

Women's satisfaction of the Maltese breast screening programme: a cross-sectional survey

Danika Marmara¹, Judi Curtis, Vincent Marmara²

Abstract

Introduction: Breast cancer is the most common form of cancer among women,¹ with 425,000 new cases diagnosed in Europe each year.² The latter posed a detrimental health problem for years in Malta and consequently, a National Breast Screening Programme was established in 2009. Previous studies regarding client satisfaction with mammography screening services have shown a large variability between different centres. High levels of client satisfaction within Screening Programmes encourage attendees to recommend breast screening to others,³ while unsatisfied clients are less likely to comply with follow-up appointments.³⁻⁴

Aim: To evaluate women's satisfaction of the Maltese Breast Screening Programme (MBSP) in its prevalent call.

Methods: A cross-sectional survey was conducted by telephone to collect data retrospectively from a purposively defined, random sample of 380 women who had accepted to be screened until the time of study. The sample included women born between 1950 and 1954, comprising those who received a normal result and those recalled for further tests. Thematic analysis was applied to women's qualitative responses.

Results: The emergent five themes included accessibility, efficiency, perception, supportive care and acceptability. Women's experiences of their screening appointment, care perception and overall programme were described in a very positive way ('good service – 31.3%', 'excellent service – 68.7%') with the majority of clients willing to re-attend and recommend the programme to others. For satisfaction related to screening appointments, 95.5% were very satisfied, 99.2% were very satisfied with the standard of care and 68.7% were very satisfied with the whole programme. However, a minority of participants (29.74%) faced difficulties in accessing the unit, resulting in less programme satisfaction. Those who found mammography 'severely uncomfortable' also found it 'severely painful' (67.6%), which had a less excellent result on client satisfaction. Women related this negatively to radiographers' confidence, care and communication. More than half of participants experienced anxiety prior to mammography (56.3%) and higher anxiety (92.3%) when recalled.

Conclusions: Our results concur with earlier studies showing high satisfaction among women in other breast screening programmes.

Keywords

Patient Satisfaction, Pain, Anxiety, Patient Acceptance, Efficiency.

Introduction

Breast cancer is the most common reason for cancer-related deaths in Maltese women and accounts for 21% of all female cancers excluding non-melanoma skin cancers (NMSC).⁵ In the last decade, around 280 women were diagnosed with breast cancer every year in Malta.⁵

Since the introduction of the Maltese Breast Screening Programme in October 2009, local women born between 1950-1959 (aged 50-60) have been invited to undergo mammography in the first screening round. Presently, the programme has completed its initial cycle and has expanded its cohort to screen women until 65 years of age in its second cycle.

A large body of evidence demonstrates that the physical, psychological and social aspects associated

Danika Marmara B.Sc.(Hons), M.Sc.(Lond.), LRSM*
Office of the Director General (Healthcare Services)
Ministry of Energy and Health (Health), Malta
School of Health Sciences,
University of Stirling, Scotland (UK)
attard.danika@gmail.com

Judi Curtis MSc TDCR
School of Radiography,
Faculty of Health and Social Care Sciences,
Kingston University and St. George's,
University of London, UK

Vincent Marmara B.Sc.(Hons), M.Sc.(Sheff.)
Department of Mathematics,
University of Stirling, Scotland (UK)

*Corresponding Author

with and resulting from the screening process increase or decrease client satisfaction and re-attendance.⁶⁻⁷ Some studies have shown that the latter affect satisfaction irrespective of patient characteristics,⁸⁻⁹ while others recognise that social status, age and demographic factors are related to women's satisfaction of screening programmes.¹⁰⁻¹¹ Therefore, programme acceptability and efficiency is dependent on women's participation and re-attendance rates.¹²⁻¹⁵ Furthermore, since women's experience during their initial screen can influence their participation in subsequent screening, there is an urgent need to improve women's overall satisfaction with initial screening experiences.¹⁶

This study aimed, for the first time, to investigate client satisfaction of the Maltese Breast Screening Programme by evaluating women's perceptions and identifying factors that affect client experiences.

Methods

A cross-sectional survey was conducted over a three-month period with a purposively defined, random sample of 380 women born between 1950 and 1954. Since the programme was in its first round at the time of data collection, a telephone interview survey method was employed to collect data retrospectively.

Ethical approval for this study was obtained from the Health Ethics Committee (Reference No.: HEC06/11). Approval was also obtained from the authors of an established satisfaction questionnaire¹⁷ and was modified to local needs and translated into Maltese. The tool incorporated fixed dichotomy response questions and the Likert Scale as in similar studies.^{3,17-18}

Semi-structured questions were used to seek clients' perceptions and in-depth responses through open-ended questions.

