

**An Exploratory Study into the Role of Altruism in
Planning the Control of West Nile Virus**

by

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Author's declaration

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

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Abstract

The question of how to create communities where people altruistically care for, and look out for each other's health and well-being is increasingly a central question in academic literature. However, altruism has long been belittled or ignored in the literature in terms of its ability to influence human behaviour. This tendency appears to have been carried over into the management of West Nile Virus (WNV), a sometimes serious disease that has spread throughout North America since first arriving in 1999. Specifically, government health educators have focused only on telling the public how what are referred to here as Community Protective Measures (CPMs) such as the elimination of standing water, can reduce personal risk or protect family members from the disease, rather than explaining how these measures can help protect others in their community as a whole. As a different approach to addressing this issue, this study sought to determine which communities and people (1) were undertaking CPMs out of an altruistic concern for others in their community, or (2) could be encouraged to engage in CPMs by making salient the benefits of these measures to the community. Study results came back positive, those that live in urban areas, and married or widowed people as opposed to singles or divorcees, those with children exhibiting significantly more concern for others about the disease. Additionally, women; married or widowed people; those who have younger children (0-18 years old); and those who had certain strong positive feelings about their community, namely knowing people better in the community, being involved in the community, and having a sense that people help each other in the community; were significantly more likely to already be willing to take action against the disease at least partly for the purposes of protecting the health of others. Additionally,

albeit not significantly, a trend was noted in this regard with respect to those that rented and those who had children.. With regard to those who could be encouraged for altruistic reasons to undertake CPMs, such was found to be significantly the case for those not living in an Adult Lifestyle Communities (ALCs); those living in a city, town, or hamlet for a long (11-25 years) period of time; younger individuals (18 -35 years old), and singles or divorcees as opposed to married or widowed individuals. Although not found to be significant, a trend in this regard was found with respect to those that perceived themselves to live in a small- or medium-sized neighbourhoods, urban as opposed to suburban areas, females, renters, and those without children. A pilot study in a community with the characteristics where respondents were found to respond to learning about the community benefits of CPMs, as well as efforts to instill the characteristics of places where people already tend to be altruistically inclined, is recommended. The thesis concludes by discussing how relying upon, and encouraging altruistic tendencies could be applied to a variety of issues ranging from the control of other infectious diseases, to encouraging other health promoting behaviour such as the donation of organs, to addressing wider national as well as global matters like poverty or global climate change. By doing so, health and other planners could potentially take a more holistic, less rational, and advocacy approach to planning that seeks to build community capacity to deal with problems rather than reacting on a problem-by-problem basis.

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I would like to acknowledge the support of my advisor, Murray Haight, for assisting me throughout the entire process despite various difficulties along the way. I also want to acknowledge the Regional Municipality of Waterloo's Public Health department, without whose advice and assistance, this thesis would not have been possible.

Dedication

I dedicate this thesis to my husband, Richard McClurg, without whose support, its completion would not have been possible.

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An Exploratory Study into the Role of Altruism in Planning the Control of West Nile Virus

Chapter 1.0

Introduction

The question of how to create communities where people altruistically care for, and look out for, each other's health and well-being is increasingly a central question in academic literature (Oliner and Oliner 1995; Lavigne, Burke et al. 2001; Sznajder 2001). While not necessarily recognizing the importance of public forms of caring, nonetheless the planning literature (Caton and Larsh 2000) and elsewhere (Lalonde 1974; World Health Organization 1986) has recognized the importance of a more holistic approach of creating healthy communities in part through the promotion of positive environments, rather than simply reliance on health care services. However, despite this growing recognition, health planning has been largely following a social marketing approach which emphasizes the importance of healthy lifestyles on an individual's health (Labonte 1994). Furthermore, to undertake such efforts, both health and other planners in general following the traditional model of "rational" planning often follow the linear approach of identifying one health issue and then undertaking policies and programs that address that issue (Duhl and Tamer 1986). Such tactics frequently involve the implementation of educational programs and legislation to encourage the undertaking of action by the public.

