HIV. These findings, coupled with the high prevalence of HIV among PWID, emphasised the need for urgent interventions in Chennai that focused on individual risk appreciation and negotiation skills for safer sex practices through individual and couple-oriented sessions. The research also illustrates the difficulty of recruiting this group of women to participate in research.

With a focus on the synergy between STIs co-infection and increased HIV risk, the second paper from the above study reported on STIs and sexual practices (Panda et al., 2007). While only 1% of PWID and 2% of their regular sexual partners had syphilis, 40% and 38% respectively had been infected with herpes simplex virus type-2 (HSV-2). Condom use among PWID was low, with 87% reported never having used condoms with their regular partners and 62% never used them with a sex worker. An STI diagnosis among women was significantly associated with early sexual debut, older age and having an HIV positive partner. While both papers on the study in Chennai highlighted the increased HIV risk faced by the partners of PWID, very limited information on the relationship and social factors associated with HIV risk was collected.

Another study among the intimate partners of men who injected drugs was conducted in Chennai in 2009, which described the prevalence of HIV, Hepatitis B and Hepatitis C among the samples,

as well as the risk environment faced by women (Solomon et al., 2011). Recruitment was based on an existing male PWID cohort, where the men were invited to bring along their wives to participate in the study. Of the 400 women who participated, only 1% reported injecting drugs. The majority (85%) reported only one life-time sexual partner, while 9% had exchanged sex for money or drugs. Overall, 2.5% of women were HIV positive, 0.5% had Hepatitis C and 3.8% had Hepatitis B. Condom use was infrequent with 70% never using a condom with their husbands. Women who knew their husbands were HIV positive were more likely to use condoms regularly and had better knowledge about HIV prevention. Interestingly, these women did not report less frequent sexual intercourse with their husbands compared to women who perceived their husbands to be HIV negative. Intimate partner violence was reported by 55.5% of women. No association between violence and participants' HIV status or condom use were reported. The study showed a higher prevalence of HIV and Hepatitis B among the wives of PWID compared to the general female population of India. It also highlighted that the majority of these women were monogamous, with low HIV risk behaviour aside from unprotected sexual intercourse with their injecting husbands.

In view of the high number of drug-users in the South Asian region and their pronounced risk of contracting HIV, a multi-centre study involving drug users (injecting and non-injecting) and their regular sex partners was conducted in five countries in the region which included Bangladesh, Bhutan, India, Nepal and Sri Lanka. The factors associated with condom use among the partners of PWID were reported in a paper by Kumar et al. (2008).The participants were recruited using snowball sampling by peer outreach workers and peer volunteers, under the supervision of partner NGOs in the respective countries. A total of 4,612 female regular sex partners of men who used drugs were recruited; 72% were from India, 15% from Sri Lanka, 9% from Nepal, 3% from Bangladesh and 0.5% from Bhutan. Nearly three quarters of the respondents were married. Condom use was low, with only 21% women reported using condoms during their most recent sexual intercourse. About a quarter had not heard of HIV/AIDS and only 24% perceived themselves to be at risk of HIV. Only 17% had been tested for HIV. Condom use was significantly higher among women who were engaged in sex work, who used drugs, had been treated for STIs, who had been screened for HIV and who had good knowledge about HIV protection. The study also revealed that participants who were illiterate, had experienced an early sex debut and were in monogamous relationships tended to use condoms less frequently. Based

on the research, the authors suggested that it is important to increase self-efficacy among the regular female sex partners of drug users by increasing their literacy and knowledge of HIV prevention. Additionally, they highlighted the importance of addressing the barriers associated with condom use in monogamous relationship, taking into account challenges such as cultural inhibition, the negative social norms associated with condom use and relationship power imbalances (Kumar, Virk, Chaudhuri, Mittal, & Lewis, 2008).

In Vietnam, the high prevalence of HIV among PWID led to the development of an intervention trial in 2003 and programmes among PWID and their intimate partners. Part of the project was a qualitative study involving the above-mentioned individuals (Go, Quan, Voytek, Celentano, & Nam, 2006). Eleven couples were interviewed individually regarding their own or their partners' injecting behaviour, and issues surrounding HIV risk and couple communications. Active PWID were recruited by outreach workers using snowball sampling and were asked to invite their partners along for an in-depth interview. Most of the female partners of PWID were monogamous and few were drug users themselves. The interviews suggested the women had limited ability to influence their HIV risk in the relationship. Condom use was rare and most women did not initiate condom use in fear of their partner's reaction. The study provided insight into the impact of men's injecting drug use on their partner's daily lives and how the women's perceptions and behaviours had increased their risk of HIV infection.

Another study that involved the female partners of PWID was conducted in Vietnam in 2008 (Hammett et al., 2010). Over 200 women who were in a stable sexual relationship with a man who injected drugs participated in the survey, which aimed to identify HIV prevalence and risk factors among women. Initial participants were recruited through a local NGO, and subsequently through snowball sampling. The survey revealed HIV prevalence of 14% among the participants. The prevalence among their PWID partners was not examined; however, it was quoted as 30% among PWID (men and women) in another nationwide study conducted in Vietnam. A small proportion of the women reported HIV risk behaviour, with 6% being injection drug users themselves, while 4% were sex workers. Regular condom use with their main sexual partners was reported by 27% of the women. In contrast to the qualitative study conducted earlier in Vietnam, this study did not explain the barriers of HIV prevention faced by women.

A qualitative study involving PWID and their partners was conducted in Estonia in 2008 (Uuskula, Abel-Ollo, Markina, McNutt, & Heimer, 2011). Using individual in-depth interviews, the study aimed to explore HIV prevention among the couples, as well as their beliefs and behaviours related to condom use. Participants were recruited through purposive sampling among the attendees of harm reduction services. Fifteen PWID and 12 of their intimate partners were interviewed. The study revealed that while condom use was considered to be important, reasons for them not always being used were diminished sexual pleasure, valuing the relationship above health risks, negative perceptions regarding condom effectiveness and poor access to condoms.

3.2.3 Summary of systematic review

Overall, there is a clear knowledge gap regarding HIV risk and prevention among the intimate partners of PWID, as only a few studies focusing on this high-risk population have been published. A majority of the studies (7 out of 9) were quantitative in nature. Only two studies employed qualitative methods (in-depth interviews) to answer their research questions. While quantitative surveys have the strength to provide surveillance data and objective answers to the research questions, a qualitative method is powerful for providing context and is able to describe rich and in-depth information regarding social, cultural and inter-personal issues surrounding HIV preventive behaviour among women. Despite being a very useful tool for understanding HIV prevention issues, qualitative methods were not a popular approach used by previous researchers in studies related to HIV risk among the partners of PWID.

Most of the quantitative surveys aimed at measuring the prevalence of HIV, the proportion of condom use and the factors associated with increased HIV risk among participants. The prevalence of HIV among the partners of PWID in the different study locations ranged between 2.5% to 14%. Factors associated with higher HIV risk included injection drug use, history of STIs, being an ethnic minority and involvement in sex work (Iguchi et al., 2001; Panda et al., 2007; Solomon et al., 2011). Between 1% and 6% of women were injection drug users themselves, and 4% to 9% were involved in sex work (Hammett et al., 2010; Solomon et al., 2011). In general, the women had limited knowledge about HIV and low perceptions of their own HIV risk (Kumar et al., 2008; Panda et al., 2005).

Condom use was generally low especially in monogamous (Iguchi et al., 2001; Kumar et al., 2008) and longer relationships (Harvey et al., 2003), and among women who were illiterate and had had an early sex debut (Kumar et al., 2008). The ability to make sexual decisions, better knowledge on HIV, having a HIV positive partner, involvement in sex work and past history of STIs (Harvey et al., 2003; Kumar et al., 2008) were related to higher condom use.

While the majority of the surveys studied biological and individual risk factors, only one survey examined the social and interpersonal issues related to HIV risk and prevention among participants (Harvey et al., 2003). None of the published studies reported the use of behavioural or socio-structural theories for guiding their research.

The interviews revealed a deeper understanding of the challenges faced by the intimate partners of PWID in negotiating safer sexual practices. Among the themes reported were fear of their partner's reaction, condom use diminishing sexual pleasure, valuing the relationship above health risks, negative perceptions of condom effectiveness and poor access to condoms (Go et al., 2006; Uuskula et al., 2011).

The systematic review was conducted at the beginning of the research and covered publications from the period 2000 to 2012. Another study on HIV risk among female partners of PWID was published in 2013 that described the 2010 HIV bio-behavioural survey in Iran (Alipour, Haghdoost, Sajadi, & Zolala, 2013), the only study to provide insight into the risks faced by women in a Muslim country. HIV prevalence was 9.4% among men who injected drugs, 7.7% among their intimate partners who also injected drugs, and 2.8% among their partners who did not inject drugs. A high incidence of casual sex was reported among PWID, of both sexes which further increased their HIV risk. Alipour et al. (2003) also stated their concern regarding the inadequate attention received by intimate partners of PWID in Iran with respect to HIV care and prevention programmes and called for further research in order to understand the vulnerability of these women.

Injecting drug use has been the main driving factor of the HIV epidemic in Malaysia and the Southeast Asian region. Although many studies regarding PWID and HIV risk in Malaysia have been published, none were found to have included the female intimate partners of PWID in their study sample. Hence, information regarding HIV risk and preventive behaviour among these

women is scarce. This has hampered the development of intervention programmes for minimising the risk of HIV infection among them. This present study was conducted to address this issue by providing insight into HIV risk and behaviour among these women. Acknowledging the strength of both quantitative and qualitative methods, a mixed-methods approach was adopted to provide a general overview of the HIV risk faced by these women, so as to provide rich description of their experiences, beliefs and practices regarding HIV risk and prevention.

3.3 Theoretical background on preventive behaviour

Effective intervention programmes should be guided by relevant behavioural theories, as theory-based behavioural change interventions have proven effective at reducing the spread of HIV within different population groups (DiClemente et al., 2004; Fishbein, 2000; J. B. I. Jemmott & Jemmott, 2000). Several established behavioural and social structural theories related to women's HIV risk and preventive behaviour are discussed in the following sections. Within this context, the main structures of the theories are described and subsequently adapted to develop a conceptual framework for this study.

While every behaviour is unique, for each type, there are a number of modifiable variables that determine them. Understanding what these are and their role in behavioural prediction will guide the development of effective behavioural change interventions. Several theories have been used to explain factors influencing HIV preventive behaviour among women, the most commonly being the Health Belief Model (Champion & Skinner, 2008; Rosenstock, Strecher, & Becker, 1994), the Theory of Reasoned Action (Albarracin, Johnson, Fishbein, & Muellerleile, 2001), the Theory of Planned Behaviour (Montano & Kasprzyk, 2008) and the Theory of Gender and Power (Wingood & DiClemente, 2000).

3.3.1 The Health Belief Model

The Health Belief Model (HBM) is a psychosocial framework developed in the 1950s. It was originally used to explain the reasons for poor community participation in disease detection and prevention. The model has gradually evolved to study people's behaviour in relation to other health-related issues (Bandura, 2004; Champion & Skinner, 2008; Fishbein, 2000; Rosenstock

et al., 1994). The HBM contains several primary concepts that predict why people would adopt specific health behaviour to prevent, to screen for, or to control illness conditions. These include their perception of their own susceptibility, the severity of the disease, the benefit and barriers of behaviour change and self-efficacy.

The HBM does not, however, include social norms as a determinant within its framework. This has led to the combining of HBM with other theories to enhance its value and to provide a more holistic explanation of HIV behavioural changes in previous studies. For example, the Theory of Reasoned Action (discussed below) was applied together with HBM for analysing sexual practices among men living in an HIV-prevalent area in Thailand (Vanlandingham, Suprasert, Grandjean, & Sittitrai, 1995), while the Theory of Planned Behaviour was used to complement HBM in examining sexual practices among adolescents in Turkey (Ozakinci & Weinman, 2006).

3.3.2 Theory of Reasoned Action and Theory of Planned Behaviour

The Theory of Reasoned Action (TRA) highlights that the most important determinant of behaviour is behavioural intention, which is influenced by the individual's attitudes toward the behaviour and perception of social norms (Albarracin et al., 2001; Montano & Kasprzyk, 2008). The Theory of Planned Behaviour (TPB) is an extension of TRA with the perceived control over behaviour added as another construct that will predict an individual's intention to perform the behaviour (Montano & Kasprzyk, 2008). All three constructs - attitude towards the behaviour, perception of social norms and perceived control over behaviour have been identified as powerful predictors of both the intention and practice of a variety of health behaviours, including exercise, smoking and drug use, mammography use and oral hygiene (Montano & Kasprzyk, 2008).

In the area of HIV prevention, the TRA and TPB have been applied to explain condom use, as well as in guiding the development of effective interventions against heterosexual HIV transmission. The theories have been used to explain the factors influencing condom use among drug users (Bowen, Williams, McCoy, & McCoy, 2001) and sexually active unmarried women (L. S. Jemmott & Jemmott, 1991) in the USA and among young adults in Portugal (Munoz-Silva, Sánchez-García, Nunes, & Martins, 2007). A meta-analysis by Albarracin et al. (2001) of

96 datasets containing associations between the TRA and TPB variables and condom use for HIV prevention strongly supported the three constructs - attitude towards the behaviour, perception of social norms and perceived control over the behaviour - as being associated with the intention to use condoms, with perceived behavioural control being the most powerful predictor. However, the study concluded that these constructs did not significantly contribute to the actual behaviour of condom use, despite having the intention to do so, indicating a limitation of these models within the HIV context.

While many of the constructs in the HBM, TRA and TPB are similar, and focus particularly on individual attitudes and beliefs, the exception in this instance is perception of social norms, which is absent in the HBM. These cognitive psychosocial theories are helpful for explaining individual processes of behavioural change and highlighting individual constructs that are important for targeting in health interventions. Nevertheless, they do not consider the range of important contextual and social factors that may influence the sexual behaviour of certain underprivileged groups (Logan, Cole, & Leukefeld, 2002; Rosenthal & Levy, 2010), such as the intimate partners of men who inject drugs. For these women, their ability to negotiate safer sexual practices may be influenced by other environmental factors beyond their own personal control. Accordingly, social structural theories, such as the Theory of Gender and Power, offer a more comprehensive approach for explaining the risk environment and preventive behaviour against HIV among these women at the personal, interpersonal and structural level.

3.3.3 Theory of Gender and Power

The Theory of Gender and Power (TGP) was developed by Robert Connell in 1987 based on existing theories concerning sexual inequality, gender and power imbalances (Wingood & DiClemente, 2002). The TGP suggests three major structures characterising the gendered relationships between men and women: the sexual division of labour, the sexual division of power and affective attachments.

The sexual division of labour refers to the allocation of men and women to different occupations and household chores, leading to economic inequity that favours men and exposes women to poorer health outcomes. The sexual division of power suggests that the presence of power

imbalances in relationships, which favour men, puts women at a higher risk of poorer health outcomes. The structure of affective attachments hypothesises that women who hold strongly to conventional social norms and who are highly dependent on their partners are exposed to poorer health outcomes (Kershaw et al., 2006). The three abovementioned structures co-exist and interact with one another to affect women's behaviour. The TGP further proposes that gender-based inequalities in all three areas exist at a societal and structural level, which may lead to male control over various decision-making areas, including sexual relationships and condom use (Wingood & DiClemente, 2000, 2002).

The TGP was applied by Wingood and DiClemente (2000) to examine HIV-related exposures, risk factors and effective intervention among women. The researchers conceptualised a list of measurable variables to represent the three major constructs. The sexual division of labour was explained by socio-economic factors, which included variables such as occupation, educational level and financial dependency. The sexual division of power was explained by physical exposures and behavioural risk factors, which included history of physical and sexual abuse, history of high risk behaviour, having a high risk steady partner, poor communication skills and lower self-efficacy regarding condom use. Affective attachments was explained as social exposures and personal risk factors, which included the women's perceptions of HIV risk, knowledge about HIV prevention, conservative cultural and gender norms, as well as negative beliefs not supportive of safer sex (Wingood & DiClemente, 2000).

Based on the TGP constructs, Pulerwitzs et al. (2002) demonstrated that relationship power played a key role in safer sexual decision-making. They conducted a study among Latina women in urban area of Massachusetts and found that women who had high levels of relationship power were more likely to report consistent condom use. Another study which was guided by the TGP supports these findings (Tang, Wong, & Lee, 2001). The study which was conducted in Hong Kong highlighted the importance of decision-making power in safer sexual practices, while a conservative orientation towards gender norms were noted as a barrier to condom use among married women.

3.3.4 Summary of theories

At this point, it is helpful to once again review the objective of this study, which was conducted to seek a better understanding of the HIV risk environment and preventive behaviours among the intimate partners of men who inject drugs in Malaysia. Additionally, the study also aimed to explore the factors that may influence preventive behaviour, which would be important for informing a good intervention programme for women. Previous studies have shown that theory-guided interventions have been more successful in promoting health behavioural changes. Taking into account the aforementioned information, the conceptual framework of this study was developed, informed by both the HBM and the TGP in an effort to gain a holistic understanding of the situation.

3.4 The conceptual framework

Various contextual social factors that intertwine with biological and psychological factors shape the reality of sexual behaviours among women (Amaro, 1995). The differences in social structures, cultural practices and decision-making power experienced by women makes some more vulnerable to HIV (Dowsett, 2003). Higgins et al. (2010) suggested that the risk of HIV faced by women could be explained through a model called vulnerability paradigm (Higgins et al., 2010). According to this model, women are vulnerable to HIV because of biological differences in susceptibility, reduced sexual autonomy and men's sexual power and privilege. The latter two factors were described as gender related vulnerabilities by Gupta et al. (2011) and Turmen (2003), who highlighted the importance of gender inequality as a main driving factor of HIV infection among women (Gupta et al., 2011; Turmen, 2003).

On the other hand, the concept of gender vulnerability tends to generalise that women are the vulnerable gender exposed to undesired health outcomes. Persson and Richards (2008) argue that this assumption which confines women to a group of homogenised and powerless victims with limited roles, may obscure the reality of HIV prevention practices in their relationship (Persson & Richards, 2008). While power imbalances have been associated with poorer health outcomes in some parts of the world (Bhattacharya, 2004; Harvey, Bird, Galavotti, Duncan, & Greenberg, 2002; Pulerwitz, Amaro, De Jong, Gortmaker, & Rudd, 2002), the absence of power

imbalance may not necessarily be associated with better health outcomes (Hoosen & Collins, 2004). Despite having the power to decide, some women were not able to practise safer sexual relationship due to other competing factors such as emotional attachment and expected gender roles (Amaro, 1995). Therefore, caution needs to be taken when analysing the influence of power relations in health-related decisions, which have to consider the prevailing gender norms and expectations within a society.

Most psychosocial theories focus on individualistic concepts of behaviour. These theories do not integrate relationship, interpersonal and social contexts as well as gender issues as their main determinants, thus limiting their role in understanding women's preventive behaviour (Amaro, 1995; Harvey et al., 2006). In calling for theoretical frameworks to explain HIV preventive behaviour among women, Harvey et al. (2006) suggests including the important individual-based factors within the context of expanded social dynamics and gender perspectives.

In relation to this, the components of the theory of gender and power (Wingood & DiClemente, 2000) were used as the basis for the conceptual framework of this study, which includes: (1) gender and power dynamics; (2) social norms and culture and (3) socio-economic factors. In addition, the framework includes three constructs of the health belief model (Champion & Skinner, 2008), which are: (1) perceived susceptibility, (2) perceived barrier and (3) self-efficacy to explain the association between health belief and preventive behaviour. The conceptual framework for explaining women's preventive behaviour is shown in Figure 3.1.

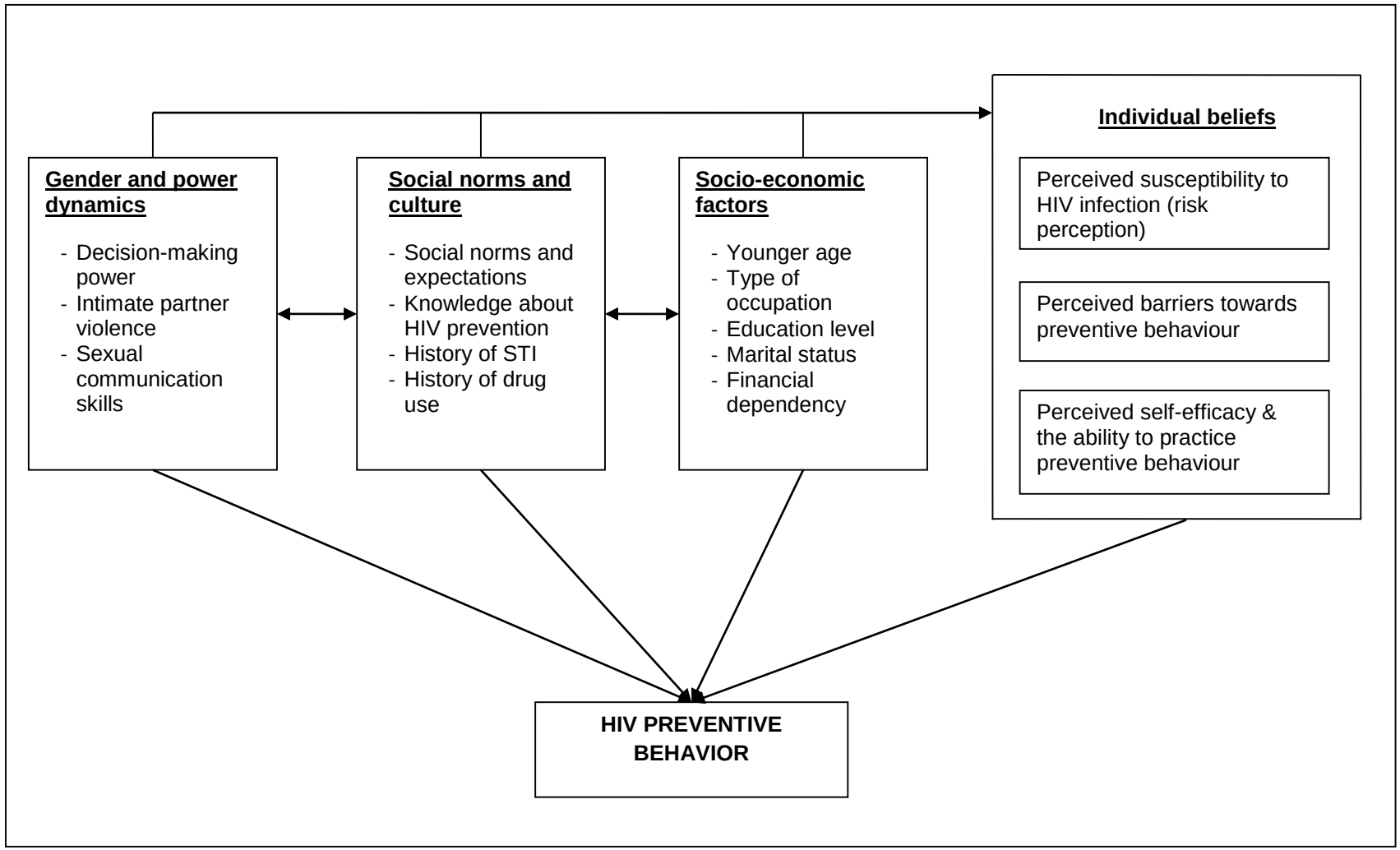


Figure 3.1: Conceptual framework explaining HIV preventive behaviour (Champion & Skinner, 2008; Wingood & DiClemente, 2000)

This framework encapsulates the potential health determinants at the individual, interpersonal and structural level. The main elements resonate with the social determinants framework proposed by the WHO, which emphasizes that health behaviours and decisions are situated within historical, political, economic, community and personal context (World Health Organization, 2008). While the social determinants framework also emphasises the importance of life course perspective in explaining how health inequalities are created (Marmot et al., 2008), this element is not included explicitly in the conceptual framework of the present study because of the minimal significance of childhood exposure in future interventions among the intimate partners of PWID.

Both quantitative and qualitative measures were used to identify and explain the variables which may affect the decisions and abilities of women to practice HIV prevention. All the determining factors in the conceptual framework (Figure 3.1) are discussed in the following sections, with supporting literature from previous studies.

3.4.1 Gender and power dynamics

This group of risk factors was used to describe power imbalances in a relationship (Wingood & DiClemente, 2000). As suggested by the TGP, because power inequity between men and women increases and favours men, women will be more likely to experience adverse health outcomes. Several variables were conceptualised to explain the various components of relationship power and vulnerability: decision-making power, experiences of intimate partner violence, sexual communication skills and history of drug use.

3.4.1.1 Decision-making power in a relationship

Kershaw et al. (2006) define relationship decision-making power as having the power to make decisions in the primary areas of the relationship including financial decisions, health care decisions, child care decisions and sexual decisions (Kershaw et al., 2006). In their survey among 196 women in rural Haiti, they reported that women who had more power to make decisions in their relationships had higher rates of condom use compared to women with poorer decision-making power. A similar finding related to decision-making ability in the context of condom use

was reported by Harvey et al. (2002) in their qualitative interviews among women at-risk of HIV in Atlanta, USA (Harvey et al., 2002). The authors also reported that women who perceived they had more power, or shared power with their partner, were more involved in making decisions regarding their sexual relationship, including condom and other contraceptive use, timing and the type of sexual activity. These two examples support the view that having the power to make decisions leads to better reproductive health choices for women.

According to Kaufman (1994), the concept of masculinity and power which acknowledges male domination and results in gender stereotyping and power imbalances, is a social process that continues to be imposed by the society (Kaufman, 1994). The unequal distribution of power that favours men is more prominent within patriarchal societies. For example, in Malaysia, men are often viewed as the leader of the family and hold the decision-making power in the household (Ahmad, 1998). An ethnographic study of family life conducted in Kelantan, a rural state of Malaysia, documented highly paternalistic patterns of behaviour, with husbands traditionally holding authority over many aspects of family life, including financial matters and the right of their wives and daughters to work (Kusago & Barham, 2001). A similar situation was reported in India. In her review on the challenges to HIV prevention among Indian women, Bhattacharya (2004) described the socially-sanctioned dominant role of the husband as being the "sexual decision maker" while the wife as the "obedient sexual being" (Bhattacharya, 2004). She further explained that these traditional gender roles are, not surprisingly, associated with more perceived barriers to condom use among women in cases where the women believed they had no right to make sexual decisions.

In previous research, the type of partnership has been associated with decision-making power. In general, those in long-term relationships were less likely to feel that they had any power in terms of making sexual decisions (Wingood & DiClemente, 2000; Woolf & Maisto, 2008). Wingood and DiClemente (2000) suggested that women in long-term relationships lacked the power to act or change a sexual situation, because they were more influenced by socially constructed gender roles that support power inequity. Woolf and Maisto (2008) explained that women in long-term relationships were more likely to be emotionally involved in their relationship and they often prioritised bonding and intimacy above self-protection. These women were also more likely to submit to the notion of their partners having control within the

relationship. The researchers concluded that a lack of control over the relationship leads women to be emotionally dependent on their partner. If a woman fears that condom use will contribute to conflict, or fears the loss of her relationship, she will be more likely to take the personal risk of non-condom use over the risk of losing the relationship.

Another study that compared decision-making power according to partnership type was conducted by Jan and Akhtar (2008), who analysed decision-making power among married and unmarried women in Northern India. While decision-making power was generally low in both groups, no significant difference in power was evident between married and unmarried women (M. Jan & Akhtar, 2008).

In essence, the above studies suggest the importance of power in the context of condom negotiation. In most situations, lack of power in decision-making resulted from relationship power imbalances that are maintained by social norms, structurally place women at a disadvantaged position to negotiate safer sexual practices.

3.4.1.2 Intimate partner violence

The link between intimate partner violence against women and vulnerability to HIV are evident in the following studies. The prevalence of HIV was greater among women who experienced both physical and sexual violence by their husband, compared to non-abused women in India (Silverman, Decker, Saggurti, Balaiah, & Raj, 2008; Weiss et al., 2008), Bangladesh and Nepal (UNAIDS, 2009). In South Africa, having a violent male partner increases the risk of getting infected with HIV (Rachel K Jewkes, Dunkle, Nduna, & Shai, 2010).

Violence increases women's vulnerability to HIV through several means. In the case of coercive sexual intercourse or rape, the direct impact on the woman's body in terms of vaginal tear increases the risk of HIV infection if the perpetrator is an HIV infected person. The indirect impact which affects the woman emotionally is as destructive, as sexual violence is also associated with stigma and social marginalization of the victims, in turn increasing HIV vulnerability (Maman, Campbell, Sweat, & Gielen, 2000). Furthermore, physical and sexual abuse during childhood has also been associated with high sexual risk-taking behaviour in

adolescence and adulthood (Andersson et al., 2004; Stoltenborgh, van IJzendoorn, Euser, & Bakermans-Kranenburg, 2011).

The threat of violence induces fear and affects women's power and ability to negotiate safer sex. Women trapped in intimate partner violence often resign themselves to sexual demands and indiscretions due to the immediate threat of violence that may increase their risk of HIV acquisition. Notably, poor condom use was observed among women who had experienced physical or sexual abuse by their intimate partner (Gielen et al., 2007; Go et al., 2003; Teitelman, Ratcliffe, Morales-Aleman, & Sullivan, 2008). Other studies have also related fear of a partner's reaction as one of the reasons why women did not negotiate condom use (Crosby et al., 2008; Go et al., 2006; Hammett et al., 2010). The interaction between social norms and subservient gender roles imposed on women in some communities may also further increase the risk of violence and unprotected sexual intercourse within marriage.

In Malaysia, it is estimated that one in seven married women have experienced some sort of violence inflicted by their husbands (Ministry of Women Family and Community Development Malaysia, 2011), although many would not disclose this due embarrassment and/or fear of their partner's retaliation (Othman & Adenan, 2008). The rate of intimate partner violence within the PWID community in Malaysia is unknown, but studies in the USA (Cunradi, Caetano, & Schafer, 2002; El-Bassel, Gilbert, Wu, Go, & Hill, 2005) suggest that it could be higher than the rate of intimate partner violence of the general population. This present study examines the rate of violence experienced by a sample of women intimately involved with men who inject drugs and further explores the effect of violence on safer sexual practices.

3.4.1.3 Self-efficacy and sexual communication

Having self-efficacy in sexual communication means having the confidence to communicate and negotiate sexual issues (Wingood & DiClemente, 2000). Studies among African American women in the USA have shown women's inability to negotiate condom use to be one of the strongest correlates of poor condom use (Bowleg, Belgrave, & Reisen, 2000; DePadilla, Windle, Wingood, Cooper, & DiClemente, 2011; DiClemente et al., 2002). The importance of self-efficacy as a determinant of safer sexual behaviour was also demonstrated in studies involving adolescents in Turkey (Ozakinci & Weinman, 2006), women of childbearing age in India

(Ananth & Koopman, 2003) and Taiwanese immigrants in the US (Lin, Simoni, & Zemon, 2005).

Closely related to the ability to communicate and negotiate safer sex practices are the power dynamics that exist within relationships. This was demonstrated by a study of sexual communication and negotiation concerning HIV prevention among young African American women. The study found that although the women were assertive in initiating discussions about safer sex with their partners, negotiating condom use was still difficult due to the pronounced power differentials between men and women (DiClemente et al., 2004).

The ability to negotiate condom use is often harder within Asian cultures where sexual communication tends to be more constrained (Kumar et al., 2008). A qualitative study conducted in China reported that the Chinese community considered talking about sex as shameful. Sex is considered a private issue, and open discussion about the topic and sexuality in general is discouraged. Moreover, sexual relationships are commonly not discussed even within marriage (Leiber et al., 2009). A similar situation was also noted for Indonesia, where power imbalances that exist within a marriage limit a woman's ability to communicate and negotiate safer sexual practices (Jacubowski, 2008).

The intersection between poor sexual communication, limited self-efficacy and cultural norms were also found to be significant for increasing the risk of HIV among married women in Uganda (Blanc & Wolff, 2001), Burma (Fletcher, 2011), India (Bhattacharya, 2004), Central Asia (Smolak, 2010) and Estonia (Uuskula et al., 2011). Not only was condom use within marriage seen as culturally inappropriate (Chimbiri, 2007), it was also a norm to associate condom use with deviant sexual behaviour such as commercial sex, sex before marriage and having multiple partners.

3.4.1.4 History of drug use

Being married to, or being in a long-term relationship with a drug user increases a woman's risk of involvement with drugs. A study conducted among the wives of PWID in Southern India revealed that a quarter of these women were also using drugs (Solomon et al., 2011). These women were described negatively as drug-involved women that had a central role in linking the

smaller drug-using high-risk population with the general non-drug-using heterosexual population, thus changing the pattern of disease distribution from being a concentrated epidemic to a generalised epidemic (Gollub, 2008). Drug use among women is therefore an important factor that increases their own HIV risk, as well as the risk amongst the general population.

Several studies have associated drug use among women with them having multiple sexual partners, being involved with sex work, higher incidence of STIs and lower condom use (Mathers et al.; Panda et al., 2001; Somlai, Kelly, McAuliffe, Ksobiech, & Hackl, 2003). Similar to women who did not use drugs, condom use with their main partner was also reported to be lower compared to their casual partners (Kapadia et al., 2007; Solomon et al., 2011). In sum, female drug users are at high risk of contracting HIV owing to both their injecting habits and sexual transmission.

3.4.1.5 Summary

The combination of an inability to undertake sexual decision-making, experience of intimate partner violence, poor sexual communication skills and lower self-efficacy disadvantages women and decreases their power to negotiate safer sexual practices in their relationships. In addition, a history of injecting drugs and other risky behaviours increases women's vulnerability to HIV. Decision-making power, intimate partner violence, sexual communication and involvement with drugs and sex work were examined in the present study. While these variables point to several dimensions of the power dynamics in a relationship, other contextual factors might also affect the distribution of relationship power.

3.4.2 Social norms and culture

In addition to being more susceptible to HIV for biological reasons, women in some parts of the world are more vulnerable to HIV infection due to the prevailing social norms and gender disparities in their communities. Closely related to this is the issue of relationship power imbalance, which decreases women's power in decision-making and negotiation (Quinn & Overbaugh, 2005; World Health Organization, 2013).

Social norms are the beliefs, values and practices of a specific community that influence the behaviour of individuals (Hechter & Opp, 2001). While most norms have evolved to maintain a balance of life in a society, some systematically put women at a disadvantage in terms of power relations, decision-making and access to resources (Wingood & DiClemente, 2002). From another perspective, social norms and culture can be regarded as dynamic concepts which evolve and therefore have the potential to be reinvented and restructured. In relation to this, social norms and culture can be used as a tool in health interventions instead of being considered solely as a factor suppressing women's empowerment (J. J. Taylor, 2007).

Social norms and culture determine what is acceptable in a society, and this includes how the society views sexuality and relationships. The risk of STIs, including HIV that women face, is heightened in societies where there is greater tolerance of male promiscuity and extra-marital affairs (Turmen, 2003; UNAIDS, 2009). Similarly, social norms that encourage women to have older husbands place young women at greater risk of being exposed to HIV, as it is likely her husband has had previous unprotected sexual activities. A study in South Africa revealed an increased risk of HIV infection among young women with older partners (Pettifor et al., 2005). Studies in Uganda (Kelly et al., 2003) and the USA (DiClemente et al., 2002) also found that the age difference between young women and their older male partners was significantly associated with the increased risk of HIV infection among the women.

Social norms in many societies have also led women to place a premium on love and romantic relationships. In a meta-analysis of social and contextual factors related to HIV vulnerability among women, Logan et al. (2002) highlighted that women who conformed to this norm did not want to insist on condom use at the expense of trust, love, closeness and fidelity (Logan et al., 2002). A study among Indian women revealed that concern regarding a partner's trust was significantly associated with unprotected intercourse (Ananth & Koopman, 2003). Thus, while the issue of trust is vital for maintaining a marriage or long-term relationship, it also places a woman at greater risk of contracting HIV through unprotected sex. Bhattacharya (2004) wrote on socio-cultural factors and condom use among married couples in India, and suggested that one of the major challenges to condom use was hesitation by both married men and women to change their sexual practices, which they believed to be a threat to their culturally sanctioned roles and relationships (Bhattacharya, 2004). Norms in India relate marriage to reproduction,

thus, the use of condoms appears to be in conflict with the desire to procreate. Additionally, condoms are often considered for their contraceptive potential rather than the protection they offered against STIs and may not be used if other contraceptive methods are adopted by a couple, as mentioned by participants of a qualitative study in China (Leiber et al., 2009).

In Malaysia, society in general continues to dictate the norms and expectations that discourage women and girls to openly discuss sex and their sexuality (Najafi et al., 2011; Ng & Kamal, 2006). The culture also discourages women to play an active role in decision-making within their household as an act of respect to the men who are considered the leader of a family (Omar, 2003). While these expectations are not as pervasive as before, due to advances in information technologies, they nonetheless continue to be perpetrated from one generation to the next (Ministry of Health Malaysia & UNICEF, 2008). These norms and expected gender roles continue to obstruct the ability of women to practice safe sexual relationships.

3.4.2.1 Summary

Based on the above review, it is hypothesised that women who conform to traditional social norms and beliefs that systematically put them at a disadvantage will be less likely to negotiate safer sexual practices, thus rendering them vulnerable to HIV. Several questions regarding social norms were asked in the current survey. The qualitative interviews further investigated the norms that prevail in Malaysian society today, as well as the dynamics between normative beliefs, sexual relationships and HIV prevention.

3.4.3 Individual beliefs about preventive practices

Within the HIV prevention framework, the Health Belief Model (HBM) hypothesises that the decision to practice HIV protective behaviour is influenced by the perceived risk of contracting the disease, the severity of HIV, the benefits and barriers to specific HIV protective behaviours, and the conviction that the individual will be able to successfully execute the behaviour, also known as self-efficacy. Self-efficacy is closely related to decision-making and relationship power concepts discussed earlier. Among the four domains of the HBM, it has been suggested that perceived susceptibility or the perceived risk of contracting HIV is of paramount importance,

as its absence will render the perception of benefits and barriers to certain protective actions irrelevant (Champion & Skinner, 2008). Perceived severity is the least important domain in the HBM with regard to HIV protective behaviour because most people tend to consider HIV/AIDS as a serious disease, thus the majority of published studies have not included measures of this aspect (Rosenstock et al., 1994).

The relationship between perception of risk and condom use has been demonstrated in previous studies. A study among women at high risk of HIV in South Africa found that women who felt they were at risk of contracting HIV were four times more likely to use condoms than those who did not perceive such a risk (Maharaj & Cleland, 2005). A similar finding was evident among youth in Cameroon (Meekers & Klein, 2002) and Mozambique (Prata, Morris, Mazive, Vahidnia, & Stehr, 2006).

Interestingly, the perception of risk may not determine condom use in some situations. A qualitative study among female bar workers in Tanzania reported low condom use when they had sex with their husband or regular partner, despite knowing the heightened risk of HIV as their husbands and partners may have had other partners as well. Nonetheless, they were able to negotiate condom use with their casual partners. Some of the reasons given were emotional and financial dependence, as well as issues of trust within a relationship (Mgalla & Pool, 1997).

The concept of acceptable risk, where sexual decision-making is based on a balance between perceived risk and the desire to remain sexually active was proposed by Persson et al. (2008) when he explored the influence of gender and power relations on sexual practices of HIV sero-discordant couples in Australia (Persson & Richards, 2008). They found that couples who knew their risk and decided not to use condoms adopted alternative strategies to balance the tension between sexual desire and risk, by relying on partner's low viral load or practising withdrawal before ejaculation. These findings highlight the influence of situational norms and other contextual factors on a person's risk assessment and sexual decision-making (Kowalewski, Henson, & Longshore, 1997).

The constructs in the HBM were used by Ananth and Koopman (2003) in examining the relationship between health beliefs and HIV preventive behaviour among women of childbearing age in India. The researchers measured normative efficacy instead of self-efficacy due to the

cultural sensitivity of sexual practices in the studied community, i.e., they focused on participants' beliefs regarding efficacy among women in general to request condom use during sexual activity rather than participants' own efficacy. The study concluded that perceived benefits and normative efficacy were related to a greater frequency of condom use among the participants (Ananth & Koopman, 2003).

3.4.3.1 Summary

Various categories of belief may influence a person's health seeking behaviour. The strength of the association between the different constructs of beliefs and HIV preventive behaviour varied across studies and target populations, suggesting that to develop effective intervention programmes, it is imperative to identify the relevant beliefs shared among the specific target populations. In this study, the women's perceptions of HIV risk, their beliefs regarding the barriers to safer sexual practices and their beliefs regarding their self-efficacy in sexual negotiation were examined, both in the survey and through the interviews.

3.4.4 Women's biological susceptibility to HIV infection

The biological differences between men and women render women more vulnerable to many STIs. The risk of HIV acquisition through vaginal intercourse is twice as high among women compared to men (Nicolosi et al., 1994; Padian, Shiboski, & Jewell, 1991). Several biological explanations have been provided for this, including anatomical differences of the reproductive tract, hormonal changes and physiological changes such as adolescence and pregnancy.

The vagina is characterised by a large mucosal surface that allows more mucosal exposure and longer contact time to infectious fluids during sexual intercourse than is the case for men. Consequently, the risk of a woman being infected during sexual contact with an infected man is high, as seminal fluid which is highly concentrated with the HIV virus, could be absorbed by the large mucosal surface and eventually enter the blood stream (Zierter, 1994). Women also face increased risk of tissue injury during sexual intercourse, more so in the case of abusive sexual contact, which will increase the absorption of infected seminal fluid through the injured mucosa (Chersich & Rees, 2008; Higgins et al., 2010).

The synergistic effect of other STIs and HIV has been well documented (Fleming & Wasserheit, 1999; Lissouba, Van de Perre, & Auvert, 2013; Reynolds et al., 2006; Vernazza, Eron, Fiscus, & Cohen, 1999). The efficiency of HIV transmission through sexual contact is two to five times higher in the presence of genital ulcers, inflammation and mucosal change (Galvin & Cohen, 2004). However, most STIs are commonly asymptomatic and therefore remain undiagnosed and untreated among women (Nusbaum, Wallace, Slatt, & Kondrad, 2004; T. Wong, Singh, Mann, Hansen, & McMahon, 2004). Additionally, under-diagnosis of STIs may be caused by personal factors such as fear and poor knowledge, cultural factors such as acceptability and stigma, and structural factors such as access to and cost of health services (Perrin et al., 2006). Cumulatively, these factors increase women's susceptibility if they are sexually exposed to the HIV virus.

Increased HIV susceptibility among women has also been linked to high levels of oestrogen and progesterone during pregnancy and lactation (Gray et al., 2005; Morrison et al., 2007), and among women taking hormonal contraceptives (Sagar et al., 2004; C. C. Wang, Kreiss, & Reilly, 1999). Both oestrogen and progesterone have the potential to induce structural changes in the genital mucosa which increases susceptibility to HIV. In addition, high oestrogen levels can cause cervical ectopy. This is a condition where the fragile columnar epithelium that lines the inside of the cervical canal extends towards the outer cervix. The exposed columnar epithelium in cervical ectopy further increases the susceptibility of women to infection (Chersich & Rees, 2008; Quinn & Overbaugh, 2005). Condom use generally decreases whenever prevention of pregnancy is not desired, such as among pregnant women and oral contraceptive users; hence, their HIV risk is greater (Beyeza-Kashesya et al., 2011; Bhattacharya, 2004).

Young women and adolescent girls are particularly susceptible to HIV for three reasons. Cervical ectopy is common, their immature reproductive organs are more susceptible to injury during sexual intercourse, and they are more likely than older women to have multiple partners (DiClemente et al., 2004; Dodds et al., 2003; Wingood, DiClemente, McCree, Harrington, & Davies, 2001).

Biological factors such as the anatomy of the reproductive tract and physiological changes may be seen as a fixed fact which cannot be altered by any intervention programme. However, the interaction between biological factors and sexual activities should be examined and highlighted in HIV prevention strategies among women. Consideration of different physiological stages may

also become important when planning for intervention among specific groups of women such as adolescents and pregnant women. In the present study, one biological factor was examined in the survey: the history of having been infected with STIs.

3.4.5 Socio-economic factors

The sexual division of labour in the TGP illustrates how women's vulnerability to HIV has been associated with the unequal segregation of work opportunities and the different perceptions related to caring responsibilities (Wingood & DiClemente, 2000). This has resulted in women being underpaid or even unpaid when assigned to undertake domestic work, which has been assumed to be their responsibility as a result of entrenched social norms. With little or no income, these women may end up being financially dependent on their husband or partner. This is particularly true among a significant proportion of Malaysian women and has been identified as one of the factors that increase women's vulnerability to poorer health outcomes (Mahari, 2011).

Previous research has demonstrated the effect of financial dependency on women's negotiating power and the use of condoms (Bowleg, Lucas, & Tschann, 2004; Fox et al., 2007). In a qualitative study among African American women who were the intimate partners of men at high risk of HIV, Bowleg et al. (2004) found that some of the women interviewed stayed in the relationship because they were emotionally and financially dependent on their partner. The presence of children in the relationship increased their financial dependence; clearly some women were willing to risk their own health for the sake of her children. Another example that demonstrates how financial dependency can increase a woman's risk of HIV infection was reported by Fox et al. (2007) who found that financial dependence and a lack of control prevented women from leaving abusive partners. They also found women's financial and emotional dependency to be manipulated by their partners, who linked sexual submissiveness with economic rewards.

The interaction between lower socio-economic status and domestic violence is well established (Karamagi, Tumwine, Tylleskar, & Heggenhougen, 2006; Koenig, Stephenson, Ahmed, Jejeebhoy, & Campbell, 2006; Stephenson, 2010). Together, these factors synergistically

increase the risk of HIV acquisition among the women affected (Fox et al., 2007; Weiss et al., 2008).

Several studies have associated lower socio-economic status to higher HIV risk. Poverty may increase women's vulnerability to HIV through increased risk-related behaviour such as involvement in sex work (Monroe, 2005; Van Blerk, 2008) and drug use (Aral & Wasserheit, 1995; Quinn & Overbaugh, 2005; Rodrigo & Rajapakse, 2010). Furthermore, women living in poverty may have fewer opportunities for employment and education which could further prevent their empowerment. Financial constraints may also minimise their access to HIV testing and treatment (Turmen, 2003).

Poverty forces people to focus more on their daily survival and meeting basic needs such as food and shelter. Difficult life conditions render other issues such as education, health and disease prevention less important. A focus group discussion among street youths in Addis Ababa that explored their perceptions of HIV and AIDS revealed that issues related to HIV prevention was of relatively low concern, due to their preoccupation with daily survival (Tadele, 2000). These findings suggest that it is necessary to resolve poverty issues before effective intervention can take place within lower socio-economic societies. The importance of addressing poverty issues in order to improve health status has been well-acknowledged as a major focus for promoting health equity (Feachem, 2000).

In summary, socio-economic factors have been found to influence women's risk of contracting HIV in a number of ways. In the present study, several socio-economic determinants were measured in the survey; these included education status, employment status, income and financial dependency. The impacts of socio-economic status on women's daily lives, as well as preventive behaviours, were explored in-depth in the interviews.

3.5 Strategies and methods of HIV prevention among women

The various intervention strategies used to control an infectious disease such as HIV are supported by the generally used framework of population transmission dynamics (Aral, Padian, & Holmes, 2005; Giesecke, 1994). In this framework, two critical concepts describe the emergence and evolution of epidemics; they are reproductive rate and epidemic threshold.

The reproductive rate is the average number of new infected individuals generated by each currently infected person. When the reproductive rate of a disease is less than one, it means that the number of new infections is less than the number of originally infected people. This will eventually halt the disease from spreading and stop the epidemic. A reproductive rate of one means that, on average, each infected person spreads the disease to one other person, resulting in a similar number of people becoming infected in subsequent infection waves. In this case the disease remains in an endemic state, meaning a constant incidence. A reproductive rate of more than one means that each infected person infects more than one other person, causing the number of infected people to increase over time. This is the point where epidemic threshold is met, which marks the emergence and evolution of epidemics. According to Giesecke (1994), there are three principle determinants of reproductive rate: (1) the risk of transmission per contact between an infected and a susceptible person, (2) the frequency of contacts, and (3) the duration of infectivity (Giesecke, 1994).

Intervention strategies aligned to address these factors will suppress the reproductive rate and control the epidemic. For example, in terms of HIV control, condoms are used to minimise the risk of transmission when an HIV positive individual has sexual contact with a non-infected person; the same holds in the case of drug use, where clean needles and syringes are used to minimise the risk of transmission among PWID. The frequency of contact is minimised when people are asked to avoid multiple sex partners, while duration of infection is addressed by early diagnosis and appropriate treatment of HIV infected individuals.

In addition to the population transmission dynamics framework, it is important to acknowledge the heterogeneity of populations, as most risk-related behaviours are not distributed randomly within populations. This indicates that each epidemic consists of many distinct subpopulation trajectories that are contingent on their network structures, health systems and economic, social and cultural beliefs (Aral et al., 2005). This underscores the importance of having specific intervention strategies targeting specific subpopulations at risk (Aral et al., 2005; Coates, Richter, & Caceres, 2008; UNAIDS, 2012).

From another perspective, the epidemiological concept of targeted intervention concerning at-risk population may be seen as counter-productive in controlling the HIV epidemic because it tends to stigmatise these group of vulnerable people which eventually may create additional

obstacles to prevention (Aral et al., 2005). For instance, labelling female sex workers as vectors of the HIV epidemic in China has detracted attention away from other important risk factors such as law and policy, social norms and gender roles in fuelling the epidemic (Pirkle, Soundardjee, & Stella, 2007). Such strategies may also place individuals who are not directly involved with risky behaviours such as the intimate partners of PWID to be considered as low-risk and therefore are not identified in the intervention programmes (Ministry of Health Malaysia & UNICEF, 2008). These arguments call for interventions that focus on modifying risky behaviours through community mobilization, advocacy and social change aimed at transforming the context in which the community respond to HIV, instead of focussing interventions only among specific at-risk groups.

It is estimated that sexual transmission accounts for 85% of HIV infections among women worldwide (UNAIDS, 2012) and 90% of infections among Asian women (UNAIDS, 2009). This is reflected in Malaysia, where heterosexual transmission is the most common way for women to become infected with the virus. Accordingly, the focus of the following sections is to explore the strategies that have previously been used to control sexual transmission of HIV and the possibility of establishing alternative methods for prevention other than the well-known male condoms.

3.5.1 Behavioural change for HIV prevention

Behavioural change is one of the main strategies in HIV prevention. It has been successfully applied in a number of countries. This approach includes programmes for minimising the risk of HIV transmission within different high risk groups. For example, programmes which attempt to delay the onset of first intercourse, decrease the number of sexual partners, increase the number of protected sexual acts, provide counselling and testing for HIV, encourage adherence to biomedical strategies, decrease sharing of needles and syringes, and decrease substance abuse (Coates et al., 2008; Glanz, Rimer, & Viswanath, 2008).

A specific example of a behavioural change programme is the ABC approach, which includes sexual **A**bstinence, **B**eing safer, that is by being faithful or reducing the number of partners, and correct and consistent use of **C**ondoms. This approach appears to have been a factor in reducing

the number of new HIV infections in Uganda (Green, Halperin, Nantulya, & Hogle, 2006), Zimbabwe (Halperin et al., 2011) and other sub-Saharan African countries (UNAIDS, 2012).

To be effective, behavioural change strategies need to be combined with structural approaches such as policy changes, social mobilisation and creating community awareness (UNAIDS, 2012). As observed in Uganda, the increase of ABC-related behaviours was actually the outcome of multi-pronged strategies which addressed issues of gender inequity, female empowerment and nationwide social mobilisation against HIV and AIDS (Dworkin & Ehrhardt, 2007; Murphy, Greene, Mihailovic, & Olupot-Olupot, 2006). Behavioural strategies may not work in places where women have limited control over their sexual relationships. In such a situation, female-controlled preventive methods may offer options for women at risk. However, these methods have their own challenges in terms of access and acceptability.

3.5.2 Couple-based intervention approach

Couple-based interventions are an extension of the traditional individual and group approach to behavioural change (El-Bassel & Remien, 2012). In general, this approach aims to involve both men and women to identify their HIV risk and assist them in practising problem-solving skills to manage the risk (El-Bassel et al., 2010). Previous research suggests that the couple-based approach has been more efficacious than traditional approaches in promoting HIV risk reduction among men and women in long term intimate relationships (Gilbert et al., 2010; McGrath et al., 2007; Pomeroy, Green, & Van Laningham, 2002).

The couple-based approach provides opportunity for both partners to take responsibility in the prevention effort. It also accentuates relationship contexts where commitment, love and trust are the core elements. Furthermore, intervention involving both couples provides the opportunity to redirect the couple's attention to the values in the relationship and the power of mutual commitment in behaviour change (El-Bassel et al., 2010).

While the advantages of the couple-based approach in reducing drug-related and sexual behaviours are evident, this approach may not be suitable for couples with the history of relationship violence, where disclosure of HIV status or the high-risk activities of an individual may propagate further abuse by their partner (McGrath et al., 2007). Another setback of this

approach is that it does not capture extra-dyadic partners in the couple intervention, for example in polygamous sexual relationship (El-Bassel & Remien, 2012). Nevertheless, the couple-based approach shows a promising alternative for PWID and their partners which gives them the space to explore and understand their risk together and share the responsibility of HIV prevention as a couple.

3.5.3 Biomedical strategies

Biomedical strategies used to prevent sexual HIV transmission are male circumcision, oral ARV for pre-exposure prophylaxis, microbicides, vaccines and the male and female condoms.

Male circumcision was proven to prevent female-to-male sexual transmission of HIV in previous studies, but not vice-versa (Auvert et al., 2005; Bailey et al., 2007; Gray et al., 2007). Therefore, male circumcision is not an effective strategy for preventing heterosexual acquisition of HIV among women, except indirectly, through its impact on the prevalence among men.

Recent evidence suggests that providing appropriate ARV therapy to an HIV positive individual suppresses viral loads below detectable limits, which subsequently reduces the likelihood of HIV transmission (M. S. Cohen et al., 2011; M. S. Cohen, Gay, Kashuba, Blower, & Paxton, 2007). This strategy called "treatment for prevention" highlights the secondary role of ARV as a public health tool to control the epidemic in addition to improving the health and longevity of individuals with HIV. However, this approach has several socio-structural challenges that lead to the issue of access to HIV testing (Kerr, 2011; Wilson, 2012). Undiagnosed HIV complicates the early administration of ARV. Furthermore, anti-retrovioral medications and follow-up services might not be accessible to many people which further complicates the administration of ARV.

Pre-exposure prophylaxis, microbicides and vaccines are in the process of clinical testing and to date, results have shown some promise (Q. Abdool Karim et al., 2010; S. S. Abdool Karim, 2012; Johnston & Fauci, 2011; Leibowitz, Parker, & Rotheram-Borus, 2011; Van Damme et al., 2012). The following sections further discuss the methods used to prevent the sexual transmission of HIV. The discussion begins with male condoms, the most common prevention method available in Malaysia and many other parts of the world.

3.5.4 Male condoms

The male condom was said to be used by the ancient Egyptians. However, its use as protection against STI was first documented in the 16th century by an Italian anatomist, Gabriello Fallopio (Youssef, 1993). Known by other names such as the preservative machine, the English overcoat and the armour in the 18th century, male condoms have been widely used since then as a contraceptive and as protection against STIs (Youssef, 1993). Over the years, the male condom has evolved from its original form (made from animal intestines) to crepe rubber in the 19th century, and finally to the modern teat-ended, liquid latex condoms of the early 20th century. Nowadays, latex and polyurethane condoms are easily available in most parts of the world and produced in different sizes, colours and flavours to add to their appeal. A condom works by forming a barrier, protecting contact between sperm and the vaginal mucosa, thus preventing the transmission of STIs from an infected man to his partner, or protecting him from being infected by his infected partner (Steiner, Dominik, Rountree, Nanda, & Dorflinger, 2003).

In addition to its function for preventing STI transmission, the male condom is also a non-hormonal contraceptive. Although its effectiveness is less superior compared to female sterilisation, implants, intrauterine device and contraceptive pills, the male condom is efficient at preventing pregnancy if used correctly and consistently (Mansour, Inki, & Gemzell-Danielsson, 2010; Steiner et al., 2003).

Meta-analyses of condom effectiveness in preventing HIV transmission estimate that consistent condom use between discordant couples has resulted in an overall 80% reduction in transmission risk (Weller & Davis-Beaty, 2007). In addition, consistent condom use has been associated with the reduced acquisition of other STIs such as genital herpes, syphilis, chlamydial and gonorrhoea infection (Holmes, Levine, & Weaver, 2004).

The male condom is the most efficient, affordable and currently available technology for reducing sexual transmission of HIV, yet reported condom use among high risk individuals remains low in many parts of the world. While several countries have documented success in promoting condom use among men who have sex with men (Adam et al., 2009) and commercial sex workers (Ainsworth, Beyrer, & Soucat, 2003; J. Cohen, 2003), it is acknowledged that promoting condom use among the general public has been more difficult, particularly among

married couples (Chimbiri, 2007; UNAIDS, 2012; Weller & Davis-Beaty, 2007). Male condoms are widely regarded as inadequate prevention options for women, who are often unable to negotiate condom use with their partners. Furthermore, a condom is also not an option for women who wish to conceive.

Low condom use was noted in previous studies among the partners of drug injecting men in the USA (Iguchi et al., 2001), India (Panda et al., 2007; Solomon et al., 2011) and Vietnam (Hammett et al., 2010), where the rate of condom use in the studied populations ranged from 13% to 35%, depending on the particular definition used to measure condom use. These studies suggested that unprotected sex in the relationships of PWID were common; as such, PWID have the potential to act as a bridging population for the HIV epidemic, from mainly injecting route to heterosexual transmission. The importance of drug users as a potential bridging community in the HIV epidemic in China was described by Liu et al (2006). In their conclusion, they suggested HIV interventions to include safer sexual practices alongside harm reduction initiatives in view of the high potential for sexual transmission.