A simple random sample was computer generated from the local screening register and selected from a purposively identified population (9,125 women had accepted to be screened at the time of study). This sample comprised those who received a normal result and those recalled for further tests, following which, they still received an 'all clear' result (False Positives). Women were notified in advance by telephone to participate in this study. Upon providing their consent, the screening coordinators organised pre-arranged appointment times with the researcher to conduct this study.

Statistical analyses were carried out with SPSS software (Version 17.0) and Excel databases. Both descriptive and inferential statistics were analysed through the chi-square test (χ^2). For those questions with a Likert-scale, the chi-square test was also used and complemented by displaying cross tabulations. All analyses were conducted through a 95% confidence level and a confidence interval of 4.92%. A p value ≤ 0.05 was taken to represent a statistically significant result. Thematic analysis was applied to women's responses and categorised into main themes.

Results

The main factors that increase or decrease clients' satisfaction were grouped into five categories (Table 1).

Table 1: Factors of the study

Factors	Main Themes	Meaning
Access to care	<i>Accessibility</i>	- Physical needs
Perception of the: <ul style="list-style-type: none"> • Environment • Organisation 	<i>Efficiency</i>	- Expectations of the service - Convenience - Choice
Psychological, emotional and physical factors	<i>Perception</i>	- Risk perception - Impact on 'self' - Impact on family - Survival - The procedure
Support strategies	<i>Supportive Care</i>	- Staff behaviour - Radiographer's role - Interpersonal competence - Personal needs - Touch
Re-attendance	<i>Acceptability</i>	- Influence of screening experience - Participation in subsequent screening - Departmental practice

Table 2: The main factors in relation to satisfaction with screening appointment, care perception and the whole programme

			Satisfaction level of the appointment at the Malta Breast Screening Programme	Satisfaction level of the standard of care	Overall satisfaction level of the Malta Breast Screening Programme
	<i>n</i>	<i>clients %</i>	<i>p-value</i>	<i>p-value</i>	<i>p-value</i>
Information prior to attendance			0.651	0.137	0.6
Very satisfied	346	91.1			
Quite satisfied	34	8.9			
Directions to the unit			0.098	0.565	0.013
Directions received	317	83.4			
No directions received	50	13.1			
Cannot remember	13	3.5			
Radiographer's role			< 0.001*	< 0.001*	0.296
Incompetent	3	0.79			
Competent	4	1.05			
Very competent	373	98.16			
Radiographer's communication			0.205	< 0.001*	0.021
Effective communication	373	98.2			
Lack of communication	7	1.8			
Privacy level			< 0.001*	< 0.001*	0.940
Poor	3	0.79			
Excellent	377	99.21			
Anxiety			0.198	0.420	0.821
Yes	214	56.3			
No	166	43.7			
Recalled			0.952	0.022	0.051
Yes	65	17.1			
No	315	82.9			
Biopsy			< 0.001*	0.003	0.523
Yes	12	18.5			
No	53	81.5			
Mammogram			0.001	0.007	0.193
Not at all uncomfortable	106	27.9			
Slightly uncomfortable	194	51.1			
Moderately uncomfortable	43	11.3			
Severely uncomfortable	37	9.7			
Pain			0.008	0.004	0.007
Not at all painful	213	56.1			
Slightly painful	122	32.1			
Moderately painful	13	3.4			
Severely painful	32	8.4			
Re-attendance			< 0.001*	< 0.001*	0.007
Yes	370	97.4			
No	3	0.8			
Don't know	7	1.8			

* χ^2 tested at the 0.001 level of significance

Five emergent themes were established during the course of data analysis (Table 1), namely accessibility, efficiency, perception, supportive care and acceptability. These themes were analysed with the three dependent variables (overall satisfaction of appointment, overall programme and care perception).

For these three dependent variables related to client's satisfaction, all respondents claimed that the

service was either "good" (31.3%) or "excellent" (68.7%). For satisfaction related to screening appointments, 95.5% were very satisfied, 99.2% were very satisfied with care standards and 68.7% were very satisfied with the whole programme. These dependent variables were compared to several main factors of this study (Table 2).

In general, clients were extremely pleased with the

pleasant and clean environment as well as the staff. The majority of clients felt that the examination was not lengthy and that they had enough privacy.

A client minority (29.74%) faced difficulties in accessing the unit due to a 'busy road', 'no bus access', 'non-central location' and 'limited parking', resulting in less programme satisfaction. Those who were not satisfied with the directions tended to be less satisfied with their appointment and overall programme. From those who did not find immediate parking, 89.7% were very satisfied with their appointment, which is 5.6% less than those who found immediate parking ($p=0.227$).

From those who read the information leaflet prior to their test, 74.8% of clients rated the overall satisfaction as excellent, while 61.3% of those who were uninformed rated the programme as excellent (13.5% less).