While not saying that these planning models do not hold some merit given the degree to which people need to assume responsibility for their health and the benefits of

directly encouraging the public to undertake healthful activities, quite arguably they have a number of shortfalls. To begin, it assumes that the individual is solely responsible for his or her own health, despite the potential impact of environmental factors, a situation which has resulted in a not entirely fair tendency of “blaming the victim” for poor health (Labonte 1994, p. 75). Additionally, with regard to health matters like second-hand smoke and immunization that affect entire communities, the preposition is made that the public must be somehow cajoled into acting in a manner that benefits the greater good. This is particularly concerning given that when taken to the extreme such as in the case of legislation, this type of an approach can result in an unreasonable level of interference with the private lives of citizens. Such an issue has been raised in the Lalonde report, one of the founding documents of contemporary health promotion, which states, “The ultimate philosophical issue at stake raised by...[health promotion] is whether, and to what extent, government can get into the business of modifying human behaviour, even if it does so to improve health” (1974, p. 36). Further along these lines, this pessimistic view of the public excludes the role of the ordinary citizen in independently acting on a day-to-day basis in a selfless, altruistic manner that promotes the welfare of the community on a host of different issues. This type of decentralized activity is in agreement with the call by the World Health Organization whereby the key tenant of health promotion involves the strengthening of community action so that “At the heart of this process is the empowerment of communities, their ownership and control of their own endeavours and destinies” (World Health Organization 1986, p. iv). More than just lofty ideals, lending support to the need to avoid a solely top-down approach to governance are the existence of some communities that already tend to be more

altruistically-inclined. One can refer to the literature on community revitalization to find some locales where residents tend to be more active than others to promote healthy, dynamic places to live (Spiegel 1968; Mayer 1984; Kalinosky and Desmond 2000).

In considering these matters, one is led to ask the following: *Are there communities where people naturally tend to act out of an altruistic concern for others, so that efforts relating to the common public good are not left exclusively in the hands of a few planners?* In an effort to take a more proactive and preventative approach to health planning, it should also be asked for similar reasons to how physical form can give rise to a more caring population, such as whether age of, size of, and length lived in communities that can indirectly give rise to communities where people tend to be more likely to be concerned about protecting the health of their neighbours. To this end, it is worth asking, *what are the physical characteristics of communities where residents tend to act out of an altruistic concern for others?* Moreover, given that many communities have already been established and are thus difficult to change in regard to their physical characteristics, it seems appropriate to also assess *what are the intangible characteristics of communities - such as people's feelings of attachment and how well people know each other - where residents are altruistically inclined?* Finally, given that communities are composed of unique sets of people, with potentially some being more prone to act out of a concern for others welfare than others, one is also led to ask, *what types of people tend to be more likely to act out of a concern for others?* Although partly important from the standpoint of knowing which communities may naturally tend to be more altruistically inclined, such information is also useful for appropriately targeting messages in educational campaigns that seek to promote altruistic action.

One important health issue that has arisen of late is the matter of West Nile Virus (WNV), a disease which came to North America during late summer of 1999. Assisted largely by birds that have proven efficient carriers of the disease, and ultimately transmitted to humans by mosquitoes (Turell, Sardelis et al. 2002), this potentially serious, if not deadly, disease has spread rapidly throughout much of the United States (Centers for Disease Control and Prevention [CDC] 2008) and Canada (Health Canada 2008). With no means of treating or preventing illness from the disease, control efforts have been limited to attempts at preventing the public from coming into contact with potentially infected mosquitoes (CDC 2003A; Ontario Ministry of Health and Long Term Care [MHLTC] 2006A). A key means of reducing contact with mosquitoes has been through encouraging the undertaking of what have traditionally been referred to as “source” control measures but which shall be renamed shortly, that involve a combination of eliminating open standing water in places like artificial catchment basins (i.e. buckets, bird baths, eaves troughs), in which mosquitoes develop, and the removal of dense vegetation, in which mosquitoes can breed and seek shelter. Consequently, the protection of health through these measures relies upon community, rather than simply individual, action. For this reason, combined with how they help protect entire communities, these measures shall be referred to as *community protective measures* (CPMs).