The development of preventive methods which women can use has provided an option for women to protect themselves against HIV. These advances allow women to use barrier methods (female condoms), pre-exposure chemoprophylaxis or microbicides to prevent the acquisition of HIV sexually. The availability of female-controlled methods has empowered women to have better protection against HIV through means within their control. The female condoms, pre-exposure chemoprophylaxis and microbicides are discussed separately in the following sections.

3.5.5 Female condoms

The female condom, made of synthetic latex or polyurethane was introduced to the international market in 1984. It provides a physical barrier to STIs during sexual intercourse. As the name suggests, it is worn internally by the female partner during sexual intercourse to prevent exposure to ejaculated semen or other bodily fluids (Peters, Jansen, & Van Driel, 2010).

Based on previous reviews of female condoms, acceptability of the method by women differs depending on the target group and their location. This may also be determined by how the female condom was introduced, its physical characteristics, as well as adequate education, training and

support concerning the device. In general, it has been acceptable for use by women in Africa, North America, Thailand, Cambodia, Brazil, China and the UK (Peters et al., 2010; Vijayakumar, Mabude, Smit, Beksinska, & Lurie, 2006).

If used correctly and consistently, the female condom is 94% to 97% effective in reducing the risk of HIV infection (Hoffman, Mantell, Exner, & Stein, 2004). In terms of empowerment, the use of female condoms can give women a greater sense of self-reliance and autonomy, and enhance dialogue and negotiation with their husband or partner (Mantell et al., 2006).

Despite its potential as a female-controlled preventive method, access to female condom varies between countries. In accordance with the high HIV risk faced by women in Africa, more focus has been given to promoting the use of female condom in the region. It is currently accessible to the general public in several countries such as Zimbabwe, Ghana and Zambia (Mantell et al., 2008). Female condoms are not, however, easily available in general stores in countries like Malaysia and Indonesia. It is also significantly more expensive than the male condom, which has led many international donors and health authorities to choose the latter as the primary preventive method for preventing sexual transmission of HIV. In a review of female-controlled methods, Peters et al. (2010) argued that universal access to female condoms is not primarily caused by obstacles on the user's side as is often alleged, but more by unwilling governments in developing countries to procure the device.

3.5.6 Pre-exposure chemoprophylaxis

Pre-exposure chemoprophylaxis (PrEP) offers another female-controlled protective option. In PrEP, ARV drugs such as tenofovir or a combination of tenofovir and emtricitabine is prescribed orally to an HIV negative individual who is at high risk of contracting the virus. Tenofovir and emtricitabine are nucleotide reverse transcriptase inhibitors, which have potent activity against retroviruses. It has been widely used as part of the highly active anti-retroviral treatment (HAART) among HIV patients. The basic principle is to maintain a significant level of ARV in the blood and intracellular genital tissue, sufficient to prevent HIV acquisition, with a postulated mechanism of preventing initial viral replication (Mayer & Venkatesh, 2010). The PrEP has been proven to be effective in preventing HIV acquisition among heterosexual sero-discordant

couples in Kenya, Uganda (Baeten et al., 2012; Matthews, Baeten, Celum, & Bangsberg, 2010) and Botswana (Thigpen et al., 2012), as well as among men who have sex with men (MSM) in a multinational study (Grant et al., 2010).

However, a trial conducted to examine the efficacy of PrEP among high risk African women (FEM-PrEP trial) showed that the combination of tenofovir and emtricitabine did not significantly reduce the rate of HIV infection (Van Damme et al., 2012). Another PrEP trial among HIV negative women in Uganda, South Africa and Zimbabwe (VOICE trial) showed a similar result (Marazzo, Ramjee, & Nair, 2013). In Marazzo et al.'s (2013) randomised, double blind, placebo-controlled trial, the efficacy of three PrEP strategies was investigated: daily oral tenofovir alone, daily oral tenofovir and emtricitabine combined in a tablet, and daily application of tenofovir vaginal gel. Of these three PrEP strategies, none significantly reduced the risk of HIV infection. The main reason provided for failure of both FEM-PrEP and VOICE was poor adherence to drug treatment.

Although the findings of the above studies were contradictory, they have shown that oral PrEP can be beneficial in protecting high risk individuals if it is accompanied by good adherence, which can be enhanced by supportive counselling. As drug adherence was recognised to be a major obstacle in the successful protection against HIV infection, Marazzo and his team (2013) suggested the use of long-acting products which require minimal daily adherence to increase the effectiveness of PrEP (Marazzo et al., 2013).

Apart from drug adherence, the effectiveness of PrEP for HIV prevention may also be limited by concurrent STIs, which increase infectiousness and susceptibility, drug-related toxicities, viral resistance, behavioural risk compensation (increased risky behaviour due to the perception of being protected) and treatment cost (Leibowitz et al., 2011; Mayer & Venkatesh, 2010). Drug resistance was uncommon in the above trials and may only happen to people who started PrEP during an undiagnosed window-period of infection. While the risk of resistance at the time of PrEP initiation can be reduced with nucleic acid testing which tests for the presence of virus before antibodies can be detected, this type of testing is costly.

Although PrEP offers a promising option for HIV prevention among women, issues regarding the cost of expensive ARV drugs, operational costs (counselling, sero-conversion test) and

ethical issues (dilemma between giving ARV to HIV positive individuals or providing PrEP to HIV negatives to prevent them from being infected) must be addressed prior to implementing a PrEP programme. This is especially important in resource limited countries like Malaysia.

3.5.7 Microbicides

Microbicides are products that can be applied to the vagina or rectum to reduce the acquisition of STIs, including HIV. Several drugs have been used as microbicides, including tenofovir and dapivirine. Tenofovir's efficacy in suppressing viral replication, its favourable safety profile and long half-life has made it an ideal choice of anti-retroviral agent in microbicide gels (Q. Abdool Karim et al., 2010; Rohan et al., 2010). Another potential microbicide that can be used for topical application is dapivirine, which is a non-nucleoside reverse transcriptase inhibitor (Nel et al., 2009; Romano et al., 2009). It is safe for long-term use and well-tolerated which makes it suitable to be used as a microbicide gel or formulated inside a vaginal ring for longer action.

Microbicides have been extensively researched over the past 20 years. Their effectiveness in preventing sexually transmitted HIV, however, was only recently proven in the Centre for the AIDS Programme of Research in South Africa (CAPRISA) 004 trial (Q. Abdool Karim et al., 2010). In the CAPRISA 004 trial, women were instructed to use a vaginal gel containing 1% tenofovir within 12 hours prior to sex and a second dose of gel as soon as possible after sexual intercourse (within 12 hours post coital). Overall, tenofovir reduced HIV acquisition by 39%, with a higher protection rate (54%) among women with higher adherence.

In terms of safety, CAPRISA 004 indicated no changes in viral load, no tenofovir resistance in HIV sero-converters and no increase in renal, hepatic, pregnancy-related, or genital-adverse events.

Another trial using vaginal gel microbicides was the VOICE trial, as mentioned earlier in the previous section. However, the VOICE trial provided a contrasting result to CAPRISA 004, where the use of vaginal tenofovir gel did not show significant protection against HIV transmission (Marazzo et al., 2013). Poor adherence to the microbicide was suspected to be the main reason for its poor protective effect in VOICE. Accordingly, the issue of adherence was

given priority in the CAPRISA 004 study with a comprehensive adherence support programme included into the study's protocol.

Despite the contradictory findings of the CAPRISA 004 and VOICE trials, the study on PrEP among heterosexual couples showed that significant protection can be achieved with high adherence to oral anti-retroviral drugs among heterosexual couples (Baeten et al., 2012). Similar to CAPRISA 004, adherence to therapy was consistent in this target group, as the couples were regularly counselled in order to increase their understanding and cooperation in the prevention of HIV transmission.

The vaginal microbicide gels, however, faced certain limitations, particularly in the application of the gels. It is quite troublesome to insert the gel daily, as suggested in the VOICE trial, or even intermittently as proposed by the regime in CAPRISA 004 (Q. Abdool Karim et al., 2010; Marazzo et al., 2013). The fact that the gel needs to be administered pre-coitus made it impractical among married couples, as sexual intercourse in a marriage usually happens unplanned. Furthermore, the formulation used for the gel made its presence obvious during sex, making it difficult for women to use discreetly (Tanner, 2008).

Various issues that affect the practicality and acceptability of vaginal gels have led researchers to explore the use of longer acting microbicides. Currently, a trial on dapivirine vaginal ring as a potential long-acting microbicide is ongoing. The trial, also known as ASPIRE (A Study to Prevent Infection with a Ring for Extended use) aimed to investigate whether dapivirine can safely prevent HIV infection when continuously released in the vagina from a silicone ring that is replaced once a month. The ring is discreet, convenient and practical as it provides long-acting options for preventing HIV transmission through sexual contact (US Department of Health & Human Services, 2012).

3.5.8 HIV vaccine

Although a number of methods for preventing HIV infection have proven effective to varying degrees (as mentioned in the earlier sections), a safe and effective vaccine will be most useful in controlling and ultimately ending the global HIV pandemic. Research concerning HIV vaccine began in the mid-eighties, when researchers started working on a product called AIDSVax,

which contained a synthetic protein from the CD-4 binding site on the envelope of the virus. The vaccine was intended to induce an appropriate immune response towards the development of HIV-specific neutralising antibodies. Despite producing antibodies in 90% of those vaccinated, AIDSVax did not prevent HIV infection among gay men or PWID in the studied cohort (Markel, 2005; Tonks, 2007).

The switch from a preventive to a curative outlook occurred following the failure of AIDSVax. Researchers started to concentrate on the cell-mediated arm of the immune system, working on a vaccine which stimulates the T-lymphocytes, which in turn could find and destroy cells infected with the HIV virus. A vaccine that stimulates T-lymphocytes does not prevent HIV infection, but may suppress the infection long enough to delay the onset of AIDS. Other strategies for creating an immune response against HIV include using DNA vaccines, recombinant vector vaccines and vaccines that combine both preventive and therapeutic components (Johnston & Fauci, 2011; Tonks, 2007).

The combined use of the ALVAC (recombinant canarypox vector) vaccine and AIDSVax demonstrated a significant HIV risk reduction of 31.2% (95% CI, 1.1 to 52.1) among high risk heterosexual individuals in Thailand (Rerks-Ngarm et al., 2009). Although this result showed only a subtle benefit based on the broad confidence interval with the lower end approaching a value of 1, it actually added significant insights for future research.

Recently, immunologists have isolated highly potent, broadly neutralising antibodies from chronic HIV individuals. This has allowed researchers to understand how antibodies had developed and matured in infected persons during natural infection, thus enabling the development of new types of vaccines (Dieffenbach & Fauci, 2011).

There is still a long way before a vaccine will be available for use as a preventive measure against HIV infection. Hopefully, the long wait will prove to be fruitful, as the availability of a vaccine may help to terminate the HIV pandemic. An effective anti-HIV vaccine will have the biggest effect on low and middle income countries, including Malaysia.

3.5.9 Summary of HIV preventive strategies and methods

Various methods that can be used to prevent heterosexual HIV transmission have been researched and applied within a range of female populations worldwide. Nonetheless, the most available, affordable and accessible method remains the male condom, the application of which is technically not under women's control. Although female-controlled methods are still being researched and their practical application has not reached women in general, their potential as alternative methods for empowering women and putting them in control of their risk of being exposed to the HIV virus is overwhelming. It is hoped that some of these female-controlled methods will be available for use among high risk women in Malaysia in the near future. Through this optimistic perspective, women's opinions and the acceptability of female-controlled preventive methods were explored in this survey.

3.6 Summary of chapter

A systematic review of the literature revealed a limited number of empirical studies involving the intimate partners of PWID as participants. The majority of research was quantitative studies that examined HIV prevalence and risk. Overall, prevalence among the intimate partners of PWID was high, ranging between 2.5% and 14%. Factors associated with higher HIV risk among the female intimate partners of PWID included injection drug use, history of STIs, being an ethnic minority and having multiple sex partners. Condom use was generally low, especially among women in monogamous and longer relationships, who were illiterate and had experienced an early sex debut. Despite being a very useful tool for understanding HIV prevention issues, qualitative studies related to HIV risk among the partners of PWID were rare.

The findings of the systematic review, together with the theory of gender and power and the health belief model, guided the development of the conceptual framework for the research enquiry. The primary structures of the framework, which included individual belief, social, interpersonal and socio-economic factors, have the potential to individually and synergistically affect women's decisions and HIV preventive practices.

The principles underlying the population transmission dynamics of infectious diseases provided a theoretical explanation for various HIV prevention strategies. While the most common method of infectious disease prevention in public health was to minimise the risk of disease transmission, interventions addressing the frequency of contacts and the duration of infectivity also helped in controlling the HIV epidemic.

Male condoms are the most effective method used for minimising the sexual transmission risk of HIV; however, the use of male condoms is associated with various challenges that made the preventative methods that women could control as a useful alternative. While these preventive methods empower women and put them in control of their risk of being exposed to the HIV virus, they remain under-researched, with a limited understanding in terms of their effectiveness and acceptability.

Considering the incidence of HIV among women in Malaysia, this study offers insight into the risk environment and preventive behaviour of Malaysian women, particularly among the intimate partners of PWID, which is useful for informing interventions. Additionally, exploring women's opinions and the acceptability of female-controlled methods of HIV prevention will inform future decisions concerning the adoption of such methods among the Malaysian population. While some variables can be measured objectively, other factors, such as social norms and individual beliefs are better explained through subjective enquiries such as individual interviews. This has led to the decision of conducting mixed-methods research as a means for providing a holistic understanding of the situation.

CHAPTER 4: **METHODOLOGY AND METHODS**

4.1 Introduction

In research, methodology is the framework that relates to the entire process of the work, while methods are specific techniques used in data collection and analysis (Creswell & Tashakkori, 2007). Specifically, Tashakkori and Tedlie (2010, p.5) described methodology as "the broad inquiry logic that guides the selection of specific methods and that is informed by conceptual positions of the mixed-methods practitioner" (Tashakkori & Teddlie, 2010). This chapter describes the mixed-methods approach applied as the methodological basis of this research project, the rationale for its selection and the philosophical foundation of the research. The specific qualitative and quantitative methods employed in operationalising the research are then discussed, with detailed descriptions of the steps and procedures undertaken.

4.2 The mixed-methods approach

Mixed-methods research is defined by Johnson et al. (2007, p.123) as "the type of research where the researcher mixes or combines the elements of quantitative and qualitative research techniques, methods, approaches, concepts or language into a single study for the broad purpose of [providing] breadth and depth to understanding and corroboration" (Johnson, Onwuegbuzie, & Turner, 2007). The combination of quantitative and qualitative strategies facilitates a researcher to examine a research problem from different perspectives. Thus, compared to a single-method approach, the application of both quantitative and qualitative methods in a study provides more comprehensive evidence for studying a research problem (Andrew & Halcomb, 2007; Tashakkori & Creswell, 2007). Additionally, it also adds insights and understanding that might be missed when only a single approach is being used (Creswell, Klassen, Plano Clark, & Smith, 2011; Tashakkori & Teddlie, 2010). This is particularly useful in public health and behavioural research, which commonly involves complex, multifaceted issues that require both numbers and words in order to provide a comprehensive understanding of the phenomena as a whole.

The field of mixed-methods research has grown expansively over the past three decades and has been advocated as a distinct methodology by several renowned mixed-methods researchers (Greene, 2006, 2008; Johnson & Onwuegbuzie, 2004; Onwuegbuzie, Johnson, & Collins, 2009; Tashakkori & Creswell, 2007). As a methodology, mixed-methods research has its own philosophical assumptions, inquiry logics and research designs, guidelines for practise, and specific ways for articulating eventual findings to the world (Greene, 2008). As such, a mixed-methods approach or methodology is not merely describing 'a mix of methods' for conducting a study as suggested by its name, but encompasses a broader concept that guides the entire process of research - from the inception of an idea to the conducting of research and eventually the dissemination of findings (Creswell et al., 2011).

In this study, the decision to use a mixed-methods approach was based on the complexity of issues surrounding HIV prevention among women. HIV preventive behaviour is a broad subject, encapsulating issues related to the women themselves, their partners and family, prevailing social norms, as well as structural and political issue (Amaro, 1995; Mantell et al., 2008). These issues intercept and intertwine, adding to the complexity of the situation. Similarly, complexity is expected in coming to an understanding of Malaysian women's preventive behaviour against HIV, where power imbalances in terms of relationship dynamics and decision-making processes are known to exist within the community (R. Abdullah, 2003; Ahmad, 1998; Dhillon, Singh, & Ghaffar, 2005). Based on these facts, a mixed-methods methodology appeared to be the most suitable approach for meeting the contextual demands of the research enquiry (Yanchar & Williams, 2006).

A mixed-methods approach also provides the opportunity for researchers to corroborate and complement their findings through the combination of methods (Andrew & Halcomb, 2007; Wagner et al., 2012). While generalisable quantitative data can be deducted from a well-designed survey, the opportunity to examine detailed information on the sensitive issues and personal experiences of the affected women will be missed. A qualitative exploration into the issue will provide an in-depth understanding of the experiences and challenges faced by women in protecting themselves against HIV.

The ability of a mixed-methods approach in capturing both general descriptions and enriched, elaborated information has rendered it the method of choice in previous studies on HIV

preventive behaviour. It was used in research among women in Georgia (Eastern Europe), which aimed at understanding the role of knowledge and behaviour in women's perceptions of HIV risk. The combination of quantitative study and individual interviews among the socially vulnerable women in the post-socialist era within Georgia led to a rich description of findings, as well as detailed statistical results at the end of the enquiry (Doliashvili, 2008). In Canada, similar methods were used to explore HIV testing and care decisions among aboriginal youth (Mill et al., 2008). A mixed-methods approach was also successfully used in studies on HIV/AIDS caregiving needs in South Africa (Petros, 2012) and Uganda (Boender et al., 2012).

4.3 The research design

According to Creswell and Clark (2007), there are four major types of mixed-methods designs which differ in terms of sequence between the quantitative and qualitative study, the weight contributed by each study and the timing of data analysis (Creswell & Tashakkori, 2007). These are the exploratory design, the explanatory design, the triangulation design and the embedded design. The exploratory design is a two-phased design that starts with a qualitative enquiry, which is then used to inform the quantitative study following on after. The explanatory design begins with a quantitative study, followed by a qualitative enquiry, which helps to explain the quantitative findings. In the triangulation design, the quantitative and qualitative methods are performed concurrently; hence it is also known as the concurrent mixed-methods design (Tashakkori & Teddlie, 2010). This design is used to directly compare and contrast quantitative statistical results with qualitative findings. In the embedded design, one data type serves as a supportive secondary role for a primary study of another data type. For example, qualitative data can be embedded in a primary quantitative study or vice versa (Creswell & Tashakkori, 2007; Tashakkori & Teddlie, 2010). While both exploratory and explanatory designs are two-phased studies, the triangulation and embedded designs are usually conducted concurrently.

This study uses the Triangulation Design where both quantitative and qualitative data were collected concurrently. It is an efficient design, as both types of data were collected roughly at the same time which made it suitable to be used in this research project where the data collection needed to be undertaken over a fixed period. The initial analyses of the quantitative and qualitative studies were conducted independently. The results of the two studies were later

combined and compared to provide a greater and more comprehensive explanation of the research questions. The flow of this study is illustrated in Figure 4.1.

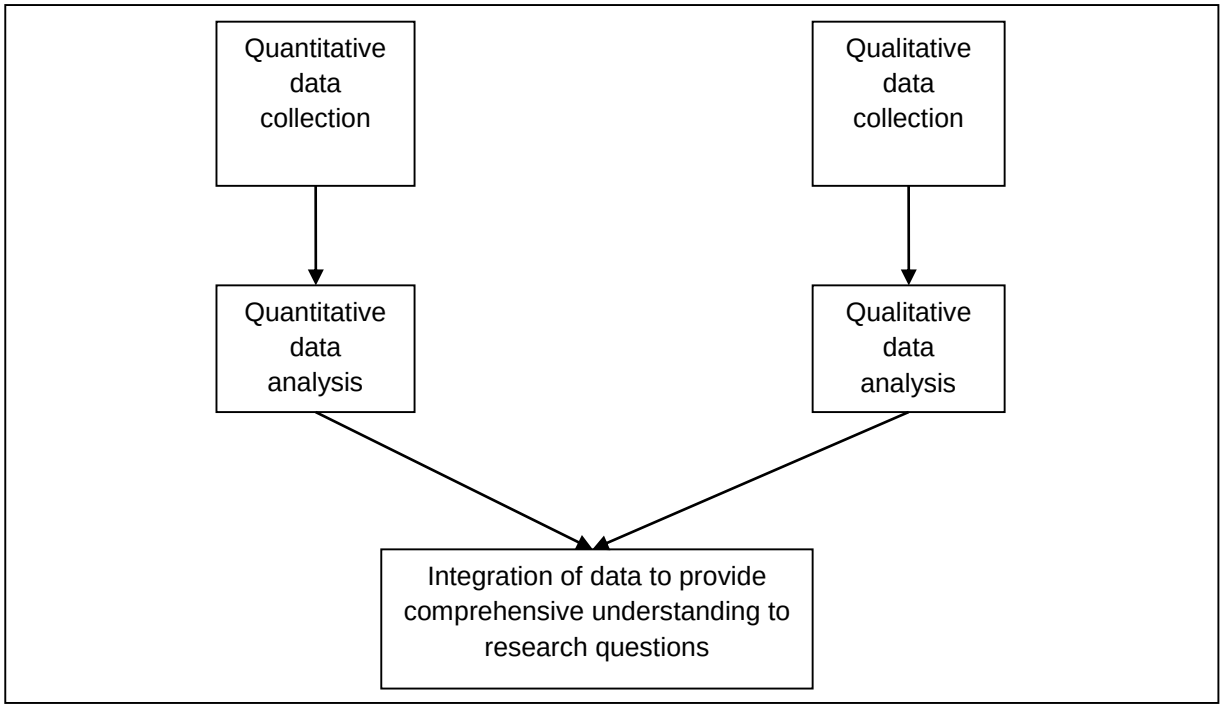


Figure 4.1: Visual diagram of the study design

4.4 Philosophical assumptions in mixed-methods approaches

Philosophical assumptions are a basic set of beliefs held by a researcher that guides the process of research (Creswell & Tashakkori, 2007). In other words, these assumptions which are also known as the research paradigm, "frames and guides a particular orientation to social inquiry, including what questions to ask, what methods to use, what knowledge claims to strive for, and what defines high quality work" (Greene & Caracelli, 1997). The pluralistic nature of the mixed-methods approach makes it important to explicitly recognise the underlying philosophical bases that guide the process of research enquiry. Consistency between philosophical stance, methods chosen and analysis strategies will ensure quality in the research (Kitto, Chesters, & Grbich, 2008; Yanchar & Williams, 2006).

The philosophical basis of mixed-methods approaches can be best described following an introduction to two dominant research paradigms commonly found in the literature. These are positivism and constructivism, which are closely linked to quantitative and qualitative approaches, respectively. Positivism is commonly associated with assuming an absolute truth and a single objective reality in knowledge claims through detailed observations and the quantitative measuring of variables. Contrarily, constructivists believe that there are multiple subjective realities rather than a single one that may inform our understanding of a problem or situation (Creswell & Tashakkori, 2007; Paley & Lilford, 2011; Tashakkori & Teddlie, 2010). In between these two paradigms is a third research paradigm called pragmatism (Greene & Caracelli, 1997; Johnson & Onwuegbuzie, 2004; Tashakkori & Creswell, 2007).

Pragmatism can be traced to the concept of social interactions in sociology which emerged in the 1920s (Rhodes, Stimson, Fitch, Ball, & Renton, 1999). These developments emphasised the socially situated nature of individual action, which highlighted the importance of integrating multiple methods to understand the meanings and context of behaviour. Pragmatism acknowledges both positivism and constructivism, and assumes that both philosophical stances are logical and independent (Greene, 2006; Tashakkori & Teddlie, 2010). Whereas constructivism and positivism prescribe and limit the approaches that should be taken to answer a research question, in pragmatism, the research paradigm is viewed as an approach that describes a research practise (Greene & Caracelli, 1997; Howe, 1988). It further proposes that methodological decisions should be driven by the enquiry problems and practical demands, and not constricted by philosophical boundaries (Greene, 2008). In summary, pragmatism draws upon employing "what works", using diverse approaches, giving primacy to the importance of the research problem and question, and valuing both objective and subjective knowledge (Creswell & Clark, 2011; Morgan, 2007).

In addition to offering epistemological justification, pragmatism also offers inquiry logic where it advocates the concept of pluralism and allows for multiple methods to be used to answer the research questions (Greene & Caracelli, 1997; Onwuegbuzie et al., 2009). This is based on the principle that different methods are best suited to understanding different phenomena. Furthermore, it is also understood that all methods have their own limitations and biases, which can be counteracted when using multiple methods (Wagner et al., 2012).

However, there are arguments regarding the issue of incompatibility when combining qualitative and quantitative approaches in a single study. Some researchers believe that research needs to be situated in either a qualitative or quantitative approach (Giddings & Grant, 2007; Lincoln, Lynham, & Guba, 2011). They argue that paradigms and methodologies cannot be mixed due to their contrasting philosophical stances. According to Lincoln et al. (2011), different enquiry frameworks or paradigms encompass fundamentally different and incompatible assumptions about human nature and knowledge claims. Hence, they construe that it is neither possible nor sensible to combine different inquiry paradigms within a single study.

From another perspective, Howe (1988) argues that mixing qualitative and quantitative research is epistemologically and practically compatible (Howe, 1988). While he acknowledges that there are differences between quantitative and qualitative approaches at various levels of the research process and in terms of epistemological paradigms, these differences serve to provide different perspectives in order to collaboratively answer a research question. In line with the pragmatic philosophical perspective, Howe (1988) advocates the concept of a "compatibility thesis":

> The compatibility thesis supports the view [of pragmatism, which is now], beginning to dominate practice, that combining quantitative and qualitative methods is a good thing and denies that such a wedding of methods is epistemologically incoherent. On the contrary, the compatibility thesis holds that there are important senses in which quantitative and qualitative methods are inseparable (Howe 1988, p.10)

While being critical of the pluralistic nature of pragmatism, Yanchar and Williams (2006) seconded the concept of Howe's (1988) compatibility thesis, provided that researchers are philosophically aware of the methods used and coherent throughout the research process (Yanchar & Williams, 2006).

Pragmatism provides the best philosophical stance for this research as a PhD thesis in the discipline of public health. This approach has been used in various public health research and intervention strategies, including research related to tuberculosis (Fairchild & Oppenheimer, 1998), sex education (Thomson, 1994) and HIV (Barnett, 2002; Csete & Grob, 2012; Work, 1999). While it supports both objective measures (survey) and subjective observations (in-depth interview) to be used in a study, the flexibility of the pragmatic approach allows for the integration of different types of data (statistical results from surveys and, themes and extracts

from interview scripts) as complementary to one another (Wagner et al., 2012). The different philosophical stances of quantitative and qualitative enquiries are reconciled by focussing on the similar aim of data analysis shared by both methods, which analyse empirical observations to address the research questions (Howe, 1988; Onwuegbuzie et al., 2009). Hence, integrating the findings from quantitative and qualitative approaches has the potential for providing a better understanding of complex social phenomena.

4.5 Reflexivity and positionality

In a qualitative research approach, it is important to acknowledge that the researcher's background and experiences might have some bearing in the research process starting from the selection of the topic, methodological approach, data collection, data analysis and interpretation of the findings. It is also crucial for the researcher to be aware of the philosophical background that has shaped her thinking processes and how she views and interprets the findings gathered from the research. A researcher should explicitly position herself in the research framework and acknowledge the influence of her position on the research, a position known as reflexivity (Grbich, 2011). In a review paper discussing the quality of qualitative research, Kitto et al. (2008) defined reflexivity as open acknowledgement of the complex influences among researchers, the research topic and subjects on the research results (Kitto et al., 2008).

With that purpose in mind, I would like to reflexively position myself in this research. I will start by describing my personal and professional background. Following on, I will discuss how my background may have influenced (1) the selection of the research area; (2) the epistemology of the research and its methodology and methods; (3) the data collection process; and (4) the interpretation of results.

I am from a middle class family. My father was a teacher and my mother was a fulltime housewife. I grew up in the rural area of Perak, a state at the centre of Peninsular Malaysia. My father passed away when I was eleven, after which my mother became the sole person responsible for raising the five children. To do so, she had to work. Despite the challenges of being a single parent, she managed to provide the best education opportunities for all her children. After completing my secondary education, I studied medicine at a local university.

As a medical doctor, I have experience working in several disciplines including general medicine, cardiac intensive care, psychiatry and community medicine. My interest in the area of health promotion and prevention led me to pursue my postgraduate training in public health, specialising in family health and epidemiology. Since then, I have been practicing as a public health physician in the Ministry of Health Malaysia and later as a medical lecturer when I joined academia in 2009. I am a married woman and have three children. I am of Malay ethnicity and I am a Muslim. I consider myself as a moderate Muslim who practices all the basic teachings of the religion. I support peace and justice for human-kind and the world, and reject any form of extremism.

The research areas that attract me were always problem driven and focused on finding solutions with the ultimate goal of informing good intervention strategies. The idea of performing this research stemmed from my field experience working with HIV infected individuals. I felt compelled to search for a better understanding of how Malaysian women behave and react in the midst of the current HIV epidemic in Malaysia, especially among high-risk groups.

My background training as a medical practitioner and epidemiologist has had some influence on the philosophy that underpins this study. I was initially inclined towards positivism and its emphasis on describing health status with clear numbers in terms of rates, ratios and measurable relationship with certain health indicators. Through experience, I appreciate that there are multiple ways to interpret knowledge and to describe health, particularly when it involves unique, individual experiences. I acknowledge that truth or reality can be subjective and that there is no one standard way of describing it. This constructivist perspective is useful for understanding the meaning of certain epidemiological scenarios and may provide a deeper understanding as to why specific things happen, rather than simply quantifying the extent of certain issues in terms of rates and inferential statistics. This is especially the case when investigating issues related to women's practises and experiences concerning HIV prevention, which involve sensitive issues. Therefore, I feel that pragmatism, which acknowledges both positivism and constructivism to be the best paradigmatic philosophy for studying this research enquiry. Furthermore, pragmatism is also compatible with the mixed-methods approach used in the study.

The interviewing skills that I gained as part of my doctor-patient communication training in medical school facilitated the process of in-depth interviewing. My experience working with individual patients, their families and later with the community, helped significantly in building rapport and the participation of interviewees. My previous life experience of living in a rural area has helped me to understand and relate better to the challenges faced by rural women. Similarly, having being raised by a single parent since adolescence has enabled me to empathise with the difficulties that may occur in women's lives and in the lives of their children. I viewed this as an advantage that encouraged women to be more open about sharing their views and experiences during the interviews.

However, I also acknowledge that my position as an academic and medical professional may lead to an imbalance in power relations between myself and the interview participants. Being an outsider to an injecting drug user family and community may act as a barrier to successful interviews. To minimise this, I attempted to focus on the similarities between the participants and myself, i.e., as a woman, with a life partner and children, and not to highlight any differences in social or economic status. I also clarified my intentions to the participants as not simply a researcher wanting to conduct research for my own academic benefit, but as a person who is interested in understanding their views and experiences better so that appropriate interventions can be offered to them in future.

While my previous research experiences with HIV infected people have exposed me to the issues related to HIV, I have limited experience working with people who inject drugs. This has limited my ability to communicate with the PWID and to identify the enabling and disabling factors of participation among the PWID community and their partners. To overcome this potential barrier, I collaborated with local non-governmental organisations (NGOs) who had maintained good relationships with the PWID network.

My background as a married Muslim woman of Malay ethnicity may carry along a set of inherent values that reflect my identity and mannerisms. Hence, I acknowledge the norms and beliefs regarding ideal family life that I hold to have been shaped by my previous life experiences, religion and culture. These values may have influenced the way I conducted the interviews and the interpretations I would later make during the data analysis. Furthermore, being a wife and a mother, and having been in a stable relationship for the past fifteen years may have influenced

the way I interpret issues related to relationship matters, which is one of the areas explored in this study. This is in recognition to the statement by Corbin and Strauss (2008, p. 32), who mentioned that it is impossible for a researcher to have a neutral stand or opinion on certain issues, as the research process itself is shaped by the researcher's values (Corbin & Strauss, 2008).

The significant role of reflexivity and positionality within a qualitative methodology was aptly described by Pini (2004, p.176) when she reported her work on rural social research:

> My claim to have produced better science through reflexivity is based on the fact that in research the access we do and we do not have to participants, the data we gather and do not gather, the questions we asked and do not ask, and the interpretations we make and do not make, are all mediated by the different identities that we inhabit…. My findings were credible not because I claim to be an independent neutral observer documenting a reality I had cleverly captured, but because I attempted to be reflexive about the dynamics that occurred in producing the findings. This created the opportunity for the context in which the interpretations were made to be questioned both by myself and others. (Pini, 2004)

The above excerpt corroborates the statement made by Rose (1997) regarding the importance of situating knowledge gathered from qualitative approaches when she argues that "all knowledge is produced in specific circumstances and that those circumstances shape it [the knowledge] in some way" (Rose, 1997). Therefore, employing reflexivity in the process of qualitative enquiry will enhance the quality and trustworthiness of the findings, in the sense that the researcher has identified the biases that she might have within herself while conducting the research based on who she is as an individual (Tashakkori & Teddlie, 2010).

4.6 Summary of methodology

The mixed-methods approach used in this study goes beyond describing the combined use of qualitative and quantitative methods. As a methodology, it informs and shapes the framework of the entire research. This study is based on the pragmatist paradigm, which advocates both quantitative and qualitative approaches to be used in achieving a more comprehensive

understanding of a social phenomenon. Through the pragmatist lens, both quantitative and qualitative techniques were deployed to answer the research questions of this study.

4.7 The methods of enquiry

As described earlier in the chapter, both quantitative and qualitative data were used to answer the research questions in this study. The quantitative data were provided by a survey, while the qualitative data stemmed from semi-structured individual interviews with a subsample of the survey participants.

A survey is useful for collecting structured and broader information in the form of numerical data. It allows for comparisons to be made between groups of people. It also has the ability to produce generalisable findings if representative sampling is achieved (Bloch, 2004; Walliman, 2011).

In this study, the survey was conducted to provide a generalised description of the preventive behaviour practiced by women and their relationship with selected variables, based on the conceptual framework described in Chapter 3. The preventive behaviours investigated were: (1) condom use; (2) HIV screening; (3) sex avoidance. The findings were intended to provide insight into HIV preventive behaviour among the wives and partners of men who inject drugs in Malaysia, as no empirical study involving this target group has ever been documented in this country.

Nevertheless, in contrast to qualitative methods, a survey could not capture the depth of information regarding the views and experiences faced by Malaysian women against the threat of HIV. Hence, a qualitative enquiry was performed to provide a deeper understanding of the issue.

There are many methods through which qualitative enquiries can be conducted; these include interviews, focus group discussions, ethnography and narrative description of life history (Liamputtong & Ezzy, 2005; Patton, 2001). Careful selection of a research method is important to ensure the depth and quality of data, especially when researching a sensitive topic, where it poses a challenge to the researcher to attain the appropriate responses from respondents. The

process involves the dynamic of trust, ensured confidentiality, as well as acknowledging the underlying social taboo of sexuality, which may undermine the entire process of data collection (Dickson-Swift, James, Kippen, & Liamputtong, 2007; Liamputtong & Ezzy, 2005).

HIV and AIDS is still a sensitive subject not only in Malaysia (Ministry of Health Malaysia & UNICEF, 2008) but also in many other parts of the world (Beyrer, Malinowska-Sempruch, Kamarulzaman, & Strathdee, 2010; UNAIDS, 2009). Similarly, drug abuse is also unacceptable to many. The negative perception of PWID among the wider community not only affects the drug users, but also their family members. This situation is made worse by Malaysian law, which criminalises PWID (Government of Malaysia, 1952). As a result, few would choose to be publicly associated with PWID.

This study involved the intimate partners of men who inject drugs and part of the enquiries concerned their sexual relationships and the risk of HIV. The combination of three sensitive topics, HIV, PWID and sexual relationship demanded a qualitative method which is more personal, e.g., individual in-depth interview. In-depth interviews are useful to acquire detailed information about a person's thoughts and behaviours, especially so when interviewing sensitive areas such as sexual relationship and practices (Dickson-Swift et al., 2007). As compared to surveys, this technique is capable to provide more detailed information. Another advantage is that it provides a more relaxed atmosphere for the participants during the data collection (Boyce & Neale, 2006). Accordingly, this method was chosen in this study. It was conducted one-to-one between the female researcher and the interviewee to ensure both privacy and confidentiality for the participating women. In contrast to focus group discussions, individual interviews also allowed for experiences to be discussed in-depth (M. C. Taylor, 2007). While focus group discussions may be useful for understanding the norms within a society, the participants were not all from a similar group and were not familiar to each other, which are identified as barriers to openly discussing personal experiences in a group discussion (Legard, Keegan, & Ward, 2003; Liamputtong & Ezzy, 2005).

There are a few limitations to in-depth interviews, the first is that it is prone to biased responses from the participants (M. C. Taylor, 2007). In-depth interviews can also be a time-intensive activity resulting from the time to conduct each individual interview and the time to transcribe the interview, as well as to analyse the result (Boyce & Neale, 2006). Therefore, adequate time

which include the time for data transcribing and data analysis need to be allocated in the initial planning of the research. Another limitation to in-depth interviews is regarding the generalisability of the findings. The results are usually not generalisable in view of the small sample size and the purposive sampling method being utilised during the recruitment (Liamputtong & Ezzy, 2005). These weaknesses were compensated by the quantitative method employed in the same study.

In-depth interviews are more akin to conversations, where the structure of the interviews varies according to the conversation flow between the researcher and the interviewee (Liamputtong & Ezzy, 2005). The fluidity of topics suggests a more natural environment and this encourages the interviewee to share their thoughts and experiences with regards to facing the threat of HIV as a result of their intimate relationship with their long-term partner, whether married or not. While in-depth interviews may provide a conducive environment for collecting detailed responses from participants, one of the main challenges is related to the interviewer's skills in conducting the interviews. The interviewer must be appropriately trained in interviewing techniques to provide the most detailed and rich data from the interviewee. In addition, the interviewer must have adequate background knowledge on the issues under study and always appear interested in what the participant is saying (Boyce & Neale, 2006). To address this issue, the interviews were conducted only by the primary researcher who has adequate training in conducting in-depth interviews.

In essence, the aforementioned reasons support the decision to choose a survey and individual in-depth interviews for the quantitative and qualitative enquiries, respectively. The survey provided objective measures as an overview of the situation, while the in-depth interviews were able to clarify subtleties, cross-validate findings and provide contextual explanations to the survey results.

Data collection for both survey and interviews were conducted concurrently, as depicted in Figure 4.1 (page 71). It began with the survey; upon submitting the completed questionnaire, the participants were asked whether they would like to take part in the qualitative interview. Those who expressed their interest were listed and scheduled for an interview at a later date. The initial contact between the researcher and the participants during the survey acted as an introductory session and provided the researcher with the opportunity to develop a rapport with the

participants. This facilitated the subsequent interview and it appeared that the participants became more open during the interviews.

4.8 Study location

The data collection was conducted from October 2012 to April 2013 in the Federal Territory of Kuala Lumpur (KL) and in four districts of Selangor state (Hulu Langat, Sepang, Petaling and Gombak) which surrounds Kuala Lumpur. These areas were selected for their blend of urban, sub-urban and rural settings. The counties are located at the centre of Peninsular Malaysia and cover a total area of 8,297 km^2 (2.5% of the country's total 330,436 km^2). It is a highly populated area, owing to an active economy and industrial activities, and home to about 10% of the Malaysian population (2.74 million out of 28.3 million) (Department of Statistics Malaysia, 2010). These areas have also had among the highest number of reported PWID and newly diagnosed HIV cases for both men and women during the past five years. The study location is shown in Figure 4.2.



Figure 4.2: Map of the Federal Territory of Kuala Lumpur (KL) and the Selangor districts

Source: Ministry of Health, Malaysia (2011)

4.9 Study participants

The target population for this study were the intimate partners of PWID who lived in Kuala Lumpur and the surrounding districts. Inclusion criteria for participation included:

i. Married to, or in a stable relationship with a man who injects drugs (at least once during past six months)

ii. Voluntary participation with informed consent

iii. Have had sexual contact with their partner at least once in the past six months

Women who did not understand either the Malaysian language or English were excluded from the study, as the questionnaire and interview schedule were developed only in those two languages.

The intimate partners of PWID were recruited through several NGOs that work with the PWID and their families, as well as through selected government health clinics that run the Methadone Maintenance Therapy programme. In total, two NGOs (Persatuan Insaf Murni and The Ikhlas Project) that were affiliated with the Malaysian AIDS Council and four government health clinics agreed to cooperate in the initial recruitment of the participants.

4.10 The quantitative survey

The methods used in the survey are described in the following sections. The discussion starts with the sampling method, followed by the recruitment process and its challenges, questionnaire development, the process of data collection and finally presents the data analysis strategies.

4.10.1 Sampling method

Identifying the sample for studies involving hard-to-reach or hidden populations such as the intimate partners of PWID is often challenging. The absence of a specific sampling frame makes it almost impossible to achieve a random sample for the survey by using a traditional sampling method. Previous studies among hidden populations have used several recruitment techniques which include targeted sampling, time-location sampling and chain referral sampling (Magnani, Sabin, Saidel, & Heckathorn, 2005).

Targeted sampling is a method that requires extensive ethnographic and formative research to describe the population of interest and to identify appropriate locations for a sampling plan (Magnani et al., 2005). It has been used in a study among PWID and their partners in San Francisco (Watters & Biernacki, 1989) and in another multicentre study among PWID in the USA (Robinson et al., 2006). In targeted sampling, the magnitude of sampling bias depends on the thoroughness of the ethnographic assessment, which is time-consuming and requires

significant resources. Thus, targeted sampling would not have been suitable for this research project.

In time-location sampling, the process starts with mapping all the venues frequented by the targeted population. The researcher then randomly selects the day, time and location for data collection, based on the initially identified venue. All subjects in the targeted population who are available in the location during the selected time will be recruited as study participants. This strategy is useful in studies involving hidden groups who have a common meeting place. It has been used successfully in the recruitment of MSM in a study in Malaysia (Kanter et al., 2011) and among male sex workers in China (Cai et al., 2010). Nevertheless, time-location sampling was not useful for recruiting the intimate partners of PWID, as the women did not meet regularly in a common venue, because they do not maintain a network among themselves.

Chain referral sampling involves a series of peer recruitments by the member of the hidden population. This approach has the ability to penetrate deep into the hidden population with the assumption that the member of the population of interest has the best knowledge concerning his/her fellow members' location and availability (Penrod, Preston, Cain, & Starks, 2003). The examples of chain referral sampling are respondent-driven sampling and snowball sampling.

In respondent-driven sampling (RDS), a seed amongst the target population of interest is chosen, who will then begin recruiting his/her colleagues through a specially designed coupon with a tracking system. There is a quota for recruitment and each participant has the opportunity to be a recruiter. The quota system helps to reduce oversampling among subjects with larger personal networks. It also produces a more heterogeneous group of subjects by preventing them from referring too many peers who have similar characteristics to themselves (same ethnicity, same sex, etc.) (Heckathorn, 1997).

Each participant received double incentives, where they were given some token for their participation, as well as when they successfully recruited others. While the primary incentive is generally a pure material reward, the secondary incentive might generate a social incentive in the form of peer pressure exerted by the recruiter. In other words, those to whom a financial reward is not important may be induced to participate through the social influence of peer recruiters (Heckathorn, 2002; J. Wang et al., 2005).

The RDS was introduced by Heckathorn in 1994 when he conducted a study among drug users in Connecticut (Heckathorn, 1997). It is known to reduce the biases associated with classic chain referral sampling. It has the potential to minimise the effect of selection bias based on the choice of the initial sample. By using Markov modelling, which estimated the probability of recruitment, Heckathorn showed that the RDS technique was able to minimise the bias caused by convenience sampling of the initial subjects, which was progressively weakened as the sample expanded wave by wave (Heckathorn, 1997, 2011). It was also postulated that RDS was able to produce a sample with wider variations over a shorter period and at a lower cost compared to time location sampling and snowball sampling (Kendall et al., 2008).

RDS has been used to recruit PWID, female sex workers and transgender women in an HIV bio-behavioural study in the city of Kuala Lumpur (Malaysian AIDS Council, 2009a). It the study, 630 PWID were recruited from ten seeds that were initially selected.

A systematic review of the use of RDS for sampling the hidden population at risk of HIV revealed that between 2003 and 2007, more than a hundred studies around the world used RDS to recruit their participants. The review suggested that RDS is a potentially effective method for sampling a hidden population when designed and implemented appropriately (Malekinejad et al., 2008). In terms of population group, the studies included in the systematic review involved either PWID, men who have sex with men or female sex workers. A further search of the literature reported the use of RDS for studies involving ecstasy users (J. Wang et al., 2005). In all of these studies, the target population comprised a hidden population within existing networks.

Snowball sampling, another type of chain referral sampling, is very similar to RDS. The difference is that recruitment is done by the researcher after receiving the contact details of a potential participant, and there is no quota in terms of referral. Furthermore, in snowball sampling, an incentive is provided to participants only once (Goodman, 1961; Heckathorn, 1997). The absence of a quota and peer recruitment has made it difficult to eliminate selection bias in snowball sampling, thus making it typically regarded as convenience sampling (Biernacki & Waldorf, 1981). However, this method provides a good strategy for sampling hard-to-reach populations such as the deprived, socially marginalised and even elites (Atkinson & Flint, 2001).

Previous studies conducted among the intimate partners of PWID have used several recruitment strategies in gathering their participants. In Vietnam, Hammet et al. (2010) used snowball sampling that began from a list of addresses (provided by the local authorities) of PWID who were detained in the local prison or rehabilitation centres provided by the local authorities (Hammett et al., 2010). Another study in Chennai, India, recruited women based on a pool of PWID who had already been recruited through snowball sampling for a longitudinal cohort study. Based on initial focus group discussions among several male PWID and their wives, which were conducted to inform them of the recruitment strategy, the researchers decided to use two different strategies. First, they asked the male PWID to bring their wives to the clinic where the survey was being conducted. Next, they collected the contact details of the wives from the PWID and the women were approached directly by the research team (Solomon et al., 2011).

In both studies described above, the researchers employed snowball sampling as their basic strategy for the recruitment of participants. As a convenient sampling method, results generated from the studies did not represent the population of intimate partners of PWID in the study location, thus minimising the generalisability of the research outcome.

RDS was chosen as the main recruitment strategy in the present research project, based on its ability to provide representative sampling of a hidden population. An important pre-requisite for RDS is the presence of a network among the target population. This is not the case if the target population are the intimate partners of PWID. Unlike people who inject drugs, the women (wives or partners) did not have an existing network and many of them did not know one another. Therefore, in this study, the RDS technique was used to recruit the PWID, who acted as the contact person for reaching the actual target population, i.e., their intimate partners.

4.10.2 Recruitment process

Based on the principles of RDS, initially, a number of men who injected drugs and who were married or had a regular sexual partner were identified in each location and recruited as the seed. They were asked to invite their partner to the survey. Then, each PWID was provided with three recruitment coupons to pass to their PWID friends who were married, or with a regular sexual partner for their partner to take part in the study. The PWID who turned up with their partner to

participate were given the opportunity to be a recruiter. The recruitment chain continued until the desired number of participants was achieved.

The PWID received a cash amount of 10 Ringgit Malaysia (RM10) which is roughly NZ$4, as remuneration for their partner's participation. An additional RM10 was given as a secondary incentive to the PWID for each successful recruit to recompense for their time and effort in the recruitment process. The women who participated received RM20 for their participation in the survey. Educational materials about HIV prevention were supplied to the couples, including information where testing and, if needed, treatment could be obtained. The value of the token given in this study is considered acceptable and falls short of being coercive, based on the value given in a previous HIV bio-behavioural study conducted in Malaysia, which was RM50/person for each participation and RM10 for each successful recruit to recompense for their time and travelling expenses (Malaysian AIDS Council, 2009a).

Although RDS is believed to be the best way for assembling a representative sampling of a hidden population, it proved extremely hard to sustain the referral chain meant to reach the women, because the referrals primarily depended on the PWID network. Several obstacles were faced during the recruitment process. These challenges can be divided into three types: the first was related to the recruitment of PWID via the RDS, the second to the personal behaviour of the men who inject drugs and the third was related to the female intimate partners of these men.

In this study, the recruitment of participants through RDS was slow and challenging. There were not enough waves of chain referral in several locations, as the PWID network tends to be very small and mobile. This is due to changes in their injecting habits. The PWID preferred to have their shots in smaller groups and in a secluded and secure place as a survival strategy against frequent police raids. Strict law enforcement by police has led PWID to make only brief contact with one another and when this happened, it was essentially for getting their drug supply. This made it difficult for them to recruit their peers into this study.

To overcome this, the recruitment of PWID in certain areas was facilitated by local NGOs who have an existing relationship with the PWID community. Out of the five study locations, only three were served by related NGOs. Recruitment became challenging in some areas that were

not covered by the NGO network, due to safety issues faced by the field researchers and difficulty developing rapport and trust with the PWID community.

Another set of challenges were related to the personal behaviour of the men who inject drugs. Due to a number of reasons, some of them refused to let their intimate partner participate in the survey. For some, this was because they did not want their injecting behaviour to be known by the partner, while others simply decided on behalf of their partners that the women were not interested. A similar situation was reported by a study conducted in Chennai, India, where about a quarter of male PWID were not interested in inviting their wives to take part in the study (Solomon et al., 2011). Although the proportion of refusals among PWID in the present study was not more than 10%, their actions caused the referral chain to become shorter, which eventually led to lesser waves of recruitment.

Among the challenges experienced by the intimate partners of PWID was their inability to come to the planned location to take part in the survey. Some worked during the weekdays, while a number were unable to be away from home due to housework commitments and caring for small children. This resulted in a longer referral time to cater for home visits and to suit the schedule of the working women.

Previous studies have shown that it takes an average of nine weeks to complete the recruitment process using RDS. It gets more efficient in studies involving PWID network, where an average of 41 subjects were able to be recruited per week (Malekinejad et al., 2008). In the present study, the recruitment process with RDS was very slow and difficult, due to the abovementioned challenges. After six weeks of recruitment, which began with seven seeds, only 45 subjects had been recruited. Two of the seeds failed to produce any referrals, two seeds reached the second wave while only one seed reached the fourth wave. The other two seeds stopped recruitment after the first wave. The RDS referral chain for the first six weeks of recruitment is shown in Figure 4.3.

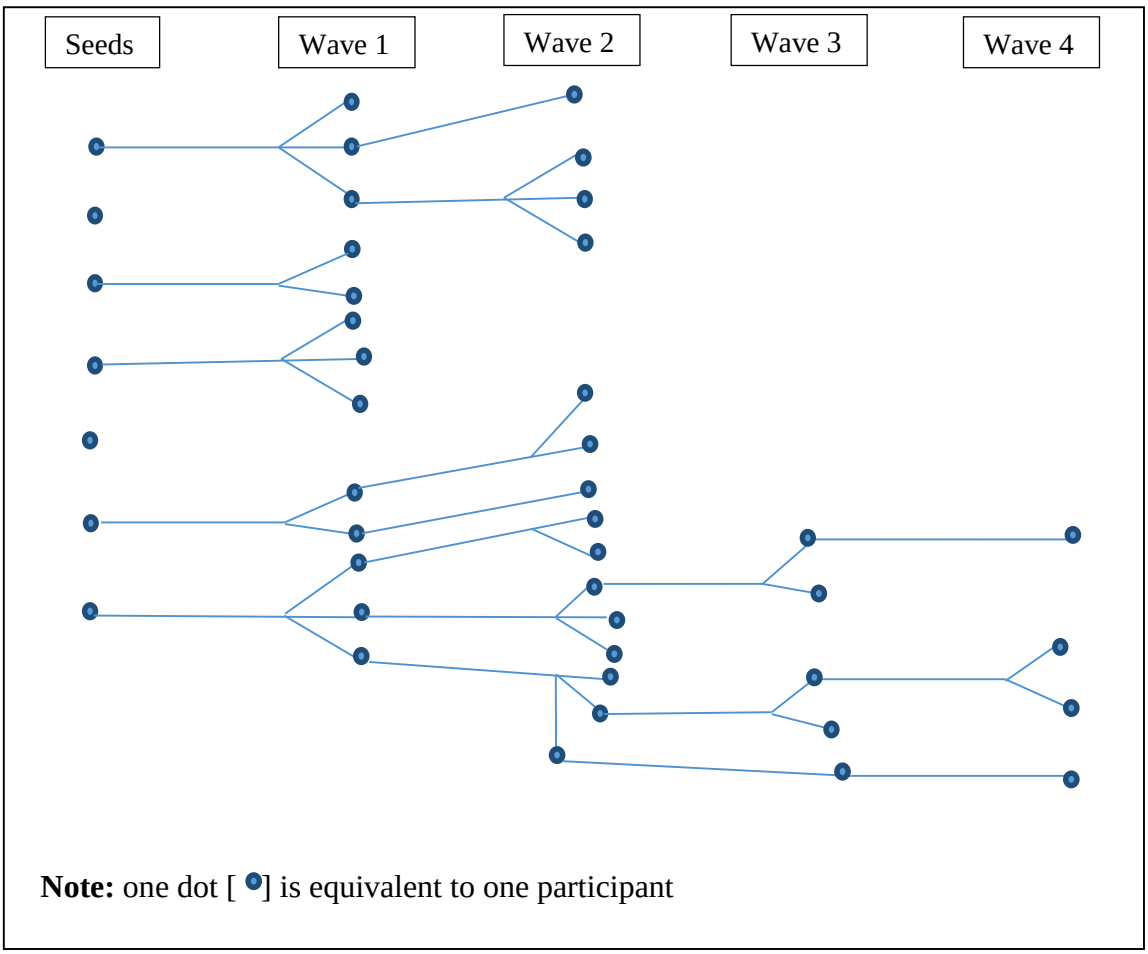


Figure 4.3: The referral chain for the first six weeks of recruitment

Due to time limitations, the recruitment strategy was adjusted to accelerate the recruitment process. Therefore, at this stage, other sampling strategies were implemented to complement RDS that included snowball sampling and getting potential participants from health services records and NGO community networks.

The combination of RDS and other sampling strategies led to the recruitment of 230 participants among the targeted population. The recruitment process lasted for seven months, from October 2012 to April 2013. This represents 68.7% of 335 women, which was estimated earlier as the sample size required to detect a difference of 5% in the prevalence of condom use for each independent variable with 80% power when a Type I error rate of 5% is assumed (Harvey, 2000; Kumar et al., 2008; Malaysian AIDS Council, 2009c; National Population and Family

Development Board Malaysia, 2004). The details of participant recruitment are presented later in Chapter 5.

4.10.3 Survey instrument

A self-administered questionnaire was used in the survey. Compared to being presented by an interviewer, this potentially reduces biases resulting from interviewer characteristics and variability in interviewer skills (Walliman, 2011). In addition, it could increase the reliability of responses regarding sensitive topics such as sexual behaviour and relationship (Bloch, 2004) which were among the important questions in this research.

The questionnaire was developed in English based on the existing literature and the researcher's experience in women's health and sexual and reproductive health. It was then translated into Malaysian language by the primary researcher who is a Malaysian and a native speaker of the language. To ensure consistency, the questionnaire was back-translated into English by a professional translator from the Institute of Modern Language, University of Putra, Malaysia. A similar back-to-back translation was performed on the respondent information sheets.

Both the English and Malaysian version of the questionnaires and respondent information sheets were pre-tested for content validity prior to the start of the actual survey. The pre-test was conducted among the intimate partners of male clients in the methadone maintenance therapy clinic. They were not part of the target population, as the recipients of methadone maintenance therapy were not active drug users. Based on the outcome of the pre-test, several minor amendments in terms of sentence structure and general formatting were made to the questionnaire and respondent information sheet to render the documents more readable and easier to understand. The questionnaire and information sheet for the participants appear in Appendices 1 and 2.

The questionnaire was used to collect information on the HIV risk environment faced by the intimate partners of PWID in order to investigate how they behave to prevent themselves from being infected with HIV sexually, to provide insight into potential confounders and to get respondents' opinions on the preventive methods that can be used and controlled by women. In total, there were 56 questions in the eight-page questionnaire, which took between 10 to 15

minutes to complete. The questionnaire is described below according to several groups of variables: socio-demographic characteristics, socio-economic status, high risk behaviour, condom use and sexual relationship, HIV screening, behavioural risk factors, personal and social risk factors, and female-controlled methods.

4.10.3.1 Socio-demographic characteristics

A range of socio-demographic characteristics were included in the survey such as age, ethnicity, religion, study location and relationship status. Participants were asked to state their age and later in the analysis, they were divided into four groups: youth (≤ 25 years), young adults (26-35 years), middle-aged adults (36-50 years) and older adults (≥ 51 years). The options for ethnicity and religion were based on the main ethnic and religious distribution in Malaysia (Department of Statistics Malaysia, 2010). The study locations were coded into the participant's serial number and divided into urban (Federal Territory of Kuala Lumpur), sub-urban (Petaling and Selayang districts) and rural (Hulu Langat and Sepang districts). Under relationship status, participants were asked whether they were married to their current partners, how long they had been in the relationship and whether they had any children together.

4.10.3.2 Socio-economic status

The information collected for socio-economic status includes employment status, education level, monthly income and financial dependency. Participants were asked whether they worked full-time or part-time, or not working at all. For education level, participants were asked their highest level of education, which was then dichotomised into those who had completed at least secondary education and those who had not. Participants were asked to write the amount of their monthly income in Ringgit Malaysia, as well as their partner's if they had this information. To measure financial dependency, participants were asked whether they had to depend on their partner's income for household expenses.