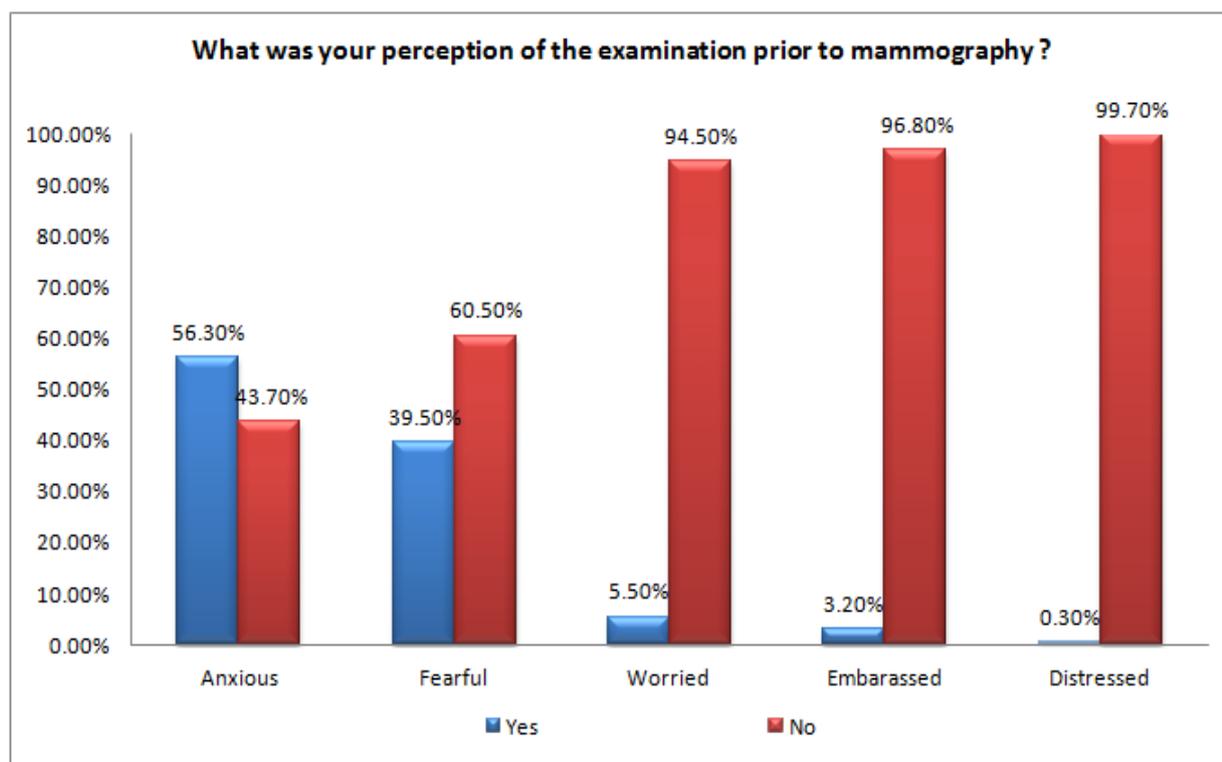
The majority of the clients rated the mammogram as 'slightly uncomfortable'. Those that found the mammogram 'severely uncomfortable' rated the standard of care and overall programme satisfaction less excellent than those who found the mammogram more

comfortable. Those who found the mammogram 'severely uncomfortable' are doubtful of repeat attendance and 2.7% would not re-attend. Almost the same results are mirrored when comparing re-attendance versus pain ($p<0.001$).

The absolute majority found the test 'not at all painful'. Those who found the test 'severely painful' rated the standard of care less excellent (93.8% versus 99.5%). A large proportion of those who stated that the mammogram was 'severely uncomfortable' stated that the examination was 'severely painful' (67.6%), while those eliciting that the mammogram was 'not at all uncomfortable' stated that the examination was 'not painful' (81.8%).

Overall, clients experienced a wide range of emotions prior mammography (Figure 1). A high percentage of women experienced anxiety, with 75.23% of clients stating that their main anxiety was due to 'fear of the result' and 'its impact on the self and their family'. Results show that those aged 59-61 were more anxious (63.1%) than women aged 56-58 (50.2%) ($p=0.038$).

Figure 1: Clients' perception of the examination prior to mammography



The radiographer's communication was rated very positively by clients ('Strongly Agree') with 97.9% claiming they felt 'at ease' and that radiographers provided 'excellent care' (98.4%). However, if the radiographer was male, 68.9% of women would not undergo mammography. Those with primary and secondary educational level (71.6% and 70.4%

respectively) strongly refuse to undergo mammography if the radiographer was male, while the refusal rate of participants with tertiary education is 52.3%, which is around 19% less ($p=0.038$).