What makes the matter of WNV worth considering is how, unlike many other health measures that benefit mainly the individual, given the mobile nature of mosquitoes, failure on the part of even just a few individuals to undertake CPMs can affect the health of many others. Consequently, attempts to gain willingness to undertake protective measures via a top-down model, such as through a public health agency as

would be done following the rational planning approach, would prove not entirely as effective as rallying support from the grassroots up. Even an advocacy approach of working with community organizations such as NGOs (non-government organizations) may not be entirely effective if the measures do not succeed in protecting everyone in the community. For instance, although the disease presents the most serious risk to those of advanced age and weakened immune systems (Petersen, Marfin et al. 2003) and thus agencies that cater to these groups could be targeted about the importance of undertaking CPMs, this still leads a significant portion of the public that does not belong to such groups that still need to undertake these measures. The situation is further complicated given how these measures need to be conducted in the privacy of people's homes making legislation requiring the undertaking of CPMs difficult to enforce. Furthermore, the introduction of such legislation could constitute an overly-zealous interference with people's private lives at a time when recognition is growing to the importance of encouraging communities and consequently the individuals that live in them to take control of their own health and welfare.

Given these issues, the following study has taken a fairly unconventional, but as will be shown, fairly promising approach of exploring whether people already are willing to undertake these measures out of an altruistic concern for others in their community. If they are not, the study shall assess at least whether, upon hearing about their community benefits, people are more willing to undertake CPMs. While assessing the impacts of hearing the community benefits of CPMs requires a certain degree of top-down education, it is a message that the public may see fit to spread to others rather than simply view it, as with other public health messages, intended for personal consumption.

Moreover, given that this study is coming from the broader perspective of health planning rather than the more narrow approach of health education, the study will explore the characteristics of communities, both physical and intangible, where people tend to already, or can be influenced to, undertake CPMs out of an altruistic concern for others in their community. By doing so, it is hoped to determine how such tendencies can naturally be instilled, rather than simply forced on people. In considering how communities are composed of people that may be more or less receptive to hearing the community benefits of CPMs, the study will also explore the relationship of characteristics of people to altruistic tendencies. Further to this, a review of the literature will be conducted to better determine whether it is plausible that people can act out of an altruistic concern for others. Additionally, attention will be given more exactly to the seriousness of the disease, the degree that people already carry out CPMs, and how extensively public health agencies have been giving consideration to altruistic concern for others in the community in their efforts to raise awareness about the disease and needed control measures. First, though, an effort will be made to explain more clearly what is exactly meant by altruism and community.

Chapter 2.0:

A Definition of Terms

(a) *Altruism*

In considering how to define altruism, a good place to begin is by considering the two definitions provided by Bar-Tal, who claims the two main approaches towards altruism in social psychology are (1) the behavioural approach, and (2) the motivational approach (1986). The former emphasizes the outcome of the behaviour, so that for instance Rushton (1980) described it as “*social behaviour carried out to achieve positive outcomes for another rather than for the self*” ([italics not added], p. 8)” By comparison, the motivational approach is interested in the thinking that motivates behaviour. Reflective of this approach, Batson (1991) defines altruism as “*a motivational state with the ultimate goal of increasing another’s welfare.*” ([italics not added], p. 6). As this study is interested in the underlying reasons why people act the way they do, reference here will be made to the motivational approach. As a result, all other behaviour that inadvertently assists others will simply be classified under the broader heading of “prosocial” or “helping” behaviour as is done in the literature (Dovidio 1984; Heal 1991). As another variant of this, there is also cooperative behaviour, when people work together to satisfy their needs (Hinde and Groebel 1991). Moreover, in taking a motivational approach, if an individual is simply seeking to increase his or her own welfare, such behaviour will be described as egoism (Milo 1973).