4.10.3.3 High risk behaviour

Participants were asked whether they had been involved in injecting drug use or whether they had had multiple sex partners over the past 12 months. Those who had multiple sex partners

were asked whether they had received any token in exchange for sex. Participants who answered "yes" were categorised as being involved in sex work.

4.10.3.4 Condom use and sexual relationship

One of the preventive behaviours investigated in this study is condom use. Three questions were asked to obtain the prevalence of condom use among the participants: whether they had ever used a condom with their current partner, whether a condom had been used during their most recent sexual intercourse and the frequency of condom use. The first two questions were given two answer options, "yes" or "no". To measure the frequency of condom use, participants were asked how often their partners had used condoms when they had had sexual contact during the past six months. The options given were "occasionally, "about half the time", almost always" and "always". Due to the importance of consistent condom use to for preventing sexually-transmitted infections including HIV, the responses were later dichotomised into "high condom users" and "non-high condom users". "High condom users" included those who reported "almost always" and "always" using condoms, while "non-high condom users" included those who had never used a condom, or only used condoms "occasionally" or "about half the time". Additional information related to condom use such as the primary reason for using condoms and their access to condoms was also asked.

In addition to condom use, participants were asked whether they had ever avoided sex with their partners in fear of being infected with HIV or other STIs. Due to the sensitivity of the questions, participants were repeatedly reminded in the survey form that their responses would be anonymous and kept confidential.

4.10.3.5 HIV screening

Participants were asked whether they had been tested for HIV, as well as when they had been tested, whether it was within the past 12 months or longer. Those who had been tested were asked about their results. Similar questions were asked regarding their partner, which included a "don't know" option. The information concerning participants and their partner's HIV test and HIV status used in this study were based on what had been reported in the survey form. No biochemical HIV screening was conducted during the survey. The HIV status reported was not

validated by participants or their partners' clinical reports, because the survey forms were anonymous.

4.10.3.6 Behavioural risk factors

Several variables were used in the survey to describe behavioural risk factors. They included measures on decision-making power, intimate partner violence and sexual communication.

To measure their decision-making power, participants were given three statements related to decision-making in their relationship: "my husband/partner has more say than I do about important decisions that affect us", "my husband/partner does what he wants, even if I do not want him to" and "I feel trapped in our relationship". They were given four answer options: whether they "strongly agree", "agree", "disagree" or "strongly disagree" with the three statements. Participants who agreed or strongly agreed to the statements were categorised as having less decision-making power compared to those who disagreed or strongly disagreed. The statements used to measure decision-making power were adapted from the Sexual Relationship Power Scale (Nanda, 2011c; Pulerwitz et al., 2002). The scale has been used in other studies related to condom use and HIV preventive behaviour (Pulerwitz, Gortmaker, & DeJong, 2000; Teitelman et al., 2008). In addition to the three statements, a direct question pertaining to who made the decision to use condoms in their relationship was also asked as another measure of decision-making power.

Intimate partner violence was measured by a four-item scale adapted from the abuse assessment screening tool (AAS) (Rabin, Jennings, Campbell, & Bair-Merritt, 2009). The original AAS had been used to assess intimate partner violence in antenatal settings and has five items which include one item on violence during pregnancy. For the purpose of this study, this item was spared, as not all participants had pregnancy experience. The four-items AAS scale, which is also known as the HARK scale (humiliation, afraid, rape, kick) was validated and used to screen for violence in a primary care setting, with sensitivity and specificity of 81% and 95% respectively (Sohal, Eldridge, & Feder, 2007). Participants were asked whether they had ever been emotionally abused, felt scared of their partners, or had been sexually or physically abused in the past year. A positive answer to any of the four situations indicated that the participant had experienced intimate partner violence.

The questions used to measure sexual communication was adapted from the Couple Communication on Sex Scale (Nanda, 2011c; Pulerwitz et al., 2000) and includes questions on communication with partners about HIV risk and the level of comfort in talking about sexual relationships and asking for condom use. Each question was analysed individually and participants were categorised as having the ability to communicate about sexual issues with their partners if they reported having discussed their HIV risk with their partners, felt comfortable discussing their sexual relationship and felt comfortable asking their partners to use condoms.

4.10.3.7 Personal and social risk factors

Personal and social risk factors that may have affected participants' preventive behaviour against HIV included their perception of HIV risk, knowledge of HIV prevention and belief in social norms not supportive of condom use.

To measure their perceptions of HIV risk, the participants were asked a direct question: "Do you think you are at risk of getting HIV?" Five answer options were given: "no risk at all", "yes, small risk", "yes, moderate risk", "yes, great risk" and "I don't know". Participants who reported being HIV positive were directed to skip this question.

The questions about HIV prevention knowledge were adapted from previous published studies (Ananth & Koopman, 2003; Stoskopf & Kim, 2004). Five facts on HIV prevention and mode of transmission were provided. For each of the facts, participants were asked to choose one of three options: "I knew that", "I wasn't sure" or "I didn't know that". Those who responded "I knew that" were given one mark and no mark was given for those who were unsure or did not know about the facts. The total score for each participant were calculated and ranged from zero to five. A higher mark indicated better knowledge.

To measure participants' beliefs about social norms not supportive of condom use, four statements related to condom use were given. They included statements which relate condom use to being unfaithful, condom use seen as an insult to their husband or partner, that the women would feel embarrassed to buy condoms and that the women would not enjoy sex if condoms were used. These statements were adapted from previous studies which investigated the association between condom use and negative beliefs held in the society with regards to condoms

(Wingood & DiClemente, 2000). Participants who agreed to the statements were categorised as having beliefs about social norms not supportive of condom use.

4.10.3.8 Female-controlled methods

Finally, participants' opinions about female-controlled methods were investigated. None of the female-controlled methods mentioned earlier in Chapter 3 was available in Malaysia at the time the survey was conducted. Therefore, an introduction statement was included in the survey form to inform participants about the methods available to women.

Participants were asked whether they would want to use female-controlled methods if they were available in Malaysia, whether they would need to inform their partner if they wanted to use these methods and whether their partner's decision was important. They were also asked what they thought of other women's acceptance regarding alternative preventive methods.

4.10.4 Process of data collection

Two female interviewers were employed to facilitate the survey; they were trained simultaneously to ensure uniformity in their understanding related to the survey procedures and contents. During the data collection, participants who verbally consented to participate in the study were requested to complete the survey form after a brief introduction by the trained interviewer. Further assistance was given when needed. Once the questionnaire had been completed, it was given to the interviewer in a sealed envelope to ensure confidentiality.

4.10.5 Data analysis

Data analysis was conducted using STATA Data Analysis and Statistical Software, version 13 (Statacorp, 2013). Initially, all responses in the survey form were entered into a spread sheet in STATA. The spread sheet was examined carefully, where all outliers and missing data were verified using the original source (the completed survey form).

Once the data had been cleaned, descriptive statistical analyses were undertaken to describe participants' socio-demographic and socio-economic status, their HIV risk behaviour, their HIV status, the power dynamics in their relationship, personal and social factors which may influence

their risk of HIV and their views on female-controlled methods. Following on, participants' preventive behaviours against HIV were described, which included condom use, HIV screening uptake and sex avoidance. In the descriptive analysis, results were presented in numbers, proportions, means and standard deviations (sd) (Kirkwood & Sterne, 2003).

Further analyses to investigate the association between the preventive behaviours and potential risk factors were then undertaken. To describe the association between two variables, appropriate statistical tests were employed, which included either the Chi-Square test or Fisher's Exact test for categorical independent variables, as well as the t-test, Wilcoxon-Mann-Whitney test or Kruskal Wallis test for numerical independent variables (Kirkwood & Sterne, 2003). The level of statistical significance (p-value) was set at 0.05. Significant associations were further analysed using univariate logistic regression to obtain the odds ratio and a 95% confidence interval (CI) was employed to show the strength of the association. Adjusted analysis using multivariate logistic regression was performed where confounding effects of multiple variables towards the outcome measures were suspected. However, building a full multivariate model to explain each of the protective behaviours was not attempted in view of the relatively small sample. The full results of the survey are presented in Chapter 5.

4.11 The qualitative study

The objective of the qualitative study was to explore women's personal interpretation and experiences of HIV prevention within the context of their long-term and intimate relationships with men who inject drugs. In-depth interviews with a subsample of the survey participants were performed in the qualitative arm of this study. In contrast to focus group discussions, in-depth interviews allow participants to share their experience and critical judgements in a more personal manner (Liamputtong & Ezzy, 2005), which made it the method of choice in this study, given the sensitive nature of the topic researched. The following sections describe the recruitment process, the methods used in conducting the interviews, the challenges associated with the interviews and the data analysis process.

4.11.1 Participants and recruitment

Participants for the interviews were recruited based on the initial survey. A list of names with the contact details of women who had agreed to participate in the study was prepared. Purposive sampling was then conducted based on this list in order to achieve a wide range of participants representing various ethnicities, religious backgrounds, marital status, geographical locations and age groups. This approach allows a variety of participants to be recruited for providing a holistic overview of the phenomenon under study (Kitto et al., 2008). The participants were contacted personally by the interviewer to initiate rapport and trust. At this time, the purpose of the interview and a general information on the topics intended for discussion in the interview were reiterated to the potential participants.

Once participation was confirmed, a meeting was planned on a date convenient to the women at a location of their choosing. The interviews were carried out in a variety of locations including participants' homes, in a general meeting place such as a fast food restaurant or a recreational park, at the participant's work place and at the drop-in centre of the NGOs. The venues were chosen based on the participant's preference, as well as practicality and security considerations by the researcher. The issue of safety, especially among female researchers conducting field research, had been highlighted by Paterson et al. (1999), who proposed safety guidelines covering a range of issues, from adequate preparation prior to the interview to the venue and recruitment of chaperones, if necessary (Paterson, Gregory, & Thorne, 1999). Recognizing the potential harm especially when interviewing in the participant's own home, the researcher sought the company of a male chaperone at most times during the field work, who was also an NGO outreach worker.

Wherever possible, a private meeting area was aimed for to conduct the interview. This was to ensure privacy and to provide better ambience for the audio-recording. If a woman's husband or partner was present, he was politely asked to leave the space to ensure confidentiality and freedom for the female participant to share her thoughts and experiences. In all such cases, the men were cooperative and understanding. The presence of a male NGO outreach worker helped to convince the men to allow their partners to be interviewed personally by the researcher. There were times when the interviews ran slightly longer and with several interruptions when conducted at homes where small children were present. This situation was anticipated and

understandable, as taking care of children is always a priority for women if they are full-time housewives.

4.11.2 The interview methods

The interviews conducted in this study were semi-structured and guided by a list of open ended questions related to the research objectives. Other types of interview methods such as structured interviews or completely unstructured interviews have previously been used in qualitative enquiries (Liamputtong & Ezzy, 2005; M. C. Taylor, 2007). While a structured interview will be too rigid and will mimic the quantitative mode of enquiry, the unstructured interview leads to general descriptions without any specific direction, which can be very time consuming and were therefore unsuitable for this study. Furthermore, it was argued by Arthur and Nazroo (2003) that it is difficult to have a totally unstructured interview in a qualitative study, as the researchers will generally have some sense of the themes that they would like to explore (Arthur & Nazroo, 2003).

Unlike the structured interview, a semi-structured interview allows for the necessary flexibility researcher needs in order to probe the details of certain issues that may arise during interviews. In this way, the issue can be explored in more depth (Legard et al., 2003). It also allows the interview to be adjusted accordingly, based on the responses of the individual participants (M. C. Taylor, 2007). Furthermore, the semi-structured interview provides a loose guide to the conversation, allowing participants to describe their experience and at the same time enables the researcher to guide them based on specific topics predetermined earlier.

The interview guide is attached in Appendix 3. It covers the following topics: The dynamics in participants' relationship in terms of decision-making, communication and sexual relationship, their experience in protecting themselves against HIV infection, and their readiness and acceptance of alternative methods for HIV prevention. While the interview guide appears comprehensive, the exhaustive list was not generally adhered to during the interviews. As suggested by Taylor (2007, p.40), an interview guide – while it outlines the theme, topics or scenarios to be explored, it only acts as a loose guide to the conversation in order to enable the

participants “to explore things that are pertinent to them, rather than discuss aspects that may reinforce the researcher’s preconceptions”.

In most instances, the interview began with a general conversation regarding the women’s lives and families. This aimed to put the women at ease prior to the actual questions being asked and potential probes being posed. This introductory session took between 10 to 20 minutes depending on the woman’s level of interest and the time she was able to spend on the interview. In some instances, this conversation turned to the struggles and daily life of the women and organically addressed many of the above research topics with only occasional prompts from the interviewer. To cater for the unique dynamic of each interview, the interviewer usually planned to conduct only one interview per day, which meant there was no rush to finish a session at the expense of the woman’s comfort. Once the participant appeared comfortable and relaxed, a brief introduction to the content of the interview was explained to her.

The flow of the interviews was different from one participant to the next. The interviews did not run smoothly in the first few sessions when the interview guide was followed too rigidly. On these occasions, there were times when the participants only provided a few words in response to the given questions, i.e., a direct and simple explanation. However, in subsequent interviews, as the researcher’s confidence developed, the interviews progressed in a more conversational style, whereby questions were posed in a more flexible manner. This was in line with Taylor’s approach which stresses flexibility and adaptability in conducting in-depth interviews (M. C. Taylor, 2007). Through active listening, the researcher negotiated meanings and understandings of the stories and explanations shared by the participants. As the conversation progressed to a more sensitive issue, the body language and intonation of participants were critically observed and acknowledged by the researcher. The topics of discussion were rearranged and the question structures were modified accordingly in order to suit their responses. A similar approach has been reported by other qualitative researchers (Ahmed, Hundt, & Blackburn, 2011; Pini, 2004), who found that being flexible with topics while interviewing allowed them to identify themes and to progressively develop their enquiry plan.

The ability of a researcher to be reflexive to the participant’s responses and the surroundings is an important factor for achieving a successful interview (Liamputtong & Ezzy, 2005; Rose, 1997). In this context, the researcher is indeed the “research instrument” (Avis, 2007), who needs

to self-calibrate according to the research environment in order to elicit a good response from participants. This process is particularly pertinent when researching sensitive issues (Dickson-Swift et al., 2007), where personal, social and cultural contexts may have an influence on the conduct and outcome of interviews.

All interviews for this study were performed face-to-face by the primary researcher and were conducted in the Malaysian language. The interviews were audio-recorded with the permission of participants. Only one woman refused to allow her voice to be recorded and her interview was captured in written form. While audio-recording is ideal for documenting participants' responses in interviews, the interviewee's comfort and trust became the priority especially when interviewing on sensitive and personal topics (Dickson-Swift et al., 2007). The duration of each interview varied and ranged from 40 to 70 minutes. After each interview session, additional notes were taken to capture the researcher's experience and reflections, participants' reactions and moods, and the ambience of the interview. These notes helped to provide a context and complemented the data derived from interview conversations, thus enhancing later data analysis (Grbich, 2011).

The interviews involved women of various backgrounds – housewives, women in employment, sex workers, as well as transgender women**.** While the opportunity to interview sex workers and transgender women extended the variety of women involved in the study, the information gathered from them was minimal. Neither the sex workers nor the transgender women were particularly forthcoming during the interviews and appeared apprehensive about sharing their experiences.

Several factors may have contributed to the above situation; one was the interview site not being conducive and lacking privacy (M. C. Taylor, 2007). For practical and safety reasons, the interviews with sex workers and transgender women were conducted at the NGO drop-in centre which has limited space. The room used for the interview could also be accessed by other people, which provided minimal privacy to participants. Another reason is possibly due to the difficulty experienced in developing rapport with sex workers and transgender women. The researcher may have been viewed as a clear outsider to their closed communities, which may have led them to feel suspicious and as a result discouraged them to share their experiences (Dickson-Swift et al., 2007; Liamputtong & Ezzy, 2005). Moreover, the ways in which participants responded to

questions might also have been influenced by their perceptions of the role and status of the interviewer (M. C. Taylor, 2007). In the present study, although the interviewer had initiated rapport by contacting the participants several times prior to the interviews, this appeared not to have been sufficient for gaining the trust and making them feel comfortable about sharing their stories.

The interview recruitment continued until no new information was derived from subsequent sessions. The final few interviews in this study showed repeated patterns and responses when compared to the earlier ones. This point marked that thematic saturation has been reached (Grbich, 2011; Guest, Bunce, & Johnson, 2006). In total, 22 interviews were conducted in the qualitative arm of this study.

4.11.3 Data analysis

The qualitative data were analysed using thematic analysis (Braun & Clarke, 2006). This technique was used to identify, analyse and report repeated patterns of meanings or themes within the data. It involved iterative analytic processes and focused on the research questions that guided the search of themes (Braun & Clarke, 2006; Guest, MacQueen, & Namey, 2011; Thomas, 2006). Thematic analysis has been widely used in health sciences research (Ellis & Kitzinger, 2002; Frith & Gleeson, 2004; Kitzinger & Willmott, 2002), due to its ability for summarising the key features of a large body of data and for providing a rich description of the data set. As supported by Pope et al. (2000), thematic analysis is suitable in an applied qualitative study where the research objectives have been pre-determined. In contrast to conventional content analysis that focuses on the description of data (Hsieh & Shannon, 2005), thematic analysis goes beyond that, by identifying overarching themes and specific contexts that capture important ideas from the data (Vaismoradi, Turunen, & Bondas, 2013).

Philosophically, thematic analysis is compatible with both positivist and constructivist paradigms (Braun & Clarke, 2006), where it can be used to provide a rich and detailed, yet complex account of data. Its theoretical freedom matches the pragmatist approach applied in this study. Accordingly, both deductive and inductive approaches were used to explore the qualitative data. The interviews were analysed deductively according to specific areas of HIV preventive

behaviour outlined in the research objectives. This framed the qualitative findings according to topics of interest which include women's risk of HIV, their preventive behaviour and alternative methods of prevention. Within individual topics, the data were analysed inductively where emerging issues related to the study objectives were identified and added collectively to form themes with a rich description of the issues under study (Thomas, 2006). In this way, the themes identified were strongly linked to the data (Corbin & Strauss, 2008).

Theoretically, the analysis was guided by Braun and Clarke's methodological article on conducting thematic analysis. This approach involved six phases: data familiarisation, generating codes, searching for themes, reviewing themes, defining and naming themes and finally, producing the report (Braun & Clarke, 2006). The first stage included the process of transcribing the recorded interviews.

The interview recordings were transcribed by the primary researcher and a research assistant who is also Malaysian. All conversations were transcribed verbatim, with non-verbal utterances and long pauses preserved to maintain the context. To facilitate cross-checking during data analysis, each transcript was linked to its original audio file using computer software. Computer software has previously been used by qualitative researchers to assist in data coding, data organisation and retrieval (Pope, Ziebland, & Mays, 2000). Several types of computer assisted qualitative data analysis software are available. Some are free and web-based such as the Coding Analysis Toolkit (CAT) and the Qualitative Data Analysis (QDA) MinerLite; while few others are licenced software such as NVivo and Atlas.ti (Lewins & Silver, 2009). In this study, NVivo 10 qualitative data analysis software was used for data coding and data management (QSR International Pty Ltd., 2012).

The transcripts were read and re-read in order to become familiar with the data structure and content, and to search for initial ideas. Field notes assisted in providing context by reminding the researcher about useful information related to the interview that had not been captured by the audio-recording. The familiarisation process provided a general understanding of the data set as a whole, which helped significantly in the next phase, i.e., data coding.

During data coding, interesting features were identified and coded into English in a systematic manner across the entire dataset. As described by Braun and Clarke (2006, p.88), "codes identify

a feature of the data that appears interesting to the analyst and refer to the most basic segment, or element of the raw data." Accordingly, the main elements demonstrated in the data were organised into codes which represented the basic level of data description. Examples of codes generated during the coding process are "experience of violence", "not knowing partner's HIV risk" and "financial difficulty".

Cross-coding was conducted at this point to improve the interpretation of findings. This process helped to enhance the trustworthiness of the research findings (Kitto et al., 2008), where different views in the discussion provided a deeper understanding of the data. Cross-coding also gave the opportunity to develop further codes for a more holistic interpretation of the findings (Kuper, Lingard, & Levinson, 2008). The foundation of the coding scheme developed was subsequently applied to all transcripts.

Upon completion of the coding process, the codes were collated into potential categories and themes. For example, "financial difficulty", "experience of violence" and "poor social support" were categorised as "difficult life situations that impact women", while "not knowing partner's risk", "aware of partner's risk" and "felt protected from HIV" were categorised as "HIV risk perceptions". The identified categories were later reviewed and related back to the data set and the research questions to provide meaningful descriptions. During this process, there were several codes which did not qualify into any meaningful categories that directly related to the research questions. While some of the unrelated codes seemed out of context at this stage of analysis, they were not discarded totally from the analysis. Instead, they were placed under a "miscellaneous" category as they may be useful for supporting certain aspects of the findings later. Examples of codes placed under "miscellaneous" category were "police involvement" and "efforts to convince partner to stop drugs".

In the next phase, the analysis refocused at the broader level of themes, rather than codes and categories. A theme captures the key idea from the data and contextualised the meanings derived from the data set (Braun & Clarke, 2006). To differentiate between categories and themes, Morse (2008) clarified that themes are meaningful concepts indicated by the data, rather than concrete entities directly described by the participants (Morse, 2008). Thus, Morse (2008) suggested for researchers to analyse the interviews interpretively for identifying themes which are often abstract. Accordingly, potential themes were identified through iterative process of analysing the

identified categories and refining the themes which capture the essence of meanings derived from the data. The analysis proceeded with further improvement of the themes and generated a clear explanation for each theme (Guest et al., 2011). At this stage, the data extracts from each theme were read in detail and they should cohere together meaningfully. Some of the initial themes were maintained, while a few others were collapsed and redefined. The themes were then related back to the research questions, conceptual framework and literature in order to provide a comprehensive understanding of women's preventive behaviour (Braun & Clarke, 2006).

During the analysis, there were a few instances where the data did not fit the pattern identified by the theme. Corbin and Strauss (2008, p.84) described such incidence as "negative cases", which show exceptional responses when compared to others being studied. While the presence of such deviant cases may appear as a challenge in refining a theme, these cases add richness in the description of findings and indicate the diverse experience and views that people have over certain issues (Corbin & Strauss, 2008). Accordingly, these deviant cases are included in the findings of this study.

At the end of the analysis, four themes were identified as central to the adoption of women's preventive behaviour. They are: (1) socio-economic disadvantages erodes women's capacity for prevention, (2) women's varied understanding of their HIV risk is shaped by contextual factors, (3) sex avoidance: a preferred but controversial preventive option, and (4) high incidence of unprotected sex resulting from power imbalances and socio-cultural norms. These findings are reported in detail in Chapter 6, and discussions of the findings are presented in Chapter 8.

4.12 Final data analysis and interpretation of findings

Once the quantitative and qualitative data had been analysed and reported, a further phase of data synthesis was undertaken. At this point, the survey and interview findings were compared and contrasted to look for corroboration or conflicting findings according to the study objectives. The integration of the survey and interview findings to provide comprehensive answers to the research questions are presented in Chapter 7.

4.13 Ethics and funding

4.13.1 Ethical review

Initially, permission was sought from the Malaysian Prime Minister's Department to conduct a study in Malaysia. Although the primary researcher is a Malaysian citizen, her affiliation to an overseas university as a student at the University of Otago, New Zealand made it compulsory to gain clearance from the Government of Malaysia prior to conducting a study in Malaysia. Following this, permission was sought from the authorities where the study location would be, which included the methadone clinics of the Ministry of Health and NGO drop-in centres under the Malaysian AIDS Council.

This study also underwent ethical assessment by the Research Ethics Committee of the University of Otago and the Medical Research Ethics Committee, Ministry of Health, Malaysia. Ethical approval from both committees was granted prior to beginning data collection. The letters of approval from the relevant authorities are attached in Appendix 4.

For the purpose of confidentiality, all recorded conversations were kept by the primary researcher and will be destroyed after six months of complete data analysis. Anonymous transcripts were retained for data analysis and further interpretation of the study.

4.13.2 Funding

The research received funding in the amount of RM40,000 (approximately NZ$15,300) from The Malaysian Health Promotion Board. Additional assistance was provided by the Department of Preventive and Social Medicine, University of Otago to purchase airfares for data collection. The researcher is also a recipient of the University of Otago Doctoral Scholarship, which provides a NZD25,000 per annum stipend and tuition fees for 36 months.

4.14 Summary of chapter

This study used a mixed-methods approach to examine the HIV risk and preventive behaviour of intimate partners of PWID in Malaysia, using a pragmatist worldview as the philosophical

underpinning for the research. A concurrent mixed-methods design consisting of a survey and in-depth individual interviews was selected to provide a comprehensive explanation in response to the research questions.

The survey was conducted in urban and rural areas around Kuala Lumpur and Selangor in Malaysia. Women who were intimate partners of PWID were recruited through respondent driven sampling and other sampling strategies. An eight-page, self-administered questionnaire was used in the survey. The data were analysed using STATA to provide descriptive statistics and to show associations between HIV preventive behaviour and the associated factors.

A subset of the women surveyed was invited to participate in the individual interviews. They were purposively selected to reflect a broad range of ethnicities, marital status, financial background and localities. The interviews were audio-recorded and transcribed, and were analysed using thematic analysis to identify recurring themes.

Initial data analyses of the interview and survey were done separately. Subsequently, the findings were combined and triangulated to answer the research questions.

CHAPTER 5: **THE SURVEY RESULTS**

5.1 Introduction

This chapter describes the survey results, which is the quantitative component of the mixed-methods study. The survey was conducted over seven months from October 2012 to April 2013. The main objective of the survey was to provide specific measures that describe HIV preventive behaviour of women who were intimate partners of men who inject drugs in Malaysia. Secondarily, it was designed to identify possible risk factors which could positively or negatively affect preventive behaviours. It also investigates attitudes to female-controlled methods in HIV prevention to provide insight into the acceptability of possible interventions.

The survey outcomes are reported systematically in this chapter. Initially, the recruitment process of eligible participants is presented. Following on is a general overview of the participants. Next, their protective behaviours against HIV which include condom use, HIV screening and sex avoidance are described. The final section describes women's attitudes regarding methods they could use to prevent themselves from getting infected with HIV.

In the descriptive analysis, results are presented in numbers, proportions, means and standard deviations (sd). To describe the association between two variables, appropriate statistical tests were employed which include either the Chi-Square test or Fisher's Exact test for categorical independent variables; and the t-test, Wilcoxon-Mann-Whitney test or Kruskal Wallis test for numerical independent variables. The level of statistical significance (p-value) was set at 0.05. Significant associations were further analysed using univariate logistic regression to obtain the odds ratio and 95% confidence interval (CI) to show the strength of the association. Adjusted analysis using multivariate logistic regression was performed where confounding effects of multiple variables towards the outcome measures were suspected. However, building a full multivariate model to explain each of the protective behaviours was not attempted in view of the relatively small sample.

5.2 Recruitment of participants

As described in Chapter 4, the participants were recruited using respondent driven sampling (RDS) and other sampling strategies. While the original plan was just to use RDS, this did not result in a large enough sample, so other sampling strategies were used to augment recruitment.

The RDS began by identifying several numbers of PWID, known as seeds. They were given three invitation coupons each, to recruit their injecting friends who were married, or with steady partners. Those who brought along their wives or partners to take part in the survey were eligible to themselves become a recruiter, and the recruitment chain continues. Under RDS, 376 invitation coupons were given out through multiple recruitment waves, with 153 men responded, by either bringing their intimate partner to the interview location, or by providing their partner's contact number. The actual number of people approached by the coupon holder and the number of people refused to participate after given the coupon was unknown. Of the 153 women brought into the study, seven were not eligible because they had been in a relationship with the men who inject drugs for less than six months. Of the 146 eligible women, 27 refused to participate, while 15 were not contactable. The resulting total number of participants who completed the questionnaire from the RDS arm was 104. This was lower than the targeted sample size; therefore alternative sampling strategies were employed.

Through other sampling strategies, 217 contact details of potential participants were provided by several sources which include: (1) other participants who have completed the survey, (2) NGO workers and (3) Health Clinic records. Of those, 21 were already recruited through RDS, and thus omitted from the list. Ten women had been in a relationship of less than six months with a PWID and were therefore excluded, giving the number of eligible women recruited through other sampling strategies as 186. Of those, 35 were not contactable through the phone number or address provided, 23 refused to participate, while two women who initially agreed to participate did not turn up at the interview site. Eventually, 126 women completed the survey through sampling other than RDS.

In total, 230 participants completed the survey. Of all the survey forms collected, nine had missing data of important determinants and were not used in the analysis. Therefore, the number of participants included in the final analysis was 221.

The response rate is difficult to calculate with accuracy because of the unknown number of eligible men actually approached. However, 67% of eligible participants recruited from both RDS (146) and other sampling strategies (186) provided analyzed survey forms (221). A flow chart describing details of participants recruited in the survey is shown in Figure 5.1.

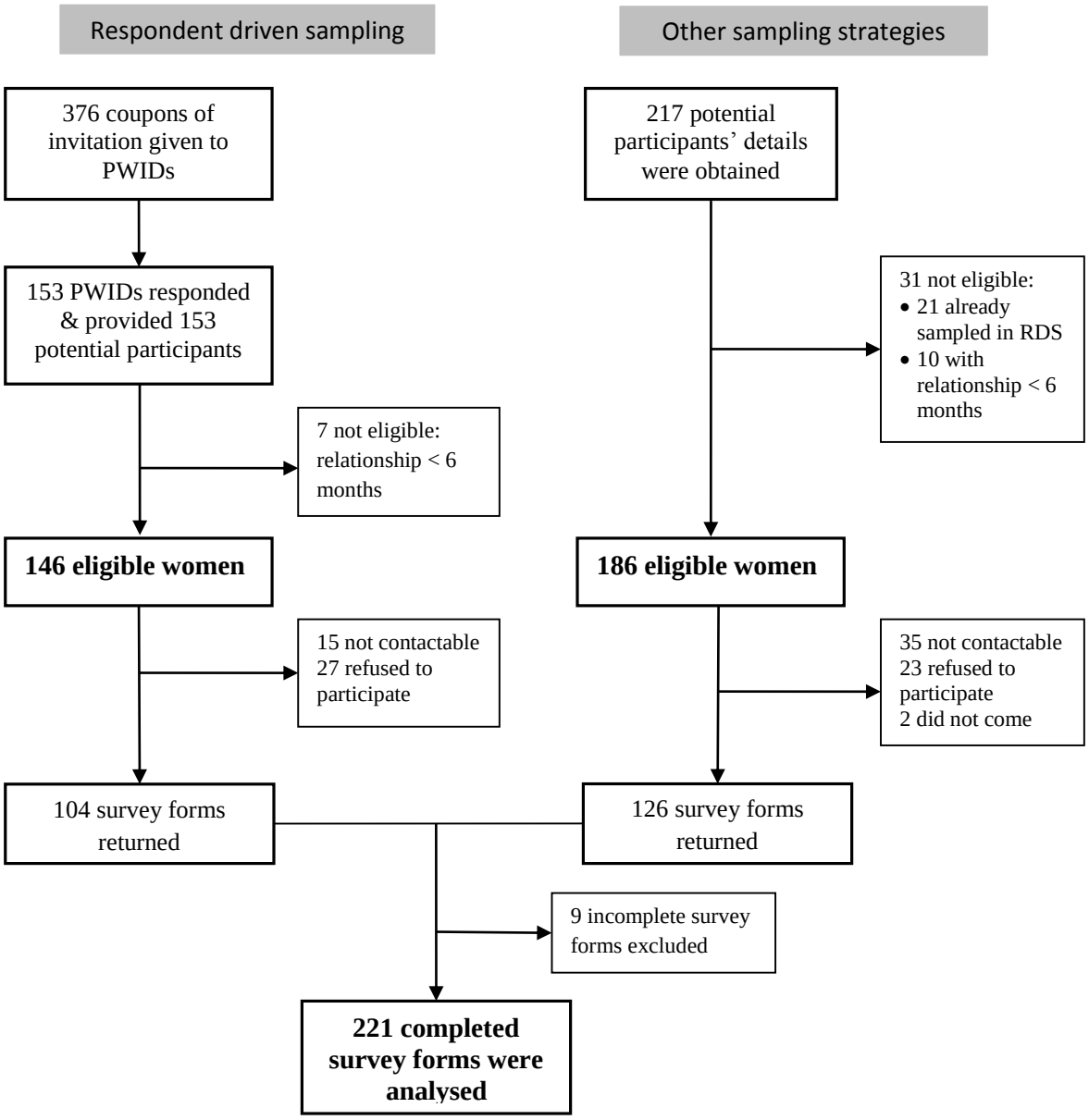


Figure 5.1: Details of participants recruited in the survey

5.3 General overview of survey participants

This section gives an overview of the survey participants, starting with their socio-demographic and socio-economic profile. Then, participants' involvement with HIV risk behaviours such as illicit drug use and having multiple sex partners, and their HIV status are described. To complete the general description, power dynamics in the women's relationship with their partners, their perceptions of HIV risk, their knowledge of HIV prevention and their attitudes toward selected social norms are also described. While it serves to describe the characteristics of survey participants, this section also aims to identify the women's vulnerability to HIV through specific descriptions of their socio-economic status, power dynamics, socio-cultural believes and HIV prevention knowledge.

5.3.1 Socio-demographic and socio-economic characteristics

The majority (69.2%) of the participants were married to their current partner, and slightly more than half (57.1%) had been in the relationship for five years or more (Table 5.1). Overall, 42.5% of the women had no children with their partners, of these women, 61.7% were unmarried. Among those with children, the number ranged from one to six, with a median of two children. About two thirds (66.1%) of the participants were Malays, reflecting the similar distribution of PWID in Malaysia as mentioned in Chapter 2. Of the 19 participants who identified themselves with other ethnicities, 11 were Indonesian, three were Punjabis and three were from the Bajau tribe an ethnic group in the state of Sabah, Malaysia. Two did not specify their ethnicity. About three quarters (76.9%) of the participants were Muslim. While about half (51.6%) of the participants were from the urban area, 12.2% and 36.2% were from the sub-urban and rural areas respectively. The age of the women surveyed ranges from 17 to 76 year, with six participants not reporting this. The mean age was 39 years with about half (50.7%) in the age group of 36 to 50 years.

The socio-demographic characteristics of participants recruited via RDS were compared to those recruited through other sampling strategies. There was no significant difference in ethnic distribution ($p=0.46$), religion ($p=0.86$) and age group. However, the RDS method recruited a

significantly higher proportion of married participants than the unmarried (p=0.01) and those from the rural areas compared to urban and sub-urban (p<0.001).

Table 5.1: Socio-demographic characteristics of the participants (N=221)

Socio-demographic characteristics	n	%
Marital status		
Married to their current partner	153	69.2
Not married to their current partner	68	30.8
Relationship duration^		
Less than 12 months	35	16.0
1 – 5 years	59	26.9
5 years or more	125	57.1
Number of children with current partner		
None	94	42.5
1	42	19.0
2-4	70	31.7
5 or more	15	6.8
Ethnicity		
Malay	146	66.1
Chinese	14	6.3
Indian	42	19.0
Other ethnicities	19	8.6
Religion		
Islam	170	76.9
Christian	7	3.2
Buddha	12	5.4
Hindu	32	14.5
Study Location		
Urban	114	51.6
Sub-urban	27	12.2
Rural	80	36.2
Age group*		
Youth (≤ 25 years)	13	6.1
Young adults (26-35 years)	65	30.2
Middle aged adults (36-50 years)	109	50.7
Older adults (≥51 years)	28	13.0

* 6 participants did not respond
^ 2 participants did not respond

To describe the women's socio-economic characteristics, four variables were measured: education level, employment status, financial dependency on their partners and the total household income.

Nearly all (90.5%) of the participants completed at least primary school education (Table 5.2). Seventy percent were working, either full or part time. Roughly equal proportions reported being in the three financial dependency groups, with 29% always, 33% sometimes and 38% never dependent on their partners financially. Twenty-seven participants did not answer the question

on household income. Among the 194 participants who responded, their monthly income ranged from 80 to 5,000 Ringgit Malaysia (RM), with the mean of 1,460 RM and median of 1,200 RM. There was no significant difference in the household income between those living in the rural, sub-urban or urban areas. Just under two thirds (63.4%) had a household income lower than 1500 RM per month, which marked the poverty line for an average household of four people in Malaysia (Government of Malaysia, 2007). Women were the main earner in 38.9% of households, while another 35.8% shared the responsibility with their male partner.

Table 5.2: Socio-economic characteristics of the participants (N=221)

Socio-economic characteristics	n	%
Highest education attainment		
Never attended school or did not finish primary education	21	9.5
Completed primary education	65	29.4
Completed secondary education	122	55.2
Completed tertiary education	13	5.9
Employment status		
Not working	66	29.9
Working part time	58	26.2
Working full time	97	43.9
Financial dependency*		
Always depend on partner	64	29.1
Sometimes depend on partner	72	32.7
Did not depend on partner	84	38.2
Total household income per month^	Range: 80-5,000 (RM) Mean ± sd = 1,459 ± 963 (RM) Median = 1,200 (RM)	
Person who contributed to the household income		
Only the women	86	38.9
Only the men	29	13.1
Both	79	35.8
Not applicable (did not respond to question)	27	12.2

*one participant did not respond
^27 participants did not respond

5.3.2 HIV risk behaviours among the participants

In this survey, participants were asked about their involvement with two behaviours that would increase their risk of HIV: drug use and having multiple sex partners. The details of participants who identified themselves as transgender women are also described in this section. Twenty participants (9.1%) had used injectable drugs in the last 12 months, while 67 (30.3%) reported using drugs in other ways such as smoking marijuana, taking stimulant pills or other drugs orally, or sniffing glue (Table 5.3).

Table 5.3: HIV risk behaviour among the participants (N=221)

High risk behaviour in the last 12 months	n	%
History of drug use		
Used injectable drugs	20	9.1
Used non-injectable drugs	67	30.3
Never used any drugs	134	60.6
Had more than one sex partners		
Yes	32	14.5
No	189	85.5
Involved in sex work		
Yes	24	10.9
No	197	89.1

Thirty-two participants (14.5%) had more than one sex partners in the last 12 months. Of these 32, 24 (66.7%) reported receiving money, drugs or favours in exchange for sex and categorized as being involved with sex work. All of these women lived in the urban areas, with 18 (75.0%) aged between 36 to 50 years. Eight participants reported both having used injectable drugs and had multiple sex partners, and six sex workers also inject drugs (Table 5.4).

Table 5.4: High risk behaviour among survey participants (N=221)

	Used injectable drugs				Odds Ratio* (95% CI)
	Yes (n=20)		No (n=201)		
	n	%	n	%	
Had more than one sex partners					
Yes	8	25.0	24	75.0	4.92 (1.83,13.3)
No	12	6.3	177	93.7	ref
Involved in sex work					
Yes	6	25.0	18	75.0	4.35 (1.49,12.7)
No	14	7.1	183	92.9	ref

* Univariate Logistic Regression

The odds of using injectable drugs was about five times higher among participants with multiple sex partners compared to those with a single sex partner (OR=4.92; 95% CI: 1.83,13.3), and among those involved with sex work (OR=4.35; 95% CI:1.49,12.7). This is likely to be a result of women taking drugs being dependent of sex work to pay for them.

Overall, nine participants (4.1%) identified themselves as transgender women. Their age ranged from 28 to 64 years with the mean of 38.7 years. There was no difference in the age distribution between the transgender women and the rest of the sample (p=0.82). All of them lived in urban

areas. None had reported injecting drugs, while three of them reported using non-injectable drugs. Four of the transgender women had more than one sex partners in the last 12 months, and one was involved in sex work.

In summary, 9.1% of women reported injecting drugs in the 12 months prior to the survey and 10.9% were involved with sex work. The history of having multiple sex partners and sex work were highly related to injection drug use. Overall, 85.5% of the participants were monogamous.

5.3.3 HIV status

The information regarding participants' and their partners' HIV status presented in Table 5.5 was obtained from self-reports. Overall, 6.3% of the women reported having been diagnosed with HIV, while 7.7% had HIV positive partners. About a quarter (26.7%) did not know their HIV status, and almost half (45.7%) had no information on their partner's HIV status. Five HIV positive participants had HIV positive partners. Twenty-one participants (9.5%) were sero-discordant with their partners, that is, one of them was HIV positive.

Table 5.5: HIV status of study participants and their partners (N=221)

HIV status	n	%
Participants' HIV status		
Positive	14	6.3
Negative	148	67.0
Unknown	59	26.7
Partners' HIV status		
Positive	17	7.7
Negative	103	46.6
Unknown	101	45.7
HIV-Concordance		
Both HIV positive	5	2.3
Serodiscordant (woman +ve, partner -ve or unknown)	9	4.1
Serodiscordant (woman -ve or unknown, partner +ve)	12	5.4
Both HIV negative or unknown	195	88.2

As shown in Table 5.6, the women's knowledge about their partner's HIV status did not vary by marital status (p=0.15). However, a higher proportion of women from the rural areas knew their partner's HIV status compared to those from the urban and sub-urban areas (p= 0.03).

Table 5.6: Knowledge of partner's HIV status by marital status and study location

	Knew their partner's HIV status				p-value*
	Yes (n=120)		No (n=101)		
	n	%	n	%	
Marital status					
Married to their current partner	88	57.5	65	42.5	0.15
Not married to their current partner	32	47.1	36	52.9	
Study location					
Urban & Sub-urban	69	48.9	72	51.1	0.03
Rural	51	63.8	29	36.2	

* Chi-square test

5.3.3.1 Socio-demography of HIV positive participants

Those not married to their current partners were more likely to be HIV positive than those who were married (p=0.04). All HIV positive women lived in the urban areas. There was no significant association between HIV status and education, employment status and age (Table 5.7).

Table 5.7: HIV status by socio-demographic and socio-economic variables (N=221)

	Participants' HIV status				p-value^	Odds Ratio* (95% CI)
	Positive (n=14)		Negative or unknown (n=207)			
	n	%	n	%		
Marital status						
Married to current partner	6	3.9	147	96.1	0.04	ref
Not married to current partner	8	11.8	60	88.2		3.27 (1.09,9.82)
Highest education attainment						
Primary education or less	6	7.0	80	93.0	0.78	
Completed at least secondary education	8	5.9	127	94.1		
Employment status						
Working	9	5.8	146	94.2	0.76	
Not working	5	7.6	61	92.4		
Study Location						odds ratio cannot
Urban	14	12.3	100	87.8	<0.001	be calculated due
Sub-urban	0	0	27	100		to unstable
Rural	0	0	80	100		regression model
Age group						
Youth (≤ 25 years)	1	7.7	12	92.3	0.74	
Young adults (26-35 years)	3	4.6	62	95.4		
Middle aged adults (36-50 years)	8	7.3	101	92.7		
Older adults (≥51 years)	1	3.6	27	96.4		

^ Fisher's Exact test
* Univariate Logistic Regression

5.3.3.2 HIV status and high risk behaviour

Twenty percent of participants who used injectable drugs were HIV positive, as were 25.0% of those with multiple sex partners and 29.2% of those involved with sex work (Table 5.8). Among the eight HIV positive women who had multiple sex partners, only one was not involved with sex work. As expected, the proportion of HIV positive women was much higher (50.0%) among those involved with both sex work and injected drugs. All of the mentioned high-risk behaviours were significantly associated with being diagnosed HIV positive.

Table 5.8: HIV status in relation to high risk behaviour

High-risk behaviour	Participants' HIV status				p-value^
	Positive (n=14)		Negative or unknown (n=207)		
	n	%	n	%	
Drug use					
Used injectable drugs	4	20.0	16	80.0	
Used non-injectable drugs	2	3.0	65	97.0	0.03
Never used drugs	8	6.0	126	94.0	
Had more than one sex partners					
Yes	8	25.0	24	75.0	<0.001
No	6	3.2	183	96.8	
Involved in sex work					
Yes	7	29.2	17	70.8	<0.001
No	7	3.6	190	96.4	
Involved in sex work and inject drugs					
Yes	3	50.0	3	50.0	0.004
No	11	5.1	204	94.9	

^ Fisher's Exact test
* Univariate Logistic Regression

Analysis of the nine transgender women shows one of them was HIV positive, and she had a HIV positive partner. None of the other eight had a HIV positive partner.

5.3.3.3 HIV status and history of other sexually transmitted infections

Twenty-two (10%) participants reported being diagnosed with, or had symptoms of sexually transmitted infections (STIs) in the 12 months prior to completing the survey. Of the 22, only two (9.1%) were diagnosed with HIV. Fisher's Exact test was performed to examine the association between HIV status and history of STIs, which revealed no significant result

(p=0.64). The diagnosis of STIs was also not associated with the number of sexual partners (one vs. multiple) (p=0.60) or being involved in sex work (p=0.56).

5.3.3.4 Summary of HIV status

In summary, 6.3% of the participants reported being HIV positive, while 7.7% reported having partners who were HIV positive. About a quarter (26.7%) did not know their HIV status, and almost half (45.7%) had no information on their partner's HIV status. Participants' own HIV status is significantly associated with that of their partners, their own high-risk behaviour, marital status and study location. One in five women who inject drugs were HIV positive, and 29.2% sex workers were HIV positive. History of recent STIs was not significantly associated with HIV status.

5.3.4 Relationship power dynamics

Relationship power dynamics are among the potential factors which may influence women's risk and protective behaviour in HIV prevention (Harvey et al., 2003; Kershaw et al., 2006). In this study, three aspects of power dynamics in the women's relationship with their partners were examined: (1) decision-making power, (2) experience of intimate partner violence, and (3) sexual communication. A general description of relationship power dynamics among the participating women is given in this section.

5.3.4.1 Decision-making power

The questions used to examine decision-making power were adapted from the Sexual Relationship Power Scales, and were described earlier (Section 4.10.3.6). The questions and their responses are presented in Table 5.9.

Table 5.9: Perceptions on decision-making power in their relationship

Statements	N*	Agree & Strongly agree		Disagree & Strongly disagree	
		n	%	n	%
My husband/partner has more say than I do about important decisions that affect us	218	109	50.0	109	50
My husband/partner does what he wants, even if I do not want him to	218	107	49.1	111	50.9
I feel trapped in our relationship	219	106	48.4	113	51.6

*the total number of responses did not come up to 221 due to missing data

Very similar numbers agreed and disagreed with each of the three statements. In general, nearly half of the women believed their partners had more power to make decisions, and they had no influence over their partner's behaviour, while a similar proportion felt trapped in their relationship.

Further analysis showed no difference in the women's perceptions regarding decision-making power according to marital status, religious belief, or ethnicity (data not presented). There was also no difference in perceptions regarding decision-making power held by the sex workers and the transgender women compared to the other participants.

5.3.4.2 Experience of intimate partner violence

The questions that measured the experience of intimate partner violence were adapted from the Abuse Assessment Screening tool (AAS). Four questions were asked regarding participants' experiences of emotional, physical and sexual abuse. The responses from the 218 participants who answered the questions (three did not) are shown in Table 5.10.

Table 5.10: Experience of intimate partner violence among the participants (N=218)

In the past 12 months has your husband/partner ever …..	Never		Yes, at least once		Several times*	
	n	%	n	%	n	%
emotionally abused you?	155	71.1	63	28.9	51	23.4
made you feel scared?	167	76.6	51	23.4	37	17.0
kicked, hit, slapped or otherwise physically hurt you?	167	76.6	51	23.4	36	16.5
raped or forced you to have any kind of sexual activity you did not want?	199	91.3	19	8.7	12	5.5

*The number of women under this column is a subset of those who reported being abused at least once

Emotional abuse was reported by 63 (28.9%) women, with 51 (23.4%) reported this occurring several times. A similar proportion (23.4%) reported that their partners had ever made them feel scared, and that they had experienced some kind of physical abuse in their relationship. Overall 19 (8.7%) had been sexually abused by their partner in the past year and 12 (5.5%) reported this occurring several times.

Further analysis of the 19 women who had experienced sexual abuse found three (15.8%) were sex workers and twelve (63.2%) were unmarried. Unmarried women were more likely to have experienced sexual abuse compared to married women (p=0.002).

5.3.4.3 Sexual communication

The questions used to measure sexual communication was adapted from the Couple Communication on Sex Scale, and were described earlier (Section 4.10.3.6). Participants were asked about two aspects of sexual communication in their relationship: (1) discussion of HIV risk with their partners and (2) level of comfort in discussing sexual issues.

Two participants did not answer the questions related to discussion of HIV risk. Among the 219 participants who responded to the questions, 135 (61.6%) reported having discussed their HIV risk with their partners, and 129 (58.9%) had discussed their partners' HIV risk (Table 5.11).

Table 5.11: Participant's responses regarding HIV risk discussion (N=219)

Questions on HIV risk discussion	Yes		No	
	n	%	n	%
Have you ever discussed your risk of HIV with your partner?	135	61.6	84	38.4
Have you ever discussed his risk of HIV?	129	58.9	90	41.1

A cross-tabulation was performed to look at the association between the discussion of own-risk and partner's risk (detailed data not presented here). The majority (94.1%) of participants who had discussed their own HIV risk with their partner, had also discussed their partner's risk and this association was statistically significant ($p<0.001$). This suggest that women who were comfortable to talk about her own risk, were also more able to discuss with their partners about his risk of HIV.

To assess their level of comfort in discussing sexual issues, participants were asked how comfortable they felt discussing their sexual relationship with their partners, and whether they were comfortable asking him to use condoms. For both questions, participants were provided with four options: "never discussed/asked", "not so comfortable", "quite comfortable" and "very comfortable". The last two responses were merged under "comfortable" (Table 5.12).

Table 5.12: Level of comfort in discussing sexual issues (N=221)

Questions on level of comfort in discussing sexual issues	n	%
Do you feel comfortable discussing your sexual relationship with your partner?*		
Never discussed	39	17.8
Not so comfortable	17	7.8
Comfortable	163	74.4
Do you feel comfortable asking your partner to use a condom?		
Never asked him	101	45.7
Not so comfortable	20	9.1
Comfortable	100	45.2

* two participants did not respond

Overall, 74.4% women reported feeling comfortable discussing their sexual relationship with their partners. The other 17.8% had never discussed it. While quite a high proportion of participants had no qualms in discussing their sexual relationship, only 45.2% participants

reported feeling comfortable to ask their partners to use a condom, and another 45.7% of them had never requested their partners to do so.

5.3.5 Perceptions of HIV risk

Another factor which may influence women's preventive behaviour is their perceptions of HIV risk. This was assessed using a direct question with five answer options shown in Table 5.13. HIV positive women (n=14) were directed to skip this question, and thus were excluded in this analysis.

Table 5.13: Perceptions of HIV risk (N=207)

Do you think you are at risk of getting HIV?	n	%
No risk at all	59	28.5
Yes, small risk	17	8.2
Yes, moderate risk	29	14.0
Yes, great risk	69	33.3
Don't know	33	16.0

About half (55.5%) of the participants who responded to the question believed they were at some risk of HIV. However, their perceptions varied from "small risk" (8.2%), "moderate risk" (14.0%) to "great risk" (33.3%). The risk perception was compared according to marital status and HIV risk behaviour, and the results are presented in Table 5.14.

Table 5.14: Perceptions of HIV risk by marital status and HIV risk behaviour (N=174)[+]

	Perceptions of HIV risk				p-value	Unadjusted Odds Ratio (95% CI)	Adjusted odds ratio[#] (95% CI)
	Yes (n=115)		No (n=59)				
	n	%	n	%			
Married to current partner							
Yes	77	60.6	50	39.4	0.01*	ref	ref
No	38	80.9	9	19.1		2.74 (1.22,6.16)	2.77 (1.16,6.62)
Injected drugs							
Yes	12	92.3	1	7.7	0.06^		
No	103	64.0	58	36.0			
Involved in sex work							
Yes	12	80.0	3	20.0	0.18^		
No	103	64.8	52	35.2			

[+] HIV positive and who responded "don't know" when asked on their perceptions of HIV risk were excluded
* Chi-square test
^ Fisher's exact test
[#] Multivariate logistic regression adjusted for use of injected drugs and sex work

The proportion of women perceiving themselves to be at risk of HIV was greater among unmarried (80.9%) compared to married women (60.6%). Unmarried women were about three times more likely to believe they were at risk of HIV compared to married women regardless of their involvement in drugs or sex work (adjusted OR:2.77, 95% CI: 1.16,6.62).

5.3.6 Knowledge of HIV prevention

Several questions were asked to gauge participants' knowledge of HIV prevention. They were given five facts on HIV risk and transmission and asked to indicate one of the following three responses: (1) they knew about it, (2) they were not sure, or (3) they did not know about the fact at all. A detailed description of participants' responses to the questions is shown in Table 5.15. Overall, the participants' knowledge was good reflected by the high proportion (ranging from 79.2% to 86.0%) who were aware of the given facts on HIV prevention.

Table 5.15: Details on HIV prevention knowledge among the participants (N=221)

Facts about HIV Prevention	Yes, they knew about it		They were not sure		They did not know about it	
	n	%	n	%	n	%
There is an increased risk of HIV among PWID who share needles	190	86.0	18	8.1	13	5.9
There is an increased risk of getting HIV by having sex with an injecting drug user who shares needles	184	83.3	19	8.6	18	8.1
There is an increased risk of getting HIV if someone has many sexual partners	190	86.0	19	8.6	12	5.4
A pregnant mother with HIV can give the virus to her baby at delivery	176	79.6	26	11.8	19	8.6
Using a condom will reduce the chance of getting HIV	175	79.2	24	10.9	22	10.0

The responses were converted into knowledge scores to assess participants' knowledge in general. One point was given for each statement that they knew, and none if they did not know, or were unsure about the fact. Therefore, the knowledge score for each participant ranged between zero to five, with a higher score indicating more knowledge.

The mean knowledge score was 4.1 (±1.5 sd), with the median of 5. Skewness and kurtosis test for normality was performed which gave $p<0.001$, indicating that the knowledge score was not normally distributed and, hence, could not be compared using a parametric test. Further analyses were conducted to provide an overview of HIV prevention knowledge across differences in marital status, survey locations, age group, education status, employment status, HIV status, drug use, sex work and HIV risk perceptions (Table 5.16). These were compared using non-parametric tests (Wilcoxon-Mann-Whitney or Kruskal Wallis).

Table 5.16: HIV prevention knowledge score according to socio-demographic, socio-economic, HIV-risk behaviour and perceptions of HIV risk

	Number of observations	Knowledge score (Mean ± sd)	p-value
Marital status			
Married to current partner	153	4.1 ± 1.5	0.28*
Not married to current partner	68	4.3 ± 1.4	
Highest education attainment			
Primary education or less	86	4.0 ± 1.5	0.35*
Completed at least secondary education	135	4.2 ± 1.5	
Age group[#]			
Youth (≤ 25 years)	13	3.9 ± 1.7	0.54^
Young adults (26-35 years)	65	4.0 ± 1.7	
Middle aged adults (36-50 years)	109	4.3 ± 1.3	
Older adults (≥51 years)	28	4.3 ± 1.2	
Employment status			
Working	155	4.3 ± 1.4	0.10*
Not working	66	3.8 ± 1.8	
Study Location			
Urban & Sub-urban	141	4.1 ± 1.6	0.29*
Rural	80	4.2 ± 1.3	
HIV Status			
Positive	14	4.6 ± 0.8	0.49*
Negative or unknown	207	4.1 ± 1.5	
Used injectable drugs			
Yes	20	4.1 ± 1.6	0.92*
No	201	4.1 ± 1.5	
Involved in sex work			
Yes	24	4.7 ± 1.0	0.02*
No	197	4.1 ± 1.5	
Perceived themselves being at risk of HIV[+]			
Yes	115	4.4 ± 1.2	0.01*
No	59	3.9 ± 1.7	

* Wilcoxon-Mann-Whitney test
^ Kruskal Wallis
[#] 6 participants did not specify their age
[+] 47 participants were excluded (14 HIV positive + 33 did not know/ did not respond)

Significantly higher knowledge scores were observed among women involved in sex work compared to others (p=0.02), and those who perceived being at risk of HIV compared to those who did not (p=0.01). The knowledge scores did not vary according to marital status, education, working status, age group, survey location, or history of drug use. There was also no difference in the knowledge scores between HIV positive participants compared to the rest.

5.3.7 Attitude towards selected social norms

To measure their attitude towards social norms regarding condom use, four statements were presented to the participants. Four choices of answers were given, ranging from "strongly agree", "agree", "disagree" to "strongly disagree". For the purpose of analysis, the answers "strongly agree" and "agree" were combined, as were "disagree" and "strongly disagree". Their responses are presented in Table 5.17.

Table 5.17: Participant's belief on social norms related to condom use

Statements	N*	Agree & Strongly agree		Disagree & Strongly disagree	
		n	%	n	%
A man will think his wife is unfaithful if she asks him to use condoms	217	110	50.7	107	49.3
It would be embarrassing for me to buy condoms	218	115	52.8	103	47.2
I would not enjoy sex when using a condom	213	112	52.6	101	47.4
Using a condom would seems like an insult to my husband/partner	216	106	49.1	110	50.9

* several participants did not respond, therefore N < 221

In general, half of the participants were inclined to agree to statements that do not support condom use. About half (50.7%) of the participants believed that a man will think his wife is unfaithful if she asks him to use condoms, while 52.8% reported that they felt embarrassed to buy condoms. Similarly, 52.6% believed that they would not enjoy sex when using condoms, while 49.1% agreed that using condoms seems like an insult to their partners.

5.3.8 Summary on general overview of participants

A general overview of the survey participants revealed about seventy percent of them were married to their current partners and more than half (57.1%) had been in the relationship for more than 5 years. The majority (87%) were in the reproductive age group. While their level of education was generally good with about 90% having completed at least primary education, many of the women were poor with 63.4% living below poverty line.

An investigation into the women's involvement in HIV risk behaviour showed, overall, 20 women (9.1%) injected drugs in the past 12 months, 24 (10.9%) reported being involved in sex work and six were involved in both. There was a significant association between the two, where the odds of injection drug use was about four and a half times higher (OR=4.35; 95% CI:1.49,12.7) among sex workers compared to other women. This is likely to be as women taking drugs were dependent of sex work to pay for them.