Less than one-fifth of the clients (17.1%) were recalled for further tests. Out of these, 18.5% underwent a biopsy. A large majority (75%) of biopsied clients

were 'very satisfied' with their appointment and 83.3% 'very satisfied' with the care received, while all recalled clients who did not undergo a biopsy were 'very

satisfied' with their appointment and standard of care. For both comparisons, high statistical significant difference was found (Table 3).

Table 3: Biopsied clients versus non-biopsied clients

	Biopsy (%)	No Biopsy (%)	p-value
Anxiety level during assessment			0.790
Not at all anxious	16.7	17.6	
Slightly anxious	0.0	5.9	
Quite anxious	0.0	2.0	
Very anxious	83.3	74.5	
Quality of communication during assessment			0.010
Not really satisfied	8.3	0.0	
Quite satisfied	8.3	0.0	
Very satisfied	83.3	100.0	
Level of satisfaction with the recall appointment			< 0.001*
Quite satisfied	25.0	0.0	
Very satisfied	75.0	100.0	
Standard of care perception			0.003
Good	16.7	0.0	
Excellent	83.3	100.0	
Overall satisfaction level of the MBSP			0.523
Good	33.3	43.4	
Excellent	66.7	56.6	

* χ^2 tested at the 0.001 level of significance

The vast majority (91.7%) of those who underwent a biopsy were anxious prior to attendance, while 92.5% of those who did not have a biopsy were also anxious prior to attendance ($p=0.843$). There were 16.7% more 'very satisfied' non-biopsied clients than biopsied clients when asked about the radiographer's communication.

Discussion

Overall Satisfaction

Previous studies indicate that experiences of pain, discomfort and distress, among others, are associated with dissatisfaction and undermine women's decisions to undergo repeat screening.^{3,19} Moreover, a woman's satisfaction with her mammography experience may also affect whether relatives or friends undergo mammography or attend a particular mammography unit.²⁰

For the first time, our study reports on women's satisfaction of the Maltese Breast Screening Programme in its prevalent call. Overall, women described a positive experience of their screening appointment, care provision and the overall programme. These results concur with similar studies showing a high satisfaction

level of women participating in other national breast screening programmes.^{3,6,15,17}

Accessibility

Unit accessibility (directions, travel and parking) was one of the factors in this study that predicted women's satisfaction. Accessibility or 'access to care', often defined as "the actual use of personal health services and everything that facilitates or impedes that use,"²¹ is closely related to concepts of 'quality of care' and 'satisfaction with care'.²² Limited access to care has been shown to impede the use of preventive health services²³ and is significantly associated with attendance and re-attendance.²⁴ Our national survey found that car drivers were less satisfied than non-car drivers since the former group encountered greater obstacles in accessibility. Although no statistical significance was found, those who experienced difficulties in accessing the unit tend to be less satisfied with the programme overall. As a result, women tend to opt for services that provide free and accessible parking facilities, which enhance satisfaction.²⁵

Efficiency

Many women stated that they were pleased with the efficiency of the service. Furthermore, all clients were satisfied with the unit's environment since they "felt at home" and "everything is well kept" (Breast Screening client). These were a few of a series of positive results regarding the satisfaction with the programme overall. This is consistent with other research findings where pleasant surroundings have shown to enhance satisfaction, which in turn, helps to minimize women's anxiety.²⁵⁻²⁷

Women's positive experiences with privacy level, short waiting times and staff efficiency were found to be important in determining clients' overall satisfaction and are also consistent with findings in other surveys.^{3,6,17,25} This pleasant environment helped women to face the test with a more positive approach, resulting in a more optimistic perception of the examination.

Perception

Perception of the mammography examination: Pain and Discomfort

The general public's perception of mammography has sometimes been reported as one of pain.^{3,19} Both of two studies found lower prevalence of pain than discomfort,^{28,29} supporting the idea that discomfort is considered less severe than pain.³⁰ This study found a strong association between discomfort and pain since those who found mammography 'severely uncomfortable' also found it 'severely painful' and vice versa, which had a less than excellent score on women's satisfaction. While 73.1% of women in this study reported some discomfort, only 22% reported the examination as 'severely uncomfortable', whereas from those who reported some form of pain (43.9%), only 11.8% reported the examination as 'severely painful'. These percentages coincide with other authors' findings which ranged significantly from 1.3% to 92.3% for pain or discomfort^{31,32} and specifically between 41% and 76% for discomfort.^{8, 33-34} The above may be due to various reasons, such as age-related anatomic breast differences between younger and older women.⁶ Nonetheless, this study found no difference between the groups.