While the above discussion helps provide a broad definition of the meaning of altruism, there remains the question of underlying influences regarding such behaviour,

such as 1) are people motivated by *potential external rewards* received for one's efforts (i.e. not becoming ill or social approval), and 2) do people carry out helping behaviour undertaken merely for *internal rewards* (i.e. good feeling from helping others or satisfaction from doing the "right thing")? Some have taken a less strict approach, defining altruism as "voluntary behaviour that is intended to benefit another and is not motivated by the expectation of external reward" (Macaulay and Berkowitz 1970; Bartal 1986; Eisenberg 1986).¹ Such a definition precludes only those actions taken for rewards that depend on externally derived factors. Others have also disqualified behaviour taken even for internal rewards like the good feeling that is obtained from helping others (Severy 1974; Sober and Wilson 1998). Along these lines, Staub (1991) has argued "Personal responsibility can be primarily other oriented (tied to other's welfare)..." and thus more altruistic, "...[o]r it can be more rule focused and function as a moral obligation that carries feelings of obligation" (p. 151). In comparison, however, Schwartz and Howard have argued the opposite, claiming, "To hide a Jew from the Nazis as an affirmation of one's own values, for example, is an altruistic act under the control of internalized, though socially acquired, standards" (1981, p. 191).

At the risk of sounding undecided, with respect to these matters, the current study will take an approach that falls somewhere in between. That is to say, rather than simply classifying behaviour as either altruistic or not, consideration will be given to the extent that the individual seeks to help another as opposed to acting for personal benefit. This

¹ Along these lines, Mook (1991) similarly states that we should not rule out as altruistic behaviour that results in happiness or relieving of distress, arguing that negative-state relief and emphatic joy are merely the mechanisms that underlie altruism. Leeds (1963) also defines altruism in such a manner, but also qualifies that the person doing so must be perceived as "doing good". This study contends with this resolution on the basis that it is the intent, not the outcome, which matters.

approach relies upon the notion of “pseudoaltruistic” behaviour put forward in the literature by Batson (1991). Helping for internal reasons such as to adhere to one’s conscience or simply to gain a good feeling from helping others will be considered more altruistic than acting for external reasons, such as to avoid becoming sick. For, while in some cases, there may be those that place more value on internal reasons, external rewards are much more easily enjoyed in that they rely much less on the strength of character of the individual providing the helping. To the degree that a desire to help others exceeds a desire for personal rewards, such behaviour shall be considered altruistic.

As a final comment worth mentioning is the issue of where the altruistic behaviour can be directed. While the focus on the current study will be on the helping of human beings, helping directed towards other species as well as the environment will qualify as well. Often referred to as biocentrism or ecocentrism, this study will take direction from the large body of research of environmental behaviour that has tended to view such behaviour as examples of altruism (Schultz and Zelezny 1999). Such an attitude is also supported by Sober and Wilson (1998), who have argued that there is no reason to rule out altruism directed beyond human beings to “other candidates” as well. This type of research often seeks to explore the degree to which people seek environmental protection purely for the inherent value of the natural environment (Kempton, Boster et al. 1995; Clayton 2003). That making mention of such research is worthwhile is highlighted by how researchers have found a link between a biospheric value orientation and a more generalized self-transcendent value orientation in the general population (Stern, Dietz et al. 1995).

In summary, altruism for this study shall be defined as a motivational state with the ultimate goal of increasing the welfare of another person whereby the desire for external and internal rewards is exceeded by a desire to help others.

(b) Community

Having completed a discussion of what is meant by altruism, now attention will be turned to what is meant by “community”. Stukas and Dunlap (2002) point out such a term can refer both to “geographical” communities such as neighbourhoods, towns, and cities, and “relational” communities that people may form based on networks, skills and common interests. Others have blended these two concepts, with one study defining it as people with common social ties who engage in joint action in geographical locations or settings (MacQueen, McLellan et al. 2001). Undoubtedly in an era of increasing social dispersal and telecommunications as prevalent at least in North America, the notion of relational communities bears increasing relevance to people today. However, geographical communities have the most relevance to this study given that the collective efforts of people in a given physical locale are needed to help bring the disease under control in that area. Furthermore, given that at least in both the United States and Canada, public health issues are largely managed by lower-tier health agencies at the regional and municipal level, the potential exists to undertake efforts with regard to encouraging the undertaking of CPMs at lower (i.e. city or municipal) geographical levels. Overall, while needing to remain cognizant of people’s relational communities, of greatest interest for the current study is people’s willingness to help in geographical communities.