Overall, 6.3% of the participants were HIV positive and 7.7% had HIV positive partners, with nearly half (45.7%) not being aware of their partner's HIV status. All HIV positive women lived in urban areas. The proportion of HIV positive women was significantly higher among unmarried compared to married, and among women who injected drugs and were involved in sex work.

Generally, about half of the women reported some kind of power imbalances in their relationship, where they perceived they had no power in decision-making and they felt trapped in their relationship. While about a quarter of the participants had reported either being emotionally abused, felt scared of their partners or being physically abused, 8.7% had reported sexual abuse and 5.5% reported being sexually abused several times. Single women were more likely to have experienced sexual abuse compared to married women.

In terms of communications, while about three quarters of women reported feeling comfortable to talk about their sexual relationship with their partners, only half were comfortable to request their partners use condoms.

Knowledge of HIV prevention was generally good, and was significantly better among women who perceived being at risk of HIV and among women involved with sex work.

Finally, to complete the general overview of the participants in assessing their vulnerability to HIV, their attitude towards selected social norms were examined. In general, half of the participants were inclined to agree to statements that do not support condom use.

In summary, the general description of survey participants suggests that a significant proportion of the women were indeed in a vulnerable position with regards to their HIV risk; not only because their partners were injecting drugs, but also due to their disadvantaged socio-economic situation, lack of power in decision-making and exposure to abuse. Moreover, the women's

restricted sexual communication skill and their perceptions on social norms that were not supportive of condom use further added to their vulnerability. The impact of these factors to women's preventive behaviours are investigated in the following section.

5.4 Preventive behaviour against HIV

Another aim of the survey is to examine women's preventive behaviour against HIV. This includes: (1) condom use, (2) HIV screening, and (3) sex avoidance (i.e. whether they have ever tried to avoid sex with their husband or current partner). Each one of these behaviours is described in detail, and its associations with potential risk factors were examined.

5.4.1 Condom use

Male condoms are the most effective and available method to prevent sexual transmission of HIV in Malaysia. This section describes the pattern of condom use among the survey participants in general, and among selected groups with HIV risk behaviour. It also reports the association of high condom use with socio-demographic and socio-economic characteristics, relationship power dynamics, HIV risk perception, knowledge of HIV prevention and social norms.

Three questions were asked to gather information on condom use; (1) whether they have ever used a condom with their current partner in their entire relationship, (2) whether a condom was used in their last sexual intercourse, and (3) the frequency of condom use in the last 12 months. The details are presented in Table 5.18.

Table 5.18: Condom use among the participants (N=221)

Condom use	n	Percentage (%)
Ever use a condom?		
Yes	105	47.5
No	116	52.5
Used condoms last sex?		
Yes	64	28.9
No	41	18.6
Not applicable (never used condom)	116	52.5
Frequency of condom use		
Occasionally (a)	32	14.5
About half the time (b)	30	13.6
Almost always (c)	15	6.8
Always (d)	28	12.7
Not applicable (never used condom)	116	52.5
High condom use		
Yes (c+d)	43	19.5
No (a+b+ non users)	178	80.5

More than half of the participants (52.5%) had never used a condom with their partner. Overall, 28.9% of participants reported using condoms in their last sexual intercourse. High condom use, defined as "almost always" or "always" using condoms was reported by 19.5%. Further information on the reason for using condoms, decision-making, and the supply of condoms were also investigated among those who had ever used condoms (Table 5.19).

Table 5.19: Additional information on condom use among participants who had ever used a condom (N=105)

Additional information on condom use	n	Percentage (%)
Reason to use condoms		
To avoid pregnancy	23	21.9
To avoid STIs including HIV	63	60.0
Both of the above reasons	16	15.2
Other reasons	3	2.9
Who decides to use condoms?		
The participant	58	55.2
Her partner	17	16.2
Shared decision by both of them	30	28.6
Who usually provides condoms?*		
Only the participant	74	71.2
Only her partner	18	17.3
Both of them	12	11.5
Where they normally get their supply of condoms?		
Government clinic	19	18.1
NGOs	52	49.5
Pharmacy	32	30.5
Convenience shop	2	1.9
Do they get the condoms for free?		
Yes, always	61	58.1
Yes, sometimes	13	12.4
No	31	29.5

*one missing value, therefore, n=104

Overall, 60.0% of women who had ever used condoms, used them mainly for STI and HIV protection while 21.9% used condoms mainly as a contraceptive. About 15.2% had used condoms for both contraceptive and STI protection. Of those who used condoms solely for contraceptive reasons, 87% were married to their partners. Two of the three participants who reported "other reasons" for condom use stated that it was their partner's request to use condoms, while the other did not specify.

More than half (55.2%) of the participants who had ever used a condom decided to on their own, and 28.6% said that the decision was made together with their partners. Another 16.2% reported their partners were the only person who decided.

Women were the main supplier of condoms. Only about 17.3% relied totally on their partners to provide condoms. Nearly half (49.5%) of the women got their condoms from NGO outreach services. Other places where they obtained their condoms were from the government clinics (18.1%), pharmacies (30.5%) and the convenience stores (1.9%). This explains why nearly 70%

women reported getting free condoms, as they were obtained from the NGOs or government facilities.

The pattern of condom use among women with HIV risk behaviour was investigated and shown in Table 5.20. History of using injectable drugs was not significantly associated with high condom use. However, there was a significant association between high condom use and having multiple sex partners. Participants who reported multiple sex partners were about three times more likely to be high condom users compared to those with a single sex partner (OR:3.06, 95% CI:1.36,6.89). Women who were involved in sex work reported a slightly higher odds of condom use (OR:3.55, 95% CI:1.45,8.67).

Table 5.20: High condom use by HIV-risk behaviours (N=221)

HIV-risk behaviours	High condom use				p-value	Odds Ratio[#] (95% CI)
	Yes (n=43)		No (n=178)			
	n	%	n	%		
Used injectable drugs						
Yes	3	15.0	17	85.0	0.77^	
No	40	19.9	161	80.1		
Have more than one sex partners						
Yes	12	37.5	20	62.5	0.005*	3.06 (1.36,6.89)
No	31	16.4	158	83.6		Ref
Involved in sex work						
Yes	10	41.7	14	58.3	0.004*	3.55 (1.45,8.67)
No	33	16.8	164	83.2		Ref

* Chi-square test
^ Fisher's Exact test
[#] Univariate logistic regression

On further analysis of the 24 participants who were involved in sex work, 20 (83.3%) reported high condom use when they had sexual contact with their clients, but only 41.7% with their current partners. Of the 14 sex workers who did not use condoms regularly with their current partners, three were HIV positive with sero-concordant partners. These three HIV positive sex workers also reported not using condoms regularly with their clients. Six out of nine transgender women (66.7%) reported high condom use with their partners. Only one was involved with sex work and she reported using condoms regularly with her clients.

To investigate whether condom use was associated with participant's HIV status or their partner's, a cross-tabulation was undertaken, and the results are shown in Table 5.21. While more

than half (57.1%) of the HIV positive participants did not use condoms regularly, their condom use was significantly higher than among those who were not HIV positive (OR=3.45; 95% CI: 1.13, 10.5). Nevertheless, condom use did not vary according to partner's HIV status. There were five HIV-concordant (both partners are HIV positive) couples and 21 HIV-discordant (different HIV status) couples. Surprisingly, three out of the five HIV-concordant couples reported using condoms regularly. On the other hand, among the sero-discordant couples, only 28.6% of them were high condom users, and this practice was not significantly different to the practice reported by the HIV negative couples (OR=1.89, 95% CI: 0.69, 5.23).

Table 5.21: High condom use by HIV status (N=221)

HIV status	High condom use				p-value*	Odds ratio[#] (95%, CI)
	Yes (n=43)		No (n=178)			
	n	%	n	%		
Participants' HIV status						
Positive	6	42.9	8	57.1	0.04	3.45 (1.13,10.5)
Negative or unknown	37	17.9	170	82.1		ref
Partners' HIV status						
Positive	6	35.3	11	64.7	0.11	
Negative or unknown	37	18.1	167	81.9		
HIV Concordance						
Concordant couples	3	60.0	2	40.0	0.04	7.10 (1.14,44.2)
Discordant couples	6	28.6	15	71.4		1.89 (0.69,5.23)
Both HIV negative or unknown status	34	17.4	161	82.6		ref

* Fisher's Exact test
[#] Univariate logistic regression

5.4.1.1 Condom use according to socio-demographic characteristics

High condom use varied by marital status (Table 5.22). The proportion of unmarried women who reported high condom use was 38.2% and this is significantly greater compared to married women (11.1%). The odds of high condom use among unmarried women is about five times higher compared to women who were married (OR=4.95, 95%CI: 2.45, 9.99).

Table 5.22: High condom use by socio-demographic characteristics (N=221)

Socio-demographic characteristics	High condom use				p-value	Odds ratio[#] (95% CI)
	Yes (n=43)		No (n=178)			
	n	%	n	%		
Marital status						
Married to the current partner	17	11.1	136	88.9	<0.001*	ref
Not married to the current partner	26	38.2	42	61.8		4.95 (2.45,9.99)
Ethnicity						
Malay	24	16.8	119	83.2	0.20*	
Non-Malay	18	24.0	57	76.0		
Religion						
Muslim	29	17.1	141	82.9	0.10*	
Non-Muslim	14	27.5	37	72.5		
Study Location						
Urban & Sub-urban	35	24.8	106	75.2	0.007*	2.97 (1.30,6.78)
Rural	8	10.0	72	90.0		ref
Age group						
Youth (≤ 25 years)	0	0	13	100.0	0.34^	
Young adults (26-35 years)	12	18.5	53	81.5		
Middle aged adults (36-50 years)	22	20.2	87	79.8		
Older adults (≥51 years)	6	21.4	22	78.6		

* Chi-square test
^ Fisher's Exact test
[#] Univariate logistic regression

The proportion of high condom users was higher (24.8%) in the urban and sub-urban areas, compared to the rural areas (10.0%). The difference is statistically significant with the odds of high condom use about three times higher among participants living in the urban and sub-urban compared to the rural area (OR=2.97,95%CI:1.30,6.78). When sex workers were excluded in the analysis, the difference in condom use between urban/sub-urban women and rural women remains significant (p=0.04). None of the young participants (less than 25 year) used condoms consistently with their partners. No significant difference in condom use was reported among the other age groups. The analysis also revealed no significant difference in condom use with regards to ethnicity (Malay versus non-Malay) and religion (Muslim versus non-Muslim).

5.4.1.2 Condom use according to socio-economic characteristics

Cross-tabulation and univariate analysis investigating the association between high condom use and each socio-economic characteristic were undertaken (Table 5.23). The results show no significant association between high condom use and education attainment, employment status or financial dependency.

Table 5.23: High condom use by socio-economic characteristics

Socio-economic characteristics	High condom use				p-value^
	Yes (n=43)		No (n=178)		
	n	%	n	%	
Highest education attainment					
Primary education or less	21	24.4	65	75.6	0.14
Completed at least secondary education	22	16.3	113	83.7	
Employment status					
Working	32	20.6	123	79.4	0.49
Not working	11	16.7	55	83.3	
Financially dependent on partners*					
Yes, always	11	17.2	53	82.8	0.27
Yes, sometimes	11	15.3	61	84.7	
No	21	25.0	63	75.0	

* one participant did not respond
^ Chi-square test

5.4.1.3 Condom use and relationship power dynamics

One of the main factors that may influence women's HIV preventive behaviour is power dynamics in their relationship. This study hypothesised that, women who have power in decision-making, are not affected by intimate partner violence, and have sexual communication skills will use condoms more regularly compared with the opposite group. To investigate these associations, each of the variables representing relationship power dynamics were analysed, according to whether participants were high condom users or not.

i. Decision-making power: The cross-tabulation between high condom use and decision-making power variables are shown in Table 5.24. All variables used to measure decision-making power were not significantly associated with high condom use. So, the survey found that among this group of women, condom use is not related to their perceived influence in decision-making or their ability to decide on condom use.

Table 5.24: High condom use by decision-making power variables

Decision-making power	High condom use				p-value
	Yes (n=43)		No (n=178)		
	n	%	n	%	
Perceived their partners had more power in decision-making[+]					
Yes	22	20.2	87	79.8	0.87*
No	21	19.3	88	80.7	
Believed they had no influence over their partner's behaviour [+]					
Yes	22	20.6	85	79.4	0.63*
No	20	18.0	91	82.0	
Felt trapped in their relationship[#]					
Yes	22	20.8	84	79.2	0.69*
No	21	18.6	92	81.4	
Participated in deciding condom use					
Yes	38	43.2	50	56.8	0.42^
No	5	29.4	12	70.6	
Never used a condom	0	0	116	100.0	

*****Chi-square test
^Fisher's Exact test. Participants who never used a condom were excluded in the test
[+] three missing values, therefore N=218
[#] two missing values, therefore N=219

ii. Intimate partner violence: Next, the association between intimate partner violence and condom use is illustrated in Table 5.25. Participants who experienced emotional abuse reported significantly lower condom use compared to those who never experienced it (OR:0.34, 95% CI:0.13,0.87), so too did participants who reported feeling scared of their partners (OR:0.21, 95% CI:0.06,0.69).

Table 5.25: High condom use by the types of intimate partner violence (N=218)

Intimate partner violence	High condom use				p-value	Odds Ratio[#] (95% CI)
	Yes (n=42)		No (n=176)			
	n	%	n	%		
Emotionally abused						
Yes	6	9.5	57	90.5	0.02^	0.34 (0.13,0.87)
No	36	23.2	119	76.8		ref
Feeling scared						
Yes	3	5.9	48	94.1	0.004^	0.21 (0.06,0.69)
No	39	23.4	128	76.6		ref
Sexually abused						
Yes	8	42.1	11	57.9	0.01^	3.53 (1.32,9.43)
No	34	17.1	165	82.9		ref
Physically abused						
Yes	11	21.6	40	78.4	0.64*	
No	31	18.6	136	81.4		

*Chi-square test
^Fisher's Exact test
[#]Univariate logistic regression

Unexpectedly, higher condom use was reported among participants with sexual abuse experience compared to those who had never experienced it (OR:3.53,95%CI:1.32,9.43). Suspecting the effect of confounders, further analyses using multivariate logistic regression was undertaken. After adjusting for marital status and involvement in sex work, the association between sexual abuse and condom use was no longer significant (OR:2.34, 95% CI:0.81,6.70), suggesting some confounding with sex work and/or marital status. The experience of physical violence was not significantly associated with condom use.

iii. Sexual communication: The ability to discuss HIV risk with one's partner and feeling comfortable talking about sexual issues may be associated with high condom use. To investigate these associations, cross-tabulation and logistic regression were undertaken. The results are shown in Table 5.26.

Table 5.26: High condom use by sexual communication (N=221)

Sexual communication	High condom use				p-value	Odds Ratio[#] (95% CI)
	Yes (n=43)		No (n=178)			
	n	%	n	%		
Discussed self HIV risk[+]						
Yes	30	22.2	105	77.8	0.15*	
No	12	14.3	72	85.7		
Discussed partner's HIV risk[+]						
Yes	27	20.9	102	79.1	0.40*	
No	15	16.7	75	83.3		
Comfortable discussing sexual relationship						
Yes	32	19.6	131	80.4	0.91*	
Not so or never discussed	11	19.0	47	81.0		
Comfortable asking partner to use a condom						
Yes	39	39.0	61	61.0	<0.001^	18.7 (6.38,54.8)
Not so or never asked	4	3.3	117	96.7		ref

* Chi-square test
^ Fisher's Exact test
[#] Univariate logistic regression
[+]two missing data, therefore N=219

As expected, the proportion of high condom users was greater among participants who felt comfortable asking their partners to use condoms than among those who were less comfortable or had never asked for condom use, with the odds ratio of 18.7 (95% CI: 6.38,54.8). No significant association was noted between condom use and discussion of HIV risk. Similarly, feeling comfortable discussing their sexual relationship was not associated with high condom use in partnerships.

In summary, the above analyses show significantly lower condom use among participants who had experienced emotional abuse and felt scared of their partners. Higher condom use was noted among participants who could comfortably ask their partners to use condoms. Surprisingly, condom use within a partnership is not associated with participants' perceptions of decision-making power and the ability to decide on condom use.

5.4.1.4 Condom use and women's perceptions of HIV risk

A higher proportion of condom use was reported by participants who perceived moderate and great risk of being infected with HIV compared to those who perceived they had a small risk or

no risk at all (Table 5.27). However, this difference did not reach statistical significance (p=0.49). There was also no significant difference (p=0.36) when condom use was compared between women who did not feel they were at risk of HIV (n=59) and those who perceived they were at some risk (n=115).

Table 5.27: High condom use by perception on HIV risk

Perception on HIV risk	High condom use				p-value
	Yes (n=30)		No (n=144)		
	n	%	n	%	
No risk at all	8	13.6	51	86.4	0.49^
Yes, small risk	1	5.9	16	94.1	
Yes, moderate risk	6	20.7	23	79.3	
Yes, great risk	15	21.7	54	78.3	
Don't know	7	21.2	26	78.8	

^ Fisher's Exact test

5.4.1.5 Condom use and knowledge of HIV prevention

To understand the association between HIV preventive knowledge and condom use, the difference in the knowledge scores between high condom users and others was tested using the Wilcoxon-Mann-Whitney test (Table 5.28). The result shows a significant difference, where condom users were noted to have higher knowledge scores compared to those who did not use condoms regularly (p=0.01).

Table 5.28: Condom use according to knowledge scores

	High condom use		p-value*
	Yes (n=43)	No (n=178)	
Knowledge scores (mean ± sd)	4.6 ± 1.1	4.0 ± 1.6	0.01

* Wilcoxon-Mann-Whitney test

5.4.1.6 Condom use and attitude towards social norms

In this section, the association between condom use and participants' attitudes to social norms that do not support condom use were examined. A Chi-square test was conducted comparing condom use between those who agreed and disagreed with each statement on social norms (Table 5.29).

Table 5.29: High condom use according to selected social norms

Social norms	High condom use				p-value*
	Yes		No		
	n	%	n	%	
A man will think his wife is unfaithful if she asks him to use condoms (N=217)^					
Agree	21	19.1	89	80.9	0.79
Disagree	22	20.6	85	79.4	
It would be embarrassing for me to buy condoms (N=218)^					
Agree	18	15.7	97	84.3	0.11
Disagree	25	24.3	78	75.7	
I would not enjoy sex when using a condom (N=213)^					
Agree	19	17.0	93	83.0	0.22
Disagree	24	23.8	77	76.2	
Using a condom would seems like an insult to my husband/partner (N=216)^					
Agree	17	16.0	89	84.0	0.16
Disagree	26	23.6	84	76.4	

* Chi-square test
^several participants did not respond, therefore N < 221

The results show no significant association between condom use and all four statements on social norms investigated. Therefore, it is concluded that participants' agreement with the mentioned social norms is not related to condom use.

5.4.1.7 Summary on condom use among the participants

Unprotected sex was common among the group of women surveyed: of the 221 who participated, 52.5% had never used condoms with their partners. While 28.9% of women surveyed reported using condoms in their last sexual contact, only 19.5% were high condom users.

Among the high condom users, about three quarters (75.2%) had used condoms for STI and HIV protection, while 21.9% used condoms solely for contraceptive reason. Of those who used condoms solely for contraceptive reason, 87% were married.

Among the 24 participants who were involved with sex work, 20 (83.3%) reported high condom use when they had sexual contact with their clients. However, only ten (41.7%) of these women reported high condom use with their current partners. Three out of seven HIV positive sex

workers did not use condoms with either their sero-discordant partners or clients. Six out of nine transgender women (66.7%) reported high condom use with their partners.

Participants' HIV status was significantly associated with high condom use. Those diagnosed HIV positive had used condoms more consistently than HIV negative participants. However, partners' HIV status was not associated with high condom use.

The majority of respondents participated in the decision-making process around condom use, where 55.2% decided on their own and 16.2% shared the decision with their partners. Only 16.2% reported that condom use was decided by their partners.

In terms of access to condoms, nearly three quarters of the participants got them free from the NGO outreach services or government health clinics. The others had to buy them either from the pharmacies or convenience shops.

Condom use varied according to marital status and study location. It was significantly higher among unmarried compared to married women and those from urban areas compared to rural. No difference in condom use was noted between the different age groups, ethnicities (all four ethnicity groups were compared, and then Malay vs. non-Malay), religious beliefs (all four religious beliefs were compared, then Muslims vs. non-Muslims) and socio-economic status.

The association between condom use and; (i) relationship power dynamics, (ii) perceptions of HIV risk, (iii) knowledge of HIV prevention and (iv) attitudes towards social norms were examined. A significantly lower condom use was reported by women who had experienced emotional abuse and felt scared of their partners, while higher condom use was noted among those who could comfortably ask their partners to use condoms. Surprisingly, condom use within a partnership was not associated with participants' perceptions of decision-making power and their ability to decide on condom use.

As expected, condom use was significantly associated with participant's knowledge of HIV prevention. The findings did not show significant association between condom use and the women's perceptions of HIV risk, or their attitudes regarding social norms.

5.4.2 HIV Screening

Another preventive behaviour investigated in this study was HIV screening. In this section, the screening uptake among the participants is described in general, and according to their socio-demographic and socio-economic background. Screening among participants with HIV risk behaviours are also presented. Then, further analyses are conducted to examine the association between HIV screening uptake and several selected variables.

Overall, 75.1% of the participants had been tested for HIV. All except four who had been tested knew their HIV status (Table 5.30). Among the 166 participants who had attended HIV screening, only 87 (52.4%) were tested within the previous 12 months. Taking into account the presence of an antenatal HIV screening programme and pre-marital HIV testing in Malaysia, further analysis to examine the association between the timing of screening and having children, as well as marital status was undertaken. The results of chi-square test show no significant difference in the timing of screening between those who had children or not (p=0.59), and between married and unmarried women (p=0.53).

Table 5.30: HIV screening among participants (N=221)

	n	Percentage (%)
Went for HIV screening?		
Yes	166	75.1
No*	55	24.9
Result		
Positive	14	6.3
Negative	148	67.0
Did not know	4	1.8
Not applicable (did not screen)	55	24.9
Time of screening		
In the past 12 months	87	39.4
More than 12 months	79	35.7
Not applicable (did not screen)	55	24.9

*This includes participants who responded "no" when asked whether they have been screened for HIV, and participants who did not respond to the question

The socio-demographic characteristics of participants who went for HIV screening are shown in Table 5.31. Overall, 89.7% of unmarried women had been tested for HIV compared to 68.6% among married women who did so. The odds of screening among unmarried women were about

four times greater than married women (OR=3.98, 95% CI: 1.69,9.35). Those who lived in the urban and sub-urban areas were more commonly screened compared to women in rural areas, where the odds of screening among urban and sub-urban women were about three and a half times greater compared to those in rural areas (OR=3.42,95% CI:1.82,6.43). The analyses show no significant association between HIV screening uptake and participants' ethnicity, religion and age group.

Table 5.31: HIV screening by socio-demographic characteristics (N=221)

Socio-demographic characteristics	Went for HIV Screening				p-value	Odds ratio[#] (95% CI)
	Yes (n=166)		No (n=55)			
	n	%	n	%		
Marital status						
Married to their current partner	105	68.6	48	31.4	<0.001*	ref
Not married to their current partner	61	89.7	7	10.3		3.98 (1.69,9.35)
Ethnicity						
Malay	109	74.7	37	25.3	0.85*	
Non-Malay	57	76.0	18	24.0		
Religion						
Muslim	125	73.5	45	26.5	0.32*	
Non-Muslim	41	80.4	10	19.6		
Study Location						
Urban & Sub-urban	118	83.7	23	16.3	<0.001*	3.42 (1.82,6.43)
Rural	48	60.0	32	40.0		ref
Age group						
Youth (≤ 25 years)	10	77.0	3	23.0	0.94^	
Young adults (26-35 years)	48	73.8	17	26.2		
Middle aged adults (36-50 years)	82	75.2	27	24.8		
Older adults (≥51 years)	22	78.6	6	21.4		

* Chi-square test
^ Fisher's Exact test
[#] univariate logistic regression

The uptake of HIV screening among the participants according to their socio-economic characteristics are presented in Table 5.32, so are the results of the univariate analyses. In general, there was no significant difference in the proportion of women who went for screening according to their employment status, educational level or financial dependency. Therefore, it is concluded that all the socio-economic risk factors investigated in the survey did not significantly affect HIV screening uptake among the participants.

Table 5.32: HIV screening according to socio-economic characteristics (N=221)

Socio-economic risk factors	HIV screening				p*
	Yes (n=166)		No (n=55)		
	n	%	n	%	
Employment status					
Working	116	74.8	39	25.2	0.89
Not working	50	75.8	16	24.2	
Education level					
Primary education or less	70	81.4	16	18.6	0.08
Completed at least secondary education	96	71.1	39	28.9	
Financially dependent on partners					
Yes, always	48	75.0	16	25.0	0.54
Yes, sometimes	51	70.8	21	29.2	
No	66	78.6	18	21.4	

* Chi-square test

5.4.2.1 HIV screening among women with HIV risk behaviour

HIV screening among participants who injected drugs, had multiple sex partners and were involved in sex work, and transgender women were investigated. Among the participants who inject drugs, 90.0% of them had been screened for HIV. A high proportion of participants with multiple sex partners (93.8%) had also been screened (Table 5.33).

Table 5.33: HIV screening according to HIV risk behaviour (N=221)

High risk behaviour	HIV Screening				p-value	Odds ratio# (95% CI)
	Yes (n=166)		No (n=55)			
	n	%	n	%		
Used injectable drugs						
Yes	18	90.0	2	10.0	0.17^	
No	148	73.6	53	26.4		
Have more than one sex partners						
Yes	30	93.8	2	6.2	0.007^	5.86(1.35,25.3)
No	136	72.0	53	28.0		ref
Involved in sex work						odds ratio cannot be
Yes	24	100	0	0	0.001^	calculated, unstable
No	142	72.1	55	27.9		regression model
Transgender women						
Yes	8	88.9	1	11.1	0.46^	
No	158	74.5	54	25.5		

^ Fisher's exact test

univariate logistic regression

All 24 participants who were involved with sex work had been screened for HIV; 45.8% in the previous 12 months. Among the nine participants who identified themselves as transgender women, only one had never been screened for HIV. Of the eight who had been screened, seven had it done in the previous 12 months.

The association between HIV screening and the HIV risk behaviours were examined, and also presented in Table 5.33. Participants who reported having multiple sex partner were more likely to have undergone screening compared to monogamous women with the odds ratio of 5.86 (95%CI:1.35,25.3). However, this association lost its significance when sex workers were excluded (p=0.85). HIV screening uptake did not vary according to drug use or being a transgender woman, possibly due to the small number of participants with the behaviour.

5.4.2.2 HIV screening and condom use

The following analysis investigates whether there is any association between high condom use and HIV screening uptake. Overall, 90.7% of high condom users went for HIV screening (Table 5.34). The association between HIV screening and high condom use was statistically significant in the univariate analysis (p=0.01; OR:3.91, 95%CI:1.33,11.5); which no longer remain significant after the analysis was adjusted for HIV status, marital status and study location (OR:2.53, 95% CI: 0.82,7.82).

Table 5.34: HIV screening by high condom use (N=221)

High Condom Use	Went for HIV Screening				p-value^	Unadjusted Odds ratio* (95% CI)	Adjusted Odds ratio# (95% CI)
	Yes (n=166)		No (n=55)				
	n	%	n	%			
Yes	39	90.7	4	9.3	0.01	3.91 (1.33,11.5)	2.53 (0.82,7.82)
No	127	71.3	51	28.7		ref	ref

^Fisher's Exact test
*univariate logistic regression
multiple logistic regression adjusted for HIV status, marital status and study location

5.4.2.3 HIV screening and relationship power dynamics

Further analysis was undertaken to examine the influence of relationship power dynamics on HIV screening uptake. To investigate this, associations between HIV screening and (i) decision-

making power and (ii) sexual communication skills were examined. It is hypothesised that women who have power in decision-making and are able to communicate sexual issues with her partner are more likely to have undergone HIV screening compared to the opposite group.

i. Decision-making power: To investigate whether HIV screening is associated with the participants' decision-making power, cross-tabulations of screening uptake with each variable representing participants' perceptions of their decision-making ability were undertaken (Table 5.35). There was a significantly higher screening uptake among women who believed they had no influence in their partners' behaviour in univariate analysis. However, the association lost its significance after adjusting for marital status and study location. The rest of the decision-making variables were not significantly associated with HIV screening.

Table 5.35: HIV screening by decision-making power variables

Decision-making power	HIV Screening				p-value	Unadjusted Odds ratio[¥] (95% CI)	Adjusted Odds ratio[µ] (95% CI)
	Yes (n=166)		No (n=55)				
	n	%	n	%			
Perceived their partners had more power in decision-making[+]							
Yes	85	78.0	24	22.0	0.35*		
No	79	72.5	30	27.5			
Believed they had no influence in their partner's behaviour [+]							
Yes	88	82.2	19	17.8	0.02*	2.13 (1.12,4.03)	2.08 (0.98, 4.67)
No	76	68.5	35	31.5		ref	ref
Felt trapped in their relationship[#]							
Yes	84	79.2	22	20.8	0.19*		
No	81	71.7	32	28.3			

* Chi-square test
^ Fisher's Exact test. Participants who never used a condom were excluded in the test
[+] three missing values, therefore N=218
[#] two missing values, therefore N=219
[¥] univariate logistic regression
[µ] multiple logistic regression adjusted for marital status and study location

ii. Sexual communication: Next, the association between several aspects of sexual communication and HIV screening was investigated. The result is shown in Table 5.36.

Table 5.36: HIV screening by sexual communication (N=221)

Sexual communication	HIV Screening				p-value	OR[¥] (95% CI)
	Yes (n=166)		No (n=65)			
	n	%	n	%		
Discussed own HIV risk[#]						
Yes	110	81.5	25	18.5	0.008*	2.32 (1.24,4.33)
No	55	65.5	29	34.5		ref
Discussed partner's HIV risk[#]						
Yes	103	79.8	26	20.2	0.06*	
No	62	68.9	28	31.1		
Comfortable discussing sexual relationship						
Yes	128	78.5	35	21.5	0.54^	
Not so or never discussed	38	65.5	20	34.5		

* Chi-square test
^ Fisher's Exact test
[#]two missing data, therefore N=219
[¥] Univariate logistic regression

Discussion of women's own HIV risk was significantly associated with HIV screening. Participants who discussed their HIV risk were about two times more likely to go for HIV screening compared to those who never had the discussion (OR:2.32, 95% CI:1.24,4.33). No significant association seen between HIV screening and the other two variables under sexual communication (discussion of partner's HIV risk, comfortable discussing sexual relationship).

In summary, only one of the constructs of relationship power dynamics examined was significantly associated with HIV screening; that is women's ability to discuss her own HIV risk with her partner. This finding suggests some sort of empowerment among the women who were able to discuss their risk. While decision-making power and ability to communicate sexual issues appeared as an advantage for women to practice preventive behaviour in other studies, these constructs did not influence this group of women's decision to go for screening.

5.4.2.4 HIV screening and women's perceptions of HIV risk

Perceiving being at risk of HIV may determine whether a woman undergoes screening. To investigate this association, a cross-tabulation and univariate analysis were performed and the results are shown in Table 5.37.

Table 5.37: HIV screening by perceptions of HIV risk (N=207)

Perceptions of HIV risk	HIV screening				p-value	Odds Ratio^ (95% CI)
	Yes (n=152)		No (n=55)			
	n	%	n	%		
No risk at all	36	61.0	23	39.0	<0.001*	ref
Yes (small, moderate & great risk)	98	85.2	17	14.8		3.68 (1.77,7.67)

*Chi-square test
^ Univariate logistic regression

As suspected, the proportion of women who went for screening was higher among those who perceived they were at risk of getting HIV compared to those who did not feel the same. Univariate logistic regression revealed significant difference in HIV screening uptake according to women's perceptions of HIV risk, with the odds ratio of 3.68 (95% CI: 1.77, 7.67).

5.4.2.5 HIV screening and knowledge of HIV prevention

To investigate whether participants' knowledge of HIV prevention is related to HIV screening, the Wilcoxon-Mann-Whitney test was undertaken. The difference in knowledge scores between those who went for screening and those who did not were examined (Table 5.38). A significant association is seen between HIV prevention knowledge and HIV screening. Participants who went for screening had higher knowledge scores compared to those who did not go for screening (p=0.001).

Table 5.38: HIV screening according to knowledge scores

	HIV Screening		p-value*
	Yes (n=166)	No (n=55)	
Knowledge scores (mean ± sd)	4.3 ± 1.3	3.5 ± 1.9	0.001

* Wilcoxon-Mann-Whitney test

5.4.2.6 Summary of HIV screening

In general, 75.1% of the participants had been screened for HIV. Of those who were screened, about half were screened in the 12 months prior to the survey. Fourteen women (6.3%) were diagnosed HIV positive.

Higher screening uptake is seen among unmarried women and those who lived in the urban and sub-urban areas. No significant difference in HIV screening is seen between the different ethnicities, religious beliefs, age groups and socio-economic background.

The majority of women involved with HIV risk behaviour had attended HIV screening. Of the 20 women who injected drugs, 90% had been screened. All 24 sex workers had been screened. Only one of the nine transgender women had not been screened for HIV. This suggested that HIV screening services had been available and accessible to these high-risk women.

Power dynamics were not strongly associated with HIV screening uptake in this study, where only one component of decision-making power variable (discuss own-HIV risk) was significantly associated with HIV screening. While other sexual communication aspects examined did not influence women's decision to go for screening, the ability to talk with her partner about her own risk indicates a sense of self-empowerment by the women, which further enabled her to determine her HIV status by going for HIV screening.

As expected, higher knowledge of HIV prevention is significantly associated with higher screening uptake among the participants, so did the perception of being at risk of HIV.

The above findings suggested that HIV screening uptake among the participants was not affected so much by power dynamics in the relationship, but more by the accessibility of the screening service (urban and sub-urban women and those with HIV risk behaviour), perceptions of HIV risk and knowledge of HIV prevention.

5.4.3 Sex avoidance with current partner

In the survey, participants were asked whether they have ever tried to avoid sex with their partners out of fear of being infected with STIs including HIV. Ninety five (43.0%) participants responded "yes" to the question showing that this was a fairly common behaviour. Sex avoidance is not a practical long-term measure to prevent STIs in a steady relationship, nevertheless it is important to understand the characteristics of women who reported avoiding sex and factors that may be associated with sex avoidance. To get a general overview on this practice, a cross-tabulation between sex avoidance and participant's socio-demographic characteristics was

undertaken. For each variable, the proportion of participants who reported they had avoided sex was compared to those who did not, using appropriate statistical tests (Table 5.39).

Table 5.39: Socio-demographic characteristics of participants who reported to have avoided sex (N=221)

Socio-demographic characteristics	Reported to have avoided sex				p-value
	Yes (n=95)		No+ (n=126)		
	n	%	n	%	
Marital status					
Married to their current partner	63	41.2	90	58.8	0.42*
Not married to their current partner	32	47.1	36	52.9	
Ethnicity					
Malay	61	41.8	85	58.2	0.68^
Chinese	8	57.1	6	42.9	
Indian	17	40.5	25	59.5	
Other ethnicities	9	47.4	10	52.6	
Religion					
Islam	73	42.9	97	57.1	0.16^
Christian	1	14.3	6	85.7	
Buddha	8	66.7	4	33.3	
Hindu	13	40.6	19	59.4	
Study Location					
Urban	58	50.9	56	49.1	0.22^
Suburban	7	25.9	20	74.1	
Rural	30	37.5	50	62.5	
Age group					
Youth (≤ 25 years)	7	53.8	6	46.2	0.63^
Young adults (26-35 years)	26	40.0	39	60.0	
Middle aged adults (36-50 years)	44	40.4	65	59.6	
Older adults (≥51 years)	14	50.0	14	50.0	

+includes ten participants who did not respond to the question
* Chi-square test
^ Fisher's Exact test

The analyses showed no significant difference in the practice of sex avoidance across marital status, ethnicities, religions, study locations and age groups. Further analysis also showed no difference in the practice of sex avoidance between Muslim women and non-Muslims (p=0.98) and between Malay and non-Malays (p=0.32).

5.4.3.1 Sex avoidance and HIV status

The association between sex avoidance and HIV status of both participants and their partners were examined. From the results, it is understood that HIV status of the participants or their partners' was not significantly associated with sex avoidance. Consistently, no difference in the

practice of sex avoidance is seen between HIV-discordant and HIV-concordant couples. Table 5.40 shows the number and proportion of participants who had reported sex avoidance according to HIV status and the p-value of the statistical test conducted.

Table 5.40: Sex avoidance and HIV status (N=221)

HIV status	Reported to have avoided sex				p-value
	Yes (n=95)		No (n=126)		
	n	%	n	%	
Participants' HIV status					
Positive	5	35.7	9	64.3	0.78^
Negative or unknown	90	43.5	117	56.5	
Partners' HIV status					
Positive	9	52.9	8	47.1	0.39*
Negative or unknown	86	42.1	118	57.9	
HIV Concordance					
Concordant couples	2	40.0	3	60.0	0.88^
Discordant couples	10	47.6	11	52.4	
Both HIV negative or unknown status	83	42.6	112	57.4	

* Chi-square test
^ Fisher's Exact test

5.4.3.2 Sex avoidance, condom use and HIV screening

The association between sex avoidance and the other two preventive behaviours (condom use and HIV screening) was investigated and presented in Table 5.41. Overall, 51.2% of high condom users had reported avoiding sex with their partners for fear of being infected with STIs compared to 41.0% of non-high condom users who reported doing so. However, the difference was not statistically significant and may have occurred by chance (p=0.23).

Table 5.41: Sex avoidance according to high condom use and HIV screening

Preventive behaviours	Reported to have avoided sex				p-value*
	Yes (n=95)		No (n=126)		
	n	%	n	%	
High condom use					
Yes	22	51.2	21	48.8	0.23
No	73	41.0	105	59.0	
HIV Screening					
Yes	75	41.0	91	59.0	0.25
No	20	36.4	35	63.6	

* Chi-square test

A similar analysis was undertaken to understand the association between sex avoidance and HIV screening. Although a higher proportion of screened participants (41.0%) had reported sex avoidance compared to those who had never been screened (36.4%), the difference was also not statistically significant (p=0.25). The above analyses show that sex avoidance is independent of condom use and HIV screening uptake among the study participants.

5.4.3.3 Sex avoidance and relationship power dynamics

Avoiding sex is a passive and non-provocative act, compared to negotiating for condom use with husbands or partners. Thus, it is hypothesised that women who had less power in their relationship were more likely to practice sex avoidance as their preventive strategy against STIs and HIV. This section investigates the association between: (i) sex avoidance and decision-making power, and (ii) sex avoidance and intimate partner violence.

i. Decision-making power: The cross-tabulation and results of univariate analysis between sex avoidance and decision-making power variables are presented in Table 5.42. Three of the four decision-making power variables were significantly associated with sex avoidance. Women who believed they had no influence over their partner's behaviour (p=0.02), felt trapped in their relationship (p=0.001) and were not involved in the decision to use condoms (p<0.001) were about twice more likely to have avoided sex compared to the opposite group.

Table 5.42: Sex avoidance by decision-making power variables

Decision-making power	Reported to have avoided sex				p-value	Odds Ratio (95% CI)
	Yes (n=95)		No (n=126)			
	n	%	n	%		
Perceived their partners had more power in decision-making[+]						
Yes	48	44.0	61	56.0	0.58*	
No	44	40.4	65	59.6		
Believed they had no influence in their partner's behaviour [+]						
Yes	54	50.5	53	49.5	0.02*	1.88 (1.09,3.24)
No	39	35.1	72	64.9		ref
Felt trapped in their relationship[#]						
Yes	57	53.8	49	46.2	0.001*	2.49 (1.44,4.31)
No	36	31.9	77	68.1		ref
Participated in deciding condom use						
Yes	48	54.6	40	45.4	<0.001^	ref
No	12	70.6	5	29.4		2.78 (1.56,4.95)
Never used a condom	35	30.2	81	69.8		

*****Chi-square test
^Fisher's Exact test. Participants who never used a condom were excluded in the test
[+] three missing values, therefore N=218
[#] two missing values, therefore N=219

ii. Intimate partner violence: The cross-tabulation and univariate analysis between sex avoidance and experience of intimate partner violence are shown in Table 5.43. In general, the proportion of women who had avoided sex were higher among those who have had the experience of emotional, sexual or physical abuse. However, the difference was only significant among those who had experienced physical abuse (p=0.01). Women who had been physically abused by their husbands or partners were two and a half times more likely to have avoided sex compared to those who never had a similar experience (OR:2.42, 95% CI: 1.28,4.59).

Table 5.43: Sex avoidance by the types of intimate partner violence (N=218^)

Intimate partner violence	Reported to have avoided sex				p-value*	Odds Ratio[#] (95% CI)
	Yes (n=92)		No (n=126)			
	n	%	n	%		
Emotionally abused						
Yes	33	52.4	30	47.6	0.052	
No	59	38.1	96	61.9		
Feeling scared						
Yes	25	49.0	26	51.0	0.26	
No	67	40.1	100	59.9		
Sexually abused						
Yes	12	63.2	7	36.8	0.053	
No	80	40.2	119	59.8		
Physically abused						
Yes	30	58.8	21	41.2	0.01	2.42 (1.28,4.59)
No	62	37.1	105	62.9		ref

*Chi-square test
[#]Univariate logistic regression
^Three participants did not respond to questions on intimate partner violence

5.4.3.4 Summary on sex avoidance

In general, almost half of the participants have tried to avoid sex with their current partners for fear of being infected with HIV or other STIs. There was no significant difference in the socio-demographic characteristics or HIV status of participants who have avoided sex and those who did not. Interestingly, sex avoidance was not significantly associated with condom use or HIV screening.

Relationship power dynamics showed significant association with sex avoidance. Women who had less decision-making power and had been physically abused by their partners were more likely to have avoided sex.

5.5 Participant's opinion on female-controlled methods

In the survey, participants were asked of their opinion about alternative methods to male condoms, which women could use as prevention against sexually transmitted HIV. Five questions were asked ranging from their agreement to use it, to their opinion on public acceptance of the alternative method, and the role of their partners in the decision to use. The

detailed responses are presented in Table 5.44. Five participants did not answer any of the questions on female-controlled methods.

Table 5.44: Participants' responses to questions on female-controlled methods (N=216)

Questions on female-controlled methods	n	%
If a form of HIV protection that women could use themselves were available, would you want to use it?		
Yes	149	69.0
No	25	11.6
Not sure	42	19.4
In general, do you think many women at risk of HIV in Malaysia would want to use a form of HIV protection that women use themselves?		
Yes, many	126	58.3
Yes, a few	22	10.2
No	6	2.8
Not sure	62	28.7
If you chose to use such a method to protect against HIV, would it be important that your husband/partner know about it?		
Yes	139	64.3
No	36	16.7
Not sure	41	19.0
Do you think a woman should ask her husband's/partner's permission before using this method?		
Yes	155	71.8
No	61	28.2
In your opinion, if such a method of HIV protection were available, who should decide if it should be used?		
Myself	91	42.1
My husband/partner	9	4.2
Both of us	92	42.6
Not sure	24	11.1

5.5.1 Interest in using a female-controlled method for HIV prevention

Participants were asked whether they would want to use female-controlled methods of HIV prevention if they were available. Overall, 69% of the participants were interested to try them, while 11.6% were not. The remaining 19.4% were undecided. In addition to their own acceptance, participants were asked to give their opinion whether women at risk of HIV in Malaysia would want to use a form of HIV protection that women could control themselves. In general, 68.4% participants believed many women would use it, while only six did not feel that it would be used by Malaysian women. The remaining 28.7% of participants were undecided.

Further analysis to examine the difference in acceptance according to socio-demographic characteristics was undertaken and the results are shown in Table 5.45. The results show that participants' interest in using a female-controlled method did not vary according to marital status, ethnicity, religion, study location or their age group.

Table 5.45: Participants' interest to use female-controlled methods by socio-demographic characteristics (N=216)

Socio-demographic characteristics	Interest in using female-controlled method				p-value
	Yes (n=149)		No/Not sure (n=67)		
	n	%	n	%	
Marital status					
Married to their current partner	99	66.0	51	34.0	0.15*
Not married to their current partner	50	75.8	16	24.2	
Ethnicity					
Malay	98	70.0	42	30.0	0.66*
Non-Malay	51	67.1	25	32.9	
Religion					
Muslim	112	67.5	54	32.5	0.38*
Non-Muslim	37	74.0	13	26.0	
Study Location					
Urban & Sub-urban	97	69.8	42	30.2	0.73*
Rural	52	67.5	25	32.5	
Age group					
Youth (≤ 25 years)	8	72.7	3	27.3	0.90^
Young adults (26-35 years)	41	65.1	22	34.9	
Middle aged adults (36-50 years)	76	70.4	32	29.6	
Older adults (≥51 years)	20	71.4	8	28.6	

* Chi-squared test
^ Fisher's Exact test

5.5.1.1 Participants with HIV risk behaviour

The interest in using a female-controlled preventive method among women with HIV risk behaviour was explored (Table 5.46). There was no significant difference in their interest when compared to other women.

Table 5.46: Interest to use female-controlled methods among participants with HIV risk behaviour (N=216)

HIV risk behaviour	Interest in using female-controlled method				p-value
	Yes (n=149)		No/Not sure (n=67)		
	n	%	n	%	
Inject drugs					
Yes	13	65.0	7	35.0	0.80*
No	136	69.4	60	30.6	
Involved with sex work					
Yes	18	78.3	5	21.7	0.35^
No	131	67.9	62	32.1	

* Chi-square test
^ Fisher's Exact test

5.5.1.2 High condom users and women who had avoided sex

The interest in using a female-controlled method among high condom users and those who had reported avoiding sex were analysed (Table 5.47). Interestingly, a significantly greater proportion of high condom users (82.9%) had expressed their interest in trying female-controlled methods compared to the non-consistent condom users (65.7%). However, the women's interest in using alternative preventive methods were not significantly associated with sex avoidance.

Table 5.47: Interest to use female-controlled methods by condom use and sex avoidance (N=216)

HIV risk behaviour	Interest in using female-controlled method				p-value*
	Yes (n=149)		No/Not sure (n=67)		
	n	%	n	%	
High condom use					
Yes	34	82.9	7	17.1	0.03
No	115	65.7	60	34.3	
Sex avoidance					
Yes	66	71.0	27	29.0	0.58
No	83	67.5	40	32.5	

* Chi-square test

5.5.1.3 Relationship power dynamics

This section analyses the association between relationship power dynamics and the women's interest in using a female-controlled method. The findings are shown in Table 5.48. The difference in decision-making power did not significantly influence women's interest in using

female-controlled methods. Similarly, sexual communication skills did not show any significant association with the women being interested in using a female-controlled method.

Table 5.48: Interest to use female-controlled methods by decision-making power and sexual communication variables (N=216)

	Interest in using female-controlled method				p-value*
	Yes (n=149)		No/Not sure (n=67)		
	n	%	n	%	
Decision-making power					
Perceived their partners had more power in decision-making[+]					
Yes	74	69.2	33	30.8	0.96
No	73	68.9	33	31.1	
Believed they had no influence in their partner's behaviour [+]					
Yes	69	65.1	37	34.9	0.22
No	78	72.9	29	27.1	
Felt trapped in their relationship[#]					
Yes	73	68.9	33	31.1	0.93
No	75	69.4	33	30.6	
Sexual communication					
Comfortable discussing sexual relationship					
Yes	114	71.3	46	28.7	0.22
Not so or never discussed	35	62.5	21	37.5	
Comfortable asking partner to use a condom					
Yes	71	73.2	26	26.8	0.23
Not so or never asked	78	65.6	41	34.4	

* Chi-square test
[+] Three participants did not respond
[#] Two participants did not respond

5.5.2 The decision to use a female-controlled method

Three questions were asked regarding the role of their partners in the decision-making process before they would consider using the female-controlled methods. The women were asked (i) whether it is important for their partners to know about any protection they are using; (ii) whether their partner's permission is needed and (iii) who should make the final decision in using the method (Table 5.44). Overall, 64.3% of participants mentioned that they felt it is important for their partners to know if they would want to use a female-controlled method to prevent sexually

transmitted infections including HIV. The perception that their partners should know about it did not differ according to marital status, ethnicity, religion, study location or age group (Table 5.49).

Table 5.49: Participants' perception regarding the importance of partners knowing if they chose to use female-controlled methods for HIV protection according to socio-demographic characteristics (N=216)

Socio-demographic characteristics	Important for partner to know				p-value
	Yes (n=139)		No/Not sure (n=77)		
	n	%	n	%	
Marital status					
Married to the current partner	100	66.7	50	33.3	0.28*
Not married to the current partner	39	59.1	27	40.9	
Ethnicity					
Malay	94	67.1	46	32.9	0.25*
Non-Malay	45	59.2	31	40.8	
Religion					
Muslim	110	66.3	56	33.7	0.29*
Non-Muslim	29	58.0	21	42.0	
Study Location					
Urban & Sub-urban	93	66.9	46	33.1	0.29*
Rural	46	59.7	31	40.3	
Age group					
Youth (≤ 25 years)	6	54.6	5	45.4	0.70^
Young adults (26-35 years)	41	65.1	22	34.9	
Middle aged adults (36-50 years)	72	66.7	36	33.3	
Older adults (≥51 years)	16	57.1	12	42.9	

* Chi-square test
^ Fisher's exact test

As shown in Table 5.44, about three quarters (71.8%) of women felt that it is important for them to ask their partners' permission before they use female-controlled protection methods. A detailed description on participants' perceptions regarding the importance of getting their partner's permission according to selected socio-demographic characteristics is shown in Table 5.50.

Table 5.50: Perception on the importance of getting partner's permission to use female-controlled methods according to selected socio-demographic characteristics

Socio-demographic characteristics	Important to ask partner's permission to use female-controlled methods				p-value	Odds Ratio (95% CI)
	Yes (n=155)		No (n=61)			
	n	%	n	%		
Marital status						
Married to their current partner	116	77.3	34	22.7	0.006*	2.36 (1.27,4.40)
Not married to their current partner	39	59.1	27	40.9		ref
Ethnicity						
Malay	103	73.6	37	26.4	0.42*	
Non-Malay	52	68.4	24	31.6		
Religion						
Muslim	125	75.3	41	24.7	0.04*	2.03 (1.04,3.95)
Non-Muslim	30	60.0	20	40.0		
Study Location						
Urban & Sub-urban	94	67.6	45	32.4	0.07*	
Rural	61	79.2	16	20.8		
Age group						
Youth (≤ 25 years)	8	72.7	3	27.3	0.52^	
Young adults (26-35 years)	48	76.2	15	23.8		
Middle aged adults (36-50 years)	77	71.3	31	28.7		
Older adults (≥51 years)	17	60.7	11	39.3		

* Chi-squared test
^ Fisher's Exact test

Participants' perception on the importance of getting their partner's permission to use a female-controlled protection method varied according to marital status and religion. The odds of agreeing that partner's permission is important was about two and a half times greater among married women than the unmarried (OR=2.36, 95%CI:1.27,4.40). A greater proportion of Muslim women (75.3%) perceived that it is important for them to get their partner's permission compared to non-Muslims (60.0%). This difference is statistically significant with the odds ratio of 2.03 (95% CI: 1.04,3.95). There was no difference in participants' perception that their partner's permission is important between ethnicity, study location or age group.

However, when asked about decision-making surrounding the use of such methods, only nine (4.2%) participants felt their partners should decide for them, while about 42.6% felt it should be a mutual decision (Table 5.44). Another 42.1% of the participants felt they should decide themselves if they wanted to use the female-controlled methods.

5.5.3 Summary of female-controlled methods

In summary, 69% of women expressed their interest in using preventive methods which women could control if they were available. High condom users were more interested to use the alternative methods compared to women who did not use condoms regularly. There was no significant difference in the interest shown when compared by marital status, ethnicity, religion, study location, age group, HIV risk behaviour, decision-making power and sexual communication skills. About 68.4% of participants believed that other women at risk would be interested to use the alternative methods if it was available.

In general, more than half (64.3%) of the women believed it was important for their partners to know if they ever use any protective method for HIV prevention, while about three quarters (71.8%) felt it important to get their partner's permission before using the method. The importance of getting their partner's permission was perceived to be important by a significantly greater number of married women and Muslims. Nonetheless, the majority of women believed that they should have a say in the decision-making process.

5.6 Summary of chapter

General overview: A total of 221 women participated in the survey: 69.2% were married, 87.0% were in the reproductive age group and 63.4% living below poverty line. Twenty women reported injecting drugs in the past 12 months, 24 were involved in sex work and six were involved in both. Injection drug use and sex work were dependent on each other, with the OR of 4.35 (95% CI:1.49, 12.7). Overall, 6.3% of the participants were HIV positive and 7.7% had HIV positive partners, with nearly half (45.7%) not being aware of their partner's HIV status. The proportion of HIV positive women was significantly higher among unmarried compared to married, and among women who injected drugs and were involved in sex work.

The general description of survey participants suggests that a significant proportion of the women were indeed in a vulnerable position with regards to their HIV risk; not only because their partners were injecting drugs, but also due to their own HIV risk behaviour, their disadvantaged socio-economic situation, lack of power in decision-making and exposure to

abuse. Moreover, the women's restricted sexual communication skills and their perceptions on social norms that were not supportive of condom use further added to their vulnerability.

Condom use: Unprotected sex was common: of the 221 women, 52.5% had never used a condom with their partners. While 28.9% of women surveyed reported using condoms in their last sexual contact, only 19.5% were high condom users. Overall, 83.3% sex workers reported high condom use with their clients, however, only 41.7% used condoms regularly with their current partners. Six out of nine transgender women (66.7%) reported high condom use with their partners.

The majority of women who ever used a condom participated in the decision-making process, with 55.2% decided on their own and 16.2% shared the decision with their partners. In terms of access to condoms, nearly three quarters of the participants got them free from the NGO outreach services or government health clinics.

Condom use varied according to marital status and study location, with higher use reported among unmarried compared to married women, and those from urban areas compared to rural. A significantly lower condom use was reported by women who had experienced emotional abuse and felt scared of their partners, while higher condom use was reported by those with better HIV prevention knowledge and those who could comfortably ask their partners to use condoms. While participants' HIV status was associated with higher condom use, their partners' HIV status did not determine such behaviour, suggesting that women had little control over their partners.

HIV screening: In general, 75.1% women had been screened for HIV, with half of those who were screened had it done in the past 12 months. Higher screening uptake was reported by unmarried women and those who lived in urban areas. The majority of women involved with HIV risk behaviour had been tested for HIV, suggesting that HIV screening services had been available and accessible to these high-risk women. Further analysis suggested that HIV screening uptake among the participants was not affected by power dynamics in the relationship, but more by the accessibility of the screening service (urban and sub-urban women and those with HIV risk behaviour), perceptions of HIV risk and knowledge of HIV prevention.

Sex avoidance: Almost half of the participants have tried to avoid sex with their current partners for fear of being infected with HIV or any other STIs, regardless of their socio-demographic characteristics or HIV status. Relationship power dynamics showed significant association with sex avoidance. Women who had less decision-making power and had been physically abused by their partners were more likely to have avoided sex.

Opinion regarding female-controlled preventive methods: Overall, 69.0% expressed their interest in using preventive methods which women could control. High condom users were more interested to use female-controlled methods compared to those who were not. In general, 64.3% believed it was important for their partners to know if they ever use any HIV protective method, while 71.8% felt it important to get their partner's permission before using the method. The importance of getting their partner's permission was perceived to be important by a significantly greater number of married women and Muslims.

In summary, the survey has provided specific measures which described the women's HIV risk and preventive behaviour. In the following chapter, the qualitative findings that made up the other aspect of this mixed-methods study are described and elaborated. The survey results and qualitative findings will be combined and integrated to provide a solid outcome of the mixed-methods enquiry in Chapter 7.

CHAPTER 6: QUALITATIVE INTERVIEW RESULTS

6.1 Introduction

In-depth interviews were conducted with the intimate female partners of men who inject drugs to examine their experiences and understanding of HIV prevention. As explained in Chapter 4, the interviews were semi-structured with participants asked open-ended questions covering three main areas: (1) their views on their own risk of contracting HIV; (2) their response to the risks and the challenges they faced; (3) their opinion on female-controlled HIV preventive methods.

In total, 22 interviews were conducted from October 2012 to April 2013. The women involved in the interviews were a subset of the survey participants. Brief information on each woman is provided in Table 6.1 to give the reader an overview of their life situations. Pseudonyms were used to ensure confidentiality. The participants reflect a broad range of ethnicities, marital status, financial background and localities. Three transgender women were included in the interviews, as they, too, face the risk of sexual HIV transmission from their partners who inject drugs.

Table 6.1: General description of interview participants

Pseudo-nyms	Age	Relationship status	Ethnicity	Location	General Description
Zana	50	Married	Malay	Rural	Zana is a housewife who has four children. She runs a small home-based business selling traditional cakes. Her husband works as a part-time gardener. He has been injecting drugs for more than 20 years and was diagnosed HIV positive three years ago.
Azie	44	Married	Malay	Rural	Azie has five children of school-going age. She works as a canteen helper. Her husband has no permanent job and regularly asks her for money to buy his drug supply.
Mala	36	Married	Indian	Sub-urban	Mala has a daughter. She works as a general worker in a restaurant. Her husband has no permanent job. In addition to injecting drugs, he is also a drug dealer and has been in prison several times.
Rozi	33	Married	Malay	Rural	Rozi has one daughter and works part-time at a petrol station. She injects drugs and was already using them when she met her husband. Her husband is a lorry driver.