The impact of discomfort on client satisfaction was not often examined in other studies, as most studies focused on either discomfort or satisfaction.⁶ In this study, findings show that those who found the mammogram 'severely uncomfortable' are more likely not to re-attend when compared with those who did not find the test 'severely uncomfortable'. This level of discomfort was one of the factors why not all clients rated the programme as 'excellent'. Such findings are supported in several studies where bad experiences decrease satisfaction and deter re-attendance, resulting in a reluctance to recommend the examination.^{3,12,24,35} Thus, this provides further insight to women's

perception of their overall satisfaction in order to improve mammography experiences and service provision.

European guidelines for quality assurance in breast cancer screening and diagnosis recommend that population-based breast screening programmes with mammography are implemented throughout Europe. Several European countries nevertheless still have opportunistic breast screening³⁶ as is the case in Malta. This study found that prior opportunistic screening experience was not influential on pain level in contrast to other studies. This shows that differences in departmental practices did not have an effect on pain in this study.

The Psychological and Emotional Challenge: Fear and Anxiety

Fears and anxieties often arise before, during or after screening and during the provision of results,³⁷⁻³⁹ and this often has an impact on reducing women's satisfaction. Studies have shown that women with a family history of breast cancer and previous breast cancer experiences expressed less service satisfaction.⁶ This may be due to more anxiety than women at average risk. However, it has also been reported that women who undergo first time mammography have higher anxiety levels.⁴⁰ In our study, no difference was found between the above groups and those with no previous mammography experience. These findings contrast with other research findings, as local women seem to focus on their experience within the unit rather than on external factors, potentially contributing towards high service satisfaction. Moreover, when we compared anxiety with age distribution, results show that women, aged 59-61 were more anxious than those aged 56-58. This concurs with similar studies denoting that age increases risk perception.^{10,19}

Anxiety levels during recall assessment

There is a wide variability of recall rates between countries,^{41,42} ranging from less than 1% to about 15% for screening mammography.^{43,44} European guidelines recommend a target recall rate of 5% (acceptable rate of <7%) for first screen and a target recall rate of 3% (acceptable rate 5%) for subsequent screens.⁴⁵ In our study, 17.1% were recalled for further tests, which is higher than that recommended by European Guidelines.⁴⁵

Research has shown that women recalled for assessment had a higher incidence (30%) of measurable anxiety than non-recalled women.^{19,39} The explanation for this is that women often react as though they have already been diagnosed with cancer since their belief of being healthy has been challenged. Consequently, being recalled may take away one's sense of security and control among multiple wellbeing domains, reflecting findings reiterated by Coumans and Lee⁴⁶ and Corney.⁴⁷

Moreover, recalled clients and those with considerable or extreme anxiety about the results are the ones who express the highest level of dissatisfaction and are reluctant to undergo repeat screening.²⁰ In our study, women's second visit at the unit (due to being recalled) affected women's anxiety. In fact, there were 36% more anxious clients during the second visit.

Moreover, research has shown that women undergoing breast biopsies may have escalated feelings of anxiety and psychological distress due to implications for family, sexuality and mortality.³⁹ Such findings are supported in this study. Women who underwent a biopsy were less satisfied than non-biopsied women, mainly due to the increased anxiety about the biopsy procedure. In fact, 8.8% of biopsied clients were more 'very anxious' than non-biopsied clients during recall. Furthermore, biopsied women were 'less satisfied' than non-biopsied clients regarding the quality of communication during assessment. Information provided to women, and more specifically, the way results are reported to a patient, has been associated with dissatisfaction in other studies.²⁰ Hence, our results substantiate the constant need for effective communication and psychological support throughout the screening process.

Supportive Care

Standard of Care Perception and Quality of Care

High levels of satisfaction with the staff have been expressed in various studies^{3,6,25} and are consistent with our findings. This consistent response may be the result of careful staff selection and training, as well as their motivation to maintain the screening programme a successful one.

The Radiographer

Our findings are supported in other studies^{3,19} where the radiographers' supportive care led women to have positive screening experiences. Clients who experienced more pain and discomfort related this negatively to the radiographer's confidence, care provision and communication. This is consistent with other findings⁴⁸ where lack of communication during mammography increased pain.

In this study, the majority of clients claimed that they were given pertinent procedural information with effective communication maintained during mammography, leading to higher satisfaction levels than uninformed clients. Furthermore, the 'female' radiographer was an important factor to screening adherence due to intimacy in interaction, consistent with other studies.^{19,49} In fact, almost everyone felt at ease and that "the 'contact' with the radiographer made all the difference" (Breast Screening client). Results show that if the radiographer was male, 68.9% of all women would not have undergone the test. Being assured of a

female radiographer was therefore an impacting factor in this research, leading to a positive screening experience and consequently high satisfaction.