To this it should be added that this study recognizes geographical communities come in a variety of sizes. In addition to the relatively distinct cities, towns, and hamlets

that can be defined, there exist the smaller sub-units of neighbourhoods (Chaskin 1997). That it makes sense to distinguish between outlying suburban neighbourhoods as opposed to more centrally located urban neighbourhoods is revealed by how one study showed that residents of urban neighborhoods tend to define significantly smaller areas as their neighbourhood than do suburban residents (Haney and Knowles 1978).

To summarize, although assumed to encompass relational communities, community for this study shall be explored primarily with respect to geographic communities. In this respect, communities will be recognized to be distinct not only at the relatively distinct units of cities, towns, and hamlets, but that of neighbourhoods which shall be distinguished between those that are urban as opposed to suburban.

Chapter 3.0:

A Review of the Literature on Altruism

Having arrived at a workable definition of altruism and community, consideration will be given to popular attitudes towards altruistic behaviour in the community both in general and with respect to health planning issues in particular. The literature will then be examined to determine the extent to which behaviour is undertaken for altruistic as opposed to egoistic reasons. A case will be made as to the importance of considering the influence of altruism on human behaviour, so as to argue for its relevance with respect to the undertaking of CPMs to control WNV.

(a) Popular Attitudes Towards Altruism

The debate over the existence of altruism is an old one going back centuries (Batson 1991) if not to the beginning of civilization itself (Ozinga 1999). Looking more specifically at the last century or so, the possibility of altruistic tendencies influencing humankind has been, to put it mildly, downplayed. Perhaps the most famous commentator in relatively recent times has been Ghiselin, whose ideas can perhaps best be summarized with his assertion, “Scratch an ‘altruist,’ and watch a ‘hypocrite’ bleed” (Ghiselin 1974, p. 247). In other words, even seemingly helpful behaviour is actually intended purely to further the interests of the helper. Further confirming the view of the selfish nature of humankind at least modern western culture are the numerous commentators on the prevalence of narcissism. Examples include sociologist Robert Bellah et al., who describes in *Habits of the Heart* a society that has been divided and fragmented by “an isolating preoccupation with the self” (Bellah 1985, p. 56). Similarly,

Lasch has argued that the “narcissistic” (or egoistic) personality type was the predominant temperament of the later part of the twentieth century (Lasch 1978). A particularly scathing comment along these lines has been made by Miller (1997) with regard to suburbs. Equating the New American Landscape largely with suburbia, he has claimed that such development is “...a metaphor for, and physical evidence of, the decline of community values and ascension of the megaself...” (p. 41). To this, he goes on to state, “...America has turned its back on community...and embraced the suburban cultural breeding ground of self-absorption” (1997, p. 41).

Far from being merely a popular attitude, such a notion has received considerable academic support. This situation perhaps best summarized by Hatfield, Walster, and Pilivin (1978), who have written, “The majority of scientists-[us] included-are fairly cynical. They interpret apparent altruism in cost-benefit terms, assuming that individuals, altruists included, learn to perform those acts that are rewarded...and to avoid those acts that are not” (p. 128-9). While the reasons for this common dismissal of altruism are by no means straightforward, at least partly responsible for this situation are many of the foundational theories in academia. Specifically, this includes notions put forward by Social Darwinism with its emphasis on the “survival of the fittest” which suggested that furthering one’s survival at the exclusion of all else was the natural order of things (Badcock 1986). The theories of Freud (Batson 1991) and the branch of psychology known as Behaviourism (Hunt 1990) emphasized how human behaviour was driven by desires for self-gratification/rewards. There is also in economics the emphasis that people are “rational actors” attempting to maximize their profits (see MacFadyen 2006). Finally, a relatively new addition to such sentiment are the thoughts of Garrett Hardin (1968),

who wrote his famous paper, “Tragedy of the Commons” how humans will continue to selfishly pollute the commons (i.e. air, water) because they are not privatized.