Napsiah	40	Married	Malay	Sub-urban	Napsiah is a housewife who has four children. Due to her husband's injecting habit, she was disowned by her family when she decided to marry him 10 years ago. Her husband sells food at the night market.
Aida	37	Married	Malay	Rural	Aida has four small children. She works as a canteen helper, earning a minimum wage. She lives in a small two-bedroom house with only basic facilities. Her husband has no permanent job.
Tipah	34	Married	Malay	Rural	Tipah is a housewife who has four children. She occasionally uses non-injectable drugs. Her husband who works as a carpenter has been injecting drugs for 15 years. She has good family support from her in-laws.
Ani	37	Married	Malay	Rural	Ani is a housewife and has two daughters. She helps baby-sit her neighbour's children to earn a small income. Her husband works as a security guard and was recently diagnosed HIV positive.
Julia	36	Married	Malay	Rural	Julia is a housewife. She has five children, one who has cerebral palsy and is bed-ridden and tube-fed. Her husband does odd jobs and sometimes sells produce from their orchard. Her husband's family lives nearby and four of his siblings also inject drugs.
Suraya	49	Married	Malay	Rural	Maria works as a general worker in a factory and has an adopted son. Her husband was in government service but was dismissed from work due to his drug habits.
Mawar	33	Married	Malay	Rural	Mawar has two preschool children. She works as a domestic helper in her neighbour's home, who sympathises with her situation. She is paid a small amount of money and provided with some groceries for her work. Her husband collects scraps and recycles materials to support his injecting habit.
Yaya	40	Married	Indonesian	Sub-urban	Yaya has three children. She migrated from Indonesia 15 years ago. Her husband is of Indian ethnicity and works as a security guard. She does not have many friends and always stays in the house if her husband is not around.
Huda	49	Divorced	Malay	Sub-urban	Huda has two children with her ex-husband. They divorced two months prior to the interview but still see each other occasionally. She works as an accounting clerk. Previously, her ex-husband had been unemployed, but started work as a security guard following the divorce.

Laila	40	Cohabiting	Indian	Urban	Laila is a sex worker who occasionally takes non-injectable drugs. She has been in a steady relationship for three years with her current partner and they have no children together. Her partner is unemployed, so Laila has to support him financially.
Yana	42	Not married and not living together with her partner	Malay	Urban	Yana is a sex worker and has been in a steady relationship with her partner for two years. Her partner works as a security guard and has been injecting drugs for more than 10 years. He has a wife with three children who live in another town far from Kuala Lumpur.
Dania	53	Married	Malay	Urban	Dania has experience as a sex worker, but has not worked as one for the past 10 years. She still lives in the red-light district and works as a kitchen helper in a restaurant. She had two children with different men before she met her husband. She has not had children with him. Her husband works as a security guard.
Tina	36	Married	Malay	Urban	Tina is a part-time clerk who has two children. Her income is not enough to cover their daily expenses. She can only afford to rent a room in the slum area of Kuala Lumpur for her family. Her husband collects scraps and recycles materials to support his injecting habit.
Maria	29	Married	Chinese	Sub-urban	Maria runs a small food stall selling finger food every afternoon. She has a son and her husband is a lorry driver. Her husband is 15 years older than her; she is in an arranged marriage.
Nelli	47	Married	Malay	Urban	Nelli works as a security guard. She has three children who have finished school. Her eldest son also injects drugs. Her husband has no permanent job. She lives in a neighbourhood where drug problems are pervasive.
Tasha (T)	32	Cohabiting	Malay	Urban	Tasha is a transgender woman and works in retail sales. She has been living with her partner for five years. She took drugs occasionally for leisure but never injected. Her partner works in a restaurant and had been injecting drugs for many years before she met him.
Husna (T)	21	Cohabiting	Malay	Urban	Husna is a transgender woman who studies computer science part-time. She has been in a steady relationship with her partner for a year. Her partner has no permanent job and they live together with four other friends in an apartment.

Fida (T)	27	Not living with her partner	Malay	Urban	Fida is a transgender woman who has been involved in sex work for the past nine years. She injects drugs and has been with her current partner for two years. Her partner is a married man with two children and has no permanent job.

Note: (T) = transgender women

While the majority of the women interviewed were of Malay ethnicity, one Chinese, one Indonesian and two Indian women were also interviewed. This distribution roughly reflects the ethnic distribution of PWID in Malaysia (Ministry of Health Malaysia, 2012f). Of the 22 participants, 16 were married, one was recently divorced and the other five were in stable relationships. About three quarters of the women were employed. The interviews were conducted in both urban and rural areas.

Through both inductive and deductive thematic analysis, four themes were identified as central to the adoption of women's preventive behaviour. The themes include: (1) socio-economic disadvantages erodes women's capacity for prevention, (2) women's varied understanding of their HIV risk is shaped by contextual factors, (3) sex avoidance: a preferred but controversial preventive option, and (4) high incidence of unprotected sex resulting from power imbalances and socio-cultural norms. Each individual themes are discussed in the following sections, focusing on key areas that have been identified from the data set. To support these findings, quotes were extracted from the interviews to demonstrate the responses of participants.

6.2 Socio-economic disadvantages erodes women's capacity for prevention

Women's vulnerability to HIV was compounded by the common experience of severe deprivation. These observations were based on the physical environment which surrounded the lives of the women and the experiences they shared during the interviews. In addition to being poor and overburdened with multiple responsibilities, many had limited social support as a result of social stigma against PWID and their families. All of these factors have influenced women's capacity to concern themselves with the potential impact of HIV on their lives and to adopt preventive measures.

6.2.1 Living in poverty

One of the striking observations noted during the interviews was the poor living conditions experienced by the majority of women. The heavy financial burden resulting from their partners' drug habits was the main reason identified for their situation. The women reported that their partners spent between 50 Ringgit (RM) to 100 RM per day, which is about $20 to $40, to buy drugs. To put this into perspective, some women survived on less than 10 RM a day to feed their children. As described by Mawar:

> What he has in mind is the drug [which will cost him] 50 Ringgit. He has never considered that the 50 Ringgit can be used to buy rice, groceries and many other things. (Mawar)

Mawar's husband maintained his injecting habits with the money he received from selling scraps and recyclable materials. When this did not provide enough to sustain his habit, he began selling valuable items from their home. Describing her difficult life, Mawar further said:

> It's hard, hard… very hard [with a sad voice], if I don't have money, and there's no food at home, I don't hope that he will give me any money. Sometimes when there is no money to buy food, I just let it be, I don't prepare anything. I just cook the rice. When he comes home in the evening, I ask him, "do you have money to buy food?" and he will say, "no, not yet, no money". It's difficult … I also have to look for firewood. I use firewood for cooking. The gas stove [sigh], I have the stove, but I don't have a gas cylinder. He sold it. He can get money for it. That day, he finished his drug supply, and he didn't have any money. He came home and took a bag of rice [because] he wanted to sell it. I got the rice from my neighbour, to cook for my children. I told him, if you take the rice, you have to sleep outside. I didn't allow him to sell it. We had a fight. What is left for the children if he sells it? (Mawar)

Mawar's experience was also faced by other women whose husbands were desperate for money and who sold items from their homes in order to buy drugs. Azie shared her similar experience,

> There was one time, when I didn't even have a pot at home. He sold all my pots. They're made of steel [so you can sell them for money]. So, how am I going to cook? I cried. Luckily, I live near my mum's house, so I went to her. (Azie)

Many of the women interviewed came from lower socio-economic backgrounds, and either worked in low income occupations or were not formally employed. Financial constraints were common and were repeatedly mentioned by many participants, as illustrated by these quotes:

> Our [my family's] life is always difficult, my salary is never enough to cover the expenses… (Mala)

> I can't afford to buy good [nutritious] food for my children. There were times, when things became difficult [not enough money], we only ate once a day. I'm used to that, but I pity my children [sad]. (Julia)

The financial difficulty was exacerbated by their partners' dependence on drugs which demanded a substantial amount of money on regular basis. This difficult life made women prioritise basic needs such as providing food for their children. For most women, their energy and thoughts are forced to focus on financial survival at the expense of disease prevention. As an example, Aida described how busy her life was with trying to maintain the family:

> I have to work very hard to make ends meet. When there is left over food in the canteen where I work, I bring it home for my kids. When I have time, I collect cans and boxes and sell them for recycling. I use the money to pay for my husband's bike's petrol and to buy school uniforms for the kids. It's always difficult for my family. So I feel very sad that my fourth child doesn't have a birth certificate. I feel bad. My time is limited. I really can't do it [arrange for her son's birth certificate]. I want my kids to go to school. He [my husband] doesn't care about it. He always leaves it to me. To organise the kids' schooling … and other things, everything is my responsibility. (Aida)

When asked about her main concerns at the time of the interview, Aida said what worries her most was not having enough money to survive on. Aida was aware of the possibility she may become infected with HIV, but her priority was raising her children in the best way she could so that they would become independent and successful adults in the future. These examples illustrate that, for these women, financial hardship renders daily survival in terms of basic needs as their main priority. Hence, HIV prevention occupies a less important position that is beyond the capacity of many women to address.

Limited financial resources also led to limited access to healthcare for some women. Although health facilities are provided by the Ministry of Health in rural areas, some women could not reach them because they did not have any transport. As described by Mawar, she could not afford to pay for a taxi to bring her children to the nearest clinic whenever they became sick. Moreover, women who were occupied with house chores and work were not able to access health facilities due to time limitation. The issue of access to health facilities may affect women's opportunities for undergoing HIV screening services, medical treatment and receiving information about disease prevention.

Poverty also affected the children's growing environment. The neighbourhoods in which they lived, which included many families in similar situations, became a fertile ground for high-risk behaviours among children. Some acquired drug habits, which eventually led to a cycle of drug abuse across generations within the family. This situation was described by Nelli, whose teenage son also injects drugs:

> My kid is already big. When he saw his dad's behaviour [taking drugs] not changing, he [also] started to misbehave. He is my only son; he started to get involved with the wrong people. Later, he was involved with drugs, too. I couldn't control him. He came home late; sometimes he didn't come home at all. He followed his friends, I don't know where he went. It's difficult here … there are too many bad people. He is my only son. He became like this [crying while telling her story]. I'm heart-broken … he is my only son … The father couldn't say anything, [because] he's the same [sobbing]. (Nelli)

The situation faced by Nelli was also present among other families, where more than one member were involved with drugs. As described by Azie, "it's normal in this village, for two or three people in the house to take drugs".

The analysis revealed that financial constraints have been a primary issue of concern, although many women still experienced the fear of being infected with HIV. For these women, the thought of preventing themselves from being infected with HIV was less important than finding ways and means to feed their family. In addition to focusing women's priorities on meeting the basic needs for the family, poverty also affected the development and well-being of their children. Due

to limited resources, the children were in a disadvantaged position and at the same time exposed to high risk behaviours.

6.2.2 Overburdened with multiple responsibilities

It is an accepted norm in Malaysia that women are the care-takers of the family (Mahari, 2011). Women are expected to care for the children and play a nurturing role. Women are also responsible for taking care of the sick and the elderly. On the other hand, men or husbands are viewed as leaders, responsible for meeting the basic needs for the family in terms of shelter, food, education and love (Ahmad, 1998). This classic role of a husband was described by Aida:

> In a family, he is supposed to be the one who is working, right? He is supposed to make sure that everything is enough for the family. Provide for the family. He [also] has to mix around in the community and to not be selfish. But he [my husband] is not doing that. He doesn't want to work. He just thinks of himself. That makes me feel very uncomfortable with my neighbours. I don't know. Maybe he feels that people will not like him? So that's probably the reason he does not mix with others. (Aida)

According to Aida, her husband's failure to perform his duties as a husband not only impacted on the wellbeing of their family, but has also affected her relationship with the community. While describing her disappointment regarding her husband's behaviour, Aida described "feeling burdened" by the situation:

> He [my husband] doesn't care about the children being at home; I have to go to work. He is supposed to help with the kids, make sure that they go to school, make sure that they eat. I do all the cooking and washing before I go to work, he just has to make sure that the kids do what they are supposed to do. Even that he cannot do. He just doesn't care. Whenever he is high on drugs, he doesn't care about other things. I hate that. (Aida)

Aida felt overburdened by both work and domestic responsibilities as she tried to fulfill the duties her husband failed to play within the family. Aida's experience was common among other women interviewed. It was striking how many women bore the full responsibility of meeting the family's expenses, as well as caring for the children, with little, or no help from their husband.

The toll of meeting all of her family's needs was described by Mawar, who also felt disappointed with her husband's behaviour toward their children:

> I've told him, this girl [the eldest daughter] is starting school soon. Please help a bit. I'm working, I don't have the time to go to places to settle her schooling matters, I don't even have a motorbike [own transport]. I have to settle her schooling … and I have to bring the kids to the clinic when they are sick, and I'm the one who have to get the groceries, everything I have to do on my own. (Mawar)

For some of the women interviewed, they were not the person who made decisions in their family, even though they were the main earner of the household. Some women explicitly mentioned that it was the role of husbands to make decisions about family matters. Ani described this when saying that she always considers her husband as the leader of the family, even though he did not fulfil his responsibilities as a husband and father the way he should have:

> Although I'm fully aware that he injects drugs and his behaviour is sometimes unacceptable, he is still my husband … like … the elders always say, "no matter what, we have to see our husband as an important person". So whatever happens, I have to respect him as my husband. (Ani)

The situation faced by Ani is common within the social structure of Malaysian families that describe the role of a husband as the bread winner and the leader of the family. This leads to minimal discussion between husbands and wives when a decision needs to be made, as it is culturally accepted that a husband should assume a superior position within his household. Interestingly, although the man (who injects drugs) did not fulfil his role effectively, he was still regarded as "the person who has the right to make decisions" (Napsiah) that affect the entire family.

Being the sole responsible parent, the women's worries about being infected with HIV centred on their children's wellbeing. When discussing the disease, many women related their fears to the inability to perform their role as a mother and carer of their children if they were to become sick. As Napsiah, who has four children of school-going age, states:

> Their father is like that, I can't depend on him. Everything [responsibility for caring for the children] is on me. He doesn't care whether the children have eaten or not, whether they go to school or not. I don't know what will

> happen to the kids if I am not around. That's all that I think about … I want to raise my children. Hmmm… [sigh], I hope the disease [HIV infection] will stay far from me. (Napsiah)

The dual burden of working to support the family and caring for children places many women in a very stressful situation. It was also observed that most women placed a high priority on their children's wellbeing, as they tried their best to provide proper education and a healthy environment for their children.

6.2.3 Lack of social support

Having good family and community support may lighten the burden that these women face and enhance their capacity to address the risk of HIV in their lives. Some of the women received good support from either their own family or from their in-laws. One participant receiving strong support was Ani, who lived close to her husband's family, as she explains:

> I'm grateful, praise to God, his family is okay, whatever happens … if anything happens to me, they want me to let them know. [They said], I'm the one who should stay in this house, he should leave. They knew my husband is the one with the problem ... They do not support him. (Ani)

However, many other women were not as lucky as Ani. Their husbands' behaviour caused problems in relationships with their wider family for the majority of women. Those women experiencing problems did not receive the support they needed from their families, even if they lived nearby. Aida, whose parents' house was only a few meters away from hers, shared her experience:

> My parents' house is just in front of my house. They can see clearly if we have a fight or something. They don't like his attitude. Sometimes my dad asks me, "why are the kids not going to school? Your husband is at home and he couldn't manage the kids?" My dad sometimes says things like, "your husband is useless...". Well, as a wife, I feel bad when my dad says something like that about my husband. I know that he is a drug user, but I hoped that my father could accept him. I don't like it when my father nags about him. It's difficult for me, I have to respect my dad and at the same time I have to defend my husband, too. I feel like I'm being squeezed in the middle. (Aida)

The strong social disapproval towards people who inject drugs led some families to distance themselves from these women. One example is a story told by Nelli, who had known about her husband's involvement with drugs before deciding to marry him, but still continued with the marriage, hoping that he might change.

> My family was against it when I decided to marry him. It was my choice and they didn't agree. So I followed him to Thailand and we got married there. I made my own decision and my parents were … furious. We went to Thailand just after dawn, got married and came back to Kuala Lumpur. My mom was so angry, she threw me out of the house ... It's sad, but what could I do, nothing much could be done. (Nelli)

Because of her decision, Nelli was disowned by her family, whom she has not seen since being married. The family's reaction is related to the strong social stigma against PWID (Beyrer et al., 2010; L. P. Wong & Syuhada, 2011). In contrast with Nelli's expectations, her husband's behaviour continued and she was left on her own without any family to support her through difficult situations. Nelli's experience was shared by several other women who felt alone when having to face the challenges related to their husbands' injecting behaviour.

Stigma related to drug addiction not only affects the man who injects drugs, but also his family. This was noted by Azie, who expressed her disappointment upon hearing her neighbours talking negatively about her husband. She also felt that her neighbours' opinions have affected her children:

> The people around here, all of them knew about it [my husband's drug habits]. They said, "Ahmad is a bad guy". I have heard a lot from them. It is bad for my children, when they [the neighbours] say bad things about my husband. When there's a case of theft in any house [in this area], they will always blame Ahmad for it. (Azie)

Poor acceptance by the community has made some women feel embarrassed by their husband's behaviour. As a result of local attitudes, Huda decided to move away from the community where she lived when she suspected her husband was involved with drugs.

> We moved to another house … we rented a house far from my parents' house. My husband is a drug addict, I'm ashamed. My family knew, the neighbours and village people knew about it. So, I have to stay away from

> the village, and go to a place where people do not know about his behaviour. [Huda]

Not having adequate support from their family and community placed the women in a vulnerable position when they were in need. Their families and people around them might not necessarily be able to help them financially, but emotional support is very important for providing them with the strength to carry on. It was evident during the interviews that the majority of women were emotionally distraught due to their difficult life circumstances and the consequences of their partner's injecting behaviour.

6.2.4 Intimate partner violence

The link between intimate partner violence and vulnerability to HIV infection is evident from previous studies (Silverman et al., 2008; Solomon et al., 2011). During the interviews, some women shared their experience of having partners who were physically aggressive toward them. As described by Mawar, her husband has turned violent several times when desperate for money:

> Last week when he … finished his drug supply. He kicked here and there, he broke … things at home. When I scolded him, he punched me here [pointing to her face]. (Mawar)

For other women, the presence of physical violence was coupled with sexual abuse. This was reported by Mala, whose husband sometimes took methamphetamine (Syabu) as a sexual stimulant:

> When he takes Syabu, it is bad for me. I have to expect the worst. When he's had it [Syabu], he becomes a different person. One day, I was cooking and he couldn't control himself. He pulled me, he wanted to have sex. Like he was possessed ... he was so rough! I felt like I was being raped. (Mala)

In both situations, the women described feeling insecure and scared that what has happened to them may happen again in the future. Being a victim of violence further enforced their inferior position within the relationship and suppressed their negotiating abilities for safer sexual practices.

In addition to physical violence, emotional burdens and stress were reported by most participants. Many described having a difficult life being in a relationship with a man who injects drugs. In some interviews, a sense of pressure could be felt from the beginning of the sessions. For example, the first few things mentioned by Aida during the interview was her problem with her husband's behaviour, which has affected her marriage,

> The problems started when my first son was born a year after getting married. I have faced many problems with my husband and with my marriage [silence, appears very sad]. (Aida)

The emotional burden faced by the women was so great that many of them appeared sad and desperate during their interviews. Some even cried while sharing their experiences. A woman described her life sine marrying her husband as "living in suffering" (Suraya). While physical and sexual abuse increases women's vulnerability to infection, emotional stress had a deeper impact in the lives of the women (El-Bassel et al., 2005). It made them feel less confident, eroded their negotiating ability and left them feeling helpless about the situation that they were facing.

Among Muslim women, many choose to console themselves via a religious approach. They relate their life experiences as challenges in life that should be faced with patience and perseverance. This is a fundamental belief among Muslims and is mentioned in the Holy Quran, Surah Al-Baqara, Verse 177: "And those who keep their treaty when they make one, and those with patience in tribulation and adversity and time of stress. Such are they who are sincere." An example of this within this study is a quote from Tina:

> Sometimes there is a limit to being patient. I cried for a while [and I scolded him]. Sometimes I feel frustrated. But I really love him. Then I started to think that it is my fate from God to be married to him … there must be wisdom behind all these challenges. That is what I've been telling myself - be patient. People always say, "as a Muslim, patience is part of your faith" [smiles reluctantly] (Tina)

Tina believed that, as a good Muslim, she should accept her fate and that by being patient things would eventually change and something good will happen in the future. This belief was a coping mechanism used by many women to help them carry on with their challenging lives.

Several aspects of socio-economic challenges have individually and collectively eroded women's capacity for maintaining a healthy life in general. Within this theme, poverty, poor social support, overwhelming family responsibilities and the presence of violence within the relationship were illustrated as the main areas that have affected women's preventive behaviour. Precarious life conditions have rendered HIV prevention issues less important to many women when compared to the struggle of meeting daily basic needs such as food and education for their children. Additionally, the presence of violence in relationships, the difficulties regarding communication about sexual issues and power imbalances that do not favour women have impaired the women's ability to negotiate for safer sexual practices with their partners.

6.3 Women's varied understanding of their HIV risk is shaped by contextual factors

An individual's ability to appreciate they are experiencing an elevated risk of contracting HIV is one factor that may determine preventive behaviours (Doliashvili, 2008; Prata et al., 2006). From the interviews, some women specifically mentioned they felt "at risk", while others related feelings of being "worried" or "scared" of contracting the disease. As the quotes below illustrate, the women justify their concern based on their partner's status as a PWID.

> I know that I'm at risk [of getting infected with HIV], it could happen when I have sex with him, right? (Zana)

> I'm worried [about being infected with HIV] because my husband is a drug addict. He may have HIV, I don't know. Therefore, I'm scared that I will get it, or [that] I will infect my child. (Mala)

> I am definitely at high risk, my husband is a drug addict .... he could easily get infected. If he does, the next in line is me. (Aida)

It was also noted that the majority of women associated their risk of contracting HIV with their sexual relationship, implying that they understood the route of disease transmission in HIV. A different view on HIV risk was shared by women who inject drugs, sex workers and transgender women. Rozi, who has been injecting drugs for more than 10 years, associated her HIV risk with her own injecting behaviour and did not worry too much about being sexually infected by her

husband. She said that she seldom had sexual encounters with him and when it happened, it was always brief. Therefore, she did not think that she would be infected by her husband and thought that it was unnecessary to use condoms during sexual intercourse with him.

All interviewees who were involved in sex work related their HIV risk to the nature of their work. These women felt that they could easily become infected due to their high number of sexual partners and therefore tried to use condoms regularly with their clients. For example, Yana, described her different experiences when she had sexual contact with her intimate partner compared to her clients,

> When I'm with my boyfriend, I don't really care [about using a condom]. But if I'm with my client, I do feel scared [of being infected with HIV]; I have to use it [condoms]. If the client refuses, I'll say to him "go find someone else" [laughs]. (Yana)

From the above excerpt, it appears that Yana believed the risk of being infected sexually by her partner who injected drugs was less than the risk she faced when she had sexual contact with her clients. Another possible reason for condom non-use with her partner can be attributed to power relations, whereby, it may be easier to negotiate condom use with clients compared to her partner.

The interview findings suggest that the majority of participants understood that they were at some risk of contracting HIV, either from their partners who inject drugs or from their own HIV-risk behaviour. Only a few women did not appear worried or concerned about their possibility of contracting HIV. For example, Maria who has been married to a man who injects drugs for more than five years mentioned that she "has never thought about her husband contracting HIV". Therefore, she did not see the need to protect against HIV in their intimate relationship.

While many women knew they were at some risk of contracting HIV from their partners, further exploration of the topic revealed that their understanding of the risk varied according to information they have regarding their partner's injecting habit, their understanding of HIV, and the existing social norms that prescribed women's gender roles that affected their access to information in their relationship. Cumulatively, these factors influenced women's assessment of her HIV risk, and eventually, affected her decisions and actions towards preventing HIV.

6.3.1 Information regarding partner's injecting habits

As described in Chapter 4, women who participated in the interviews were either married to, or in a stable relationship with men who inject drugs. These men were identified by NGO outreach workers or fellow PWIDs, which means that their intimate partners may not have been aware of their injecting habits. A small proportion of women interviewed believed their partner did not inject drugs, although they were aware that the men took drugs in other ways. These women did not consider themselves at high risk of contracting HIV, because they felt that the chances of their partner being infected with HIV through his drug habits was low. For example, Tipah, who uses drugs casually, was confident that her husband only smoked heroin:

> He will never use injections. He is afraid of needles [chuckles]. He just smokes it. So, I don't think there's any problem with that. I think he couldn't get it [HIV infection] if he just smoke the stuff [heroin]. (Tipah)

Believing that her husband does not inject drugs, Tipah felt it unnecessary to protect herself against HIV when having sex with her husband. Although not all PWID are HIV positive, their risk of getting infected is high if they share their injecting equipment (Mathers et al., 2008; Vicknasingam et al., 2009).

Among women who were aware of their partner's injecting habits, some were convinced by their partners that the men did not share their injecting equipment. As mentioned by Azie,

> He usually takes his injections [heroin] in his room… alone. He will lock the door. He said he always use a clean needle so he won't get sick … Only occasionally he goes out with his friends and doesn't come home for day…(Azie)

This belief was based on trust that existed in their relationship. While the men may be able to avoid sharing needles by injecting himself with his own equipment, there is also a possibility that they did not follow safe injection practices when they were in groups (Bergenstrom et al., 2010). This incidence is illustrated by Rozi's account who is herself an injection drug user:

> We have our own set [of injecting equipment], it is [available for free] from the NGOs. But sometimes … you know … when we are in a group ... Just like the other day, one person came in and he's in bad shape [withdrawal

> state] and he needed to have it [the drug] urgently. You just give him your stuff [needles and syringes]… (Rozi)

This observation suggests that while the needle and syringe exchange programme has reached PWID communities, it did not stop Rozi from sharing her injecting equipment in desperate situations. As an injecting drug user herself, Rozi had insight into the culture among PWID and the urgency and pressure that may lead to sharing needles. Most participants had only limited knowledge about their partner's injecting behavior outside the home and this was exacerbated in relationships where social interaction was minimal.

Men who inject drugs were described as less interested in their family and always put a higher priority on their craving for drugs:

> He doesn't care about other things. He just cares about that thing [drugs]. He doesn't care about his wife or children, or other things. Maybe he doesn't even think about death, I assume. (Huda)

According to the women, their husbands were not interested in having a serious conversation with them, particularly if the topic was the men's behaviour and responsibility to the family. As described by Huda, her husband always snapped at her whenever she tried to discuss his drug habits, "huhh ... you're making so much noise!"(Huda quoting her husband). Another woman, Aida, who has been married to her husband for more than 10 years, felt that it was difficult to have a conversation with him, as she was afraid that it might devolve into an argument:

> Sometimes, I just ignore him, and don't say anything [sadly]. My heart hurts, [but] if I say anything, all the bad words, all the arguments will come out. So I just keep it to myself. (Aida)

Communication breakdown complicates the process of information sharing, thus potentially leaving the women unaware of the actual risk that they face while being in a relationship with a man who injects drugs. The women's uneasiness related to talking about sex further complicated communication and put them in a disadvantaged situation in terms of acquiring as much information as possible about their risk of getting infected with HIV sexually from their partners. Communication was noted to be easier and more dynamic between unmarried couples. Most of

them admitted that they could easily talk about their relationships, including sexual issues with their partners.

Only one woman was aware that her husband injects drugs yet did not feel that she was at risk of HIV. She is an Indonesian immigrant who has been married to an injecting drug user for the past 15 years. She lives in a low cost flat and has poor communication with her neighbours, who were mostly Indian. Her neighbours speak Tamil and Telugu but not Malaysian, and she cannot understand them. Indonesians can easily understand the Malaysian language due to its similarity to Indonesian. For this woman, being isolated from the community made it difficult for her to get social support when she needed it. She was also illiterate, which further compromised her access to information, and limited her understanding on HIV and the health implications of injecting drugs.

While some women reported being unaware of their partner's injecting habits, there is also the possibility that the women were trying to portray their partners in a positive light, especially among married women. This is consistent with the common expectations in the society for wives to protect their husband's pride (Tong & Turner, 2008). Likewise, the culture discourages women revealing their husband's negative qualities to strangers (Noor, 1999).

6.3.2 Knowledge regarding HIV

Perceptions of HIV risk were shaped by women's knowledge of their partner's risky behavior and their own knowledge of HIV and its transmission. Most women's knowledge of HIV risk and preventive behaviour fell short of biomedical understandings that encourage regular screening and the use of protection when HIV status is unknown. These observations are centred on several illustrative situations that arose during the discussions, which include the role of screening among their partners, their own experience being screened and their perceptions regarding the appearance of HIV positive individuals.

While health promotion activities and media coverage have successfully created awareness about HIV/AIDS among Malaysian population, they did not translate into behavioural change concerning HIV prevention (Kamarulzaman, 2009). The public understanding on specific preventive actions such as regular HIV testing and consistent condom use was limited (Ministry

of Health Malaysia, 2012a). In relation to this, a small number of women believed that their HIV risk was reduced, because their husbands attended regular HIV screenings. For example, Maria explained in a relieved tone: "He went for [a] screening every year with the NGO and it has always been negative". A similar belief was expressed by another woman; "They tested him every time he gets into the rehabilitation centre. I'm very grateful, praise to God that he's alright [not detected positive]" (Suraya). The above statements show that the women understood the importance of screening and a negative test was a source of considerable relief from their worries about HIV. The quotes also reveal that participants did not appreciate the higher risk of transmission in the weeks soon after a man becomes infected when the HIV test may give a false negative result. Their limited understanding on HIV screening may reflect the inadequate information conveyed by the health system and the media.

When the women were asked whether they have themselves been tested for HIV, the majority reported having been screened at least once during their lifetime. Most had not done so voluntarily but as part of ante-natal care, or pre-marital health screening they may have received. As described by Azie,

> Azie: Yes, they took my blood for HIV [testing] every time I was pregnant. The last time was when I had him [pointing to her youngest son who was approximately seven years old at the time of interview]
>
> Interviewer: Did you go for another test after that?
>
> Azie: No. Should I? I've got no reason to do it again. Hmmm.... I think I'm fine.

Azie's response suggests that she did not feel it was important for her to be tested again, since she has been repeatedly tested before and always tested negative. A similar explanation was given by another woman, who mentioned that she was tested negative in her pre-marital screening five years earlier. These examples suggest that women were unaware of the HIV risk they were continuously facing in their sexual relationship with their partners who inject drugs and the importance of regular screening to ensure early detection if they were to become infected.

The belief that HIV positive individuals will appear sick and frail also made some women feel less at risk. For instance, Mala mentioned specifically that at the time of the interview, she was

"not facing a big problem" of being infected by her husband, because he appeared physically healthy, and therefore could not be HIV positive. This perception gave her a sense of security, despite knowing that her husband was at a high risk of contracting HIV due to his injecting habits. This belief was strengthened by real-life examples of HIV infected PWID in the community as described by Azie:

> Luckily, my husband is not that bad, he is still healthy. So, I'm not too worried about this HIV thing [pause]. He has a relative who died of HIV. That man left behind five children. There's another friend, he died at a very young age [with a sympathetic voice], he has three small children, he lived nearby. I know his family, his relatives [pause]. That is what I know about HIV. (Azie)

The negative expectations regarding the appearance of HIV positive individuals suggests the presence of HIV-related stigma and discriminatory attitudes in the society, which relates people living with HIV as being unhealthy and facing impending death(L. P. Wong & Syuhada, 2011).

The above discussions revealed that women's understanding of HIV was derived from their experiences and the social norms shared in the community regarding HIV. These factors affected their assessment of HIV risk, and eventually have led some women to perceive that their HIV risk was low.

6.3.3 Gender norms and religious expectations

Gender norms that emphasise the inferior position of women in a relationship impaired many women's ability to secure information from their partners (Go et al., 2006), and eventually affected their assessment of their own HIV risk. These observations are based on women's descriptions of their daily interactions with their partner and their relationship dynamics.

Participants commonly suggested that their partners could not be trusted, were unreliable and self-centred as a result of their injecting behaviour. Phrases like "these men [who inject drugs] couldn't be trusted" (Huda); "drug addicts do not care about other people, they only care about how they can relieve their cravings [for drugs]" (Suraya) were repeatedly used by participants to explain their partners' behaviour. Yet, ironically, many of the women interviewed did not question their partner's honesty when the men described their risk behaviour and HIV status.

Women often reiterated their partner's statements that they were HIV negative or did not share needles, statements that were often made in response to the women expressing concern about HIV. Many other participants did not feel it was their place to question their partner about their risk of contracting HIV, as Nelli explains below.

> He doesn't like it when I keep asking questions [about his drug habits]. It always ends with a fight. I'm tired [of fighting]. I just kept quiet … I just *redha* [accept] with my fate. (Nelli)

The word *redha* which literally translates as "total acceptance without any prejudice" was used by the participants to describe their feelings about their relationship. Many of them said that they should *redha* with the fate that God has set for them. This is also strengthened by the shared belief of what is accepted as a wife's role in marriage, i.e., that a wife should be obedient to her husband. As mentioned by Ani,

> We [the wives] should always behave like what our elders want us to be, as obedient wives. A wife has to listen to her husband and follow his orders. (Ani)

Their non-interrogative and permissive behaviours, which are shaped by their culture, society and religious beliefs compromised the ability of some women to ask for further information and clarification about their partner's drug using behaviour. Furthermore, the word "obedient" emphasised the inferior position of women in a marriage and strengthened the women's perception of lack of power in their relationship.

The value placed on trust within a relationship further increased the vulnerability of some women. Julia, who had been married for more than 10 years, said that her husband would definitely tell her if he became infected with HIV. The importance of trust within relationships was also observed among unmarried couples. Laila, who has been in a relationship for three years strongly believed that her partner had never shared needles and syringes. Therefore, she did not feel that her partner would become infected with HIV. While trust and fidelity are often regarded as the pillars of long-term relationships, these values appeared to have impaired women's ability to acquire vital information which may inform them of the risk they faced as a result of the intimate relationship (Amaro, 1995).

In summary, observations made in this study suggest that the majority of participants understood that their partner's injecting habits were putting them at risk of contracting HIV. Women with high-risk behaviour tended to associate their risk of HIV with their own drug use or sex work. Participant's perceptions of risk depended on their understanding of HIV and the information they had regarding their partner's injecting behaviour. While some women understood that PWID intentionally hide their injecting habits many did not and opted to believe their husband would not put them at risk of HIV. Women's subordinate position constrained their ability to ask for information and clarification on their HIV risk due to the prevailing social norms and religious expectations.

At this point, the participants can roughly be divided into two groups: those who knew that they were at risk of HIV and those who were not aware of their risk. From the interviews, the women who belonged to the second group did not have any concerns about the possibility of being infected by their partners and therefore did not think that protection was needed during sexual contact. The majority of the participants were in the first group and their experiences in protecting themselves against HIV are described in the following sections.

6.4 Sex avoidance: a preferred but controversial preventive option

Women who understood their risk of contracting HIV, responded to their susceptibility in different ways. Most of the married women avoided sexual contact with their husband to minimise their risk of contracting HIV. This was done delicately, by giving reasons that did not directly relate to their fear of HIV. For example, when she was asked how she could protect herself, Julia said:

> I can sense … when he wants to be intimate, [but] I'm worried that he might have the disease [HIV], so I always give excuses. I tell him that I'm tired … or I'm having my period … He is fine with that. (Julia)

Some women felt that avoiding sex was the least complicated way of protecting themselves. This is because protective methods, such as condoms, require women acknowledge their concerns about HIV with their partner. For example, Aida, who has never used a condom, mentioned that it is "easier" for her to avoid sex rather than ask her husband to use condoms. A similar view

was expressed by Nelli who believed that her husband would not agree to use condoms if she asked him to. Therefore, she preferred to make up excuses every time her husband was interested in having sex with her. The women's preference for avoiding condom negotiation suggests the presence of a power imbalance in decision-making, which has impacted on their ability to negotiate safer sexual practices (Wingood & DiClemente, 2000).

The strategy of avoiding sex did not always work. Most married women said they felt guilty for doing so, as they believed it was their responsibility to give sexual satisfaction to their husband – a belief commonly shared by many Malaysians (Ahmad, 1998; Mahari, 2011) and among those living in some other Asian societies (Bhattacharya, 2004; Hammett et al., 2010; UNAIDS, 2009). Some women described "feeling sinful" (Zana) if they refused to accept their husband's sexual advances. Religious sentiment about the sexual responsibility of a wife to her husband was similar among both Muslim and Hindu participants. For example, when asked what they felt when they tried to avoid sex with their husband, Mala and Azie expressed feelings of unease:

> It's like that, if you don't follow what your husband say, you don't respect him, you have committed a sin according to our religion [Hindu]. (Mala)

> In a marriage, no matter what it is, a wife must *taat* [obey] their husband. I know it is difficult, but we need to pray often, ask for guidance from Allah [God]. (Azie)

The majority of the married women believed that their religion discouraged a wife negating her husband's wishes. As described by many, the word *taat* or "to obey/being obedient" was repeatedly emphasised as the ideal behaviour of a wife, regardless of the husband's drug-taking or other behaviours that compromised the family unit.

Strong emotional attachment, which often presents in long-term relationships, also made sex avoidance difficult. For example, Zana, whose husband has HIV, described feeling pity for her husband and agreed to have sex with him because she did not want to hurt his feelings.

> I know HIV can spread through sexual intercourse. I'm worried that I might get infected. There were times when I tried to avoid having sex with him. Then he asked me, "are you afraid of getting the disease?" I pity him when he says it this way. He is my husband, of course I love him. So, if he wants [to have sex], I just give in. (Zana)

While many women felt that avoiding sex was their preferred option for protecting themselves from contracting HIV from their intimate partners, many reported that it complicates their roles in the relationship. Avoiding sex also strains their emotional attachment with their partner and raises religious concerns. Thus, abstinence was not often a practical solution for couples in a long-term relationship.

6.4.1 Conflict with gender roles and social norms

While many women knew that there was a risk of contracting HIV within their monogamous sexual relationship with their injecting husband, the expected role of wife to be sexually responsive within a marriage clashed with their strategy of avoiding sex. The link between marriage and the expectation to reproduce was also mentioned during the interviews. Maria said that she felt social pressure whenever people asked her when she was going to conceive after having been married for roughly a year:

> It became a common question … people started asking, 'are you pregnant? …why are you not pregnant yet? … is there something wrong with your relationship? … are you using [birth control] pills?' (Maria)

The expected norm of maintaining regular sexual activity between married couples for reproduction purposes made sex avoidance an unfeasible choice for many women and impossible to sustain as a long-term protective strategy.

In contrast, one participant mentioned that she felt it was alright to refuse sex if having sex with her husband might cause harm to herself.

> I know that it is my responsibility [as a wife]. But, if it could be harmful to me, I think it is fine to refuse sex. Well, I don't know [about other people's opinion], but that is what I think. (Huda)

Huda's view may be different from the majority of participants because of the different life situation she found herself in at the time. She is a woman with a tertiary education and earns a stable income, which makes her financially independent. She was recently divorced after being married for 12 years to a man who injected drugs. Being financially independent and having the ability to make her own decisions may have empowered her to leave the relationship. This,

however, might not be a practical solution for other participants who are financially dependent on their husbands. Furthermore, the thought of being a single mother and raising children without a father figure may inhibit the intentions of many women to leave their husband. This dilemma was described by Aida:

> My parents already asked me to leave my husband when our first child was born. They knew about his addiction problem and couldn't accept him. But … I pity my kids. That's the main reason. I keep on supporting my husband in front of my parents even when he is like this [injecting drugs]. But it is really hard for me …, it is a burden for me [crying]. (Aida)

The intention of having an ideal family environment for her children restricted Aida from making decisions that would threaten her marriage. The same reason was shared by other married women, who primarily continued their marriage for the sake of their children.

Avoiding sex as a strategy of HIV prevention is not feasible in a long-term relationship and suggests women's perceived lack of power to negotiate safer sex. This strategy is controversial because women are prone to abandon sex avoidance and proceed with unprotected sex when the threat to their relationship and family wellbeing overcome her concerns of contracting HIV. As explained by Kowalewski et al. (1997), people differentially weigh a multitude of risks in assessing whether or not to engage in a behaviour that places them at risk of HIV infection. In this context, women have to weigh up the risk of contracting HIV with the risk of creating disharmony in her relationship. The pressure to conform to social norms and religious beliefs that shape gender roles and expectations often complicates sex avoidance and correspondingly exposes women to unprotected sex.

6.5 High incidence of unprotected sex resulting from power imbalances and socio-cultural norms

While the most effective and affordable method for HIV prevention is the regular use of male condoms (Weller & Davis-Beaty, 2007), few participants used them with their primary sexual partner. Of the sixteen married women interviewed, only two did so. Of these two, one stated that she used condoms to prevent STIs, while the other woman mentioned that her main reason for using condoms was to prevent pregnancy, rather than protecting herself from HIV. The

analysis revealed the presence of various factors contributing to low condom use which included women's perception of lacking the power to negotiate condom use, viewing condoms as a barrier to intimacy and the presence of conflicting social norms that are not supportive of condom use.

6.5.1 Power imbalances affecting safe sex negotiation

Many women perceived themselves as lacking the power to negotiate safe sex, thus finding it difficult to ask their partners to use condoms. This relates to the earlier discussion in which women resolved to avoid sex instead of negotiating condom use to protect themselves from contracting HIV. This conflict was mentioned by Aida, a mother of four children, when she recalled her experience:

> Asking him to use condoms is a personal thing, right? I don't want to hurt his feelings. He … once told me … he said, "I'm sure I don't have HIV, I don't share my needles, I use my own stuff to inject". So I told him that I trusted him. Then I said to him, "if you lie to me, I will be very sad. My life will be destroyed." (Aida)

While she described feeling worried about her husband's HIV status because he had never been tested for HIV, she did not feel comfortable suggesting that he should use condoms, because she did not want to be viewed as not trusting him. Instead, she stated that she leaves her fate to God and hopes that she will not be infected. Many women felt that requesting condom use might indicate that they did not trust their partner. A woman whose husband has been injecting drugs for many years described how this perceived lack of trust may undermine a relationship:

> It is a difficult situation. In a marriage … if you trust your husband, you couldn't ask him to put on a condom. It's difficult to talk about [sigh]. (Tina)

A similar situation was described by Zana when she was asked about her reasons for not using condoms regularly: "If he doesn't want to use condoms, what can I do? [shrugs]" (Zana). These women felt that they could not do anything to influence their husbands in terms of using condoms. The frustration expressed by their gestures was obvious. Although these women were anxious about the possibility of being infected with HIV, they were not in a position to do anything to prevent it.

The behaviour of some PWID who were described as "non-sensible" and "careless" also limited women's negotiating power for safer sexual practices. Mawar, a young woman who had been married to a PWID for six years, broke into tears when she expressed her concerns about the risk she was facing:

> These kind of people [PWID], they do not have any fear. In the end, they will end up there [points to a graveyard next to her house]. He never bothers about this infection [HIV]. He doesn't care whether he gets the disease, or if I could get sick ... I think it is the last thing on his mind. All he thinks of is his drugs. (Mawar)

Mawar admitted that she felt trapped in her relationship. She felt that she had no space to negotiate with her husband, due to his careless behaviour and devotion to drugs. She hoped that the police would arrest her husband and send him to a rehabilitation centre. Mawar did not complete her primary education and got married at a very young age. She was unaware of her husband's injecting behaviour before they were married. Apart from facing financial difficulty, Mawar also did not have a good social support network. The only family she had was an older brother, who also injects drugs. Her brother stays with her and therefore depends on her financially. Fortunately, she has neighbours who sympathised with her and offered her work. Mawar's scenario demonstrates the reality faced by many families with PWID within a rural setting. It is common to have multiple members of the family involved with drugs and their living conditions are often extremely poor.

Many women reported having a minimal role in the decision to use condoms in their relationship. Zana, whose husband is HIV positive, rarely used condoms although they were available at home. She mentioned that her husband tried to use a condom once but removed it half-way through sexual intercourse because he felt uncomfortable. Although she had expressed her fear of being infected by her husband, he reassured her that the infection could be avoided by ejaculating outside the vagina. Another woman whose husband is HIV positive also stated that her husband ejaculated externally "to protect me from being infected with the disease [HIV]" (Ani). Both Ani and Zana were regularly seen by healthcare workers and they have access to free condoms. Despite the support and information that they have received, these women continued to have unprotected sex with their infected husbands because their husbands did not want to use condoms.

From another perspective, it is interesting to observe that progressive attitudes toward gender roles rarely extended to the participant's sexual relationships. The majority of the women filled a major role within the family, from securing financial resources to maintaining the home and raising the children. Accordingly, many of them were able to make decisions regarding family matters, as described by Napsiah:

> Napsiah: I control everything regarding family matters. I make decisions, especially about money, how he wants to spend it. He cannot decide alone. He must discuss it with me. But the money is in his account. Every time he wants to withdraw some money, he must tell me…[pause]. But I still ask his permission when I want to go out.
>
> Interviewer: Is there a reason why you ask his permission?
>
> Napsiah: I don't know … it has been like that for as long as I can remember. Whatever the situation, he is still the husband and I am the wife.

Interestingly, despite her ability to make decisions regarding most family issues, Napsiah still believed that she had to ask her husband's permission before she could leave the house. This behaviour is culturally embedded and is considered common practice among Malaysian families (Yusof & Duasa, 2010). Napsiah also held strongly to traditional family values, which observed a man as the head of the family. This was described symbolically when she emphasised her position as a 'wife' within the family and referred to the man by his role as husband. The decision to rank a husband as superior within the family is a choice made by the woman, which is heavily influenced by cultural beliefs deeply rooted within the Malaysian society.

The above scenarios illustrate power imbalances that exist within women's relationship with their partner. While some women were able to make decisions in several aspects of their daily lives, sexual decision-making was often difficult with most women having the perception that they do not have the power to negotiate for safer sexual practices.

6.5.2 Condoms as a barrier to intimacy

Social norms in many societies have led women to place a premium on love and romantic relationships at the expense of safer sexual practices (Logan et al., 2002). This situation was

observed during the study when some women considered condom use a barrier to intimacy. For example, a woman had agreed with her husband not to use condoms as her expression of love and commitment to the relationship: “I love him, so I will do anything for him. If he doesn’t want to use condoms, I’m happy to do so” (Yana). Another woman reported that she sometimes did not use condoms with her partner because she wanted to convince him that “he is special” (Husna).

A few women reported not using condoms because it reduced sexual satisfaction. Interestingly, the concern about decreased sexual satisfaction when using condoms mainly affected their male partners, with only one women admitted feeling less satisfied herself. While condom use has been associated with sexual dissatisfaction among both men and women (Chimbiri, 2007; Randolph, Pinkerton, Bogart, Cecil, & Abramson, 2007), this was rarely reported in the interviews, possibly due to prevailing social norms in Malaysia that discourage women and girls from openly discuss sex and their sexuality (Najafi et al., 2011; Ng & Kamal, 2006).

Sex workers used condoms regularly with their clients but not with their steady partners. One of the reasons given was that they trusted their partners not to have any other girlfriends or sexual partners. They did not appear concerned that their partner’s injecting behaviour might put them at risk of HIV. Laila, who was involved with sex work to support her drug habit, said that she did not use condoms with her steady partner because for her “sex is less fun with condoms” (Laila). When asked about the possibility of her partner being infected with HIV due to his injecting habit, Laila said that she wouldn’t mind being infected by him if that was her fate.

The above examples show that emotional attachment and intimacy in a relationship are valued highly by many women. Hence, women who conformed to this norm did not want to insist on condom use at the expense of trust, love, closeness and fidelity (Ananth & Koopman, 2003; Go et al., 2006).

6.5.3 Adherence to socio-cultural norms

An existing norm shared by many participants positioned the role of a husband as someone who should protect his wife form any harm. Thus, some women believed that it was not their responsibility to actively protect themselves against HIV infection. As described by Ani,

> He should be the one who is thinking [about HIV prevention]. How to protect me. I'm his wife … He is the one who usually gets the condoms. I am [giggles] shy. I don't think women should … buy that thing [condoms]. (Ani)

For Ani, she believed it was her husband's responsibility to provide condoms. When her husband did not use a condom, she felt he was not being responsible but she could do nothing about it because it was his duty. Extending the role of the husband, Ani also expressed a view that women should not acquire condoms themselves, this being the responsibility of the man. Other women also reported that they were too shy to buy condoms and preferred the men to get them. When asked about how she got her condom supply, Julia, who used them regularly replied in a surprised tone,

> No! I will never … buy condoms, I wouldn't go and look for them. It is shameful for women to … buy condoms. (Julia)

The above examples suggest that while some women were willing to use condoms, they felt it inappropriate for women to actively access condoms. This was likely because of gender norms that discourage women from playing an active role in sexual decision-making in order to appear modest (Ministry of Health Malaysia & UNICEF, 2008). Related to this is a report by a woman who mentioned feeling uneasy about buying condoms because she felt that condoms were usually used by those involved in illicit sex. The assumption that condoms relate to indecent behaviour made her feel reluctant to use them in her own relationship.

Generally, the women who were interviewed were not comfortable talking openly about their sex lives. This is in line with acceptable norms in Malaysia, which discourage women from talking about sex openly (Noor, 1999). Quite a number of participants mentioned their difficulty initiating meaningful conversation with their partners, especially regarding relationship and sexual issues. During the interviews, many women preferred to use subtle words or phrase to describe sexual contact, such as "being together/*bersama*" or "doing that thing/*buat benda tu*". Some women giggled shyly when asked about their intimate relationships. Even within their marriage, these women felt that sex was not something that should be discussed openly with their husbands. This is described by Tina who has been married for 15 years:

> We didn't talk about it [sex]. No discussion about it [sex]. If we want to be together [have sex], we just know it. After it's over, he never asks me whether I'm satisfied or not. When he is done, he will just go to sleep. (Tina)

Tina expressed feelings of unease about discussing sex with her husband. Her shyness in talking about sex put her in a disadvantaged position to talk about her own sexual needs and the nature of their sexual relationship. The lack of open conversation about sexual issues, has reduced women's opportunities to negotiate safer sexual practices. It is not common practice for women in Malaysia to negotiate sexual relationships and condom use especially within a marriage (Ministry of Health Malaysia & UNICEF, 2008). As a result, many women did not feel that it was appropriate for them to ask their husbands to use condoms.

The the interaction of several socio-cultural elements that shaped women's decisions in preventive action is illustrated in the following excerpt:

> If the husband wants to have sex with the wife, she has to do it. If he doesn't want to use condoms, we can't force him. I have never used condoms before. I don't even know how to use them. I feel shy about buying condoms. So, I just pray hard. (Nelli)

When describing her opinion regarding condom use, Nelli expressed her views regarding the role of wives who are supposed to fulfil her husband's sexual needs and her perceived lack of control in sexual decision making. A similar situation was reported in India when Bhattacharya (2004) described the socially-sanctioned dominant role of the husband as being the "sexual decision maker" while the wife as the "obedient sexual being" (Bhattacharya, 2004). Women's inclination to conform to the social norms of an obedient and permissive wife discourages them from challenging their husband's decision of not using a condom. Furthermore, their inexperience with condom use and reluctance to actively access condoms rendered them vulnerable to unprotected sex and the risk of contracting HIV if their husband is HIV positive.

6.5.4 Alternative methods of HIV prevention

The difficulty women reported facing when negotiating condom use renders the possibility of a method that women can use to effect control in this area extremely appealing. During the interviews, the women were asked their opinion on female-controlled methods of preventing

HIV infection. They were provided with basic information about vaginal gel, vaginal rings and female condoms. The majority of them showed an interest in these methods and were positive about them.

> I would like to try it, if it is available. (Tipah)

> It will be good if we can have it, easier for us women to use it. Do we have to buy it, or [is it available for] free? (Zana)

When asked about what she meant by "easier for us women to use", Zana explained that it will be easier because she will be able to protect herself and will not have to depend on her husband to use condoms to protect herself from being infected with HIV. She was also concerned about having free access to the method: "it will be even better if I can get it for free" (Zana).

The analysis showed that the majority of participants kept an open mind regarding the idea of using preventive methods that they could control. This will provide them with an opportunity to use protective methods on their own without having to rely on their partner. While these alternative methods appear to be a promising solution for future preventive actions for women, as the previous section illustrates, various contextual factors such as power imbalance and socio-cultural practices may hamper its adoption (Mantell et al., 2006).

The possibility of using female-controlled methods discreetly invited mixed opinions among the women. Some felt that their husbands had the right to know if they wanted to use a female-controlled method, while others felt that protection was their own right. For the first group of women, some felt that they should inform their husbands as an act of respect:

> Whatever the situation, he is the husband. I should tell him about it. I think it's good to discuss [issues] together. (Tipah)

Tipah's response supports other women's perceptions about decision-making dynamics in their relationships, that husbands hold the power to decide on family and relationship issues. A small group of women felt that they needed to keep their husbands informed about their choices to avoid any future conflict:

> It is easier if he knows. If we hide it from him, and later he [finds out], then what will happen? He will get very angry. (Julia)

Similar to Julia, a few other women also expressed their fear of unwanted consequences if they were not truthful to their husbands. These examples highlights the importance of trust within the relationship and at the same time illustrates the inferior position that the women felt themselves to be in. A similar observation was made by Tanner (2008) when he studied microbicides acceptability among Ghanaian women where unequal power relations based on gender norms have impacted on women's decision in disease prevention.

While discussion with one's husband was desired by many, some women voiced the intention to decide for themselves if their husbands kept on neglecting their rights to safer sexual practices. An example is Napsiah's response, when asked about the decision to use a protective method that women can control:

> Yes. [We] need to ask the husband's permission. But if the husband doesn't care [about HIV prevention], then you don't have to ask him. If it is for good purpose, there is nothing wrong [about doing so]. If you ask for his permission, regardless of what he says, you need to proceed using protection, to protect yourself. You don't want to get sick like him if he has the disease … right? (Napsiah)

While she was aware of the ideal behaviour expected of a wife, it appears that Napsiah was comfortable making her own decisions about practicing safer sex. She mentioned that this could only happen if she was the one using a protective method. This example shows the importance of female-initiated methods for bridging the gap in the preventive methods currently available in Malaysia.

Quite a number of women reported that they would prefer a method that their husbands would not know about or would be unable to detect. They felt that, for their own safety, it was important to protect themselves. As described by Mawar:

> Mawar: He doesn't have to know. If I could just put the medication there [vagina area] without him knowing, that will be easy. I will feel protected. It is difficult to discuss this with him because he doesn't … care.
>
> Interviewer: What will happen if he found out?

> Mawar: He may get angry, but I guess it will be temporarily … for my own good; I think I can handle that. I will be protected from the disease.

In addition to issues regarding decision-making, concerns were also raised by the women about the side effects of methods and whether it would cause any harm or allergic reactions. Only one woman felt that it was unnecessary to use a method that women could control, because she believed that it was the responsibility of the men to use condoms. When asked about her opinion concerning the use of a method that she can control, Ani sounded unhappy about it:

> Just let the men use it [condoms to protect from transmitting STIs], I don't want to hassle myself about using anything; he is the one who has the disease, so he has to think about how not to spread it. (Ani)

Ani's response was in line with norms that view the role of a husband as someone who should protect his wife. Accordingly, she preferred to leave the decision about practicing safer sex to her husband.

In summary, the analysis suggests that women who were aware of their risk of contracting HIV faced various challenges in protecting themselves against the infection. Many women chose to avoid sexual contact with their partners as opposed to condom use. Various reasons that prevented them from using condoms were described, including barriers in terms of communication, negotiating power and the inferior position of a woman within a marriage. Condom use was also seen as a barrier to intimacy in a relationship and unprotected sex was seen as a symbol of emotional attachment and love by some women. The challenges surrounding condom negotiations inspired many women to try alternative methods for HIV prevention if they were available. However, similar to the issues related to condom use, the decision to use such methods was compounded by prevailing power imbalances within the relationship, as well as social norms. These findings suggest the importance of addressing the underlying gender and power issues to increase women's ability to protect themselves against HIV.

6.6 Summary of chapter

The analysis revealed four overarching themes that describe women's preventive behaviour in this study. They are: (1) socio-economic disadvantages erodes women's capacity for prevention,

(2) women's varied understanding of their HIV risk is shaped by contextual factors, (3) sex avoidance: a preferred but controversial preventive option, and (4) high incidence of unprotected sex resulting from power imbalances and socio-cultural norms.

While the majority of participants understood that their partner's injecting habits were putting them at risk of contracting HIV, the intensity of their perception varied, depending on the information they have regarding their partner's injecting habit and their understanding of HIV. Women who were aware of their risk faced various challenges in protecting themselves. Sex avoidance was the preferred option for HIV protection, however, this strategy was not feasible as it complicates women's roles in long-term relationships, their strong emotional attachment with their partner and raises religious concerns. Unprotected sex was common, brought about by women's lack of power to negotiate safer sex and condoms been viewed as a barrier to intimacy within their relationships.

In conclusion, the combination of socio-economic disadvantages, relationship power imbalances and restrictive social norms have synergistically affected women's preventive behaviour. While the impact of relationship power imbalances and socio-cultural norms on women's decisions and actions were evident, socio-economic disadvantages have also been shown to have a great impact on the women's life. Severe deprivation rendered HIV risk and prevention efforts of distal importance compared to the demand to fulfil their basic needs and the needs of their family members.

Postscript

Four months after the interviews, the researcher contacted some of the women who had been interviewed. One of them was Ani, whose husband was HIV positive; it turned out that Ani had recently tested positive for HIV. At the time of the interview, she had been aware of her husband's HIV status and had expressed her anxiety of being infected by him. She was reassured by her husband that if he ejaculated outside her vagina during sex, the action would protect her from being infected. Ani, as with another woman interviewed whose husband was HIV positive, did not use condoms, despite having free access to them, because the men preferred not to use them.

This finding emphasises the need for strengthening the available preventive programmes in order for women to make informed decisions and to have better options for protecting themselves from HIV infection, especially among those who are in sero-discordant relationships.