Pre-procedural Information

This study found that pre-procedural information has positively influenced women's perception of the programme. This is consistent in other studies where an understanding of what to expect during screening and assessment resulted in positive diagnostic experiences.⁵⁰ This study further claims that those who read the leaflet rated the overall programme satisfaction as more positive than those who did not. This shows that pre-procedural information may have positively influenced women's perception of the whole setup/organisation. However, the expectation of pain might not only be related to pre-procedural information, but also due to information received from friends or relatives in first time attendees.⁵¹

Although pre-procedural information is provided to women attending the programme, women may need to be better informed on the consequences of screening and the possibility that a biopsy procedure may progress to extensive surgery, depending on the subsequent pathological findings. Women's understanding of the potential benefits, harms and shortcomings of breast screening, including overdiagnosis and overtreatment, has shown to be imperfect in this study, which is also concordant to findings in other studies,⁵² thus requiring better informed consent to guide screening decision-making.

Acceptability

This study's results show a high level of acceptability by clients since almost everyone is willing to re-attend (99.2%) and recommend the programme. This is consistent with other findings^{12,17,24} promoting acceptability as one of the basis for the programme's success.¹⁵ Moreover, satisfied clients will more likely provide positive comments to relatives and friends. Therefore, service acceptability may have an impact on initial participation rates as suggested by other programmes.^{3,24}

Limitations and Recommendations of the study

The retrospective data included a set timeframe ranging from one month to one-and-a-half years; hence participants responded to the survey after receiving a normal screening result. This might have led women to be more positive about the programme, thus superseding the service's negative aspects. Therefore, this study recommends conducting another research into two parts: a study regarding women's satisfaction immediately after mammography and another study following their screening result to compare satisfaction levels between the first and second study. Variables that could not be

accounted for included radiographers' training and their individual experience. More importantly, this study did not incorporate those who received a breast cancer diagnosis due to limitations in time and personnel. The satisfaction level may have varied for this group. Nonetheless, the pain experience is a consequence of a combination of different pain factors (the radiographer, breast tenderness, breast thickness, among others). The latter were not investigated, since this study focused on women's overall satisfaction of the breast screening programme. Therefore, this is an area for further investigation.

Conclusions and Implications for the service

Among the measures to increase satisfaction of women in organized screening:

- There is solid evidence that women who face difficulties to access the screening unit are less satisfied with the screening programme. Strategies to reduce logistical barriers are required, including external signage to enhance accessibility to the centre.
- An internal non-clinical, welcoming ambience is more effective in creating an atmosphere conducive towards increased satisfaction, proving that the modernization of health facilities greatly contributes towards customer satisfaction and care.
- There is solid evidence that the female radiographer was an impacting factor towards high satisfaction and a positive screening experience. Due to the intimacy of the procedure, this factor leads women to feel at ease during screening.
- Strategies to minimize pain and discomfort are required if high levels of satisfaction and attendance are to be maintained.
- Pre-procedural information has shown to be effective to minimize anxiety and is essential for Maltese women invited for screening to make informed choices.
- Continuous service evaluation by means of satisfaction surveys is necessary to ensure that high standards of care are provided and to enable service improvements to meet women's needs.
- Since the participation rate at the time of study was found to be 55.9%, urgent research to investigate local reasons for non-attendance is vital in order to increase the screening compliance rate in Malta as recommended by European screening guidelines.

Acknowledgements

The authors wish to acknowledge the assistance of the Quality Assurance Reference Centre at the North East, Yorkshire and The Humber, UK and the Faculty of Health and Social Care Sciences, Kingston University and St. George's, University of London, UK. STEPS –

the Strategic Educational Pathways Scholarship Scheme (ESF 1.25) funded this research. *The Scholarship was part-financed by the European Union Operational Programme II – Cohesion Policy 2007-2013, Empowering People for More Jobs and a Better Quality of Life, European Social Fund.*