Faced with the difficult situation of explaining why people help others despite their selfish tendencies, two key theories have been put forward. The first of these theories, *kinship theory*, purports that natural selection does not favour mere reproductive success but rather inclusive fitness, involving the reproductive success of individuals who share common genes.² The second theory, much discussed in the literature, is that of *reciprocal altruism* (Trivers 1971), whereby people sometimes help others out of the expectation of a favour in return. These two theories were so influential that they helped establish of an entire field of study known as sociobiology, aimed at exploring how self-interest influences the evolution of species (Wilson 1975).

Despite such negative attitudes towards the possibility of altruism, it can be said that not everyone agrees with this assertion of such beliefs. Reflective of this, is the stance taken by J. Philippe Rushton, who has asserted, “...humans...might be...characterized as helpful, cooperative, emphatic, loving, kind, and considerate” (1982, p. 447). A less recent, but stronger example of this is provided by E. Durkheim, who stated, “Altruism is not...an agreeable ornament to social life, but it will forever be its fundamental basis” (1984, p. 173). Comments such as this support the contention of Piliavin and Charng (1990), that a “paradigm shift” is occurring which suggests that assuming people may be always acting for selfish reasons is not necessarily the case.

² This theory was first put forward as the theory of inclusive fitness by Hamilton (1963; 1964) but later renamed as such by Maynard Smith (Smith and Wynne-Edwards 1964).

b) Attitudes towards Altruism in the Field of Health, Planning and Beyond

Given the overriding dismissal of altruism in academia, it is interesting to note the prevalence of bias against altruism in the fields of health planning with which this study is most specifically concerned. Indeed, many of the major theories in this field limit consideration to individual willingness to act on a health issue based on personal level of perceived risk. For instance, one of the more popular health behavioural theories, the Health Belief Model (Glanz, Rimer et al. 2002), posits that a factor influencing individuals' willingness to undertake a health-promoting behaviour is the belief that he or she is personally susceptible to an ill-health condition, rather than also considering the potential influence of knowing the behaviour might benefit others as well. A similar tendency can be found when considering other key health theories like Self-Regulation Theory and the Transactional Model of Stress and Coping, which focus on an individual undertaking behaviour to personally ward off an ill-health condition.

An analysis of the research and programs on health-related matters reveals a similar trend. For instance, with respect to driving under the influence of alcohol or drugs, programs often tend to only focus on the impact to the perpetrator rather than include also the effect on the victim (Vejnoska 1982; Bernstein and Woodall 1987). Similarly, smoking cessation programs ([anon] 1980) and studies (Cartwright, Martin et al. 1960; Doxiadis, Trihopoulos et al. 1985; Pierce and Dwyer 1985; Manfredi, Lacey et al. 1998; Gagne 2007) have often focused exclusively on the impact of hearing the personal health risks of such activity rather than the risks to others. In such studies, when the effect on others is considered, it is limited to the impact on one's children (Green,

Courage et al. 2003; Windsor 2003). A parallel situation can be said to exist with respect to safe sex (Petosa and Jackson 1991), including condom-use in STD/HIV prevention, with recommended theory (O'Connell, Bol et al. 1997) and studies (Walter, Vaughan et al. 1993; Wilson, Levinson et al. 1996; Gökengin, Yamazhan et al. 2003; Peltzer and Oladimeji 2004) generally focusing on people's perceptions of how the use of condoms reduces their own chances of getting disease without considering the benefits to their partners. When the impact of practicing safe sex on others is considered, it is within the framework of benefits to the practitioner (i.e. "If a male uses birth control, his partner knows he really cares about her") (Eisen, Zellman et al. 1985; Eisen and Zellman 1986). Despite the recognition by some of how immunization protects both the individual and the community (Nicoll 2001), many studies have failed to explore the motivating potential of concern for others in the undertaking of such behaviour (Stewart, MacDonald et al. 1997; Pielak and Hilton 2003; Bosompra, Ashikaga et al. 2004; Skowronski, Pielak et al. 2004), focusing at most on the benefits of immunization for one's children (Prislin, Dyer et al. 1998; Gust, Campbell et al. 2006). In terms of the donation of blood and organs, studies have often not assessed whether people give out of a simple desire to help others.³