CHAPTER 7: INTEGRATION OF THE KEY FINDINGS FROM THE SURVEY AND INTERVIEWS

7.1 Introduction

Integrating knowledge from the different paradigms utilized in mixed-methods research, by what is called triangulation, can enhance understanding of a research questions (Greene & Caracelli, 1997). This brief chapter amalgamates the key results from the quantitative and qualitative studies presented in Chapters Five and Six with the aim of providing a comprehensive summary of the findings on HIV risk environments and the preventive behaviour of the study participants. Where inconsistencies between the survey and interview findings were present, plausible explanations for the different findings are discussed.

The findings are presented based on the three areas of focus in the research objectives: (1) HIV risk of the participating women, (2) their behaviour in the context of HIV prevention, and (3) their opinion on female-controlled methods of HIV protection.

7.2 Participants' HIV risk

Two broad areas related to HIV risk were explored in the study: (1) the women's perceptions of HIV risk they were facing, and (2) the risk environment which made them vulnerable to HIV.

7.2.1 Perceptions of HIV risk

Feeling at risk of HIV is an important factor that may influence a person's decision to adopt safer sexual practices. From the survey, overall slightly more than half (55.5%) of the participants had reported they were at some risk of being infected with HIV. Risk perception was significantly associated with relationship status and HIV prevention knowledge; women who were not married and had higher knowledge scores were more likely to feel at risk.

This finding also came out from the interviews. While many women knew they were at some risk of being infected with HIV, their perceptions varied and were influenced by their

understanding about HIV and the information they had regarding their partner's injecting habit. In general, many women underestimated their risk by thinking that it was unlikely they would be infected.

Both the survey and interviews have provided an insight into the perception of HIV risk held by the women. In general, while only around half of women felt they were at risk of contracting HIV from their partners, their perceptions varied and many underestimated their risk.

7.2.2 Vulnerability to HIV

In addition to risk perceptions, this study also reports on the risk environment faced by the women that made them more vulnerable to HIV. For this, their socio-economic characteristics, relationship power dynamics, HIV knowledge, HIV risk behaviour and HIV status were explored.

7.2.2.1 Socio-economic vulnerability

The survey described a general overview on women's education, employment and income which acted as indicators for their socio-economic condition. The level of education was generally good with about 90% having completed at least primary education. In spite of having received basic education, many women were poor with 63.4% living below the poverty line. Overall 70.1% of women were working, predominantly in lower paid occupations as reflected by their low monthly income.

From the interviews, it seemed clear that the majority of women were continuing to experience difficult life conditions. The interviews also revealed that some women were overburdened with both domestic chores and work commitments which added to their stressful lives. Moreover, many had poor social support due to the strong social disapproval towards people who inject drugs. For the majority, the difficult life situation has made issues related to HIV prevention less important when compared to the struggle to meet their own and their family's basic needs.

The survey revealed that the majority of women were poor. This finding corroborates with the qualitative analysis, where socio-economic disadvantages have emerged as one of the

overarching theme that influenced women's decisions and practices of HIV preventive behaviour.

7.2.2.2 Power imbalance

In addition to the socio-economic disadvantages, both the survey and interviews suggest the presence of power imbalance in their relationship. From the survey, about half of the women believed their partners had more power in decision-making. Four out of ten had experienced intimate partner violence in the form of emotional, physical or sexual abuse. In terms of partner communication, while nearly three quarters of women had no qualms discussing sexual issues with their partners, only half of them felt comfortable to ask their partners to use condoms.

The interview findings offered further understanding of power dynamics in the women's relationship. The interviews showed that many women subscribed to the traditional social and cultural norms regarding the role of a wife and a mother, and the subordinate position of women in a relationship. These beliefs had greatly influenced their decisions in many aspects of their lives. While some women were financially competent, and had good family support to leave their partners, they decided to continue with the relationship. The experience of intimate partner violence and poor sexual communication skills were among other factors which further enforced power imbalance and placed the women in a vulnerable position.

7.2.2.3 Limited HIV knowledge

The women's knowledge regarding HIV transmission and prevention was also investigated. The survey findings suggested that their knowledge was generally good; more than 80% of participants knew about the heightened risk of HIV for those with multiple sexual partners and among drug users who share their injecting paraphernalia.

While the survey asked specific questions regarding general knowledge of HIV transmission and prevention, the interviews did not specifically probe these in detail. Nevertheless, useful information reflecting their understanding of HIV did appear during the interviews; many women did not have a clear understanding of the role of HIV screening, the effective ways of preventing themselves from being infected with HIV and the correct manifestations of HIV in infected people. The findings from both quantitative and qualitative analysis revealed that, while

the participants' general knowledge of HIV was good, their ability to apply this knowledge to their situation was limited.

7.2.2.4 High-risk behaviour

The risk faced by some of the women was escalated by their own HIV-risk behaviours. Overall 9.1% of the survey participants inject drugs, 10.9% were involved in sex work; and a small proportion (2.7%) both. The odds of using injectable drugs is about four and a half times greater among those involved with sex work. It is likely that women taking drugs were dependent of sex work to pay for them.

7.2.2.5 Limited information on partner's HIV status

The survey revealed that many women were unsure of the risk they experienced within their relationship, with almost half (45.7%) did not know their partner's HIV status. Overall, 6.3% were HIV positive, and 7.7% had positive partners. The proportion of HIV positive women was significantly higher among unmarried compared to married women, and among those who injected drugs and were involved in sex work.

The interview findings offered an explanation for the limited information the women had regarding their partner's HIV status and injecting habit. It appeared that many women were not able to negotiate for information from their partners for several reasons. First, they felt they were not in a position to question their partner's behaviour and health status; a reaction fitting the expected role of an obedient wife sanctioned by the society in general. Secondly, some women mentioned their reluctance to question their partner's behaviour for fear of him becoming angry and abusive. The final reason is the issue of trust within a long-term relationship that made some women believed their partner would explain the risk to them if he ever became infected. Cumulatively, all these factors eventually resulted in the women became less informed of the risk they were facing. Not knowing their partner's HIV status led many women to perceive their own risk and the need to protect themselves as minimal.

7.3 Practices and challenges of HIV preventive behaviours

The survey aimed to provide reported measures of several preventive behaviours that included condom use, participation in HIV screening and sex avoidance. To complement the survey findings, the interviews explored deeper into the experience of the women in protecting themselves and the challenges they faced in the context of HIV prevention. In general, both the interviews and survey revealed low condom use among the participants. Instead, many chose to avoid sex as a less intimidating strategy of HIV protection.

7.3.1 Condom use

Of the 221 women surveyed, slightly more than half (52.5%) had never used condoms with their partner in their entire relationship. Among the condom users, the frequency of use varied. High condom use in the past 12 months was reported by only about a fifth (19.5%) of all the survey participants. Condom use was significantly higher among unmarried participants and those who lived in urban and sub-urban areas. None of the youngest group of participants (less than 25 years) used condoms consistently with their current partners.

While sex workers used condoms much more often with their steady partners than other women, they still reported more consistent condom use with their clients. Nevertheless, it is important to note that nearly half (three out of seven) of HIV positive sex workers did not use condoms regularly with their clients, putting their clients at risk of contracting HIV.

However, in general, participants' HIV status was significantly associated with high condom use. HIV positive women reported using condoms more consistently than HIV negative women. On the other hand, partners' HIV status did not determine condom use within their relationship. Eleven out of 17 (64.7%) participants with a HIV positive partner did not use condoms regularly. Of the eleven women, nine were sero-discordant with their partners which suggests that the women had little control over their partner's use of condoms.

This is consistent with the interview findings, where women whose partners were HIV positive reported poor condom use despite their fear of being infected. Strong emotional attachment, lack of power to negotiate safer sex, adherence to socio-cultural norms not supportive of condom use

and poor understanding of effective prevention strategies were among the factors that contributed to unprotected sexual contact with their HIV positive partners.

The survey results suggested that women who had experienced emotional abuse and felt uncomfortable to ask their partners to use condoms were less likely to use condoms consistently, whereas higher condom use was noted among those with better knowledge of HIV prevention. The association between condom use and socio-economic factors, decision-making ability and socio-cultural norms were also examined in the survey; however, no statistically significant association was observed.

The interviews gave in-depth information on various challenges faced by the women that made condom use impractical to them. First, it was difficult for women to negotiate condom use as it was perceived to undermine trust and emotional attachment in long-term relationships. Condom negotiation was also made difficult by the common perceptions held by women regarding their lack of power in the relationship. Difficulty discussing sexual issues as a result of feeling shy and lack of confidence to request condom use further impaired the negotiating ability of many women interviewed.

Secondly, socio-cultural norms that positioned men as the person who should be responsible in a relationship made many women feel that it was not her role to request condom use. Thirdly, social stigma that relates condoms with illicit sex made the use unappealing to some married women. Combined, these themes render women's desire to use them in conflict with mainstream social and cultural norms which encourage women to be chaste and deferential to men in their relationships. This creates significant challenges to condom use amongst Malaysian women.

While the interviews offered a rich description of the challenges to safer sexual practices faced by the women, interestingly, the barriers to condom use in terms of socio-cultural and power imbalances did not show significant effects on condom use in the survey. This is possibly due to the questions used in the questionnaire not being sensitive enough to pick up the cultural and power factors within relationships; where both issues being sensitive and varied through different population and target groups. Although the questions on relationship power (Nanda, 2011a) and socio-cultural factors (Wingood & DiClemente, 2000) have been validated in several countries, they did not appear useful to measure cultural and power factors in the context of Malaysian

women. Moreover, the method of enquiry in a survey is impersonal and rigid. Every question follows a standard questionnaire and it may not correlate with the participants' experiences. Interviews, on the other hand, provided a more personalised and conducive environment for women to share their experiences and beliefs, and therefore worked excellently to gather as much information on women's attitudes and beliefs regarding social norms. Furthermore, interviews have the potential to offer a rich description of challenges faced by women to safer sexual practices. The strength of the interviews to gather detailed description regarding participant's experiences and challenges in practicing condoms had successfully complemented the inconclusive findings on the influence of power and cultural factors to condom use provided by the survey.

7.3.2 HIV screening

The survey findings show that HIV screening was common, with about three quarters of women reporting being tested for HIV at least once. About half of those screened, had been tested within the year prior to the survey. The majority of women who were involved with HIV risk behaviour (90.0% of women who inject drugs, 100% of sex worker and 88.9% of transgender women) had been screened for HIV. This suggests that HIV screening services had been available and easily accessible to these high-risk women. Based on the survey findings, HIV screening among the participants was not affected by power dynamics in the relationship, but was significantly associated with their perceptions of HIV risk and knowledge of HIV prevention.

From the interviews, it was noted that the majority of women did not go for HIV testing voluntarily. They were screened during their antenatal check-up or when they were about to get married, as part of the pre-marital HIV screening. There was also a limited knowledge on HIV screening in which many were unsure about the frequency of testing recommended, the issue of window period and what it means if someone is tested negative.

7.3.3 Sex avoidance

Both the survey and the interview findings suggest that many women tried to avoid sex as a measure to protect themselves against STIs including HIV. According to the survey, this practice

was common where nearly half (43%) of the participants reported doing so, regardless of their socio-demographic characteristics or HIV status. Women who perceived having less decision-making power and those who had been physically abused by their partners were more likely to have avoided sex.

This is supported by the interview findings which revealed that many women had chosen to avoid sex because they felt it was less intimidating compared to negotiating for condom use. However, many women admitted that avoiding sex with their husbands contradicts the subjective norms and religious beliefs they held regarding a wife's role in a relationship, and thus was not feasible for married women.

7.4 Opinion regarding female-controlled methods for HIV protection

As a result of the multiple barriers to using condoms, many women felt unable to do anything to protect themselves despite knowing the risk of being infected with HIV through unprotected sex with their husband or partner. This situation supports the need for other options for HIV protection.

From the survey, 69.0% of women would like to use alternative methods if they were available. Women who were high condom users were more likely to report their willingness to try use these. While the majority (84.7%) felt they should have a say in the decision-making process, nearly two-thirds of the women felt they would need to ask their partner's permission before they start to use the new methods. Married women and Muslims felt it more important to ask their husband's permission.

A similar pattern was found in the interviews where many women had expressed their interest to try using alternative preventive methods which could be controlled by women if the methods were available in Malaysia, especially so if they could get them for free. However, there were concerns whether the methods would be convenient for them to use, the side effects and availability of the products. The possibility of using the methods without their partners knowing invited mixed responses among the women. While some felt that it would be better for their husband to be informed as an act of respect and for fear of unwanted consequences, some women

preferred to use the methods covertly without the husband knowing. In general, the response towards the possibility of using a method which women can control to protect themselves against HIV was positive.

7.5 Other important findings from the interviews

The advantage of using a qualitative method is that it allows for new dimensions to emerge during the interview process that helps to enrich understanding of the phenomenon studied. While the focus of the interview was to explore women's experiences and understanding in the context of HIV prevention, other related themes were identified during the analysis that has provided a complementary perspective on the women's behaviour in HIV prevention.

Firstly, a major and consistent observation was the overwhelming challenging situations the women interviewed were in. Not only were they poor, the women also had a difficult life as a result of their partner's injecting habit. The women were overburdened with responsibilities. The findings revealed that the majority of men who inject drugs did not have permanent job and regular income, therefore the women had to work to meet the family's financial needs. In addition, the women also need to care for the children and do the house chores, with very little or no assistance given by their partners. While many women interviewed expressed their regrets regarding the partner's behaviour, they were not in the position to leave the relationship mostly worrying about their children's welfare and emotional wellbeing if they were to be raised by a single parent. Furthermore, the women's adherence to socio-cultural norms and religious belief made them continue enduring the difficult life they had.

Next is the poor social support the majority of women had. The strong stigma against people who inject drugs had also left a negative impact on people close to them, i.e., their wives, partners and children. As a result, many women lost their family support and were marginalised by the community. The lack of social support had worsened their life situation, while many tried to continue to struggle independently to raise their children the best they could.

These challenges forced them to focus more on daily survival to ensure their basic needs and their children's, in terms of food, shelter and education were met. While most women realised

the possibility of them being infected with HIV, the perception of risk did not bother them as much, due to them being pre-occupied with survival issues.

7.6 Summary of chapter

This chapter pulls together two types of data to provide a comprehensive answer to the research questions. While the survey findings have offered specific measures to describe the risk and prevention practices of women, the interviews complemented the understanding with a rich description and a deeper context of their HIV risk and behaviour. Although there were several discrepancies between the two sets of findings, they were noted to be due to the challenges posed by the different methods used. Nevertheless, the weaknesses in each single method were compensated by the counter-balancing strength of another. As described by Jick (1979, p.604), "…although it has always been observed that each method has assets and liabilities, triangulation purports to exploit the assets and neutralize, rather than compound, the liabilities" (Jick, 1979). The use of both quantitative and qualitative techniques in this study had unearthed valuable knowledge in understanding the situation and challenges faced by these high-risk women in their daily lives. The main findings derived from this chapter are discussed further in the following chapter.

CHAPTER 8: DISCUSSION AND CONCLUSION

8.1 Introduction

This final chapter brings together the knowledge gathered from the research project. It starts with a discussion of the research process and its challenges, and how these were dealt with. Within this context, the impact of the research process on both the researcher and the participants are also explored. Discussion of the study strengths and limitations follows. Then, the key findings are discussed and positioned within the existing body of knowledge. The study implications for HIV prevention programmes in Malaysia and priority areas for future research are explored.

8.2 The research process

One of the primary challenges of this study was the recruitment of participants, as a result of them being a hard-to-reach population. People who use drugs often shy away from the mainstream community due to the stigma attached to their behaviour (Beyrer et al., 2010; L. P. Wong & Syuhada, 2011). Their partners and families face the same stigma due to their close relationship. While drug users can be identified through their drug network, their partners and families are not visible in the same manner. To facilitate recruitment, respondent-driven sampling (RDS), which has previously been used for sampling hidden populations (Malekinejad et al., 2008), was utilised to enrol study participants through their partners who inject drugs. Unfortunately, some drug-using men did not extend the invitation to participate in the study to their female partners giving reasons such as their partner was busy, it was difficult for her to take leave from work or she was not interested in taking part in the study. While these reasons may have been genuine for some, others may have made the decision on behalf of their partner for fear that the women would learn of their injecting habits. This significantly affected the success of RDS as a method for achieving a representative sample of the population. Subsequently, the research team went into the drug using community to recruit eligible women with the help of NGO outreach workers.

Going into a community of drug users where the crime rate is known to be high and where some individuals were hostile to strangers created some risk for the researchers. This was particularly the case when the team explored the red-light districts in Kuala Lumpur. At this point, the

involvement of NGO outreach workers, who were familiar with the community and the enforcement bodies, became an important factor for keeping everyone safe while recruiting participants.

At this point, I would like to reflect on my experience of conducting a survey and in-depth interviews with the wives and partners of PWID, in probing their experiences and the challenges they face in protecting themselves against HIV, and what it was like for them to be in a relationship with a man who injects drugs in the context of HIV prevention. This is in reference to the practise of reflexivity as suggested by Grbich (2011) and Kitto et al.'s (2008). They proposed for researchers to acknowledge the complex influences among researchers, the research topic and subjects on the research results to enhance the quality of a research.

From a researcher's perspective, this research had provided me with experience in developing my interviewing skills and in learning how to manoeuvre myself within the community. The experience has sharpened my ability to establish rapport with PWID communities, as well as with their partners. The entire process made me appreciate the various challenges of conducting interviews with vulnerable participants and hidden population (Dickson-Swift et al., 2007; Liamputtong, 2007). Above all, this experience has improved my confidence as a field researcher.

From a personal perspective, I felt blessed and thankful to be able to meet these women and be granted permission to interview them. It was a valuable and humbling experience to listen to their real life stories and to be in the same environment that these women had been living in with their partners and at many times, with their children. This opportunity has provided me with a greater insight into their lives, and enhanced my understanding about personal and family factors that influenced women's preventive behaviour. A similar experience was reported by Pini (2004) in her interviews among rural women in Australia, who illustrated how a reflexive approach to the subjectivities of life circumstances faced by the participants enabled the production of a more comprehensive interpretation of research findings.

The research process does not only affect the researchers, but can potentially also leave an impact to the interviewees. As described in an article by Dickson-Swift (2007, p. 328) on the challenges

faced by qualitative researchers when doing research amongst marginalized and underprivileged people with sensitive experiences:

> Researchers undertaking qualitative research, and particularly qualitative research on sensitive topics, need to be able to make an assessment of the impact of the research on both the participants and themselves (Dickson-Swift et al., 2007).

In reference to this, the impacts of the research process on the participants were acknowledged, especially the consequences of taking part in the interview. To the interviewees, the interview may not have been viewed as simply a normal interview; some women appeared to appreciate having someone to talk to. Quite a number of women expressed their relief that someone was interested in their stories. One of the participants mentioned that she had no one to turn to with whom she could share her feelings and problems. This raised the possibility that an interview session such as those conducted had been therapeutic for some of the women interviewed.

For others, there is a possibility that the revelations spurned the anger of the interviewees' partners. Although the conversation and information gathered from the interviews were kept strictly confidential, it is not possible for the researcher to know if the experience may have had unintended negative consequences in the home. However, no concerns were raised or reported to the researcher or through indirect channels concerning this matter.

8.2.1 The strengths of this study

Several factors contribute to the strength of this study. One of them is the study's original contribution being the first to provide empirical evidence that describes HIV risk and the preventive behaviour of women intimately involved with men who inject drugs in Malaysia. The knowledge gathered from this study has provided a baseline understanding and a general overview of HIV risk among this group to inform future interventions and research.

Another strength concerns the methodology used in the research enquiry. The mixed-methods approach and pragmatism paradigm adopted as the philosophical basis of this study offered a flexible yet inclusive and analytical view for answering the research questions in a comprehensive manner (Creswell & Clark, 2011). While the use of a quantitative survey provided objective measures that added to the study's epidemiological evidence, detailed

descriptions of the women's beliefs about and experiences of HIV prevention was achieved through the qualitative arm of the study. The combination and triangulation of these quantitative and qualitative observations further enhances the trustworthiness of the study (Jick, 1979).

The pragmatism paradigm also allows the researcher to be flexible in terms of data interpretation and presentation (Creswell & Clark, 2011; Morgan, 2007). Using the pragmatist lens, a combination of theories, which include psychosocial behavioural theory and a more holistic socio-structural theory, helped in building a comprehensive conceptual framework at the beginning of the research. This approach also helped to provide a sound theoretical explanation of the study findings (Glanz et al., 2008), which are presented in the following sections.

The researcher's previous experience in working within the community contributed to the success of the in-depth interviews. One of the main challenges when conducting individual interviews is the interviewer's skill to be able acquire the most detailed and rich data from the interviewee (Boyce & Neale, 2006). The ability to relate with empathy to the participants encouraged the majority of women interviewed to willingly share their stories and experiences, including their views on sensitive and private issues.

Finally, this study involved a wide variety of participants. Recruitment of participants from six different study locations made it possible to understand the different situations faced by women from rural and urban areas. The inclusion of sex workers and transgender women provided insight into the differences and similarities of issues faced by these women. The wide variety of study participants adds to the richness of the findings by providing a range of views of the phenomenon under study (Kitto et al., 2008).

8.2.2 The study limitations

Several limitations were identified while conducting this study. First, the limited number of participants recruited in the survey meant the data set had inadequate statistical power to adequately explore associations between condom use and its risk factors (Kirkwood & Sterne, 2003). This was the case despite several attempts to reach the targeted sample size. Various challenges were faced by the researcher while recruiting participants who suited the category of hard-to-reach population and these challenges were elaborated in the methods section of Chapter

4. Despite the difficulties, a total of 221 valid samples were analysed and they have provided useful information about the risks and preventive behaviours among the participating women, albeit with a limited ability for building statistical models.

The combination of RDS and other sampling strategies led to non-probability sampling in the survey. This limited the generalization of survey results (Magnani et al., 2005) and introduced selection bias to the sample (Kirkwood & Sterne, 2003). While the original approach was to use only RDS, the strategy failed to reach an adequate number of women in the limited time frame available; hence, the commencement of other sampling techniques. This challenge had always been a possibility in RDS (Malekinejad et al., 2008). Furthermore, this was the first time that RDS had been used for recruiting the partners of PWID, although the technique had previously been reported as useful for recruiting within a community of men who injected drugs (Malekinejad et al., 2008; Robinson et al., 2006). It is also important to note that the purposive sampling of the interviews meant that the findings were not intended to be generalized, but to provide insight into the experiences of the women involved that covered the breadth of issues that were related to the topic explored (Liamputtong & Ezzy, 2005).

A questionnaire can be an excellent instrument for collecting sensitive information from participants (Walliman, 2011) and was used in this survey. While the questionnaire used was designed to be self-administered, some women requested the interviewers assist them to complete it. This action may have affected the women's responses, especially pertaining to questions related to sexual practices and high-risk behaviours, as participants are likely to report what is expected of them rather than what they felt, or what they had been practicing (Bloch, 2004). However, the number of women requesting this option was small, i.e., less than 10%, and was therefore unlikely to have affected the final outcome of the study.

Another limitation that needs to be considered concerns the difficulties faced when interviewing women about sensitive topics such as sexual relationships, power dynamics and cultural beliefs. This challenge was highlighted by Liamputtong (2007) in her work on research methods involving vulnerable women. While many of the women interviewed for this study were willing to share their experiences, others appeared shy and had difficulty expressing their thoughts, especially those related to sexual relationships. In the Malaysian community, sexual issues are

not commonly discussed with outsiders (Ministry of Health Malaysia & UNICEF, 2008). Therefore, there is a possibility that some information had not been revealed by the women. Nevertheless, the available information from all the interviews was complementary and achieved thematic saturation, which subsequently provided a rich description of the women's experiences and the challenges they faced.

It was also noted that participants who identified as sex workers, as well as transgender women, were much less forthcoming in their interviews. This may be due to the fact that the different appearance and language style of the researcher made her appear as an outsider to the community of sex workers and transgender women (Dickson-Swift et al., 2007). This likely constrained the women's responses during the interviews, where superficial answers to questions and probes were frequent. This experience suggests that the involvement of peer interviewers or someone more familiar to the environment would benefit future research and assist in gathering more comprehensive insights into the risks and experiences faced by sex workers and transgender women.

Due to limited time and resources, this study did not examine the factors among men for determining condom use. Issues related to condom use (or non-use) always involve both partners due to the dyadic nature of sexual intercourse (Amaro, 1995; Quinn & Overbaugh, 2005); hence, it may not be possible to gather a comprehensive description of the barriers and challenges to condom use without also studying the male partner. The barriers and challenges of condom use presented in this study only describe women's perspectives of the issue. In relation to this, future research should involve men who inject drugs in order to provide a complete picture for explaining the relationship dynamics that may influence condom use within a relationship.

While some of these challenges limited the ability of this study to provide complete information with regards to the research questions, a significant contribution was nonetheless made through the necessary modification of the methods. The interpretations of the findings were therefore made in light of the limitations that have been identified. Nevertheless, all possible effort has been made to minimise limitations and ensure the trustworthiness and rigour of the findings.

8.3 Discussion of the key findings

In this section, all key findings that describe participants' risk and vulnerability to HIV are discussed and related back to the wider literature. The key findings are discussed according to the research questions outlined earlier. First, the discussion focuses on women's preventive behaviour, specifically related to the high incidence of unprotected sex and the various factors contributing to the practise. Following on, the discussion extends to alternative prevention methods that women have used, and were interested of using for HIV prevention. Next, the impact of socio-economic disadvantages to women's life and their preventive behaviour is discussed. Finally, the importance of HIV risk perception in predicting preventive actions are explored. Within each topic, the discussions are guided by the conceptual framework of the study (Figure 8.1), which was based on two leading theories: the theory of gender and power (TGP) and the health belief model (HBM).

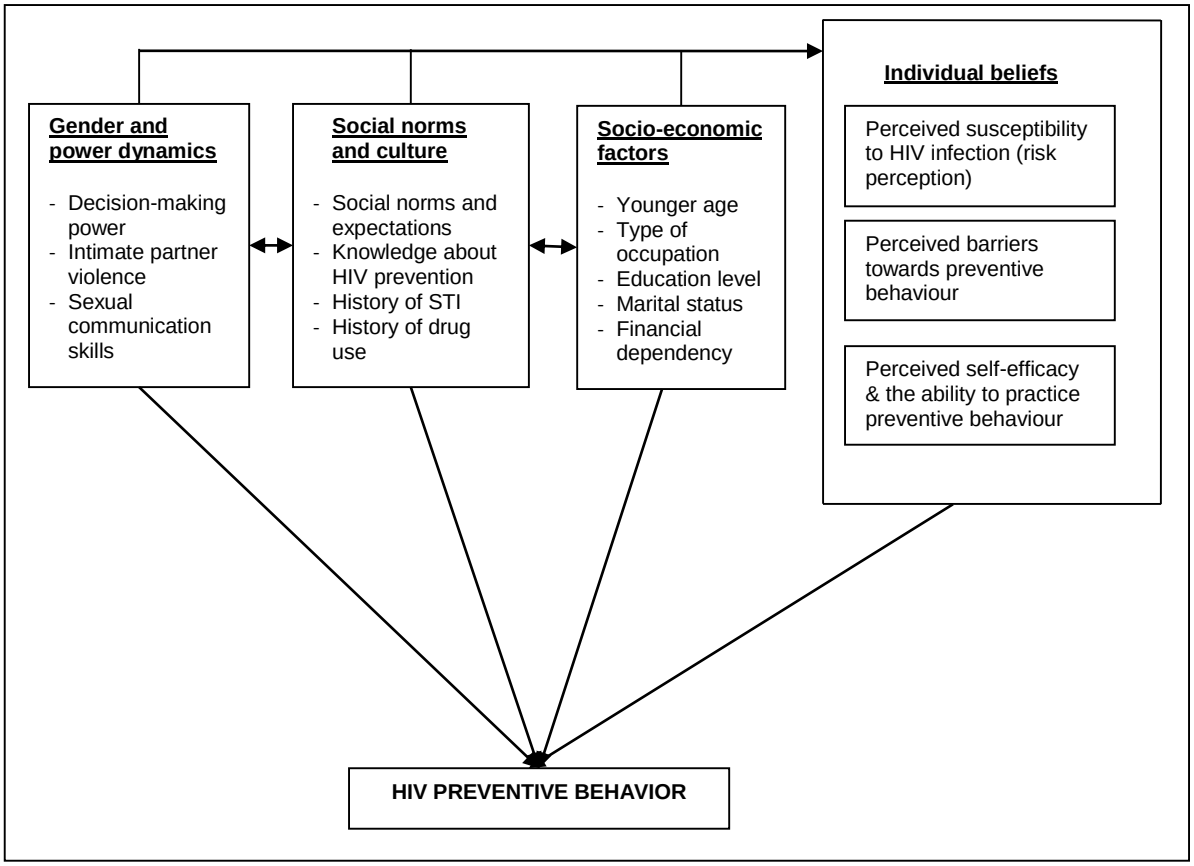


Figure 8.1: Conceptual framework of the study

According to the TGP, three major constructs (gender and power dynamics, social norms and culture and socio-economic factors) characterizes the gendered relationships between men and women, which adversely affects women's health behaviour and outcomes (Wingood & DiClemente, 2002). To complement the TGP, three constructs from the HBM, perceived susceptibility, perceived barriers and self-efficacy, were included in the conceptual framework in order to consider the cognitive aspects of women's behaviour (Champion & Skinner, 2008). Based on HBM, the belief of being susceptible to a disease, their perceptions of barriers and their ability to use a protective method may all affect a woman's decision to adopt preventive behaviour. Thus, the conceptual framework used in this study, which included personal, interpersonal and social factors offered a comprehensive theoretical explanation of the study findings.

8.3.1 High incidence of unprotected sex

A key finding of this study is the high incidence of unprotected sex among the participating women. Within this study, condom use was the key focus of discussions into unprotected sex as: (1) condoms are the most effective, widely available method of preventing HIV; and (2) discussing condom use provides insight into the factors that shape sexual decision-making within the participant's relationships.

From the survey, around one in five women had used condoms regularly with their partners during the past 12 months prior to the study. The interview findings revealed similar low use of condoms. The findings of this study resonate with previous research findings on condom use among men who inject drugs in Malaysia, which ranged from 14% to 22% in studies conducted in Kuala Lumpur and five other cities in Peninsular Malaysia (Malaysian AIDS Council, 2009c; Vicknasingam et al., 2009). However, these data included condom use for all sexual contacts these men had, regardless of whether it was with their long-term steady partners or with casual partners. Therefore, the results of the present study provided a more specific prevalence of consistent condom use within the intimate relationships of PWID and their long-term partners. This is important to distinguish, because the issues that affect condom use and intervention plans for promoting safer sexual practices varied according to the type of relationship (Sherman & Latkin, 2001; UNAIDS, 2009). This was elaborated on by Diaz-Loving and Villagran-Vazquez

(1999) in their work on the determinants for behaviour changes in the context of heterosexual HIV prevention in Mexico (Diaz-Loving & Villagran-Vazquez, 1999). The researchers construed that subjective norms and the motivation for complying with reference groups appeared to be important determinants for condom use among women with regular partners. Conversely, condom use among those with casual partners was strongly determined by personal behaviour, beliefs and attitudes.

In this study, married women and those who lived in rural areas were less likely to consistently use condoms with their partners. Condoms were also not popular among the youth, whereby none of the women aged 25 years and younger reported high condom use. The following discussion considers the factors that contributed to inconsistent condom use.

8.3.2 Factors contributing to unsafe sexual practices

Three areas are identified as major factors contributing to the high incidence of unprotected sex among the participating women. They include: (1) relationship power imbalances, (2) socio-cultural norms not supportive of condom use, and (3) emotional attachment and personal factors. Further discussion on the factors influencing women's sexual behaviour is presented in the following sub-sections.

8.3.2.1 Relationship power imbalances

The theory of gender and power suggests that power imbalances in a relationship can affect women's ability to negotiate for safer sexual practices (Wingood & DiClemente, 2000). Previous research proposes that Malaysian women prefer to discuss issues with their partners before making decisions related to their own sexual and reproductive health (Najafi et al., 2011). The current study goes further, suggesting that women perceived they were not in a position of power to negotiate condom use. This perceived power imbalance was evidence in the women's preferences not to discuss condom use with their partners and was identified as one of the primary reasons for unprotected sex among the women interviewed. Additionally, their decision-making abilities were strongly influenced by socio-cultural norms which served to entrench gender role expectations and enhanced their inferior position within the relationship. This situation is reported to be common in the patriarchal society of Malaysia (Ministry of Health

Malaysia & UNICEF, 2008; Yusof & Duasa, 2010). The implications of the participant's compliance with gender norms reduced the autonomy they have over their own body.

The strong influence of socio-cultural factors and gender norms on relationship power dynamics and women's sexual decision-making have also been noted in other patriarchal societies such as India (Bhattacharya, 2004), Indonesia (Jacubowski, 2008) and Vietnam (Go et al., 2006). These studies reported obvious relationship power imbalances that do not favour women. Bhattacharya (2004) and Jacubowski (2008) both agree that power imbalances imposed by socio-cultural norms and expectations were more pronounced among married women compared to their unmarried counterparts, which subsequently limits their ability to communicate and negotiate for safer sex. Similarly, Wingood and DiClemente (2000) reported that the perception of lack of power are more pronounced among women involved in long-term relationship, which is influenced by socially constructed gender norms that support power inequity.

In addition to socio-cultural norms, many women related their inclination to take a passive role in decision-making and demonstrate respect towards their husbands as a religious obligation. These were common beliefs shared by Muslims and Hindu participants in this study. Among the Muslim participants, many mentioned that it was their responsibility to respect their husband, and as a good Muslim, they should *redha* their situation, which literally translates as "total acceptance without any prejudice". Many Muslims relate the concept of *redha* with being pious and it made them feel closer to God (Tong & Turner, 2008). While this belief is based on a narrow interpretation of the teachings and values of Islam, a strong cultural bias that supports the superiority of men further imposed the disputed norm that a woman should unconditionally respect her husband, regardless of his behaviour.

It is also interesting to note that, based on the interview findings, being financially competent and able to make financial decisions did not lead to sexual empowerment. This finding contradicts the work conducted by Jacubowski (2008), who examined the link between marriage and HIV related vulnerabilities among Indonesian women. In her qualitative enquiry, she reported the importance of financial dependency as a factor that limits women's power for negotiating safer sex (Jacubowski, 2008). While Jacubowski investigated the vulnerability of women in general, the present study considered the vulnerability of women who were married

to, or intimately involved with men who injected drugs. The main difference is that the women in the present study were more financially independent as a result of their partner's behaviour and injecting habits. These women have by necessity extended their traditional role from being the homemaker to becoming the primary earner of the household, a scenario which has been increasingly common in Malaysian society (Mahari, 2011). Ironically, while many women in this study were financially independent from their partners, strong adherence to socio-cultural norms that acknowledged the superior position of men within a marriage did not alter the existing power imbalance in terms of sexual decision-making. Many still held to the traditional norms that discourage women from making active decisions regarding sexual issues so as to appear modest.

From the survey, consistent condom use was not determined by a partner's HIV status, suggesting that women had minimal control over the decision to use condoms. This put the women whose partners had HIV at great risk of being infected. Further explanations were gathered from the interviews which indicated that issues of trust, emotional attachment and socio-cultural and religious expectations of the role of a wife led many women to agree to having unprotected sex. This is in line with Amaro's (1995) suggestion that sexual behaviour and decision are heavily influenced and defined by gender roles as well as cultural values and norms. A study conducted among Indian women that examined the factors associated with unprotected sex revealed a similar finding (Ananth & Koopman, 2003). In that study, concerns regarding a partner's trust and prevailing gender norms were identified as important contributing factors for not using condoms.

In addition to the issue of control and power imbalance, the present study also suggests that men were perceived as being unconcerned about safer sexual practices, even when they knew they were HIV positive. The situation was worse if women did not know about their partner's HIV status, which occurred among almost half of the participants. Being unaware of their partner's HIV status had affected the women's perceptions of HIV risk. These women may not feel that it is important to protect themselves in lieu of the presumed low, or no risk of HIV. The lack of concern about the onwards transmission of HIV among men who inject drugs justified investigation into alternative methods of HIV protection that could potentially be controlled and used by women.

8.3.2.2 Socio-cultural norms not supportive of condom use

Another construct in the theory of gender and power includes affective attachment and social norms. It was hypothesised that women who are more accepting of conventional socio-cultural norms regarding relationships and sexuality are less likely to practice HIV protection (Wingood & DiClemente, 2002). None of the affective attachment and social norms components tested in the survey showed any significant association with condom use. Conversely, socio-cultural norms and beliefs about issues related to condom use and sexuality emerged through the qualitative interviews as important factors that discouraged women from using condoms.

Sexual communication and discussions about condom use were difficult for many participants. The norms that discourage decent women to talk openly about sex meant that many women felt it inappropriate to discuss their intimate relationship and condom use with their husbands. The traditional values that relate marriage with respect, trust and procreation (Bhattacharya, 2004; Ministry of Health Malaysia & UNICEF, 2008) complicates discussion of condoms which implies a lack of trust by the women. As what was reported in Malawi, the discussion about using condoms for preventing infection in marriage is seen as "bringing an intruder into the domestic space" (Chimbiri, 2007, p.1102). Similar findings, which relate poor self-efficacy in condom negotiation and low condom uptake, were found in other studies in the USA (Bowleg et al., 2000), India (Ananth & Koopman, 2003) and Hong Kong (Tang et al., 2001). These studies showed how, as was the case in the present study, cultural norms that consider sex a taboo subject has limited the effectiveness of women's sexual communication skills in their relationships.

Moreover, feeling shy about buying condoms and the social stigma that relates condoms with illicit sex as seen among Indian women (Bhattacharya, 2004) further restricted women's intentions to use condoms. This finding conforms to the culture of silence arising from expectations that Malaysian women and girls remain ignorant about sex and their sexuality continues to obstruct their ability to practice safer sexual relationships (Ministry of Health Malaysia & UNICEF, 2008).

The role of socio-cultural norms in affecting sexual communication and behaviour has also been reported in China (Leiber et al., 2009). From interviews with 32 individuals from a contemporary Chinese population, Lieber and colleagues suggested that traditional features of the Chinese

socio-cultural context had remained salient to participants and continues to present significant obstacles to the effective implementation of HIV prevention. A similar situation was reported in India, where real or perceived threats to their culturally sanctioned roles have discouraged both men and women alike from adopting behavioural changes that are necessary to reduce their HIV risk (Bhattacharya, 2004).

A significantly lower proportion of condom users among married women and those living in rural areas suggests the stronger effect of socio-cultural factors and gender norms among these groups. As an example, the norms of an ideal family life, i.e., where both parents are available to raise their children together led many of those interviewed to remain committed to their marriage. Being married also meant that the women were bound to the expected roles of a wife and mother (Omar, 2003). In contrast, these expectations were not present among unmarried couples where this type of relationship is non-traditional within Malaysian culture (Ministry of Health Malaysia & UNICEF, 2008; Ng & Kamal, 2006). This fits with the finding reported by Jan and Akhtar (2008) where unmarried women were using condoms more consistently compared to their married counterparts, reflecting the difference in empowerment and decision-making power between married and unmarried women(M. Jan & Akhtar, 2008). Condoms are also reported as the preferred contraceptive choice among young unmarried man and women in Malaysia (Shamsuddin, 2012). In addition to their greater ability to undertake sexual decision-making, unmarried women were not restricted by socio-cultural expectations related to marriage and therefore faced fewer barriers to sexual communication.

8.3.2.3 Emotional attachment and personal factors

The observations made during the interviews suggest that condoms were seen as a barrier to intimacy and they interrupted sexual pleasure. Such perception which relates condom use with decreased sexual pleasure has been recorded in a previous study among youth in Malaysia (Shamsuddin, 2012). A similar findings were reported by Uuskula et al. (2011) in a focus group discussion involving sexual partners of PWIDs in Estonia. They reported that one of the primary reasons of condom non-use among the participants was a widespread belief that using a condom diminishes feelings and sensations during sex.

The potential for undermining trust and the strong emotional attachment in a long-term relationship, especially in a marriage, impaired women's negotiating abilities. As suggested by Woolf and Maisto (2008), women in long-term relationship are more likely to be emotionally involved in their relationship and prioritise bonding and intimacy over self-protection. In this situation, the women have to balance between the risk of contracting the disease and the risk of losing their partners' trust or the possibility of being abandoned by their partners. This process of risk assessment affects an individual's decision in adopting a new preventive behaviour (Kowalewski et al., 1997). The observations made during the interviews suggest that, eventually, the imminent risk of creating a conflict in their relationship predominate the distal risk of HIV infection, resulting in women agreeing to unprotected sex with their partner.

The survey and interview findings reveal that sex workers used condoms more consistently with their clients compared to their partners. The reasons given for this were that they valued the relationship and intimacy they had with their partner more than the possibility of being infected, suggesting the influence of emotional attachment and the desire to comply to gender roles in their sexual decision-making (Woolf & Maisto, 2008). While they also felt their risk was higher if they had sex with their clients, the more consistent condom use with clients may also be due to the women being in a more powerful position to demand condom use, compared to when they have sex with their partners, as was reported in a study among female sex workers in China (Cai et al., 2010). However, it is interesting to note that, while knowledge about HIV prevention and condom use was significantly higher among sex workers surveyed, this did not help to empower them to use adequate protection to prevent themselves from being infected sexually by their primary partner, suggesting the influence of emotional attachments in their sexual decisions. Many other studies, including those among sex workers in China (Wayal et al., 2011) and Tanzania (Mgalla & Pool, 1997) have found discrepant condom use between the women's clients and their personal partners.

The women's basic knowledge about HIV prevention was generally good, based on the survey responses. However, the interview findings suggest that, among many, this knowledge was rather superficial and that the women found it difficult to put what they knew into practice. A similar observation was reported by Kaur et al. (2014) in a study among lower socio-economic groups in Malaysia. While the knowledge regarding HIV transmission mode was moderately good, they

found that understanding regarding the role of condoms in preventing sexual transmission was lacking among two-thirds of the participants (Kaur, Izani, & Gopalakrishnan, 2014). It was similarly observed in this present study that some women believed that external ejaculations during sex could protect them from being infected with HIV. Although further information on the commonality of such a belief among HIV positive people in Malaysia is unknown, a similar strategy had been used by sero-discordant couples in Australia to balance sexual desire while reducing the risk of HIV transmission (Persson & Richards, 2008). External ejaculations during sex may expose women to the possibility of contracting HIV. Internationally, myths and misconceptions about HIV transmission are common and often enhance women's vulnerability to the disease (Ackermann & Klerk, 2002; Beyrer et al., 2010).

In summary, low condom use among the participants was contributed to power imbalances that existed within the relationship, condoms being seen as a barrier to intimacy and the socio-cultural norms that did not support safer sexual practices for women. All constructs had individually and synergistically affected women's ability to negotiate condom use, which subsequently resulted in unprotected sex and increased women's vulnerability for contracting HIV from their partner. These findings are consistent with the theory of gender and power, which underscores the importance of power structures and socio-cultural factors in determining women's health outcomes (Wingood & DiClemente, 2000). Socio-economic variables did not directly affect condom use within this sample; education status, employment status and financial dependency also did not reach statistical significance. A similar finding was noted in the interviews, where none of the participant related poor condom use directly to financial issues. However, socio-economic disadvantages did affect the women's vulnerability in other ways and this issue is further discussed in subsection 8.3.4.

8.3.3 Alternative methods of HIV prevention

In view of the various challenges faced by women wishing to negotiate safer sex practices, both the survey and the interview findings suggest that many women tried to avoid sex as a measure for protecting themselves. According to the survey, this practice was common, regardless of marital status, location, socio-demographic characteristics or the HIV status of participants. Women who had less decision-making power and had been physically abused by their partners

were more likely to have avoided sex, which suggested the presence of a power imbalance that limits the women's ability to practice safer sex.

The interview findings shed more light on the reasons for sex avoidance among married women. Many felt that sex avoidance was less intimidating compared to condom negotiation. This is related to their inability to communicate effectively with their partner and their efforts to minimise conflict within their relationships. It is also worth noting that the women tried to avoid sex in the subtlest way possible by not associating their refusal to have sex with the fear of being infected with HIV by their husbands. The efforts of women who were concerned about their husband's feelings and who continued respecting him despite his behaviour underscores the nature of the subtleties of the marital relationship within a typical Malaysian setting (Omar, 2003).

The survey finding suggests that fear of further abuse has led women who reported the experience of physical abuse to resort to what is considered non-provocative solution such as sex avoidance. While this option is not feasible as a long-term protective method in a relationship, sex avoidance proves to be a powerful tool of HIV prevention even among those most vulnerable. As shown in previous studies (Gielen et al., 2007; Go et al., 2003; Teitelman et al., 2008), the threat of violence induces fear and affects women's power and ability to negotiate for safer sex. Women trapped within a space of intimate partner violence often resigned themselves to sexual demands and indiscretions due to the immediate threat of violence (Rachel K. Jewkes, Levin, & Penn-Kekana, 2003). Thus, the presence of violence enhanced women's inferior position and power imbalances within their relationships, which hampered their ability to participate in sexual decision-making.

As mentioned earlier, avoiding sex as a strategy for HIV prevention was not feasible for many women, as it contradicts the acceptable norms and religious beliefs held by them regarding a wife's role in a relationship. As mentioned by many women, they felt it was their responsibility to fulfil their husband's sexual needs. A similar reaction was noted in a focus group discussion among men and women in rural South Africa, where many believed that it was hard for married women to say no to sex (Ndinda, Uzodike, & Chimbwete, 2007).

One finding that arose from interviews was that many women felt unable to do anything to protect themselves, despite knowing their risks. The difficulties of negotiating for safer sex practices, exacerbated by women's perception of lack of decision-making power and the restrictive socio-cultural norms, render women vulnerable to contracting HIV. This situation supports the need for a different strategy of HIV protection. Recent advances have shown the promising role of female-controlled preventive methods such as microbicide vaginal gel (Q. Abdool Karim et al., 2010) and vaginal rings (US Department of Health & Human Services, 2012), as well as pre-exposure pharmaco-prophylaxis generally referred to now as PrEP (Matthews et al., 2010), which assists in empowering women. The possibility of these methods being used covertly by women without the knowledge of their male partners invited mixed responses from the participants. While some women felt that it would be to their advantage if their partners did not know, others believed their partners should be informed. This suggests the strong influence of cultural and gender norms among the women, which defined their roles and responsibilities within their relationship. These norms about women's sexual behaviour are often enforced by the societal norms (Bhattacharya, 2004), social institutions (Logan et al., 2002) and religious beliefs (R. Abdullah, 2003). The importance of honesty and sharing was also emphasized by this reaction, which overrode other factors. The fact that some women believed they should not hide anything from their partners for fear of unwanted circumstances implies that they did not have equal power and were vulnerable to the actions of their partners.

Unsurprisingly, married women and Muslim women felt it important to receive their husband's permission for using a preventive method. This symbolizes their adherence to socio-cultural norms and religious beliefs that support the superior position of men within a marriage. The influence of religious beliefs on sexual decision-making was highlighted by Najafi et al. (2013) in their work, which examined the barriers to modern contraception use among Asian women. They found that Muslim women in Malaysia were more likely to opt for shared decision-making regarding contraceptive choices compared to non-Muslim women (Buddhist, Christian and Hindus), and that a reason for this was the women's acceptance regarding the role of husbands as leaders and decision-makers within the family.

Based on the survey, women who were high condom users were more likely to report their willingness for trying and using alternative methods, compared to those who did not use

condoms regularly. Their willingness suggests that women who were able to use condoms appreciated the need for being protected and were ready to try alternatives, and were perhaps in a better position for adopting new methods. On the other hand, it also implies that women who were not using condoms regularly were not too keen to try new methods of HIV prevention, or were perhaps not in a strong position to do so. Again, as described earlier, the issue of relationship power imbalances appeared prominent among some women, which eventually impacted on their decision-making abilities. The idea behind providing alternative methods that women can use in terms of HIV prevention is meant to cater for the needs of women who are unable to use condoms (Mantell et al., 2006). However, the above finding suggests that extensive efforts are needed to improve women's empowerment in terms of their own reproductive health, as suggested by Quinn and Overbaugh (2005) and the WHO (2013), before new alternative methods can be introduced to these groups of women (Quinn & Overbaugh, 2005; World Health Organization, 2013).

In general, the majority of participants who were surveyed and interviewed believed that women should be involved in the decision-making process before they will consider using any alternative protective methods. Another study that examined the acceptability of microbicides as a protective method that women could use showed similar results (Ndinda et al., 2007). However, interestingly, in Ndinda et al. (2007), the majority of both men and women agreed that women should ultimately make their own decisions.

The positive response given by the women in the present study regarding the use of protective methods that women could control should propagate further work into making these methods available for public use in Malaysia. Concerns related to the inconvenience of the methods, their side effects, availability and access should be addressed. These findings corroborate with the suggestions made by Mantell et al. (2006) that an extensive and intensive promotion and education programme needs to be in place before introducing any new methods to a target population. In addition, a comprehensive strategy that addresses power imbalance and encourages the development of social and cultural environments that enabled changes to take place is essentially important (Hoosen & Collins, 2004; Montgomery et al., 2011).

8.3.4 Socio-economic disadvantages

The joint United Nations Programme on HIV/AIDS reported that the majority of world's HIV infection occur in communities ravished by poverty (UNAIDS, 2012). Observations made during the survey and interviews revealed that difficult life conditions were prominent among the participants. Many women lived below the poverty line and had poor social support, in spite of having acceptable levels of education. It was also observed during the recruitment process that many women who lived in the urban slums were homeless and depended on the NGO drop-in centres for shelter and food. The majority were unmarried, single women. Some were involved in sex work in order to maintain their daily survival, hence their colloquial term for sex work as *cari makan*, which literally means "looking for something to eat". The fact that sex work and drug use were interdependent, as suggested by the survey findings, and other research elsewhere (Cai et al., 2010; Pirkle et al., 2007; Wayal et al., 2011) escalated their HIV risk.

Living in poverty increases women's vulnerability to HIV in many ways; one such a way is the diverting of their thoughts and concerns from HIV prevention to daily survival (Rodrigo & Rajapakse, 2010). The analysis of the qualitative data identified financial constraints as one of the primary issues that affected many of the women. In addition, the women felt burdened by having to bear the dual responsibility of caring for the children and securing financial resources for the family. While many still feared the threat of HIV, thoughts of preventing themselves from infection were relatively less important than finding ways and means for feeding their family. Similar findings were observed by Tadele (2000) when conducting focus group discussions with young men who lived on the streets of a city in Ethiopia. Tadele found that HIV/AIDS was of relatively low concern to street youths, due to their preoccupation with survival in an adverse environment (Tadele, 2000).

The analysis also revealed that poverty had affected women's access to health services. Financial difficulty and time constraints such as working long hours compromised the women's access to health care. Additionally, participants' location in rural areas, where public transport is irregular and can be very expensive, further added to the difficulty. These limitations no doubt also impacted women's access to health services which include HIV screening and treatment.

Poverty had also affected the children. Children from low socio-economic backgrounds were in a disadvantaged position; at the same time, they were exposed to high risk behaviours. These situations may influence their health outcomes in the future, as suggested by the life course perspective in the social determinants framework (World Health Organization, 2008). In this study, several women mentioned their concerns regarding their children growing up in an environment surrounded by a drug-using community. Such an environment was not conducive for their children and some mothers feared it may influence their children to become drug users themselves in the future.

In addition to poverty, women's opportunity for education has in a previous study been identified as an important factor that increases HIV risk (Rodrigo & Rajapakse, 2010). In their review, which examined the interaction between poverty and HIV risk, the aforementioned authors suggested that educational opportunities for women had to some extent increased their sexual empowerment. The same link was not observed in this study, where no significant association was noted between condom use and education or employment status. Despite being poor, the majority of participants had received at least basic education, suggesting that financial constraints were not a major barrier to education, because primary and secondary education is free and easily accessible in Malaysia (Mahari, 2011).

The majority of participants were employed and contributed significantly to the family income. In fact, about 40% of participants were the main earner in the family. It is highly likely that these women were employed in lower income jobs, reflected by the high proportion of those living below the poverty line. This contradicts the level of education held by the women, where about 90% had completed at least primary education and 60% had completed at least their secondary education. The mismatch between education level and income could be explained by the TGP, which outlines the influence of the sexual division of labour, leading to the unequal segregation of work opportunities (Wingood & DiClemente, 2000). Through existing social norms and mechanisms, women were usually delegated to participate in what is regarded as women-related work, such as manufacturing work, sales or providing childcare, which were often less valued and therefore less well paid compared to male-related work (Rosenthal & Levy, 2010). Another possible reason for the low income among the women is the different pay rates assigned to women for doing similar jobs as men, a practice that signals wage discrimination against women

and which has been reported in some parts of Malaysia (Mahari, 2011; Milanovic, 2006). These findings suggest the presence of gender disparity in the economic sector, which has deprived women of equal job opportunities and a salary equal to their male counterparts, which may eventually affect women's health outcomes due to being mediated by deprivation and poverty (Wingood & DiClemente, 2000).

Due to the circumstances of their partners, nearly three quarters of the women interviewed were not financially dependent on their partners. While being financially independent had been a factor that has empowered women in other studies (Ananth & Koopman, 2003; Jacubowski, 2008), it did not show the same effect among the women in this study. It was apparent that despite being the primary earner, the women believed they had little power when it came to making decisions within the family, especially decisions related to their relationship and sexual matters. This observation corroborates with Omar's (2003) findings which highlight the discrepancies between financial independence and household as well as relationship decision-making power among Malaysian women. In essence, these findings demonstrate the interaction between socio-cultural norms and socio-economic situations, where the influence of the former appeared to have overpowered women's economic advantages, possibly due to their weak economic status.

In summary, their precarious lives and low socio-economic status had influenced women's vulnerability to HIV by affecting their perceptions of preventive needs and access to healthcare. To many women in this study, socio-economic hardship became their primary focus, thus rendering HIV prevention relatively less important compared to their daily survival. While socio-economic factors are part of the constructs under the TGP that have the potential to influence HIV risk, these factors also interact with power imbalances and socio-cultural norms to further increase women's vulnerability to HIV.

8.3.5 Perceptions of HIV risk

Risk perception is a component of the health belief model (HBM) and explains the factors that may influence a person's decision to adopt certain health behaviours (Champion & Skinner, 2008; Rosenstock et al., 1994). Other behavioural models such the theory of reasoned action (Albarracin et al., 2001) and the theory of planned behaviour (Montano & Kasprzyk, 2008) also

acknowledge the importance of risk identification by an individual before he or she can take any action for disease prevention.

From the survey, over a quarter (28.5%) of women perceived themselves as not being at risk of contracting HIV. Another significant proportion (16.0%) was unsure of their risk. Married women were less likely to feel at risk of contracting HIV compared to unmarried women, resembling the findings reported by Prata et al. (2006) in a study conducted in Mozambique (Prata et al., 2006). This may partially explain why married women were more likely to have unprotected sex with their husband compared to unmarried women, which made them more vulnerable to HIV. As suggested by the behavioural models noted above, these women were unlikely to believe there was a need to protect themselves against HIV. Previous studies have also demonstrated the importance of HIV risk perceptions in determining safer sexual practices (Maharaj & Cleland, 2005; Meekers & Klein, 2002).

In addition to its potential to influence preventive actions, perception of risk, as a mediating variable, can be influenced by personal or contextual factors (Champion & Skinner, 2008). This explains the variation of perceptions from one person to another. From the interviews, two common themes appeared to have influenced women's perceptions of HIV risk: (1) information about their partner's injecting habits; (2) their understanding of HIV.

The interviews revealed that many women were poorly informed regarding their partner's injecting habits. There were communication barriers between the couples that discouraged the women from demanding explanations from their partners. This is due to socio-cultural norms and religious beliefs that discourage women from challenging their husbands (Ahmad, 1998; Tong & Turner, 2008). Related to this, is the fear of provoking anger and possible abusive actions by their husband, which has been reported as an important element that reflects the unequal power distribution in the relationship and increases women's vulnerability to HIV (Silverman et al., 2008).

It is also an acceptable norm for married women in Malaysia to take a passive position and follow the decisions made by their husbands (Yusof & Duasa, 2010). This scenario was observed repeatedly during the interviews; many women felt it was their responsibility to be an obedient wife and not to hurt their husband's feelings. Similar findings were observed among married

women in India, where they were reported as being extremely receptive and non-challenging with regards to the decisions made by their husbands or the situations in which they lived (Bhattacharya, 2004). Their reactions were instead a coping strategy for facing issues related to sexual relationships in order to avoid any unwanted consequences.

Another explanation of barriers in communication between the women and their partners is the behaviour of most men who inject drugs. The men were often described as being preoccupied with their drug cravings, irresponsible regarding their families and not willing to communicate, especially about issues related to their drug habits (Beyrer et al., 2010). Additionally, there was a common perception among the women interviewed that men who inject drugs lie more and should therefore not be trusted. Furthermore, the presence of violence in some relationships made the women less interrogative in order to avoid conflict.

In addition to the lack of information about their partner's injecting habits, the women's perceptions of HIV risk was also affected by their limited understanding of HIV transmission and prevention. As mentioned in the previous section, while the women's knowledge of the disease's transmission mode and the role of condoms for preventing infection were generally good, specific knowledge that might further influence behaviour was inadequate. For example, many did not understand the role of HIV screening, despite the high uptake of HIV screening service (Ministry of Health Malaysia, 2012a). This was likely because HIV screening is done regularly by women as a test during ante-natal check-ups and as a pre-marital screening. Although it is proposed in the HIV screening guideline that proper pre-test counselling be given to everyone taking the test (Ministry of Health Malaysia, 2011), the effectiveness of such sessions is doubtful, based on the HIV screening knowledge of the interviewed women. Many women assumed that HIV screening is some kind of protective act and if their partners had been screened regardless of the timing, and were negative, they felt that they were safe. Hence, any kind of protection seemed unnecessary to them. None of the women interviewed were concerned about the timing of screenings, i.e., whether their partners had been screened the previous week or a year ago. This suggests that the women did not consider themselves at risk if their partner had been tested for HIV and the result had been negative, regardless of when the test had been conducted. They did not appreciate that at a point very soon after infection occurs, an HIV test

can produce falsely negative results, nor that HIV positive individuals are highly infectious during the earliest period right after becoming infected (Dieffenbach & Fauci, 2011).