References

1. Ferlay J, Steliarova-Foucher E, Lortet-Tieulent J, Rosso S, Coebergh JWW, Comber H, et al. Cancer incidence and mortality in Europe: Estimates for 40 countries in 2012. *European Journal of Cancer*. 2013 Feb; 49:1374-403.
2. OECD. Screening, survival and mortality for breast cancer, in Health at a Glance: Europe 2012. OECD Health Data. 2012 Eurostat Statistics Database. Retrieved from <http://dx.doi.org/10.1787/9789264183896-47-en>
3. Myklebust AM, Seierstad T, Stranden E, Lerdal A. Level of satisfaction during mammography screening in relation to discomfort, service provided, level of pain and breast compression. *Eur J Radiography*. 2009 Jun; 1:66-72.
4. Chiarelli AM, Majpruz V, Brown P, Theriault M, Edwards S, Shumak R, et al. Influence of Nurses on Compliance with Breast Screening Recommendations in an Organized Breast Screening Program. *Cancer Epidemiol Biomarkers Prev*. 2010 Feb; 19:697.
5. Malta National Cancer Registry, Department of Health Information and Research, 2015. Retrieved from www.tinyurl.com/cancers-malta
6. Almog R, Hagoel L, Tamir A, Barnett O, Rennert G. Quality Control in a National Program for the Early Detection of Breast Cancer: Women's Satisfaction with the Mammography Process. *Women's Health Issues* 2008 Mar-Apr; 18(2):110-7.
7. Barratt A, Howard K, Irwig L, Salkeld G, Houssami N. Model of outcomes of screening mammography: information to support informed choices. *BMJ*. 2005 Apr; 330:936.
8. Dullum JR, Lewis EC, Mayer JA. Rates and correlates of discomfort associated with mammography. *Radiology*. 2000 Feb; 214(2):547-52.
9. Løken K, Steine S, Laerum E. Mammography: influence of departmental practice and women's characteristics on patient satisfaction: comparison of six departments in Norway. *Qual Saf Health Care*. 1998 Sep; 7(3):136-41.
10. Dibble SL, Israel J, Nussey B, Sayre JW, Brenner RJ, Sickles EA. Mammography with breast cushions. *Women's Health Issues*. 2005 Mar-Apr; 15(2):55-63.
11. Gupta R, Nayak M, Khoursheed M, Roy S, Behbehani A. Pain during mammography: impact of breast pathologies and demographic factors. *Med Princ Pract*. 2003 Jul-Sep; 12(3):180-3.
12. Miller D, Livingstone V, Herbison P. Interventions for relieving the pain and discomfort of screening mammography. *Cochrane Database Syst Rev*. 2008 Jan; 23(1):CD002942.
13. Thom DH, Hall MA, Pawlson LG. Measuring Patients' Trust in Physicians When Assessing Quality of Care. *Health Affairs*. 2004; 23(4):124-32.
14. Bulliard JL, De Landtsheer JP, Levi F. Results from the Swiss mammography screening pilot programme. *Eur J Cancer*. 2003 Aug; 39(12):1761-9.
15. Hofvind S, Wang H, Thoresen S. The Norwegian breast cancer screening program: re-attendance related to the women's experiences, intentions and previous screening result. *Cancer Causes Control* 2003 May; 14(4):391-8.
16. Drossaert CHC, Boer H, Seydel ER. Does mammographic screening and a negative result affect attitudes towards future breast screening? *J Med Screen*. 2001; 8(4):204-12.