³ Specifically, a review of sixty blood donor motivation studies by Oswalt (1976) found that only two studies assessed helping a friend or relative as a motivating factor, and a mere three studies explored whether aid or service to the community, a disaster victim or helping an anonymous person influenced behaviour. Similarly, in a study by Piliavin, Evans et al. (1984) of the motivations of blood donors, while assessing other feelings such as avoiding disappointing people and diminished feelings of self-worth for not giving, the study did not assess whether they gave out of a simple desire to help others. Furthermore, in a study by Lee, Piliavin et al. (1999), a variety of motivating factors for donating blood are considered, including modeling the behaviour of others, role-identify and personal norms, but not simply a desire to help others. As for the donating of organs, while empathy has not always found to be related to a willingness to donate (Nolan 1989; Skowronski 1997), studies have often tended to focus on knowledge (Horton and Horton 1991), demographic (Sanner 1998), religious (Simmons, Bruce et al. 1974), emotional (Robbins 1990; Horton and Horton 1991), cultural reasons or a combination thereof (Radecki and Jaccard 1997), for being willing to do so rather than pure altruistic reasons.

To a certain degree, a similar situation cannot be said to exist in the field of urban planning. There is growing recognition of the desire of ordinary citizens to become publicly involved in planning issues and consequently try to have a positive influence on public interests (Hodge 2008). Beyond such formal involvement, prominent advocacy planner Jane Jacobs even recognized how the public could have a positive influence on the safety of communities, by noting the importance of “eyes on the street” in communities experiencing a great deal of street traffic (Jacobs 1961). As mentioned earlier, there are many examples in the literature of ordinary citizens working together to improve the communities in which they live (Kalinovsky and Desmond 2000). However, much of this public involvement originates over concern about the deleterious effects of development in people’s immediate neighbourhood or community, such as with the case of affordable housing or landfills, a tendency that has been dubbed NIMBY syndrome, standing for not-in-my-backyard syndrome. Thus, while individuals may act in a manner that protects their communities, they may only do so in ways that protect their own personal interests rather than considering the wider issues at hand. Indeed, as evidenced by a significant amount of literature on the phenomenon of NIMBY syndrome (Kenyon and Lincoln Institute of Land Policy. 1991; White, Ashton et al. 1992; Horah, Scott et al. 1993), planners often find themselves in the difficult position of trying to achieve public buy-in for projects that serve at least a purpose for society-at-large but which contravene more local community interests.

Beyond the areas of health and planning of obvious relevance to this study, to be thorough it is worth noting the attitudes towards altruism in the field of environmental planning. In this respect, it seems safe to say that environmentalism has traditionally

come at the issue of human motivation from a more idealistic and romanticized view. This is particularly the case in how it has extended the reach of concern from not only the anthropocentric, or human, realm, to that of the ecocentric, or in other words, natural world. Such thinking is often traced to the ecologist Aldo Leopold famous land ethic, “A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise” (Leopold 1989/1949, p. 224). In terms of research that seeks to demonstrate the feasibility of altruism motivating environmentally-friendly behaviour, this largely has been championed by Schwartz under the umbrella of the “norm-activation model” (1970; 1977), which can be defined as how awareness of the consequences of one’s actions (AC) combined with an ascription of responsibility (AR), give rise to altruistic behaviour. Interestingly, his model does not follow the purest form of altruism given its reliance on the following of internal rules to guide helpful actions, with such behaviour according to the definitions of this study qualifying as a sort of pseudo-altruism. Admittedly, other environmental thinkers have come out more strongly against the influence of altruism on environmental action. For instance, Kaplan (2000) has criticized the promotion of altruistic environmental behaviour for stressing sacrifice rather than quality-of-life enhancing solutions. Corbett (2005) has developed a model of human behaviour that takes into account amongst other things a mix of self-interest and altruism in undertaking environmental action. Combined, this criticism suggests that people may be motivated to help the environment out of a mixture of altruistic and egoistic reasons.

c) Egoistic Behaviour?