Phrases such as "but he will tell me if he is infected" and "I'm not too worried because he still looks okay" implies that some women tried to dismiss or soften their perceptions of being at risk to HIV infection. This is described by Kowalewski et al. (1997) as "the phenomenon of unrealistic optimism", where there is a tendency for people to underestimate their risk of experiencing a negative event. According to their work, which critically reviewed the role of perceived risk in the adoption and maintenance of HIV related health protective behaviours, unrealistic optimism can affect the individual assessment of risk and alter their decisions for adopting a specific behaviour (Kowalewski et al., 1997). In the present study, unrealistic optimism was commonly found. It is interesting to note that despite acknowledging the fact their partners' injecting behaviours were putting them at risk of contracting HIV, many women justified their lower perceptions of risk.

Another interesting finding was the different perceptions held by women of high-risk behaviour. Women who injected drugs and who were involved in sex work tended to associate their risk with their own behaviour. Although using a needle or syringe that has already been used by a person infected with HIV poses a greater risk of contracting HIV than condomless sex with an infected person (Royce, Sena, Cates Jr, & Cohen, 1997), previous studies have proven otherwise (Kral et al., 2001; Strathdee et al., 2001). A study exploring HIV sero-conversion among PWID in Baltimore revealed that for women who inject drugs, their HIV risk was more closely related to heterosexual activity, compared to drug-related risks (Strathdee et al., 2001). A similar finding was observed by Kral et al. (2001) in their study among PWIDs in San Francisco. They reported higher HIV sero-conversion among female injection drug users who were involved with sex work compared to those who were monogamous.

In this present study, sex workers used condoms more regularly with their clients compared to their steady partners. This is based on their perception that the risk of contracting HIV is higher when they had sexual contact with their clients, which contradicts with the reality of higher HIV prevalence among PWID compared to their clients. In Malaysia, the prevalence of HIV among the general population is less than 1% (Ministry of Health Malaysia, 2012f), while the prevalence

among PWID ranges between 22% to 44% in different study locations (Malaysian AIDS Council, 2009c; Vicknasingam et al., 2009).

The ability to understand HIV risk when having unprotected sex with a man who injects drugs is one of the factors that may affect a person's decision for adopting a preventive behaviour (Champion & Skinner, 2008; Montano & Kasprzyk, 2008). This was absent among nearly half of the women who were surveyed. While power dynamics and cultural norms did play a role in this, appropriate knowledge of certain aspects of HIV appeared to be lacking. However, having the perception of being at risk to HIV may not necessarily result in safer sexual practices. To explain this, Persson and Richards (2008) highlighted the concept of acceptable risk, where sexual decision-making is based on a balance between perceived risk and the desire to remain sexually active. This underscores the influence of situational norms and other contextual factors on a person's risk perceptions and sexual decision making, as suggested by Champion and Skinner (2008).

8.3.6 Summary

The conceptual framework developed in the earlier part of the study suggested the combination of cognitive psychosocial and socio-structural theories for explaining the adoption of preventive behaviour among women, where individual beliefs, interpersonal and societal levels of influence were considered as prominent elements that affect behaviour. While it aimed to provide a comprehensive framework, the findings from this study suggest that power imbalances, interpersonal, social norms and culture, as well as socio-economic disadvantages and extreme deprivation were important factors that determined HIV preventive behaviours among this group of women. Linking back to the conceptual framework developed earlier, the findings of this study suggest that HIV preventive behaviour of the intimate female partners of men who inject drugs in Malaysia is well explained by the components of the theory of gender and power, which are: (1) gender and power dynamics, (2) social norms and culture, and (3) socio-economic factors.

At the individual level, while the role of personal and behavioural factors suggested by the health belief model in determining health behaviour was present, these were mediated by the abovementioned contextual factors, with a prominent influence indicated by interpersonal

factors and social norms. Women in this study are not necessarily in a position to make rational and individual decisions about their sexual practices and preventive actions, since these decisions are intimately linked to social constructions of sexuality and power relations that are heavily influenced by the social norms and cultures. Thus, for this group of women, socio-structural factors were noted to be more prominent compared to personal and behavioural factors in determining their preventive behaviour against HIV.

8.4 Study implications

This study has provided insight into the risks and preventive practices of the intimate partners of PWID, which can be used to inform policy, intervention and future research. The results of this study strongly suggest that this group of women is at a very high risk of contracting HIV. Unprotected sex instances were high, where only one in five women used condoms regularly with their partners. In terms of HIV status, 14 women (6.3%) involved in the survey was known to be HIV positive. Overall, 17 women (7.7%) had known about the status of their HIV positive partners, while around half (45.7%) were unaware of their partner's HIV status. The proportion of HIV infected women was much higher than the prevalence of HIV within the general Malaysian population (Ministry of Health Malaysia, 2012a), further underscoring the seriousness of the issue.

This study provides justification for the intimate partners of PWID being explicitly identified as needing to be the focus of attention in the next national plan of action for HIV prevention in Malaysia. They should not be grouped together as a generalized group of partners of high-risk individuals as outlined in the current national plan of action for HIV prevention (Ministry of Health Malaysia, 2011). By grouping them as such, this group of high-risk women was overlooked for a specific prevention programme. Grouping them under a generalized group that includes partners of other high-risk people (sex workers, men who buy sex, transgender women and bisexual MSM) also means the resources for intervention need to be shared with a large heterogeneous group with varying aspects of risk environment and challenges.

In addition to their implications for HIV prevention policy, the findings of this study also have significant implications for HIV intervention programmes among women in Malaysia. The ways in which the status of women and power dynamics within relationships are constructed by

society, has not been conducive to condom use among married women in Malaysia. While the final aim is to promote safer sexual practices, interventions should specifically be targeted at improving women's perceptions of HIV risk, empower them in terms of condom use negotiation and impart specific knowledge that leads to behavioural changes. Specific and targeted intervention programmes have proven to be more effective for changing the behaviours of people with a high risk of contracting HIV when compared to general interventions that attempted to induce fear of HIV (Albarracín et al., 2005).

The findings of this study also suggest that the traditional approach of providing mass information about HIV has led to the dissemination of considerable general knowledge regarding HIV. However, this strategy has neither affected women's perceptions of their HIV risk nor their behaviours with regards to practicing safer sex. Previous research has shown that specific behavioural change messages need to be employed for having a better impact that can change people's behaviour (Diaz-Loving & Villagran-Vazquez, 1999). Therefore, a specific and targeted approach to promoting safer sexual practices for HIV prevention is needed to help educate and empower Malaysian women.

At the individual level, intervention programmes also need to be gender-specific in order to addresses gender differences with regards to HIV risk. These programmes need to restore power imbalances, provide support for women and strengthen their communication skills and negotiating abilities. An example is a programme called "The Future is Ours (FIO)", conducted in New York and which used cognitive-behavioural intervention to empower women to practice safer sex (Centers for Disease Control and Prevention; Ehrhardt et al., 2002). In the programme, women living in high-risk communities were given the opportunity to connect with each other and share their feelings about relationships, values and personal vulnerability. They were given information in order to understand their risk of contracting HIV, to identify barriers to safer sex and to gain practical knowledge about risk-reduction strategies such as the use of male condoms and HIV testing. Such a programme can be used as a guiding platform for developing a gender-specific and culturally accepted intervention that suits the Malaysian setting.

The results of this study show that family values ranked highly in the lives of the participants. The women's beliefs concerning the expected roles of wives and women within the family, as

well as societal norms in the context of marital relationships prevailed strongly. While these cultural and societal norms can be seen as affecting women's status and power within the relationship (Rosenthal & Levy, 2010), these factors can also be used as an entry point in future interventions (J. J. Taylor, 2007). If men share the same beliefs as their female partners, i.e., if they value family and emphasize their own responsibilities within a relationship, interventions can focus on issues of love, maintaining family harmony and protecting the family and wife as a means for encouraging men to cooperate, as suggested by the couple-based prevention initiatives (El-Bassel & Remien, 2012; Gilbert et al., 2010).

Men who inject drugs might appear not to care about HIV prevention and the family welfare, based on their partner's comments. However, information is needed first hand from the men themselves in order to provide a just and clearer understanding of the issue as a whole. In their work, which describes the myths commonly associated with men who inject drugs, Beyrer and colleagues commented that many perceptions held by the community regarding men who injected drugs were untrue, enforced by the negative stigma that has surrounded the drug injecting community for many years (Beyrer et al., 2010). Therefore, the next step after this study will be a research project examining the views and thoughts of men who inject drugs regarding their partner's HIV risk and what they feel they can do about mitigating this risk.

Involving men in health intervention strategies to improve women's health has been advocated by many (El-Bassel & Remien, 2012; LaCroix, Pellowski, Lennon, & Johnson, 2013; Montgomery et al., 2011). A study conducted by Montgomery et al. (2011) suggested the involvement of men as one of the success factors in a female-controlled HIV prevention programme in Zimbabwe. The researchers suggest that shared decision-making and having their partners informed about interventions improved women's uptake and prolonged use of alternative HIV prevention methods. The findings suggest promising outcomes when men were enrolled in intervention programmes targeting women. However, caution needs to be taken when involving male partners, as it has been found that men's involvement can disempower women in terms of decision-making and further impose the dominance of men within relationships (Pettifor, Measham, Rees, & Padian, 2004; Wathen & MacMillan, 2003). Thus, further information from studies involving men who inject drugs may adequately address the potential of male involvement in future interventions.

The findings of the current study implied that unprotected sex occurred primarily due to the poor negotiation of condom use. Moreover, condoms were not a popular choice for many, especially among married women. The fact that many resorted to temporary measures of sex avoidance underscores the need for alternative protective strategies. One option is to make available preventive methods that women are able to control. Many of these are being developed and evaluated, including physical (female condoms) (Hoffman et al., 2004) and chemical (microbicide gel, ring, diaphragm) barriers (Q. Abdool Karim et al., 2010; Mantell et al., 2005), as well as more recently an oral antiviral prophylaxis, now often referred to as pre-exposure prophylaxis, or PrEP (S. S. Abdool Karim, 2012; Van Damme et al., 2012).

While some of these alternative preventive methods can be used discreetly by the women, others still require the cooperation of men. Unless issues of power imbalances and other gender-related vulnerabilities are addressed effectively, these alternative methods may not be effective for controlling the HIV epidemic. The importance of understanding the social context of acceptability was stressed by Mantell et al. (2005) in their work, which examined current approaches and the future impact of microbicides. The researchers suggest that in addition to exploring the social context that shaped the acceptability process across diverse populations of women in-depth, it is also important to include sexual partners, healthcare providers and policy makers for their input on interpersonal and structural challenges (Mantell et al., 2005). In reference to this, it is therefore imperative to involve all stakeholders in Malaysia in order to gather a holistic understanding of their concerns and the possible barriers before such a method is implemented.

For many of the women in this study, socio-economic hardships became their priority and made HIV prevention relatively less important compared to their daily survival. A multi-sectorial approach will be useful for helping to tackle socio-economic issues. An example is the inclusion of a microfinance programme in HIV intervention to increase women's empowerment, which has been successfully conducted in rural South Africa (S. Jan et al., 2011; Pronyk et al., 2008). After implementing the programme for two years, Pronyk et al. (2008) reported that the combination of micro-financing and gender training had improved women's empowerment and had contributed to the reduction of HIV risk among them.

This present study also highlights the importance of detailed HIV knowledge in determining safer sex practices and in shaping perceptions concerning HIV risk. Although a general understanding of the mode of transmission seemed adequate, specific knowledge of HIV testing and the effective prevention of HIV during sexual contact appeared to be lacking. This findings corroborate with Ananth and Koopman's (2003) work which highlights the importance of targeted knowledge interventions in changing sexual behaviours (Ananth & Koopman, 2003). For this, health education strategies on HIV prevention in Malaysia need to evolve from advocating basic messages about HIV prevention based on the traditional ABC (abstinence, be faithful, use condoms) strategy to more specific information on how to prevent the infection in various life scenarios, where some of these strategies may not be practical or effective. Additionally, health authorities need to review the information that has been regularly provided by health workers pertaining to HIV pre-test counselling.

It is important for women to know the HIV status of their partners so that they can gauge their risk. The high proportion of women in this study who did not know their partner's HIV status may have been the result of two reasons: the men had not been tested for HIV, or they were tested, but did not inform their partners of their results. Increasing the access to HIV screening may address the first issue, while the latter needs to be addressed differently. At this point, there is no specific law regarding HIV disclosure in Malaysia; however, contact tracing and partner notification has been a standard procedure of public health measures for controlling notified STIs, including HIV (Government of Malaysia, 1988). This practice may not be enough to ensure that the sexual partners of HIV positive people are notified, because those diagnosed with HIV may not inform the health authorities of their personal relationships. Therefore, it is important to educate HIV positive people about their moral duty for preventing the onward transmission of HIV. If they choose not to disclose their HIV status, they must ensure that their partners are not subjected to HIV risk through the use of condoms during all sexual contact.

The findings also suggest that some HIV infected people are misinformed about their responsibilities and how they can prevent the spread of the disease. For this matter, the behavioural aspects of HIV treatment and prevention among those infected need to be strengthened. While treatment adherence is important to suppress viral load, thus delaying the onset of AIDS among HIV infected people (Kerr, 2011; Wilson, 2012), they should also be

educated about behaving responsibly to prevent the spread of HIV and to protect their love ones from being infected.

8.5 Recommendations

Based on the implications discussed earlier, the primary recommendations that emerged from this study are divided into two main themes: (1) those related to health promotion actions; (2) areas for future research. The Ottawa Charter for Health Promotion, which was presented in the first International Conference on Health Promotion (1986) outlines five key strategies for promoting health: to build healthy public policy, create supportive environments, strengthen community actions, develop personal skills and reorientation of health services (World Health Organization, 1986). Guided by these strategies, the main recommendations related to health promotion actions are presented under the following sub-headings: (i) policy improvements; (ii) reorientation of health services; (iii) intervention programmes or creating supportive environments, strengthening community actions and self-empowerment.

8.5.1 Health promotion actions

8.5.1.1 Policy improvements

Developing healthy public policy is one of the key strategies for promoting health. This strategy does not only affect direct policies on health, but is also related to the decisions made by all levels of government and relevant organizations regarding health-related activities. At the core of this are inter-sectorial initiatives that aim to improve the health and well-being of the target group. Within this context, this research recommends several policy improvements that can reduce the HIV risk of Malaysian women, especially those intimately involved with men who inject drugs:

a) The national plan of action for HIV prevention in Malaysia should recognize the female intimate partners of PWID as a group at high risk of contracting HIV. As such, specific intervention plans with adequate resources need to be put in place to ensure an effective response in reducing the vulnerability of these women.

b) Poverty, overwhelming family responsibility and poor social support were among the major challenges faced by these women, which added to their vulnerability to HIV. To address these issues, the multi-sectorial involvement of various government and non-governmental agencies that look into the social welfare, employment opportunities, financial issues and the education of children where the father is a PWID is imperative for ensuring the improvement of women's socio-economic conditions.

8.5.1.2 Reorientation of health services

Based on the survey and interview findings, several health services aspects can be improved for benefitting women.

a) Up-scaling of HIV screening services to meet the needs of both the client and healthcare providers. This includes improvement in terms of access to and conducting the service. In terms of access, HIV testing needs to be easily available to various groups within the Malaysian community, especially to those in rural areas. While most government clinics offer free HIV screening, clinics are often not accessible to women who have limited time, either because they work or because they are occupied with house chores and childcare. A practical solution for this is to extend the outreach services already available to the drug-using community, to their intimate partners.

b) Additionally, regarding HIV screening, the content and conduct of both pre- and post-test counselling needs to be evaluated and reemphasized. Pre- and post-test counselling has been in place within the programme since its inception. However, its importance may have been overlooked by many healthcare providers who offered the screening service. Robust counselling, contact tracing and partner notification provides an opportunity for educating those who have been screened, as well as their partners, regarding HIV transmission and prevention.

8.5.1.3 Intervention programmes

Interventions that include programmes to create supportive environments, strengthen community actions and self-empowerment should be aimed at being achieved. Based on the study findings,

future HIV intervention programmes for Malaysian women need to consider the following issues:

a) To provide an environment that supports the health of women and their families, there is a need for promoting community initiatives that address the negative stigma related to PWID, HIV infected people and their families. Stigma also acts as a barrier to HIV testing and treatment.

b) Intervention programmes need to focus on enhancing women's abilities for making health-promoting choices. For this, the intervention needs to be gender-sensitive and consider the socio-cultural context of the Malaysian community.

c) Couple-based interventions that emphasize family values and responsibility should be part of the strategy used to promote safer sexual practices within marriage or long-term relationships.

d) Alternative preventive methods other than male condoms need to be made available to women in Malaysia.

e) Health education activities need to move forward from the traditional approach of mass health education toward adopting a more specific and targeted approach that improves people's perceptions of their HIV risk, and empower them with specific skills to practice protective behaviour.

8.5.2 Areas for future research

Following on the results of this work, further research for acquiring more information and understanding is needed to describe the issue of HIV and women in Malaysia, which remains a significant challenge in HIV control within the country.

a) The opinion and sexual practices of men who inject drugs should be explored to better understand their issues related to condom use and HIV prevention in general. A qualitative research approach will be useful to explore this research question. This might be in the form of individual interviews or focus group discussions. While individual interviews may help

to explore personal issues and sensitive practices, focus group discussions may be able to unearth the norms and common practices shared among the community of PWID.

b) The inclusion of non-injecting men in future studies will be useful for exploring their views, practices, challenges and possible contribution to HIV protection among women in general.

c) Research that explores the different needs of other groups of women at-risk of HIV such as the female intimate partners of men who pay for sex and men who have sex with men will be useful for enhancing an understanding of HIV prevention among Malaysian women.

d) The involvement of women from other parts of the country who face different socio-cultural and geographical challenges will enrich the overall knowledge and might further inform intervention planning.

8.6 Overall conclusion

The results from this study have shown that women who are intimately involved with men who inject drugs are vulnerable to HIV, as reflected by the much higher prevalence of HIV within this group compared to the general Malaysian population. While nearly 8% of women reported having HIV positive partners, nearly half were not aware of their partner's HIV status. Additionally, unprotected sex was a common practice, with only one in five women used condoms regularly with their partners. The high prevalence of HIV among their partners and the low use of condoms within their relationships underscore the heightened risk faced by these women.

Prevention practices were not easy for many of the participants. While the inability to negotiate condom use has been the primary issue, other factors such as poor risk perception, relationship power imbalance, socio-cultural norms, limited understanding about HIV prevention and socio-economic hardships have synergistically increased women's vulnerability to HIV. The challenges of consistent condom use within a long-term relationship call for other preventive strategies of HIV prevention among this population. These need to include strengthening the HIV screening of PWID and encouraging disclosure of their HIV status to their partners, while

at the same time empowering women by providing alternative prevention methods that they are able to control.

This thesis has highlighted the realities faced by women who are intimate partners of PWID in Malaysia, not only on the issue of HIV prevention, but also the challenges the women face in their daily lives. These women are often overlooked by mainstream prevention efforts; it is hoped that the findings of this thesis will be able to better reflect their voices and make provision for the opportunity to have their problems presented to the appropriate and relevant bodies. The alarming risks faced by these women and the complex nature of this issue demands a well-planned and comprehensive intervention that will be able to improve the resilience of women towards HIV.

REFERENCES

Abdala, N., Krasnoselskikh, T., Dutante, A., Timofeeva, M., Verevochkin, S., & Kozlov, A. (2008). Sexually transmitted infections, sexual risk behaviours and the risk of heterosexual spread of HIV among and beyond IDUs in St. Petersburg, Russia. *European Addiction Research, 14*, 19-25.

Abdool Karim, Q., Abdool Karim, S. S., Frohlich, J. A., Grobler, A. C., Baxter, C., Mansoor, L. E., . . . Omar, Z. (2010). Effectiveness and safety of tenofovir gel, an antiretroviral microbicide, for the prevention of HIV infection in women. *Science (New York, NY), 329*(5996), 1168.

Abdool Karim, S. S. (2012). Pre-exposure prophylaxis in HIV prevention *The New England Journal of Medicine*. doi: 10.1056/NEJMclde1207706

Abdullah, A., & Pedersen, P. B. (2006). Factors contributing to multicultural Malaysia. In A. Abdullah & P. B. Pedersen (Eds.), *Understanding Multicultural Malaysia*. Petaling Jaya: Prentice Hall.

Abdullah, R. (2003). Muslim women in Malaysia. In R. Omar & A. Hamzah (Eds.), *Women in Malaysia: Breaking Boundaries*. Kuala Lumpur: Utusan Publications.

Abu-Nimer, M. (2001). Conflict resolution, culture, and religion: Toward a training model of interreligious peacebuilding. *Journal of Peace Research, 38*(6), 685-704.

Ackermann, L., & Klerk, G. W. d. (2002). Social factors that make South African women vulnerable to HIV infection. *Health Care for Women International, 23*(2), 163-172.

Adam, P. C., de Wit, J. B., Toskin, I., Mathers, B. M., Nashkhoev, M., Zablotska, I., . . . Rugg, D. (2009). Estimating levels of HIV testing, HIV prevention coverage, HIV knowledge, and condom use among men who have sex with men (MSM) in low-income and middle-income countries. *Journal of Acquired Immune Deficiency Syndromes, 52*, S143-S151.

Ahmad, A. (1998). *Women in Malaysia*. Manila: Asian Development Bank

Ahmed, D. A. A., Hundt, G. L., & Blackburn, C. (2011). Issues of gender, reflexivity and positionality in the field of disability researching visual impairment in an Arab society. *Qualitative Social Work, 10*(4), 467-484.

Ainsworth, M., Beyrer, C., & Soucat, A. (2003). AIDS and public policy: the lessons and challenges of 'success' in Thailand. *Health Policy, 64*(1), 13-37.

Al-Quran. Surah Al-Baqara: Verse 177.

Albarracín, D., Gillette, J. C., Earl, A. N., Glasman, L. R., Durantini, M. R., & Ho, M.-H. (2005). A test of major assumptions about behavior change: a comprehensive look at the effects of passive

and active HIV-prevention interventions since the beginning of the epidemic. *Psychological bulletin, 131*(6), 856.

Albarracin, D., Johnson, B. T., Fishbein, M., & Muellerleile, P. A. (2001). Theories of reasoned action and planned behavior as models of condom use: a meta-analysis. *Psychological bulletin, 127*(1), 142.

Alipour, A., Haghdoost, A. A., Sajadi, L., & Zolala, F. (2013). HIV prevalence and related risk behaviours among female partners of male injecting drugs users in Iran: results of a bio-behavioural survey, 2010. *Sexually Transmitted Infections, 89*(Suppl 3), iii41-iii44.

Amaro, H. (1995). Love, sex, and power: Considering women's realities in HIV prevention. *American psychologist, 50*(6), 437.

Ananth, P., & Koopman, C. (2003). HIV/AIDS knowledge. beliefs and behavior among women of childbearing age in India. *AIDS Education & Prevention, 15*(6), 529-546.

Andersson, N., Ho-Foster, A., Matthis, J., Marokoane, N., Mashiane, V., Mhatre, S., . . . Ngxowa, N. (2004). National cross sectional study of views on sexual violence and risk of HIV infection and AIDS among South African school pupils. *British Medical Journal, 329*(7472), 952.

Andrew, S., & Halcomb, E. J. (2007). Mixed methods research is an effective method of enquiry for community health research. *Contemporary nurse, 23*(2), 145-153.

Aral, S. O., Padian, N. S., & Holmes, K. K. (2005). Advances in multilevel approaches to understanding the epidemiology and prevention of sexually transmitted infections and HIV: an overview. *Journal of Infectious Diseases, 191*(Supplement 1), S1-S6.

Aral, S. O., & Wasserheit, J. N. (1995). Interactions among HIV, other sexually transmitted diseases, socioeconomic status, and poverty in women. In A. O'Leary & L. Jemmot (Eds.), *Women at Risk: Issues in the primary prevention of AIDS* (pp. 13-41). New York: Plenum Press.

Arthur, S., & Nazroo, J. (2003). Designing field work strategies and materials. In J. Ritchie & J. Lewis (Eds.), *Qualitative Research Practice*. London: Sage Publications.

Asian Foundation, UN Women, UNAIDS, & UNZIP the Lips Platform. (2013). Country Briefs on HIV and key affected women and girls in ASEAN: Malaysia. from United Nation http://asiapacific.unwomen.org/en/media-and-resources

Atkinson, R., & Flint, J. (2001). Accessing hidden and hard-to-reach populations: Snowball research strategies. *Social research update, 33*(1), 1-4.

Auvert, B., Taljaard, D., Lagarde, E., Sobngwi-Tambekou, J., Sitta, R., & Puren, A. (2005). Randomized, controlled intervention trial of male circumcision for reduction of HIV infection risk: the ANRS 1265 Trial. *PLoS medicine, 2*(11), e298.

Avis, M. (2007). Is there an epistemology for qualitative research? In I. Holloway (Ed.), *Qualitative Research in Health Care*. Maidenhead: Open University Press.

Azrowani Ulia, M., Azlina, Z., Omar Fauzee, M., & Rozita, A. (2012). Perception towards homosexual athletes in Malaysia. *International Journal of Modelling and Optimization*, 25-30. doi: 10.7763

Baba, I. (2001). Gay and lesbian couples in Malaysia. *Journal of Homosexuality, 40*(3-4), 143-163.

Baeten, J. M., Donnell, D., Ndase, P., Mugo, N. R., Campbell, J. D., Wangisi, J., . . . Katabira, E. (2012). Antiretroviral prophylaxis for HIV prevention in heterosexual men and women. *New England Journal of Medicine, 367*(5), 399-410.

Bailey, R. C., Moses, S., Parker, C. B., Agot, K., Maclean, I., Krieger, J. N., . . . Ndinya-Achola, J. O. (2007). Male circumcision for HIV prevention in young men in Kisumu, Kenya: a randomised controlled trial. *The Lancet, 369*(9562), 643-656.

Bandura, A. (2004). Health promotion by social cognitive means. *Health Education and Behavior, 31*(2), 143-164.

Barmania, S. (2013). Malaysia makes progress against HIV, but challenges remain. *The Lancet, 381*(9883), 2070-2071.

Barnett, T. (2002). HIV/AIDS and Globalization What is the epidemic telling us about economics, morality and pragmatism? *AIDS AND ECONOMICS*, 9.

Bergenstrom, A., Kamarulzaman, A., Mohd Khalib, A., & Cho, K. S. (2010). Malaysia Country Advocacy Brief: Injecting Drug Use and HIV. Geneva: United Nations Regional Task Force on Injecting Drug Use and HIV/AIDS for Asia and the Pacific.

Beyeza-Kashesya, J., Kaharuza, F., Ekstrom, A. M., Neema, S., Kulane, A., & Mirembe, F. (2011). To use or not to use a condom: A prospective cohort study comparing contraceptive practices among HIV-infected and HIV-negative youth in Uganda. *Bmc Infectious Diseases, 11*.

Beyrer, C., Malinowska-Sempruch, K., Kamarulzaman, A., & Strathdee, S. A. (2010). 12 myths about HIV/AIDS and people who use drugs. *The Lancet, 376*(9737), 208-211.

Bhattacharya, G. (2004). Sociocultural and behavioral contexts of condom use in heterosexual married couples in India: Challenges to the HIV prevention program. *Health Education & Behavior, 31*(1), 101-117.

Biernacki, P., & Waldorf, D. (1981). Snowball sampling: Problems and techniques of chain referral sampling. *Sociological Methods & Research, 10*(2), 141-163.

Blanc, A. K., & Wolff, B. (2001). Gender and decision-making over condom use in two districts in Uganda. *African Journal of Reproductive Health*, 15-28.

Bloch, A. (2004). Doing social surveys In C. Seale (Ed.), *Researching Society and Culture* (2nd edition ed.). Oxford: The Alden Press.

Boender, T. S., Sigaloff, K. C., Kayiwa, J., Musiime, V., Calis, J. C., Hamers, R. L., . . . Ditai, J. (2012). Barriers to initiation of pediatric HIV treatment in Uganda: A mixed-method study. *AIDS Research and Treatment, 2012*, 10. Retrieved from doi:10.1155/2012/817506

Bowen, A. M., Williams, M., McCoy, H., & McCoy, C. (2001). Crack smokers' intention to use condoms with loved partners: intervention development using the theory of reasoned action, condom beliefs, and processes of change. *AIDS Care, 13*(5), 579-594.

Bowleg, L., Belgrave, F. Z., & Reisen, C. A. (2000). Gender roles, power strategies, and precautionary sexual self-efficacy: Implications for Black and Latina women's HIV/AIDS protective behaviors. *Sex Roles, 42*(7-8), 613-635.

Bowleg, L., Lucas, K. J., & Tschann, J. M. (2004). "The ball was always in his court": An exploratory analysis of relationship scripts, sexual scripts, and condom use among African American women. *Psychology of Women Quarterly, 28*(1), 70-82.

Boyce, C., & Neale, P. (2006). *Conducting in-depth interviews: A guide for designing and conducting in-depth interviews for evaluation input*: Pathfinder International Watertown, MA.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology, 3*(2), 77-101.

Cai, W. D., Zhao, J., Zhao, J. K., Raymond, H. F., Feng, Y. J., Liu, J., . . . Zhang, Y. (2010). HIV prevalence and related risk factors among male sex workers in Shenzhen, China: results from a time–location sampling survey. *Sexually Transmitted Infections, 86*(1), 15-20.

Centers for Disease Control and Prevention. (2013). Project FIO (The Future is Ours). *Compedium of evidence-based interventions and best practices for HIV prevention.* Retrieved 4 July, 2014, from http://www.cdc.gov/hiv/prevention/research/compendium/rr/fio.html

Champion, V. L., & Skinner, C. S. (2008). The health belief model. In K. Glanz, B. K. Rimer, & K. Viswananth (Eds.), Health behaviour and health education; theory, research, and practice (Fourth ed., pp. 45-65). San Francisco: Wiley Imprint.

Chersich, M. F., & Rees, H. V. (2008). Vulnerability of women in southern Africa to infection with HIV: biological determinants and priority health sector interventions. *AIDS, 22*, S27-S40.

Chimbiri, A. M. (2007). The condom is an 'intruder'in marriage: evidence from rural Malawi. *Social Science & Medicine, 64*(5), 1102-1115.

Coates, T. J., Richter, L., & Caceres, C. (2008). Behavioural strategies to reduce HIV transmission: how to make them work better. *The Lancet, 372*(9639), 669-684.

Cohen, J. (2003). Two hard-hit countries offer rare success stories: Thailand & Cambodia. *Science, 301*(5640), 1658-1662.

Cohen, M. S., Chen, Y. Q., McCauley, M., Gamble, T., Hosseinipour, M. C., Kumarasamy, N., . . . Pilotto, J. H. (2011). Prevention of HIV-1 infection with early antiretroviral therapy. *New England Journal of Medicine, 365*(6), 493-505.

Cohen, M. S., Gay, C., Kashuba, A. D., Blower, S., & Paxton, L. (2007). Narrative review: antiretroviral therapy to prevent the sexual transmission of HIV-1. *Annals of Internal Medicine, 146*(8), 591-601.

Corbin, J., & Strauss, A. (2008). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (Third ed.). California: Sage Publications.

Creswell, J. W., & Clark, V. L. P. (2011). *Designing and conducting mixed methods research* (Second ed.). California: Sage Publications.

Creswell, J. W., Klassen, A. C., Plano Clark, V. L., & Smith, K. C. (2011). Best practices for mixed methods research in the health sciences: Bethesda (Maryland): National Institutes of Health.

Creswell, J. W., & Tashakkori, A. (2007). Editorial: Differing perspectives on mixed methods research. *Journal of Mixed Methods Research, 1*(4), 303-308.

Crosby, R. A., DiClemente, R. J., Wingood, G. M., Salazar, L. F., Head, S., Rose, E., & McDermott-Sales, J. (2008). Sexual agency versus relational factors: a study of condom use antecedents among high-risk young African American women. *Sexual Health, 5*(1), 41-47.

Csete, J., & Grob, P. J. (2012). Switzerland, HIV and the power of pragmatism: lessons for drug policy development. *International Journal of Drug Policy, 23*(1), 82-86.

Cunradi, C. B., Caetano, R., & Schafer, J. (2002). Alcohol Related Problems, Drug Use, and Male Intimate Partner Violence Severity Among US Couples. *Alcoholism: Clinical and Experimental Research, 26*(4), 493-500.

DePadilla, L., Windle, M., Wingood, G., Cooper, H., & DiClemente, R. (2011). Condom use among young women: modeling the theory of gender and power. *Health Psychology, 30*(3), 310.

Department of Statistics Malaysia. (2010). Population distribution and basic demographic characteristics 2010 *Population and Housing Census of Malaysia*. Putrajaya.

Dhillon, H. K., Singh, H. J., & Ghaffar, N. A. A. (2005). Sexual function in menopausal women in Kelantan, Malaysia. *Maturitas, 52*(3), 256-263.

Diaz-Loving, R., & Villagran-Vazquez, G. (1999). The Theory of Reasoned Action applied to condom use and request of condom use in Mexican Government worker. *Applied Psychology: An International Review, 48*(2), 139-151.

Dickson-Swift, V., James, E. L., Kippen, S., & Liamputtong, P. (2007). Doing sensitive research: what challenges do qualitative researchers face? *Qualitative Research, 7*(3), 327-353.

DiClemente, R., Wingood, G., Crosby, R. A., Sionean, C., Cobb, B. K., Harrington, K., . . . Oh, M. K. (2002). Sexual risk behaviors associated with having older sex partners: a study of black adolescent females. *Sexually transmitted diseases, 29*(1), 20-24.

DiClemente, R., Wingood, G., Harrington, K. F., Lang, D. L., Davies, S. L., Hook III, E. W., . . . Gordon, A. B. (2004). Efficacy of an HIV prevention intervention for African American adolescent girls. *The Journal of the American Medical Association, 292*(2), 171-179.

Dieffenbach, C. W., & Fauci, A. S. (2011). Thirty years of HIV and AIDS: future challenges and opportunities. *Annals of Internal Medicine, 154*(11), 766-771.

Dodds, S., Blakley, T., Lizzotte, J., Friedman, L. B., Shaw, K., Martinez, J., . . . Sell, R. L. (2003). Retention, adherence, and compliance: special needs of HIV-infected adolescent girls and young women. *Journal of Adolescent Health, 33*(2), 39-45.

Doliashvili, K. (2008). *Understanding women's HIV risk perception in Postsocialist Georgia: Role of knowledge, behavioral and contextual factors.* (PHD), University of Texas at Austin. (3341572)

Dowsett, G. (2003). Some Considerations on Sexuality and Gender in the Context of AIDS. *Reproductive Health Matters, 11*(22), 21-29.

Dworkin, S. L., & Ehrhardt, A. A. (2007). Going beyond "ABC" to include "GEM": critical reflections on progress in the HIV/AIDS epidemic. *American Journal of Public Health, 97*(1), 13-18.

Ehrhardt, A. A., Exner, T. M., Hoffman, S., Silberman, I., Yingling, S., Adams-Skinner, J., & Smart-Smith, L. (2002). HIV/STD risk and sexual strategies among women family planning clients in New York: Project FIO. *AIDS and Behavior, 6*(1), 1-13.

El-Bassel, N., Gilbert, L., Witte, S., Wu, E., Hunt, T., & Remien, R. H. (2010). Couple-based HIV prevention in the United States: advantages, gaps, and future directions. *JAIDS Journal of Acquired Immune Deficiency Syndromes, 55*, S98-S101.

El-Bassel, N., Gilbert, L., Wu, E., Go, H., & Hill, J. (2005). Relationship between drug abuse and intimate partner violence: a longitudinal study among women receiving methadone. *American Journal of Public Health, 95*(3), 465-470.

El-Bassel, N., & Remien, R. H. (2012). Couple-based HIV prevention and treatment: state of science, gaps, and future directions *Family and HIV/AIDS* (pp. 153-172): Springer.

Ellis, S. J., & Kitzinger, C. (2002). Denying equality: An analysis of arguments against lowering the age of consent for sex between men. *Journal of community & applied social psychology, 12*(3), 167-180.

Fairchild, A. L., & Oppenheimer, G. M. (1998). Public health nihilism vs pragmatism: history, politics, and the control of tuberculosis. *American Journal of Public Health, 88*(7), 1105-1117.

Feachem, R. G. (2000). Poverty and inequity: a proper focus for the new century. *Bulletin of the World Health Organization, 78*(1), 1-2.

Fernando, J. M. (2006). The position of Islam in the constitution of Malaysia. *Journal of Southeast Asian Studies, 37*(02), 249-266.

Fishbein, M. (2000). The role of theory in HIV prevention. *AIDS Care, 12*(3), 273-278.

Fleming, D. T., & Wasserheit, J. N. (1999). From epidemiological synergy to public health policy and practice: the contribution of other sexually transmitted diseases to sexual transmission of HIV infection. *Sexually Transmitted Infections, 75*(1), 3-17. doi: 10.1136/sti.75.1.3

Fletcher, G. (2011). The Cultural Queasiness Factor: Intersections of Gender, Sexuality and HIV Prevention in Burma/Myanmar. *Asian Studies Review, 35*(2).

Fox, A. M., Jackson, S. S., Hansen, N. B., Gasa, N., Crewe, M., & Sikkema, K. J. (2007). In their own voices - a qualitative study of women's risk for intimate partner violence and HIV in South Africa. *Violence Against Women, 13*(6), 583-602.

Frith, H., & Gleeson, K. (2004). Clothing and embodiment: Men managing body image and appearance. *Psychology of Men and Masculinity, 5*(1), 40-48.

Galvin, S. R., & Cohen, M. S. (2004). The role of sexually transmitted diseases in HIV transmission. *Nature Reviews Microbiology, 2*(1), 33-42.

Giddings, L. S., & Grant, B. M. (2007). A trojan horse for positivism?: A critique of mixed-methods research. *Advances in nursing science, 30*(1), 52-60.

Gielen, A. C., Ghandour, R. M., Burke, J. G., Mahoney, P., McDonnell, K. A., & O'Campo, P. (2007). HIV/AIDS and Intimate Partner Violence Intersecting Women's Health Issues in the United States. *Trauma, Violence, & Abuse, 8*(2), 178-198.

Giesecke, J. (1994). *Modern infectious disease epidemiology*. London: Edward Arnold (Publisher) Ltd.

Gilbert, L., El-Bassel, N., Terlikbayeva, A., Rozental, Y., Chang, M., Brisson, A., . . . Bakpayev, M. (2010). Couple-based HIV prevention for injecting drug users in Kazakhstan: a pilot intervention study. *Journal of Prevention & Intervention in the Community, 38*(2), 162-176.

Glanz, K., Rimer, B. K., & Viswanath, K. (2008). *Health behavior and health education: theory, research, and practice* (Fourth ed.). San Francisco: John Wiley & Sons, Inc.

Go, V. F., Quan, V. M., Voytek, C., Celentano, D., & Nam, L. V. (2006). Intra-couple communication dynamics of HIV risk behavior among injecting drug users and their sexual partners in northern Vietnam. *Drug and Alcohol Dependence, 84*(1), 69-76.

Go, V. F., Sethulakshmi, C. J., Bentley, M. E., Sivaram, S., Srikrishnan, A. K., Solomon, S., & Celentano, D. D. (2003). When HIV-prevention messages and gender norms clash: the impact of domestic violence on women's HIV risk in slums of Chennai, India. *AIDS and Behavior, 7*(3), 263-272.

Gollub, E. L. (2008). A neglected population: drug-using women and women's methods of HIV/STI prevention. *AIDS Education & Prevention, 20*(2), 107-120.

Goodman, L. A. (1961). Snowball sampling. *The Annals of Mathematical Statistics, 32*(1), 148-170.

Malaysian Dangerous Drug Act (1952).

Government of Malaysia. (1983). Oficiating Speech by Prime Minister Dato' Seri Dr. Mahathir Mohamed in the National Anti-Drug Campaign (Speech). Retrieved 10th May 2013 http://www.pmo.gov.my/ucapan/?m=p&p=mahathir&id=80

Malaysian Prevention and Control of Infectious Diseases Act (1988).

Government of Malaysia. (2007). *Household Income Poverty Line*. Putrajaya.

Grant, R. M., Lama, J. R., Anderson, P. L., McMahan, V., Liu, A. Y., Vargas, L., . . . Ramirez-Cardich, M. E. (2010). Preexposure chemoprophylaxis for HIV prevention in men who have sex with men. *New England Journal of Medicine, 363*(27), 2587-2599.

Gray, R. H., Kigozi, G., Serwadda, D., Makumbi, F., Watya, S., Nalugoda, F., . . . Chen, M. Z. (2007). Male circumcision for HIV prevention in men in Rakai, Uganda: a randomised trial. *The Lancet, 369*(9562), 657-666.

Gray, R. H., Li, X., Kigozi, G., Serwadda, D., Brahmbhatt, H., Wabwire-Mangen, F., . . . Quinn, T. C. (2005). Increased risk of incident HIV during pregnancy in Rakai, Uganda: a prospective study. *The Lancet, 366*(9492), 1182-1188.

Grbich, C. (2011). *Qualitative Data Analysis- An Introduction*. London: Sage Publications.

Green, E. C., Halperin, D. T., Nantulya, V., & Hogle, J. A. (2006). Uganda's HIV prevention success: the role of sexual behavior change and the national response. *AIDS and Behavior, 10*(4), 335-346.

Greene, J. C. (2006). Toward a methodology of mixed-methods social inquiry. *Research in the Schools, 13*(1), 93-98.

Greene, J. C. (2008). Is mixed-methods social inquiry a distinctive methodology? *Journal of Mixed Methods Research, 2*(1), 7-22.

Greene, J. C., & Caracelli, V. J. (1997). Defining and describing the paradigm issue in mixed-method evaluation. *New directions for evaluation, 1997*(74), 5-17.

Guest, G., Bunce, A., & Johnson, L. (2006). How many interviews are enough? An experiment with data saturation and variability. *Field methods, 18*(1), 59-82.

Guest, G., MacQueen, K. M., & Namey, E. E. (2011). *Applied Thematic Analysis*. California: Sage Publications, Incorporated.

Gupta, G. R., Ogden, J., & Warner, A. (2011). Moving forward on women's gender-related HIV vulnerability: the good news, the bad news and what to do about it. *Global Public Health, 6*(sup3), S370-S382.

Halperin, D. T., Mugurungi, O., Hallett, T. B., Muchini, B., Campbell, B., Magure, T., . . . Gregson, S. (2011). A surprising prevention success: Why did the HIV epidemic decline in Zimbabwe? *PLoS medicine, 8*(2), e1000414.

Hammett, T. M., Nghiem, T. H. V., Kling, R., Binh, K. T., & Oanh, K. T. H. (2010). Female sexual partners of injection drug users in Vietnam: an at-risk population in urgent need of HIV prevention services. *AIDS Care, 22*(12), 1466-1472. doi: 10.1080/09540121003758580

Harvey, S. M. (2000). New kinds of data, new options for HIV prevention among women: A Public Health challenge. *Health Education & Behavior, 27*(5), 566-569.

Harvey, S. M., Beckman, L. J., Gerend, M. A., Bird, S. T., Posner, S., Huszti, H. C., & Galavotti, C. (2006). A conceptual model of women's condom use intentions: Integrating intrapersonal and relationship factors. *AIDS Care, 18*(7), 698-709.

Harvey, S. M., Bird, S. T., De Rosa, C. J., Montgomery, S. B., & Rohrbach, L. A. (2003). Sexual decision making and safer sex behavior among young female injection drug users and female partners of IDUs. *Journal of Sex Research, 40*(1), 50-60.

Harvey, S. M., Bird, S. T., Galavotti, C., Duncan, E. A., & Greenberg, D. (2002). Relationship power, sexual decision making and condom use among women at risk for HIV/STDs. *Women & Health, 36*(4), 69-84.

Hechter, M., & Opp, K. (2001). Introduction. In M. Hechter & K. Opp (Eds.), *Social Norms*. New York: Russel Sage Foundation.

Heckathorn, D. D. (1997). Respondent-driven sampling: A new approach to the study of hidden populations *Social Problems, 44*(2), 174-199.

Heckathorn, D. D. (2002). Respondent-driven sampling II: deriving valid population estimates from chain-referral samples of hidden populations. *Social Problems, 49*(1), 11-34.

Heckathorn, D. D. (2011). Comment: Snowball versus respondent-driven sampling. *Sociological methodology, 41*(1), 355-366.

Higgins, J. A., Hoffman, S., & Dworkin, S. L. (2010). Rethinking gender, heterosexual men, and women's vulnerability to HIV/AIDS. *American Journal of Public Health, 100*(3), 435-445.

Hoffman, S., Mantell, J., Exner, T., & Stein, Z. (2004). The future of the female condom. *Perspectives on sexual and reproductive health, 36*(3), 120-126.

Holmes, K. K., Levine, R., & Weaver, M. (2004). Effectiveness of condoms in preventing sexually transmitted infections. *Bulletin of the World Health Organization, 82*(6), 454-461.

Hoosen, S., & Collins, A. (2004). Sex, sexuality and sickness: discourses of gender and HIV/AIDS among KwaZulu-Natal women. *South African Journal of Psychology, 34*(3), p. 487-505.

Hossain, Z., Roopnarine, J. L., Masud, J., Muhamed, A. A. H., Baharudin, R., Abdullah, R., & Juhari, R. (2005). Mothers' and fathers' childcare involvement with young children in rural families in Malaysia. *International Journal of Psychology, 40*(6), 385-394.

Howe, K. R. (1988). Against the quantitative-qualitative incompatibility thesis or dogmas die hard. *Educational researcher, 17*(8), 10-16.

Hsieh, H. F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research, 15*(9), 1277-1288.

Huang, M., & Hussein, H. (2004). The HIV/AIDS epidemic country paper: Malaysia. *AIDS Education and Prevention, 16*(Supplement A), 100-109.

Ibrahim, F. (2005). Harm reduction in the prevention and control of HIV/AIDS *Malaysia Health 2005* (pp. 158-161). Putrajaya: Ministry of Health Malaysia.

Ibrahim, F., & Kumar, N. (2009). Factors effecting drug relapse in Malaysia: An empirical evidence. *Asian Social Science, 5*(12), P37.

Iguchi, M., Bux, D., Kushner, H., & Lidz, V. (2001). Correlates of HIV risk among female sex partners of injecting drug users in a high-seroprevalence area. *Evaluation and Programme Planning, 24*, 175-185.

Jacubowski, N. (2008). Marriage is not a safe place: Heterosexual marriage and HIV-related vulnerability in Indonesia. *Culture, health & sexuality, 10*(1), 87-97.

Jan, M., & Akhtar, S. (2008). An analysis of decision-making power among married and unmarried women. *Studies in Home & Communication Science, 2*(1), 43-50.

Jan, S., Ferrari, G., Watts, C. H., Hargreaves, J. R., Kim, J. C., Phetla, G., . . . Pronyk, P. M. (2011). Economic evaluation of a combined microfinance and gender training intervention for the prevention of intimate partner violence in rural South Africa. *Health policy and planning, 26*(5), 366-372.

Jemmott, J. B. I., & Jemmott, L. S. (2000). HIV risk reduction behavioral interventions with heterosexual adolescents. *AIDS, 14*, S40-52.

Jemmott, L. S., & Jemmott, J. B. I. (1991). Applying the theory of reasoned action to AIDS risk behavior: Condom use among black women. *Nursing Research, 40*(4), 228-234.

Jewkes, R. K., Dunkle, K., Nduna, M., & Shai, N. (2010). Intimate partner violence, relationship power inequity, and incidence of HIV infection in young women in South Africa: a cohort study. *The Lancet, 376*(9734), 41-48.

Jewkes, R. K., Levin, J. B., & Penn-Kekana, L. A. (2003). Gender inequalities, intimate partner violence and HIV preventive practices: findings of a South African cross-sectional study. *Social Science & Medicine, 56*(1), 125-134. doi: 10.1016/s0277-9536(02)00012-6

Jick, T. D. (1979). Mixing Qualitative and Quantitative Methods: Triangulation in Action. *Administrative Science Quarterly, 24*(4), 602-611. doi: 10.2307/2392366

Johnson, R. B., & Onwuegbuzie, A. J. (2004). Mixed methods research: A research paradigm whose time has come. *Educational researcher, 33*(7), 14-26.

Johnson, R. B., Onwuegbuzie, A. J., & Turner, L. A. (2007). Toward a definition of mixed-methods research. *Journal of Mixed Methods Research, 1*(2), 112-133.

Johnston, M. I., & Fauci, A. S. (2011). HIV vaccine development - improving on natural immunity. *New England Journal of Medicine, 365*(10), 873-875.

Joseph, H., Stancliff, S., & Langrod, J. (1999). Methadone maintenance treatment (MMT): a review of historical and clinical issues. *The Mount Sinai Journal of Medicine, New York, 67*(5-6), 347-364.

Kamarulzaman, A. (2009). Impact of HIV prevention programs on drug users in Malaysia. *Journal of Acquired Immune Deficiency Syndromes, 52*, S17-S19.

Kamarulzaman, A., & Razali, K. (2008). Malaysia. In D. Celentano & C. Beyrer (Eds.), *Public Health Aspects of HIV/AIDS in Low and Middle Income Countries*. New York: Springer.

Kanter, J., Koh, C., Razali, K., Tai, R., Izenberg, J., Rajan, L., . . . Kamarulzaman, A. (2011). Risk behaviour and HIV prevalence among men who have sex with men in a multiethnic society: a venue-based study in Kuala Lumpur, Malaysia. *International Journal of Std & Aids, 22*(1), 30-37. doi: 10.1258/ijsa.2010.010277

Kapadia, F., Latka, M., Hudson, S., Golub, E., Campbell, J., Bailey, S., . . . Garfein, R. (2007). Correlates of consistent condom use with main partners by partnership patterns among young adult male injection drug users from five US cities. *Drug and Alcohol Dependence, 91*, S56-S63.

Karamagi, C. A., Tumwine, J. K., Tylleskar, T., & Heggenhougen, K. (2006). Intimate partner violence against women in eastern Uganda: implications for HIV prevention. *BMC Public Health, 6*(1), 1-12.

Kaufman, M. (1994). Men, feminism, and men's contradictory experiences of power. *Theorizing masculinities*, 142-163.

Kaur, N., Izani, N. A., & Gopalakrishnan, V. (2014). Knowledge, attitude and practice of HIV/AIDS among employees of a medical line factory in Kamunting, Malaysia. *Bmc Infectious Diseases, 14*(Suppl 3), P82.

Kelly, R. J., Gray, R. H., Sewankambo, N. K., Serwadda, D., Wabwire-Mangen, F., Lutalo, T., & Wawer, M. J. (2003). Age differences in sexual partners and risk of HIV-1 infection in rural Uganda. *Journal of Acquired Immune Deficiency Syndromes, 32*(4), 446-451.

Kendall, C., Kerr, L. R., Gondim, R. C., Werneck, G. L., Macena, R. H. M., Pontes, M. K., . . . McFarland, W. (2008). An empirical comparison of respondent-driven sampling, time location sampling, and snowball sampling for behavioral surveillance in men who have sex with men, Fortaleza, Brazil. *AIDS and Behavior, 12*(1), 97-104.

Kerr, T. (2011). HIV treatment as prevention and the role of applied social science research. *Journal of AIDS & Clinical Research*.

Kershaw, T. S., Small, M., Joseph, G., Theodore, M., Bateau, R., & Frederic, R. (2006). The influence of power on HIV risk among pregnant women in rural Haiti. *AIDS and Behavior, 10*(3), 309-318.

Khebir, B., Adam, M., Daud, A., & Shahrom, C. (2007). Premarital HIV screening in Johor (2002-2004). *The Medical journal of Malaysia, 62*(1), 19-22.

Kirkwood, B., & Sterne, J. (2003). *Essential Medical Statistics*. Oxford, UK: Blackwell Publishers.

Kitto, S. C., Chesters, J., & Grbich, C. (2008). Quality in qualitative research. *Medical Journal of Australia, 188*(4), 243.

Kitzinger, C., & Willmott, J. (2002). 'The thief of womanhood': women's experience of polycystic ovarian syndrome. *Social Science & Medicine, 54*(3), 349-361.

Koenig, M. A., Stephenson, R., Ahmed, S., Jejeebhoy, S. J., & Campbell, J. (2006). Individual and contextual determinants of domestic violence in North India. *American Journal of Public Health, 96*(1), 132-138.

Kowalewski, M., Henson, K., & Longshore, D. (1997). Rethinking perceived risk and health behaviour: A critical review of HIV prevention research. *Health Education & Behavior, 24*(3), 313-325.

Kral, A. H., Bluthenthal, R. N., Lorvick, J., Gee, L., Bacchetti, P., & Edlin, B. R. (2001). Sexual transmission of HIV-1 among injection drug users in San Francisco, USA: risk-factor analysis. *The Lancet, 357*(9266), 1397-1401.

Kumar, M. S., Virk, H. K., Chaudhuri, A., Mittal, A., & Lewis, G. (2008). A rapid situation and response assessment of the female regular sex partners of male drug users in South Asia: Factors associated with condom use during the last sexual intercourse. *International Journal of Drug Policy, 19*(2), 148-158.

Kuper, A., Lingard, L., & Levinson, W. (2008). Critically appraising qualitative research. *British Medical Journal, 337*(a1035), 687-689. doi: 10.1136/bmj.a1035

Kusago, T., & Barham, B. L. (2001). Preference heterogeneity, power, and intrahousehold decision-making in rural Malaysia. *World development, 29*(7), 1237-1256.

LaCroix, J., Pellowski, J., Lennon, C., & Johnson, B. (2013). Behavioural interventions to reduce sexual risk for HIV in heterosexual couples: a meta-analysis. *Sexually Transmitted Infections, 89*, 620-627. doi: 10.1136/sextrans-2013-051135

Lee, C. (2007). Editorial: Changing approaches in HIV testing. *Medical Journal of Malaysia, 62*(1), 1-2.

Lee, R. (2004). The transformation of race relations in Malaysia: From ethnic discourse to national imagery, 1993-2003. *African and Asian Studies, 3*(2), 119-143.

Legard, R., Keegan, J., & Ward, K. (2003). In-depth Interviews. In J. Ritchie & J. Lewis (Eds.), *Qualitative Research Practice*. London: Sage Publications.

Leiber, E., Chin, D., Li, L., Rotheram-Borus, M. J., Detels, R., Wu, Z., & Guan, J. (2009). Sociocultural contexts and communication about sex in China: Informing HIV/STD prevention programs. *AIDS Education and Prevention, 21*(5), 415.

Leibowitz, A. A., Parker, K. B., & Rotheram-Borus, M. J. (2011). A US policy perspective on oral preexposure prophylaxis for HIV. *American Journal of Public Health, 101*(6), 982.

Lewins, A., & Silver, C. (2009). *Choosing a CAQDAS Package*. Guildford: University of Surrey.

Liamputtong, P. (2007). *Researching the vulnerable: A guide to sensitive research methods*. London: Sage Publications Limited.

Liamputtong, P., & Ezzy, D. (2005). *Qualitative Research Methods* (Second ed.). New York: Oxford University Press.

Lin, P., Simoni, J. M., & Zemon, V. (2005). The Health Belief Model, sexual behaviors and HIV risk among Taiwanese Immigrants. *AIDS Education and Prevention, 17*(5), 469-483.

Lincoln, Y. S., Lynham, S. A., & Guba, E. G. (2011). Paradigmatic controversies, contradictions, and emerging confluences, revisited. *The Sage handbook of qualitative research, 4*, 97-128.

Lissouba, P., Van de Perre, P., & Auvert, B. (2013). Association of genital human papillomavirus infection with HIV acquisition: a systematic review and meta-analysis. *Sexually Transmitted Infections, 89*(5), 350-356. doi: 10.1136/sextrans-2011-050346

Liu, H., Grusky, O., Li, X., & Ma, E. (2006). Drug users: a potential important bridge population in the transmission of sexually transmitted diseases, including AIDS, in China. *Sexually transmitted diseases, 33*(2), 111-117.

Logan, T., Cole, J., & Leukefeld, C. (2002). Women, sex, and HIV: social and contextual factors, meta-analysis of published interventions, and implications for practice and research. *Psychological bulletin, 128*(6), 851.

Magnani, R., Sabin, K., Saidel, T., & Heckathorn, D. (2005). Review of sampling hard-to-reach and hidden populations for HIV surveillance. *AIDS, 19*, S67-S72.

Maharaj, P., & Cleland, J. (2005). Risk perception and condom use among married or cohabiting couples in KwaZulu-Natal, South Africa. *International Family Planning Perspectives*, 24-29.

Mahari, Z. (2011). *Demographic Transition in Malaysia: The changing roles of women*. Paper presented at the 15th Conference of Commonwealth Statisticians, New Delhi, India.

Malaysian AIDS Council. (2009a). IBBS 2009 Staff Handbook, Malaysia.

Malaysian AIDS Council. (2009c). The Integrated Bio-Behavioral Surveillance (IBBS) Survey 2009 Malaysia: Preliminary findings. Kuala Lumpur.

Malaysian AIDS Council. (2013). International Collaborators. Retrieved 20th May, 2013, from http://www.mac.org.my/v3/?page_id=147

Malaysian National Anti-Drug Agency. (2010). Annual Drug Report: December 2010. Bangi: Ministry of Internal Affairs.

Malaysian National Anti-Drug Agency. (2013). History of AADK. Retrieved 13th May 2013, from www.adk.gov.,y/web/english/history

Malekinejad, M., Johnston, L. G., Kendall, C., Kerr, L. R. F. S., Rifkin, M. R., & Rutherford, G. W. (2008). Using respondent-driven sampling methodology for HIV biological and behavioral surveillance in international settings: a systematic review. *AIDS and Behavior, 12*, 105-130.