17. National Health Service Humberside Breast Screening Service. Client Satisfaction Survey 2009. NHS Quality Assurance Reference Centre. North East, Yorkshire and the Humber: Strategic Health Authority, 2010.
18. Garland R. The Mid-Point on a Rating Scale: Is it Desirable? *Mark Bulletin*. 1991; 2:66-70.
19. Poulos A, Llewellyn G. Mammography discomfort: A holistic perspective derived from women's experiences. *Radiography*. 2005 Feb; 11(1):17-25.
20. Dolan NC, Feinglass J, Priyanath A, Haviley C, Sorensen AV, Venta LA. Measuring Satisfaction with Mammography Results Reporting. *Journal of General Internal Medicine*. 2001 Mar; 16(3):157-162.
21. Andersen R. The multiple and changing faces of access. *Med Care*. 1998 Mar; 36(3):252-3.
22. Gold M. Beyond coverage and supply: measuring access to healthcare in today's market. *Health Serv Res*. 1998 Aug; 33(3 Pt 2):625-52.
23. Selvin E, Brett KM. Breast and cervical cancer screening: sociodemographic predictors among White, Black, and Hispanic women. *Am J Public Health*. 2003 Apr; 93(4):618-23.
24. Peipins LA, Shapiro JA, Bobo JK, Berkowitz Z. Impact of women's experiences during mammography on adherence to rescreening. *Cancer Causes Control*. 2006 May; 17(4):439-47.
25. Hamilton EL, Wallis MG, Barlow J, Cullen L, Wright C. Women's views of a breast screening service. *Health Care Women Int*. 2003 Jan; 24(1):40-8.
26. Peart O. *Mammography and Breast Imaging: Just the Facts*. London: McGraw-Hill, 2005.
27. Doyle CA, Stanton MT. Significant factors in patient satisfaction ratings of screening mammography. *Radiography*. 2002 Aug; 8(3):159-72.
28. Rutter DR, Calnan M, Vaille MS, Field S, Wade KA. Discomfort and pain during mammography: description, prediction and prevention. *BMJ*. 1992 Aug; 305(6851):443-5.
29. Fallowfield L, Clark A. (1994) 'Breast Cancer', *Clinical Oncology*, 6 (6), p.415.
30. Markle L, Roux S, Sayre JW. Reduction of discomfort during mammography utilising a radiolucent cushioning pad. *The Breast Journal*. 2004 Jul-Aug; 10(4): 345-9.
31. Asghari A, Nicholas MK. Pain during Mammography: The Role of Coping Strategies. *Pain*. 2004 Mar; 108(1-2): 170-9.
32. Bennett IC, Robert DA, Osborne JM, Baker CA. Discomfort during mammography: a survey of women attending a breast screening center. *Breast Disease*. 1994; 7(1):35-41.
33. Papas MA, Klassen AC. Pain and discomfort associated with mammography among urban low-income African-American women. *Journal of Community Health*. 2005 Aug; 30(4):253-67.
34. Aro AR, Absetz-Ylostalo P, Eerola T, Pamilo M, Lonnqvist J. Pain and discomfort during mammography. *Eur J Cancer*. 1996 Sep; 32A(10): 1674-9.
35. Yilmaz M, Kiymaz O. Anxiety and Pain associated with process mammography: influence of process information before. *J Breast Health* 2010; 6(2):62-8.
36. Bihmann K, Jensen A, Olsen AH, Njor S, Schwartz W, Vejborg I, et al. Performance of systematic and non-systematic ('opportunistic') screening mammography: a comparative study from Denmark. *J Med Screen*. 2008 Mar; 15(1):23-6.
37. Brain K, Henderson BJ, Tyndel S, Bankhead C, Watson E, Clements A, et al. Predictors of breast cancer-related distress following mammography screening in younger women on a family history breast screening programme. *Psychooncology*. 2008 Dec; 17(12):1180-8.
38. Van Dooren S, Seynaeve C, Rijnsburger A, Duivenvoorden HJ, Essink-Bot ML, Bartels CCM, et al. The impact of having relatives affected with breast cancer on psychological distress in women at increased risk for hereditary breast cancer. *Breast Cancer Res Treat*. 2005 Jan; 89(1):75-80.
39. Lee L, Stickland V, Wilson ARM, Evans A. *Fundamentals of Mammography*. 2nd ed. London: Churchill Livingstone, 2003.
40. Mainiero MB, Schepps B, Clements NC, Bird CE. Mammography-related anxiety: effect of preprocedural patient education. *Women's Health Issues*. 2001 Mar-Apr; 11(2):110-5.
41. Gur D, Sumkin JH, Hardesty LA, Clearfield RJ, Cohen CS, Ganott MA, et al. Recall and detection rates in screening mammography. *Cancer*. 2004 Apr; 100(8), 1590-4.
42. Rothschild J, Lourenco AP, Mainiero MB. Screening mammography recall rate: does practice site matter? *Radiology*. 2013 Nov; 269(2):348-53.
43. Smith-Bindman R, Ballard-Barbash R, Miglioretti DL, Patrick J, Kerlikowske K. Comparing the performance of mammography screening in the USA and the UK. *J Med Screen* 2005; 12:50-4.
44. Schell MJ, Yankaskas BC, Ballard-Barbash R, Qaqish BF, Barlow WE, Rosenberg RD, et al. Evidence-based Target Recall Rates for Screening Mammography. *Radiology*, 2007 Jun; 243(3):681-869.
45. Advisory Committee on Cancer Prevention. Recommendations on cancer screening in the European union. *Eur J Cancer*. 2000; 36:1473-8.
46. Coumans JJ, Lee SJI. Cancer: a chronic disease. *Medica Mundi*. 2008; 52:5-12.
47. Corney R. The Impact of Breast Cancer on couple satisfaction and quality of life: a review of the literature. Briefing Report, London, One Plus One, 2005.
48. Davey B. Pain during mammography: possible risk factors and ways to alleviate pain. *Radiography* 2007 Aug; 13(3):229-34.
49. Fitzpatrick P, Winston A, Mooney T. Radiographer gender and breast screening uptake. *Br J Cancer*. 2008 Jun; 98(11):1759-61.
50. Hietanen PAA, Holli A, Schreck M, Peura A, Joensuu TA. Short communication course for physicians improves the quality of patient information in clinical trials. *Acta Oncol*. 2007; 46(1):42-8.
51. Shrestha S, Poulos A. The effect of verbal information on the experience of discomfort in mammography. *Radiography*. 2001 Nov; 7(4):271-7.
52. Domenighetti G, D'Avanzo B, Egger M, Berrino F, Perneger T, Mosconi P, et al. Women's perception of the benefits of mammography screening: population-based survey in four countries. *Int J Epidemiol* 2003 Oct; 32(5): 816-21.