Maman, S., Campbell, J., Sweat, M. D., & Gielen, A. C. (2000). The intersections of HIV and violence: directions for future research and interventions. *Social Science & Medicine, 50*(4), 459-478.

Mansour, D., Inki, P., & Gemzell-Danielsson, K. (2010). Efficacy of contraceptive methods: a review of the literature. *The European Journal of Contraception and Reproductive Health Care, 15*(1), 4-16.

Mantell, J. E., Dworkin, S. L., Exner, T. M., Hoffman, S., Smit, J. A., & Susser, I. (2006). The promises and limitations of female-initiated methods of HIV/STI protection. *Social Science & Medicine, 63*(8), 1998-2009.

Mantell, J. E., Myer, L., Carballo-Dieguez, A., Stein, Z. A., Ramjee, G., Morar, N., & Harrison, P. (2005). Microbicide acceptability research: current approaches and future directions. *Social Science & Medicine, 60*, 319-330.

Mantell, J. E., Stein, Z. A., & Susser, I. (2008). Women in the time of AIDS: barriers, bargains, and benefits. *AIDS Education & Prevention, 20*(2), 91-106.

Marazzo, J., Ramjee, G., & Nair, G. (2013). *Pre-exposure prophylaxis for HIV in women: daily oral tenofovir, oral tenofovir/emtricitabine, or vaginal tenofovir gel in the VOICE study (MTN 003)*. Paper presented at the 20th Conference on Retroviruses and Opportunistic Infections, Atlanta. http://www.hivsharespace.net/node/2942

Markel, H. (2005). The search for effective HIV vaccines. *New England Journal of Medicine, 353*(8), 753-757.

Marmot, M., Friel, S., Bell, R., Houweling, T. A., Taylor, S., & Health, C. o. S. D. o. (2008). Closing the gap in a generation: health equity through action on the social determinants of health. *The Lancet, 372*(9650), 1661-1669.

Mathers, B. M., Degenhardt, L., Phillips, B., Wiessing, L., Hickman, M., Strathdee, S. A., . . . Mattick, R. P. (2008). Global epidemiology of injecting drug use and HIV among people who inject drugs: a systematic review. *The Lancet, 372*(9651), 1733-1745. doi: http://dx.doi.org/10.1016/S0140-6736(08)61311-2

Matthews, L. T., Baeten, J. M., Celum, C., & Bangsberg, D. R. (2010). Periconception pre-exposure prophylaxis to prevent HIV transmission: benefits, risks, and challenges to implementation. *AIDS, 24*, 1975-1982.

Mattick, R. P., Breen, C., Kimber, J., & Davoli, M. (2009). Methadone maintenance therapy versus no opioid replacement therapy for opioid dependence (Publication no. 10.1002/14651858.CD002209.pub2). from Cochrane Database of Systematic Reviews

Mayer, K. H., & Venkatesh, K. K. (2010). Antiretroviral therapy as HIV prevention: status and prospects. *American Journal of Public Health, 100*(10), 1867-1876.

Mazlan, M., Schottenfeld, R. S., & Chawarski, M. C. (2006). New challenges and opportunities in managing substance abuse in Malaysia. *Drug and Alcohol Review, 25*(5), 473-478. doi: 10.1080/09595230600883354

McGrath, J., Celentano, D., Chard, S., Fullem, A., Kamya, M., Gangakhedar, R., . . . Kiwanuka, A. (2007). A group-based intervention to increase condom use among HIV serodiscordant couples in India, Thailand, and Uganda. *AIDS Care, 19*(3), 418-424.

Meekers, D., & Klein, M. (2002). Determinants of condom use among young people in urban Cameroon. *Studies in Family Planning, 33*(4), 335-346.

Mgalla, Z., & Pool, R. (1997). Sexual relationships, condom use and risk perception among female bar workers in north-west Tanzania. *AIDS Care, 9*(4), 407-416.

Milanovic, B. (2006). Inequality and determinants of earnings in Malaysia, 1984–1997. *Asian Economic Journal, 20*(2), 191-216.

Mill, J. E., Jackson, R. C., Worthington, C. A., Archibald, C. P., Wong, T., Myers, T., . . . Sommerfeldt, S. (2008). HIV testing and care in Canadian Aboriginal youth: a community based mixed-methods study. *Bmc Infectious Diseases, 8*(1), 132.

Ministry of Health Malaysia. (2010a). Annual Report 2010. Putrajaya.

Ministry of Health Malaysia. (2010h). UNGASS Country Progress Report for Malaysia. Kuala Lumpur.

Ministry of Health Malaysia. (2011). National Strategic Plan on HIV and AIDS 2011-2015. In HIV/STI Sector of Disease Control Division (Ed.). Putrajaya.

Ministry of Health Malaysia. (2012a). Malaysia Global AIDS Response Progress Report. Putrajaya.

Ministry of Health Malaysia. (2012f). Report on HIV/AIDS cases in Malaysia by states. Putrajaya.

Ministry of Health Malaysia, & UNICEF. (2008). Women and girls confronting HIV and AIDS in Malaysia. Kuala Lumpur.

Ministry of Women Family and Community Development Malaysia. (2011). Statistics on women, family and community Kuala Lumpur.

Monroe, J. (2005). Women in street prostitution: The result of poverty and the brunt of inequity. *Journal of poverty, 9*(3), 69-88.

Montano, D. E., & Kasprzyk, D. (2008). Theory of reasoned action, theory of planned behavior, and the integrated behavioral model. *Health behavior and health education: Theory, research, and practice, 4*, 67-95.

Montgomery, E. T., van der Straten, A., Chidanyika, A., Chipato, T., Jaffar, S., & Padian, N. (2011). The importance of male partner involvement for women's acceptability and adherence to female-initiated HIV prevention methods in Zimbabwe. *AIDS and Behavior, 15*(5), 959-969.

Morgan, D. L. (2007). Paradigms lost and pragmatism regained methodological implications of combining qualitative and quantitative methods. *Journal of Mixed Methods Research, 1*(1), 48-76.

Morrison, C. S., Wang, J., Van Der Pol, B., Padian, N., Salata, R. A., & Richardson, B. A. (2007). Pregnancy and the risk of HIV-1 acquisition among women in Uganda and Zimbabwe. *AIDS, 21*(8), 1027-1034.

Morse, J. M. (2008). Confusing categories and themes. *Qualitative Health Research, 18*(6), 727-728.

Munoz-Silva, A., Sánchez-García, M., Nunes, C., & Martins, A. (2007). Gender differences in condom use prediction with Theory of Reasoned Action and Planned Behaviour: The role of self-efficacy and control. *AIDS Care, 19*(9), 1177-1181. doi: 10.1080/09540120701402772

Murphy, E. M., Greene, M. E., Mihailovic, A., & Olupot-Olupot, P. (2006). Was the "ABC" approach (abstinence, being faithful, using condoms) responsible for Uganda's decline in HIV? *PLoS medicine, 3*(9), e379.

Najafi, F., Rahman, H. A., & Juni, M. H. (2011). Barriers to modern contraceptive practices among selected married women in a public university in Malaysia. *Global Journal of Health Science, 3*(2), 50-55.

Nanda, G. (2011a). Compedium of Gender Scales *Sexual Relationship Power Scale (SRPS)*. Washington, DC: FHI 360/C-Change.

Nanda, G. (2011c). Compedium of Gender Scales *Couple Communication on Sex Scale*. Washington, DC: FHI 360/C-Change.

Narayanan, S., Vicknasingam, B., & Robson, N. M. H. (2011). The transition to harm reduction: Understanding the role of non-governmental organisations in Malaysia. *International Journal of Drug Policy, 22*(4), 311-317. doi: 10.1016/j.drugpo.2011.01.002

National Population and Family Development Board Malaysia. (2004). Report on the 4th National Population and Family Survey, 2004. Kuala Lumpur.

Ndinda, C., Uzodike, U., & Chimbwete, C. (2007). Gender relations and HIV in South Africa. *AIDS Care, 19*(7), 844-849.

Nel, A. M., Coplan, P., van de Wijgert, J. H., Kapiga, S. H., von Mollendorf, C., Geubbels, E., . . . Kiwelu, I. (2009). Safety, tolerability, and systemic absorption of dapivirine vaginal microbicide gel in healthy, HIV-negative women. *AIDS, 23*(12), 1531-1538.

Ng, C., & Kamal, S. (2006). Bridging the gap between adolescent sexuality and HIV risk: the urban Malaysian perspective. *Singapore Medical Journal, 47*(6), 482.

Nicolosi, A., Leite, M. L. C., Musicco, M., Arid, C., Gavazzeni, G., & Lazzarin, A. (1994). The Efficiency of male-to female and female-to-male sexual transmission of the Human Immunodeficiency Virus: A study of 730 stable couples. *Epidemiology, 5*(6), 570-575.

Noor, N. M. (1999). Roles and women's well-being: some preliminary findings from Malaysia. *Sex Roles, 41*(3-4), 123-145.

Noordin, N. M., Merican, M. I., Rahman, H. A., Lee, S. S., & Ramly, R. (2008). Substitution treatment in Malaysia. *The Lancet, 372*(9644), 1149-1150.

Nusbaum, M. R. H., Wallace, R. R., Slatt, L. M., & Kondrad, E. C. (2004). Sexually Transmitted Infections and Increased Risk of Co-infection with Human Immunodeficiency Virus. *JAOA: Journal of the American Osteopathic Association, 104*(12), 527-535.

Omar, R. (2003). Negotiating Their Visibility: The lives of educated and married Malay women. In R. Omar & A. Hamzah (Eds.), *Women in Malaysia: Breaking Boundaries* (pp. 117-142). Kuala Lumpur: Utusan Publications.

Onwuegbuzie, A. J., Johnson, R. B., & Collins, K. M. (2009). Call for mixed analysis: A philosophical framework for combining qualitative and quantitative approaches. *International Journal of Multiple Research Approaches, 3*(2), 114-139.

Othman, S., & Adenan, N. A. M. (2008). Domestic violence management in Malaysia: A survey on the primary health care providers. *Asia Pacific Family Medicine, 7*(1), 2.

Ozakinci, G., & Weinman, J. A. (2006). Determinants of condom use intentions and behavior among Turkish youth: A theoretically based investigation. *Journal of HIV/AIDS prevention in children & youth, 7*(1), 73-95.

Padian, N. S., Shiboski, S. C., & Jewell, N. P. (1991). Female-to-male transmission of human immunodeficiency virus. *Journal of American Medical Association, 266*(12), 1664-1667.

Paley, J., & Lilford, R. (2011). Qualitative methods: an alternative view. *British Medical Journal, 342*.

Panda, S., Bijaya, L., Devi, N. S., Foley, E., Chatterjee, A., Banerjee, D., . . . Bhattacharya, S. (2001). Interface between drug use and sex work in Manipur. *National Medical Journal of India, 14*(4), 209-210.

Panda, S., Suresh Kumar, M., Lokabiraman, S., Jayashree, K., & Satagopan, M. (2005). Risk factors for HIV infection in injection drug users and evidence for onward transmission of HIV to their sexual partners in Chennai, India. *Journal of Acquired Immune Deficiency Syndrome, 39*(1), 9-15.

Panda, S., Suresh Kumar, M., Saravanamurthy, P., Mahalingam, P., Vijaylakshmi, A., & Balakrishnan, P. (2007). Sexually transmitted infections and sexual practices in injection drug users and their regular sex partners in Chennai, India. *Sexually transmitted diseases, 34*(4), 250-253.

Paterson, B. L., Gregory, D., & Thorne, S. (1999). A protocol for researcher safety. *Qualitative Health Research, 9*(2), 259-269.

Patton, M. Q. (2001). *Qualitative Research & Evaluation Methods*: Sage Publications, Incorporated.

Penrod, J., Preston, D. B., Cain, R. E., & Starks, M. T. (2003). A discussion of chain referral as a method of sampling hard-to-reach populations. *Journal of Transcultural Nursing, 14*(2), 100-107.

Perrin, K. M., Daley, E. M., Naoom, S. F., Packing-Ebuen, J. L., Rayko, H. L., McFarlane, M., & McDermott, R. J. (2006). Women's reactions to HPV diagnosis: insights from in-depth interviews. *Women & Health, 43*(2), 93-110.

Persson, A., & Richards, W. (2008). Vulnerability, gender and "proxy negativity": Women in relationships with HIV-positive men in Australia. *Social Science & Medicine, 67*(5), 799-807.

Peters, A., Jansen, W., & Van Driel, F. (2010). The female condom: the international denial of a strong potential. *Reproductive Health Matters, 18*(35), 119-128.

Petros, S. G. (2012). Use of a Mixed Methods Approach to Investigate the Support Needs of Older Caregivers to Family Members Affected by HIV and AIDS in South Africa. *Journal of Mixed Methods Research, 6*(4), 275-293. doi: 10.1177/1558689811425915

Pettifor, A. E., Measham, D. M., Rees, H. V., & Padian, N. S. (2004). Sexual power and HIV risk, South Africa. *Emerging infectious diseases, 10*(11), 1996-2004.

Pettifor, A. E., Rees, H. V., Kleinschmidt, I., Steffenson, A. E., MacPhail, C., Hlongwa-Madikizela, L., . . . Padian, N. S. (2005). Young people's sexual health in South Africa: HIV prevalence and sexual behaviors from a nationally representative household survey. *AIDS, 19*(14), 1525-1534.

Pini, B. (2004). On being a nice country girl and an academic feminist: Using reflexivity in rural social research. *Journal of Rural Studies, 20*(2), 169-179.

Pirkle, C., Soundardjee, R., & Stella, A. (2007). Female sex workers in China: vectors of disease? *Sexually transmitted diseases, 34*(9), 695-703.

Pomeroy, E. C., Green, D. L., & Van Laningham, L. (2002). Couples who care: The effectiveness of a psychoeducational group intervention for HIV serodiscordant couples. *Research on Social Work Practice, 12*(2), 238-252.

Pope, C., Ziebland, S., & Mays, N. (2000). Qualitative research in health care: Analysing qualitative data. *British Medical Journal, 320*(7227), 114.

Prata, N., Morris, L., Mazive, E., Vahidnia, F., & Stehr, M. (2006). Relationship between HIV risk perception and condom use: evidence from a population-based survey in Mozambique. *International Family Planning Perspectives*, 192-200.

Pronyk, P. M., Kim, J. C., Abramsky, T., Phetla, G., Hargreaves, J. R., Morison, L. A., . . . Porter, J. D. (2008). A combined microfinance and training intervention can reduce HIV risk behaviour in young female participants. *AIDS, 22*(13), 1659-1665.

Pulerwitz, J., Amaro, H., De Jong, W., Gortmaker, S. L., & Rudd, R. (2002). Relationship power, condom use and HIV risk among women in the USA. *AIDS Care, 14*(6), 789-800.

Pulerwitz, J., Gortmaker, S. L., & DeJong, W. (2000). Measuring sexual relationship power in HIV/STD research. *Sex Roles, 42*(7), 637-660.

QSR International Pty Ltd. (2012). NVivo qualitative data analysis software (Version 10).

Quinn, T. C., & Overbaugh, J. (2005). HIV/AIDS in women: an expanding epidemic. *Science, 308*(5728), 1582-1583.

Rabin, R. F., Jennings, J. M., Campbell, J. C., & Bair-Merritt, M. H. (2009). Intimate partner violence screening tools: a systematic review. *American journal of preventive medicine, 36*(5), 439-445. e434.

Randolph, M. E., Pinkerton, S. D., Bogart, L. M., Cecil, H., & Abramson, P. R. (2007). Sexual pleasure and condom use. *Archives of sexual behavior, 36*(6), 844-848.

Reid, G., Kamarulzaman, A., & Sran, S. K. (2007). Malaysia and harm reduction: The challenges and responses. *International Journal of Drug Policy, 18*(2), 136-140. doi: 10.1016/j.drugpo.2006.12.015

Rerks-Ngarm, S., Pitisuttithum, P., Nitayaphan, S., Kaewkungwal, J., Chiu, J., Paris, R., . . . Adams, E. (2009). Vaccination with ALVAC and AIDSVax to prevent HIV-1 infection in Thailand. *New England Journal of Medicine, 361*(23), 2209-2220.

Reynolds, S. J., Risbud, A. R., Shepherd, M. E., Rompalo, A. M., Ghate, M. V., Godbole, S. V., . . . Mehendale, S. M. (2006). High rates of syphilis among STI patients are contributing to the spread of HIV-1 in India. *Sexually Transmitted Infections, 82*(2), 121-126. doi: 10.1136/sti.2005.015040

Rhodes, T., Stimson, G. V., Fitch, C., Ball, A., & Renton, A. (1999). Rapid assessment, injecting drug use, and public health. *The Lancet, 354*(9172), 65-68.

Riehman, K., Wechsberg, W., Francis, S., Moore, M., & Morgan-Lopez, A. (2006). Discordance in monogamy beliefs, sexual concurrency and condom use among young adult substance involved couples: Implications for risk of sexually transmitted infections. . *Sexually transmitted diseases, 33*(11), 677-682.

Robinson, W. T., Risser, J. M., McGoy, S., Becker, A. B., Rehman, H., Jefferson, M., . . . Tortu, S. (2006). Recruiting injection drug users: a three-site comparison of results and experiences with respondent-driven and targeted sampling procedures. *Journal of Urban Health, 83*(1), 29-38.

Rodrigo, C., & Rajapakse, S. (2010). HIV, poverty and women. *International Health, 2*(1), 9-16.

Rohan, L. C., Moncla, B. J., Ayudhya, R. P. K. N., Cost, M., Huang, Y., Gai, F., . . . Graebing, P. (2010). In vitro and ex vivo testing of tenofovir shows it is effective as an HIV-1 microbicide. *PLoS One, 5*(2), e9310.

Romano, J., Variano, B., Coplan, P., Van Roey, J., Douville, K., Rosenberg, Z., . . . Weyers, S. (2009). Safety and availability of dapivirine (TMC120) delivered from an intravaginal ring. *AIDS research and human retroviruses, 25*(5), 483-488.

Rose, G. (1997). Situating knowledges: positionality, reflexivities and other tactics. *Progress in human geography, 21*(3), 305-320.

Rosenstock, I. M., Strecher, V. J., & Becker, M. H. (1994). The health belief model and HIV risk behavior change. In R. J. DiClemente & J. L. Peterson (Eds.), *Preventing AIDS: Theories and methods of behavioral interventions* (pp. 336 pp). New York: Plenum Press.

Rosenthal, L., & Levy, S. R. (2010). Understanding women's risk for HIV infection using social dominance theory and the four bases of gendered power. *Psychology of Women Quarterly, 34*(1), 21-35.

Royce, R. A., Sena, A., Cates Jr, W., & Cohen, M. S. (1997). Sexual transmission of HIV. *New England Journal of Medicine, 336*(15), 1072-1078.

Saad, S. (2012). Re-building the Concept of Nation Building in Malaysia. *Asian Social Science, 8*(4), 115-123.

Sagar, M., Lavreys, L., Baeten, J. M., Richardson, B. A., Mandaliya, K., Ndinya-Achola, J. O., . . . Overbaugh, J. (2004). Identification of modifiable factors that affect the genetic diversity of the transmitted HIV-1 population. *AIDS, 18*(4), 615-619.

Shamsuddin, K. (2012). *Gender Differences in Condom Use, Awareness, and Perception Among Malaysian Urban Youths.* Paper presented at the 13th World Congress on Public Health (April 23-27, 2012).

Sherman, S., & Latkin, C. (2001). Intimate relationship characteristics associated with condom use among drug users and their sex partners: a multilevel analysis. *Drug and Alcohol Dependence, 64*, 97-104.

Sidin, S. M., Zawawi, D., Yee, W., Busu, R., & Hamzah, Z. L. (2004). The effects of sex role orientation on family purchase decision making in Malaysia. *Journal of Consumer Marketing, 21*(6), 381-390.

Silverman, J. G., Decker, M. R., Saggurti, N., Balaiah, D., & Raj, A. (2008). Intimate partner violence and HIV infection among married Indian women. *The Journal of the American Medical Association, 300*(6), 703.

Smolak, A. (2010). Contextual factors influencing HIV risk behaviour in Central Asia. *Culture, health & sexuality, 12*(5), 515-527.

Sohal, H., Eldridge, S., & Feder, G. (2007). The sensitivity and specificity of four questions (HARK) to identify intimate partner violence: a diagnostic accuracy study in general practice. *BMC family practice, 8*(1), 49.

Solomon, S., Srikrishnan, A., Celentano, D., Johnson, S., Vasudevan, C., Murugavel, K., . . . Mehta, S. (2011). The intersection between sex and drugs: a cross-sectional study among the spouses of injection drug users in Chennai, India. *BMC Public Health, 11*(1), 39.

Somlai, A. M., Kelly, J. A., McAuliffe, T. L., Ksobiech, K., & Hackl, K. L. (2003). Predictors of HIV sexual risk behaviors in a community sample of injection drug-using men and women. *AIDS and Behavior, 7*(4), 383-393.

Statacorp. (2013). STATA Data Analysis and Statistical Software, Version 13. from StataCorp http://www.stata.com/

Steiner, M. J., Dominik, R., Rountree, R. W., Nanda, K., & Dorflinger, L. J. (2003). Contraceptive effectiveness of a polyurethane condom and a latex condom: a randomized controlled trial. *Obstetrics & Gynecology, 101*(3), 539-547.

Stephenson, J. (2010). Violence and HIV. *The Journal of the American Medical Association, 304*(5), 513-513. doi: 10.1001/jama.2010.1044

Stoltenborgh, M., van IJzendoorn, M. H., Euser, E. M., & Bakermans-Kranenburg, M. J. (2011). A global perspective on child sexual abuse: Meta-analysis of prevalence around the world. *Child Maltreatment, 16*(2), 79-101.

Stoskopf, C. H., & Kim, Y. K. (2004). Factors affecting knowledge about HIV/AIDS among rural villagers in Coastal Kenya. *International Quarterly of Community Health Education, 22*(1&2), 33-45.

Strathdee, S. A., Galai, N., Safaiean, M., Celentano, D. D., Vlahov, D., Johnson, L., & Nelson, K. E. (2001). Sex differences in risk factors for HIV seroconversion among injection drug users: a 10-year perspective. *Archives of Internal Medicine, 161*(10), 1281-1288.

Tadele, G. (2000). Sexuality and HIV/AIDS Risk and Perception among Male Street Youths in Dessie. *Northeast African Studies, 7*(1), 109-126.

Tang, C. S.-k., Wong, C.-y., & Lee, A. M. (2001). Gender-related psychosocial and cultural factors associated with condom use among Chinese married women. *AIDS Education and Prevention, 13*(4), 329-342.

Tanner, A. E. (2008). Perceptions of acceptability and utility of microbicides in Ghana, West Africa: a qualitative, exploratory study. *SAHARA: Journal of Social Aspects of HIV/AIDS Research Alliance, 5*(1), 11-18.

Tashakkori, A., & Creswell, J. W. (2007). Editorial: The new era of mixed methods. *Journal of Mixed Methods Research, 1*(1), 3-7.

Tashakkori, A., & Teddlie, C. (2010). *Handbook of Mixed Methods in Social & Behavioral Research* (Second ed.). California: Sage Publications, Incorporated.

Taylor, J. J. (2007). Assisting or compromising intervention? The concept of 'culture'in biomedical and social research on HIV/AIDS. *Social Science & Medicine, 64*(4), 965-975.

Taylor, M. C. (2007). Interviewing. In I. Halloway (Ed.), *Qualitative Research in Health Care*. Maidenhead: Open University Press.

Teitelman, A. M., Ratcliffe, S. J., Morales-Aleman, M. M., & Sullivan, C. M. (2008). Sexual relationship power, intimate partner violence, and condom use among minority urban girls. *Journal of interpersonal violence, 23*(12), 1694-1712.

Thigpen, M. C., Kebaabetswe, P. M., Paxton, L. A., Smith, D. K., Rose, C. E., Segolodi, T. M., . . . Chillag, K. L. (2012). Antiretroviral preexposure prophylaxis for heterosexual HIV transmission in Botswana. *New England Journal of Medicine, 367*(5), 423-434.

Thomas, D. R. (2006). A general inductive approach for analyzing qualitative evaluation data. *American Journal of Evaluation, 27*(2), 237-246.

Thomson, R. (1994). Moral rhetoric and public health pragmatism: the recent politics of sex education. *Feminist review*, 40-60.

Tong, J. K. C., & Turner, B. S. (2008). Women, piety and practice: A study of women and religious practice in Malaysia. *Contemporary Islam, 2*(1), 41-59.

Tonks, A. (2007). HIV research: Quest for the AIDS vaccine. *British Medical Journal, 334*(7608), 1346.

Turmen, T. (2003). Gender and HIV/AIDS. *International Journal of Gynecology & Obstetrics, 82*(3), 411-418.

UNAIDS. (2009). HIV transmission in intimate partner relationships in Asia. Geneva.

UNAIDS. (2011). UNAIDS Country Reports on HIV Estimates. Retrieved 10th May 2013 www.unaids.org/en/dataanalysis/knowyourepidemic/countryreportsonhivestimates/

UNAIDS. (2012). UNAIDS Report on the Global AIDS Epidemic. Geneva.

US Department of Health & Human Services. (2012). NIH to test dapivirine vaginal ring for HIV prevention in women. *NIH News.* Retrieved 12 September, 2012, from http://www.nih.gov/news/health/jul2012/niaid-24.htm

Uuskula, A., Abel-Ollo, K., Markina, A., McNutt, L.-A., & Heimer, R. (2011). Condom use and partnership intimacy among drug injectors and their sexual partners in Estonia. *Sexually Transmitted Infections*, 1-5. doi: 10.1136/sextrans-2011-050195

Vaismoradi, M., Turunen, H., & Bondas, T. (2013). Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. *Nursing & health sciences, 15*(3), 398-405.

Van Blerk, L. (2008). Poverty, migration and sex work: youth transitions in Ethiopia. *Area, 40*(2), 245-253.

Van Damme, L., Corneli, A., Ahmed, K., Agot, K., Lombaard, J., Kapiga, S., . . . Onyango, J. (2012). Preexposure prophylaxis for HIV infection among African women. *New England Journal of Medicine, 367*(5), 411-422.

Vanlandingham, M. J., Suprasert, S., Grandjean, N., & Sittitrai, W. (1995). Two views of risky sexual practices among northern Thai males: the health belief model and the theory of reasoned action. *Journal of Health and Social Behavior*, 195-212.

Vernazza, P. L., Eron, J. J., Fiscus, S. A., & Cohen, M. S. (1999). Sexual transmission of HIV: infectiousness and prevention. *AIDS, 13*(2), 155-166.

Vicknasingam, B., Narayanan, S., & Navaratnam, V. (2009). The relative risk among IDUs not in treatment in Malaysia. *AIDS Care, 21*(8), 984-991.

Vijayakumar, G., Mabude, Z., Smit, J., Beksinska, M., & Lurie, M. (2006). A review of female-condom effectiveness: patterns of use and impact on protected sex acts and STI incidence. *International Journal of Std & Aids, 17*(10), 652-659.

Wagner, K. D., Davidson, P. J., Pollini, R. A., Strathdee, S. A., Washburn, R., & Palinkas, L. A. (2012). Reconciling incongruous qualitative and quantitative findings in mixed methods research: Exemplars from research with drug using populations. *International Journal of Drug Policy, 23*(1), 54-61.

Walliman, N. (2011). *Research Methods: The Basics*. London: Routledge.

Wang, C. C., Kreiss, J. K., & Reilly, M. (1999). Risk of HIV infection in oral contraceptive pill users: a meta-analysis. *JAIDS Journal of Acquired Immune Deficiency Syndromes, 21*(1), 51-58.

Wang, J., Carlson, R. G., Falck, R. S., Siegal, H. A., Rahman, A., & Li, L. (2005). Respondent-driven sampling to recruit MDMA users: a methodological assessment. *Drug and Alcohol Dependence, 78*(2), 147-157.

Wathen, C. N., & MacMillan, H. L. (2003). Interventions for violence against women: scientific review. *The Journal of the American Medical Association, 289*(5), 589-600.

Watters, J. K., & Biernacki, P. (1989). Targeted sampling: options for the study of hidden populations. *Social Problems*, 416-430.

Wayal, S., Cowan, F., Warner, P., Copas, A., Mabey, D., & Shahmanesh, M. (2011). Contraceptive practices, sexual and reproductive health needs of HIV-positive and negative female sex workers in Goa, India. *Sexually Transmitted Infections, 87*(1), 58-64. doi: 10.1136/sti.2010.043158

Weiss, H. A., Patel, V., West, B., Peeling, R. W., Kirkwood, B. R., & Mabey, D. (2008). Spousal sexual violence and poverty are risk factors for sexually transmitted infections in women: a longitudinal study of women in Goa, India. *Sexually Transmitted Infections, 84*(2), 133-139.

Weller, S., & Davis-Beaty, K. (2007). Condom effectiveness in reducing heterosexual HIV transmission (Review). In T. C. Collaboration (Ed.), *Cochrane Database of Systematic Reviews 2002*.

Wen, L. W. (2011, 9 January). Human rights in HIV. *The Star*. Retrieved from http://www.thestar.com.my/Lifestyle/Health/2011/01/09/Human-rights-in-HIV/

Wilson, D. P. (2012). HIV treatment as prevention: natural experiments highlight limits of antiretroviral treatment as HIV prevention. *PLoS medicine, 9*(7), e1001231.

Wingood, G., & DiClemente, R. (2000). Application of the theory of gender and power to examine HIV-related exposures, risk factors, and effective interventions for women. *Health Education & Behavior, 27*(5), 539-565.

Wingood, G., & DiClemente, R. (2002). The theory of gender and power. In R. DiClemente, R. Crosby, & M. Kegler (Eds.), Emerging theories in health promotion practice and research: Strategies for improving public health. San Francisco: Jossey-Bass (pp. 313-345). San Francisco: Jossey-Bass.

Wingood, G., DiClemente, R., McCree, D. H., Harrington, K., & Davies, S. L. (2001). Dating Violence and the Sexual Health of Black Adolescent Females. *Pediatrics, 107*(5), e72. doi: 10.1542/peds.107.5.e72

Wong, L. P., & Syuhada, A. R. N. (2011). Stigmatization and discrimination towards people living with or affected by HIV/AIDS by the general public in Malaysia. *Southeast Asian Journal of Tropical Medicine and Public Health, 42*(5), 1119-1129.

Wong, T., Singh, A., Mann, J., Hansen, L., & McMahon, S. (2004). Gender differences in bacterial STIs in Canada. *BMC women's health, 4*(Suppl 1), S26.

Woolf, S. E., & Maisto, S. A. (2008). Gender differences in condom use behavior? The role of power and partner-type. *Sex Roles, 58*(9-10), 689-701.

Work, D. N. E. (1999). Needle exchange, pragmatism, and moralism. *Am J Epidemiol, 149*, 203-213.

World Health Organization. (1986). The Ottawa Charter for Health Promotion. Retrieved 8 September 2014 http://www.who.int/healthpromotion/conferences/previous/ottawa/en/index1.html

World Health Organization. (2008). *Closing the Gap in a Generation: Health Equity Through Action on the Social Determinants of Health: Commission on Social Determinants of Health Final Report*. Geneva: World Health Organization.

World Health Organization. (2012). Data on the size of HIV/AIDS epidemic: Number of adults, women and children living with HIV. Retrieved 30 January 2012, from http://apps.who.int/gho/data/?vid=22100#

World Health Organization. (2013, 31 January). Gender inequalities and HIV. *Gender, women and health.* Retrieved 31st July, 2013, from http://www.who.int/gender/hiv_aids/en/index.html

Yanchar, S. C., & Williams, D. D. (2006). Reconsidering the compatibility thesis and eclecticism: Five proposed guidelines for method use. *Educational researcher*, 3-12.

Yang, F., & Ebaugh, H. R. (2001). Religion and ethnicity among new immigrants: The impact of majority/minority status in home and host countries. *Journal for the scientific study of religion, 40*(3), 367-378.

Youssef, H. (1993). The history of condom. *Journal of the Royal Society of Medicine, 86*, 226-228.

Yusof, S. A., & Duasa, J. (2010). Household decision-making and expenditure patterns of married men and women in Malaysia. *Journal of family and economic issues, 31*(3), 371-381.

Zierter, S. (1994). Women, sex, and HIV. *Epidemiology, 5*(6), 565-566.

APPENDIX 1: RESEARCH QUESTIONNAIRE

LOCATION SERIAL NO.

QUESTIONNAIRE

We are not asking your name so you cannot be identified through this questionnaire

	Yes	No
1. Are you in a relationship with someone who INJECT drugs in the past 6 months?	☐	☐
2. Have you had any sex with him in the past 6 months?	☐	☐

If you have answered 'Yes' to both questions please now answer the rest of the questions If you answer 'No' to either question thank you for your interest, but you are not eligible to take part in this survey. Please return the questionnaire to the research assistant.

1. Are you married?
   - ☐ Yes
   - ☐ No

2. Do you live with your husband/partner?
   - ☐ Yes
   - ☐ No

3. How long have you been in a relationship with him?
   - ☐ Less than 6 months
   - ☐ 6 month – 1 year
   - ☐ 1-2 years
   - ☐ 2-5 years
   - ☐ 5 years or more

4. Have you have any children with your husband/current partner?
   - ☐ Yes. I have had ☐ child/children with my husband/current partner
   - ☐ No

5. Have you had any children from a previous relationship?
   - ☐ Yes. I have ☐ child/children from a previous relationship
   - ☐ No

6. Do you plan to have any children within the next 12 months?
   - ☐ Yes
   - ☐ No

7. Are you using any contraceptive methods now?
   - ☐ Yes. What type? …….
   - ☐ No

Remember, these questions about your intimate relationship will remain anonymous

8. How often do you usually have sex with your husband/partner?
   - ☐ Once a week or more
   - ☐ Less than once a week, but more than once a month
   - ☐ Once a month, or less

9. Has your husband/partner ever used a condom when you had sex?
   - ☐ Yes
   - ☐ No → Go to question 17, next page

10. How often has your husband/partner used condoms when you have had sex with him??
    - ☐ Occasionally
    - ☐ About half the time
    - ☐ Almost always
    - ☐ Always

11. Did your husband/ partner use a condom the last time you had sex?
    - ☐ Yes
    - ☐ No

12. What was your main reason for using condoms?
    - ☐ To avoid pregnancy
    - ☐ To avoid getting sexually transmitted diseases including HIV
    - ☐ Both of the above reasons
    - ☐ Other reasons. Please specify:……..

13. Who usually decides to use condoms?
    - ☐ Myself
    - ☐ My husband/partner
    - ☐ Both of us together

14. Who usually provides condoms?
    - ☐ Myself
    - ☐ My husband/partner
    - ☐ Either of us

15. Where do you normally get the condoms? (you can choose more than one answer)
    - ☐ Government clinics
    - ☐ Private clinics
    - ☐ NGO
    - ☐ Pharmacy
    - ☐ Other places. Please specify:……..
    - ☐ Don't know

16. Do you get the condoms for free?
    - ☐ Yes, always
    - ☐ Yes, sometimes
    - ☐ No

17. Have you ever not had sex with your husband/partner to avoid catching a sexually transmitted disease?
    - ☐ Yes, sometimes
    - ☐ No

18. Have you been infected with any sexually transmitted disease over the past 12 months?
    - ☐ Yes → Go to question 21
    - ☐ No
    - ☐ Don't know

19. Have you had any of the following over the past 12 months…….. (you can choose more than one answer)
    - ☐ Excessive vaginal discharge
    - ☐ Smelly vaginal discharge
    - ☐ Ulcer on the genital area
    - ☐ Pain while urinating
    - ☐ None of the above → Go to question 21

20. If you had any of the problems above, did you seek for treatment?
    - ☐ Yes
    - ☐ No

21. Which of the following health facilities have you been to in the past 12 months?(you can choose more than one answer)
    - ☐ Government clinics/ hospital
    - ☐ Private clinics/ hospital
    - ☐ Clinics run by NGOs
    - ☐ Others. Please specify:……..

We would now like to ask you <u>confidentially</u> about other behaviours

22. Over the past 12 months, have you injected drugs?
    - ☐ Yes.
    - ☐ No

23. Over the past 12 months, have you used other drugs such as marijuana, pills to get high, or sniffed glue?
    - ☐ Yes.
    - ☐ No

24. Over the past 12 months, have you ever had sex with men other than your husband/current partner?
    - ☐ Yes. How many partners have you had? .....
    - ☐ No → Go to question 27

25. Did you receive any money, drugs or favours in exchange for sex with any of these other partners?
    - ☐ Yes
    - ☐ No

26. Did you use condoms with these other partners?
    - ☐ Occasionally
    - ☐ About half the time
    - ☐ Almost always
    - ☐ Always

27. Over the past 12 months, do you think your husband/current partner had sex with any other women?
    - ☐ Yes
    - ☐ No
    - ☐ Don't know

28. Have you been tested for HIV?
    - ☐ Yes
    - ☐ No → Go to question 31

29. When you were last tested?
    - ☐ In the past 12 months
    - ☐ More than a year ago

30. What was your result?
    - ☐ Positive
    - ☐ Negative
    - ☐ Don't know

31. Has your husband/partner been tested for HIV?
    - ☐ Yes
    - ☐ No
    - ☐ Don't know → Go to question 34 (next page)

32. When was he last tested?
    - ☐ In the past 12 months
    - ☐ More than a year ago
    - ☐ Don't know

33. What was his result?
    - ☐ Positive
    - ☐ Negative
    - ☐ Don't know

We would now like to ask you about what you think is your risk of HIV

34. Do you think you are at risk of getting HIV?
    - ☐ No risk at all
    - ☐ Yes, small risk
    - ☐ Yes, moderate risk
    - ☐ Yes, great risk
    - ☐ Don't know

35. Have you ever discussed your risk of HIV with your husband/partner?
    - ☐ Yes
    - ☐ No

36. Have you ever discussed his risk of HIV?
    - ☐ Yes
    - ☐ No

37. Do you feel comfortable discussing your sexual relationship with your husband/partner?
    - ☐ We have never discussed it
    - ☐ Not very comfortable
    - ☐ Quite comfortable
    - ☐ Very comfortable

38. Do you feel comfortable asking your husband/partner to use a condom?
    - ☐ I have never asked him → Go to question 40, next page
    - ☐ Not very comfortable
    - ☐ Quite comfortable
    - ☐ Very comfortable

39. What was his reaction when you asked him to use a condom? (you can choose more than one answer)
    - ☐ He agreed to use one
    - ☐ He did not mind but didn't use one
    - ☐ He was angry and didn't use one
    - ☐ We did not have sex
    - ☐ Others (please specify……)

Things are being developed to protect women against HIV that she inserts into her vagina before sex. These include female condoms and gels similar to vaginal lubricants. We would like to know how useful these might be to you and other women if they were available

40. If a form of HIV protection that women use themselves were available, would you want to use it?
    - ☐ Yes
    - ☐ No
    - ☐ Don't know

41. If you chose to use such a method to protect against HIV, would it be important that your husband/partner did not know about it?
    - ☐ Yes
    - ☐ No
    - ☐ Don't know

42. Do you think a woman should ask her husband's permission before using this method?
    - ☐ Yes
    - ☐ No

43. In your opinion, if such a method of HIV protection were available, who should decide if it should be used?
    - ☐ Myself
    - ☐ My husband/ partner
    - ☐ Both of us
    - ☐ Don't know

44. In your opinion, would it be acceptable for women to use a form of HIV protection without their husbands'/partners' knowledge?
    - ☐ Yes
    - ☐ No

45. In general, do you think many women at risk of HIV in Malaysia would want to use a form of HIV protection that women use themselves
    - ☐ Yes, many
    - ☐ Yes, a few
    - ☐ No
    - ☐ Don't know

46. The following statements are all true. Please indicate whether you knew this already by ticking the appropriate box.

		I knew that	**I wasn't sure**	**I didn't know that**
a.	There is an increased risk of HIV among PWID who share needles.	☐	☐	☐
b.	There is an increased risk of getting HIV by having sex with an injecting drug user who shares needles.	☐	☐	☐
c.	There is an increased risk of getting HIV if someone has many sexual partners.	☐	☐	☐
d.	A pregnant mother with HIV can give the virus to her baby at delivery.	☐	☐	☐
e.	Using a condom will reduce the chance of getting HIV.	☐	☐	☐

47. Please indicate what best describes how you feel about these statements by ticking the appropriate box.

	Strongly agree	Agree	Disagree	Strongly disagree
a. A man will think his wife is unfaithful if she asks him to use condoms	☐	☐	☐	☐
b. It would be embarrassing for me to buy condoms	☐	☐	☐	☐
c. I would not enjoy sex when using a condom	☐	☐	☐	☐
d. Using a condom would seems like an insult to my husband/partner	☐	☐	☐	☐
e. My husband/partner has more say than I do about important decisions that affect us	☐	☐	☐	☐
f. I feel trapped in our relationship	☐	☐	☐	☐
g. My husband/partner does what he wants, even if I do not want him to	☐	☐	☐	☐
h. I am more committed to our relationship than my husband/ partner is	☐	☐	☐	☐

48. Please state if any of these ever happened to you?

In the past 12 months has your husband/partner ever …..	Never	Once	Several times
a. Emotionally abused you?	☐	☐	☐
b. Made you feel scared??	☐	☐	☐
c. Raped or forced you to have any kind of sexual activity you did not want?	☐	☐	☐
d. Kicked, hit, slapped or otherwise physically hurt you?	☐	☐	☐

Before you finish, please answer a few questions about yourself, but you will remain anonymous

49. What is your ethnicity?
    - ☐ Malay
    - ☐ Chinese
    - ☐ Indian
    - ☐ Others, please specify: ……..

50. What is your religion?
    - ☐ Islam
    - ☐ Christian
    - ☐ Buddha
    - ☐ Hindu
    - ☐ Others, please specify: ……

51. How old are you? .....

52. What is the highest level of education you completed?
    - ☐ Never attended school
    - ☐ Primary school
    - ☐ Secondary school
    - ☐ College or Diploma
    - ☐ University

53. Are you currently working?
    - ☐ Yes, full time
    - ☐ Yes, part time
    - ☐ No

54. Roughly, how much do you earn per month? RM_____

55. Roughly, how much does your husband/partner earn per month? RM_____

56. Do you depend on your husband's/partner's income to pay for the household expenses?
    - ☐ Yes, always
    - ☐ Yes, sometimes
    - ☐ No

Note:

Please put the completed questionnaire in the given envelope, seal it and pass it to the research assistant.

Thank you.

APPENDIX 2: RESPONDENT INFORMATION SHEETS (SURVEY & INTERVIEW)

Reference Number 12/140
31 July 2012

A SURVEY ON HIV PREVENTION AMONG THE WIVES AND FEMALE PARTNERS OF INJECTION DRUG USERS IN MALAYSIA

October 2012 – September 2013

RESPONDENT INFORMATION SHEET (SURVEY)

You are invited to take part in this project - to understand the risk faced by the wives and female partners of injection drug users from getting infected with HIV and their ability to protect themselves against HIV. This project is being conducted as a partnership between Malaysian Public Health Specialist Association and the Department of Preventive and Social Medicine, University of Otago, New Zealand. The result of this study will be useful in developing an effective and acceptable preventive programme to help these people be more resilient against HIV infection in the future.

All women aged more than 18 years who are married to, or in a regular sexual relationship with a man who injects drugs are able to participate. This survey involves filling in a questionnaire, which will take about 10 minutes to complete. The questionnaire will be anonymous. Once you have completed the survey, you will receive RM30 to recompense for your time and travelling expenses.

The information gathered in this survey will be handled with strict confidentiality and accessible only by the research team. Result of the study will be available for the participants upon request after the completion of the project.

If you agree to participate, please make an appointment with this person: (Name & contact number of research assistant: ……..). The survey can be done in the NGO drop-in centre, nearest health clinic or any other suitable place agreed by the research assistant and you.

If you have any questions about our project, please feel free to contact either:-

ROSLIZA ABDUL MANAF
Dept. of Community Health, UPM
Tel Number: 03-89472424
NZ Tel Number: 643-4797220
Email Add: rosliza@medic.upm.edu.my

and/or

FAISAL IBRAHIM
Malaysian Public Health Specialist Assoc
Tel Number:03-89472416
Email Add.: drfaisal@medic.upm.edu.my

This study has been approved by the University of Otago Human Ethics Committee. If you have any concerns about the ethical conduct of the research you may contact the Committee through the Human Ethics Committee Administrator (ph 643 479 8256). Any issues you raise will be treated in confidence and investigated and you will be informed of the outcome.

Reference Number 12/140
31 July 2012

A SURVEY ON HIV PREVENTION AMONG THE WIVES AND FEMALE PARTNERS OF INJECTION DRUG USERS IN MALAYSIA

October 2012 – September 2013

RESPONDENT INFORMATION SHEET (INTERVIEW)

Thank you for your participation in the survey that is aimed to better understand your personal experience in protecting yourself against HIV.

You are now invited to take part in an individual interview which will be conducted by a female researcher. The interview will take about 1 hour and will be audio-taped. Once the interview is completed, you will receive RM30 to recompense for your time and travelling expenses.

Your involvement in this interview is voluntary. If you agree to take part, you may refuse to answer any question you don't feel comfortable with. Your personal information will be kept confidential to the research team. You will not be personally identified in any reports or publication about this study. The information gathered in this interview will be handled with strict confidentiality and accessible only by the research team. Result of the study will be available for the participants upon request after the completion of the project.

If you agree to participate, please make an appointment with this person: (Name of research assistant: ……..). The interview can be done in the NGO drop-in centre, nearest health clinic or any other suitable place agreed by the research assistant and you.

If you have any questions about our project, please feel free to contact either:-

ROSLIZA ABDUL MANAF
Dept. of Community Health, UPM
Tel Number: 03-89472424
NZ Tel Number: 643-4797220
Email Add: rosliza@medic.upm.edu.my

and/or

FAISAL IBRAHIM
Malaysian Public Health Specialist Association
Tel Number: 03-89472416
Email Add.: drfaisal@medic.upm.edu.my

This study has been approved by the University of Otago Human Ethics Committee. If you have any concerns about the ethical conduct of the research you may contact the Committee through the Human Ethics Committee Administrator (ph 643 479 8256). Any issues you raise will be treated in confidence and investigated and you will be informed of the outcome.

APPENDIX 3: INTERVIEW GUIDE

LOCATION SERIAL NO.

INTERVIEW GUIDE (INDIVIDUAL SEMI-STRUCTURED)

Participant's details:	Age	Ethnicity	Religion	Marital status	Employment status
Date of Interview:					
Name of Interviewer:					

1. **Opening question:** Would you like to tell me something about yourself (anything you feel like telling)? *[Probes: where were you from, where do you live now, any kids?]*

2. Now, can you tell me what do you know about HIV? *[Probes: how it is transmitted, who can be affected, how to prevent it?]*

3. Have you ever talked about HIV with anyone? What are the things that you discussed? *[Probes: with partner/friends/relatives; ever thought about you or them getting HIV; how common HIV is among the PWID?]*

4. Have you been tested for HIV before? Yes/No.
[*Probe: if yes, why did you go for the test? If no, why didn't you go for screening?]*

5. Do you know your status? Yes/ No

HIV Positive women	HIV Negative women or unknown status
a. When were you first diagnosed?	a. Do you think you are at any risk of getting HIV? Why?
b. Do you know how you got infected?	b. Do you know how to protect yourself from being infected with HIV?
c. Have you ever worried that you may get infected with HIV before? Why?	c. Do you think you able to do that? *[Probes: any potential problem?]*

6. Now, can you share with me your experience being in a relationship with a person who inject drugs?
[Probes: emotional well-being, financial, sexual, history of abuse, decision to have children, HIV risk]

7. Do your family members know about his injecting behaviour? How do they feel about it?
[Probes: your side and his side, could this be due to HIV risk?]

8. How do people treat you when they find out that your husband/partner is a drug addict? Can you share with me your experience?
[*Probes: have you ever been treated badly?]*

9. The following questions might sound personal, but I really hope that you are willing to answer them. First, I would like to ask you regarding the use of condoms in your intimate relationship. Have your husband/partner ever used condoms while having sex with you? Yes/No

For women who have experience using condoms	**For women who do not have experience using condoms**
a. How do you feel about using condoms? *[Probes: any likes/dislikes]*	a. Any reason why you never used a condom?
b. How does your husband/partner feel about using condoms? *[Probes: any likes/dislikes]*	b. How do you feel about using condoms? *[Probes: any likes/dislikes]*
c. Any problem?	c. Have you ever discussed condoms with your husband/ partner? [*Probe: if yes, what did he say?]*

10. Do you think it is important to use condoms regularly? Yes/No
[*Probe: if yes, what are the things that may help you use condoms more often?*]

11. Why do you think some women are not comfortable asking their husband/partner to use condoms? [*Probes: it is not a right thing to do? shy? the man will think she is unfaithful?]*

12. What should a woman do if her husband wants to have sex with her but she doesn't want to? [*Probes: can a woman say 'no' if her husband/partner wants to have sex with her? Why?]*

13. How important do you think it is for women to protect themselves against HIV? [*Probes: do you think it is more important for wives of PWID?]*

14. New methods are being developed to protect women against HIV that she inserts into her vagina before sex. These include female condoms and gels similar to vaginal lubricants. If it is available, would you be interested to use it? [P*robes: why? Why not? How could it help you?]*

15. Some of these methods of HIV prevention could be used without the male partner noticing it. How do you feel about women using these methods without their partner's knowledge? *[Probes: Is this important in your situation?]*

16. Do you think you need to discuss with your husband/partner before using the method? [*Probes: why? can you make your own decision? any circumstances to this?]*

17. In your opinion, what is the best way to prevent HIV infection in your relationship? *[Probes: abstinence? the male condoms? or the other methods which can be used by women?]*

18. Ending question: We have covered so many issues today and I am very grateful for your cooperation. Before we end this interview, do you have anything else to add?

INTERVIEWER Comments: *use this space to summarise how the interview went, including participant's mood during the interview.*

APPENDIX 4: ETHICAL APPROVALS

Academic Services
Manager, Academic Committees, Mr Gary Witte

12/140

31 July 2012

Assoc. Prof. N Dickson
Department of Preventive and Social Medicine
Dunedin School of Medicine

Dear Assoc. Prof. Dickson,

I am again writing to you concerning your proposal entitled "**Risk perception and preventive behaviour against HIV infection among the wives and female partners of injection drug users in Malaysia**", Ethics Committee reference number **12/140**.

Thank you for your letter dating 26 July 2012 which outlines the amendments made to your application, and providing letters of support and approval from the Malaysian Government, the Malaysian Aids Council and Ministry of Health Malaysia.

We confirm that you have decided to omit the focus group discussion involving the male injection drug users (IDUs), and instead only involve their wives and partners. As the possibility that their wives and partners would be IDUs is slim, this group is not at the same risk of legal or police action as a result of their involvement in the project.

We acknowledge that you have carried out the amendments to the survey form and Information Sheet as requested by the Committee.

On the basis of this response, I am pleased to confirm that the proposal now has full ethical approval to proceed.

Approval is for up to three years from the date of this letter. If this project has not been completed within three years from the date of this letter, re-approval must be requested. If the nature, consent, location, procedures or personnel of your approved application change, please advise me in writing.

Yours sincerely,



Mr Gary Witte
Manager, Academic Committees
Tel: 479 8256
Email: gary.witte@otago.ac.nz

c.c. Professor J L Connor Head Department of Preventive and Social Medicine

UNIT PERANCANG EKONOMI
Economic Planning Unit
JABATAN PERDANA MENTERI
Prime Minister's Department
BLOK B5 & B6
PUSAT PENTADBIRAN KERAJAAN PERSEKUTUAN
62502 PUTRAJAYA
MALAYSIA

EPU
ECONOMIC PLANNING UNIT
PRIME MINISTER'S DEPARTMENT, MALAYSIA

Telefon : 603-8888 3333
Telefax : 603-888

Ruj. Tuan:
Your Ref.:

Ruj. Kami:
Our Ref.: UPE: 40/200/19/2864

Tarikh:
Date: 22 February 2012

DR. ROSLIZA BT ABDUL MANAF
6, Grey Street
North East Valley
Dunedin 9010
New Zealand
Email: rosliza@medic.upm.edu.my

APPLICATION TO CONDUCT RESEARCH IN MALAYSIA

With reference to your application, I am pleased to inform you that your application to conduct research in Malaysia has been *approved* by the **Research Promotion and Co-Ordination Committee, Economic Planning Unit, Prime Minister's Department.** The details of the approval are as follows:

Researcher's name	:	**DR. ROSLIZA BT ABDUL MANAF**
Passport No. / I. C No:		**720903-08-5312**
Nationality	:	**MALAYSIAN**
Title of Research	:	**"RISK PERCEPTION AND PREVENTIVE BEHAVIOR AGAINST HIV INFECTION AMONG THE WIVES AND FEMALE PARTNERS OF INJECTION DRUG USERS IN MALAYSIA"**

Period of Research Approved: **2 YEARS**

2. Please collect your Research Pass in person from the Economic Planning Unit, Prime Minister's Department, Parcel B, Level 4 Block B5, Federal Government Administrative Centre, 62502 Putrajaya and bring along two (2) passport size photographs. You are also required to comply with the rules and regulations stipulated from time to time by the agencies with which you have dealings in the conduct of your research.

3. I would like to draw your attention to the undertaking signed by you that you will submit without cost to the Economic Planning Unit the following documents:

a) A brief summary of your research findings on completion of your research and before you leave Malaysia; and

b) Three (3) copies of your final dissertation/publication.

4. Lastly, please submit a copy of your preliminary and final report directly to the State Government where you carried out your research. Thank you.

Yours sincerely,

(**MUNIRAH ABD. MANAN**)
For Director General,
Economic Planning Unit.
E-mail: munirah@epu.gov.my
Tel: 88882809
Fax: 88883961

ATTENTION

This letter is only to inform you the status of your application and **cannot be used as a research pass**.

Cc:

Ketua Setiausaha
Kementerian Kesihatan Malaysia
Bahagian Dasar dan Hubungan Antarabangsa
Aras 6, 8 & 11, Blok E7, Kompleks E
Pusat Pentadbiran Kerajaan Persekutuan
62590 Putrajaya
(u.p: Abidah Binti Harun Alias)

PEJABAT TIMBALAN KETUA PENGARAH KESIHATAN
OFFICE OF DEPUTY DIRECTOR GENERAL OF HEALTH
(PENYELIDIKAN DAN SOKONGAN TEKNIKAL)
(RESEARCH AND TECHNICAL SUPPORT)
KEMENTERIAN KESIHATAN MALAYSIA
MINISTRY OF HEALTH MALAYSIA
Aras 12, Blok E7, Parsel E, Presint 1
Level 12, Block E7, Parcel E, Precinct 1
Pusat Pentadbiran Kerajaan Persekutuan
Federal Government Administrative Centre
62590 PUTRAJAYA

Tel : (03) 88832543
Fax : (03) 88895184

MEDICAL RESEARCH & ETHICS COMMITTEE
MINISTRY OF HEALTH MALAYSIA
c/o Institute for Health Management
Jalan Rumah Sakit, Bangsar
59000 Kuala Lumpur

Ruj. Kami :(2)dlm.KKM/NIHSEC/08/0804/P12-459

Tarikh : 7 September 2012

Protocol Title :
NMRR-12-392-11047
Risk Perception and Preventive Behavior against HIV infection among the wives and female partners of injection drug users in Malaysia

Principal Investigator : Dr Rosliza binti Abdul Manaf
Jabatan Kesihatan Komuniti
Universiti Putra Malaysia

Documents received and reviewed with reference to the above study:
1. Study Protocol version 2 dated 25-06-2012
2. Patient information sheet (English) & Informed Consent Form (English) version 3 dated 06-09-2012
3. Patient information sheet (Malay) & Informed Consent Form (Malay) version 3 dated 06-09-2012
4. Questionairre version 1 dated 05-06-2012
5. Curriculum vitae of investigators

The Medical Research & Ethics Committee, Ministry of Health Malaysia operates in accordance to the International Conference of Harmonization Good Clinical Practice Guidelines.

Project Sites : Methadone Maintenance Therapy Clinic in Selangor & Kuala Lumpur

Comment : Please note that the approval is for one year & a completed 'Continuing Review Form' has to be submitted to MREC every year for renewal of approval.

Decision by Medical Research & Ethics Committee:
(√) Approved (Exempted from Full Board Review)
( ) Disapproved

Date of Decision : 7 September 2012

(DATO' DR CHANG KIAN MENG)
Chairman
Medical Research & Ethics Committee
Ministry of Health

'Sila catatkan rujukan surat ini apabila menjawab'

MAC/PS/PHD/430/2012

27th June 2012

DR. ROSLIZA ABDUL MANAF
6 Grey Street,
North East Valley,
Dunedin 9010,
New Zealand.

SUPPORT FOR PHD PROJECT

Greetings from Malaysian AIDS Council.

Referring to your study on *'HIV risk environment & preventive behaviour among the wives and female partners of injection drug users in Malaysia'*, I would like to inform you that the Malaysian AIDS Council will support your effort and will provide the necessary assistance for the completion of the study.

Appreciate if you could provide the synopsis and timeline of your study. Upon completion, kindly submit to us a results summary and any published paper related to it.

Should you have any enquiries, please do not hesitate to contact Mr. Parimelazhagan Ellan, Program Director or Ms. Tamayanty K, Program Division at 03 – 4047 4222.

Thank you.

Yours sincerely,

CHE ROSWATI ABD. GHANI
Executive Director

Majlis AIDS Malaysia (147592)
No. 12, Jalan 13/48A, The Boulevard Shop Office,
Off Jalan Sentul 51000, Kuala Lumpur, Malaysia.
Tel : +603 4045 1033 Fax : +603 4042 6133
www.mac.org.my | Malaysian AIDS Council | myAIDScouncil

MALAYSIAN AIDS COUNCIL