In keeping with theories that human behaviour is motivated at least partly by egoistic reasons, it cannot be denied that the literature provides support that such behaviour can occur. Included in this type of behaviour are those actions undertaken to protect one's kin, a situation which lends credence to *kinship theory*. One of the most commonly studied examples which supports this is how mothers will quit or reduce smoking during pregnancy (Campion, Owen et al. 1994; Owen, McNeill et al. 1998; Colman and Joyce 2003) and people will do the same when their children are present (Borland, Mullins et al. 1999; King, Vidourek et al. 2003; Yiow 2005). Advertisers have taken advantage of such behaviour by running ads (Figure 1) where children or unborn fetuses are forced to breath second-hand smoke (Reid 2005), a strategy which some studies have found to be very effective ([anon] 1975; King, Vidourek et al. 2003). Additionally, a fair amount of evidence reveals how people are often more willing to donate blood, organs and bone marrow to family than non-relatives (Fellner and Schwartz 1971; Borida, Conner et al. 1992; Skowronski 1997; Sanner 1998). Along similar lines, in a study by Markovits, Benenson et al. (2003), children were found to be more willing to share food with siblings than non-relatives.

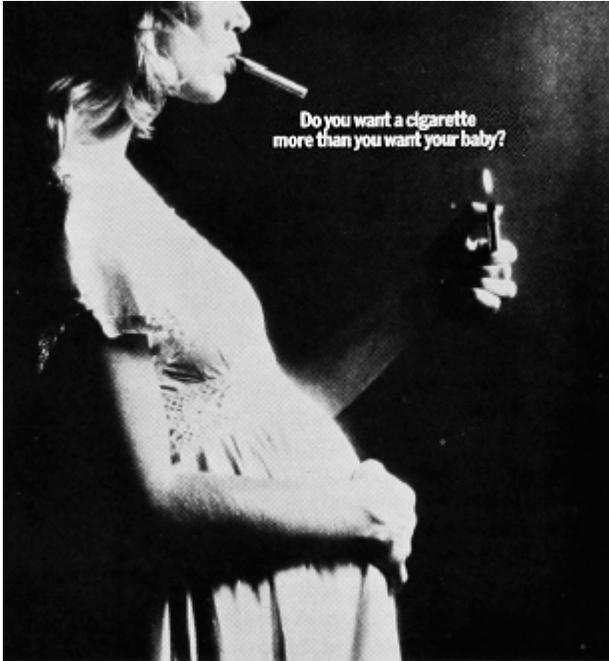


Illustration 1: Do you want a cigarette more than you want your baby? [anon] 1975, p. 12

Beyond helping behaviour directed towards one's kin, some helping behaviour could arguably be attributed to a desire for personal reward, a tendency which supports *reciprocity theory*. This theory is lent credence by extensive in studies on social dilemmas, which have been described as experimental games in which people must choose between maximizing selfish interests (by defecting) as opposed to assisting with the interests of the group (by cooperating) (Komorita and Parks 1994). Endorsing the notion that helping behaviour can be motivated by selfish interests, Komorita and Parks note that players' personal choice in the first trials were found to closely match their expected choices of others (1991). People in such situations are also more likely to reciprocate to others who have helped them (Goranson and Berkowitz 1966), particularly if they are likely to see the helper again (Carnevale, Pruitt et al. 1982). Paralleling these findings in other areas of research, Strayer (1981) showed consistently high correlations between how much help children initiated and received help for and from their peers.

Bierhoff, Klein et al. (1991) have shown that helpers of stranded motorists were more likely to have been the victim of traffic accidents than non-helpers. Viscusi, Zeckhauser et al. (2006) revealed that people are more willing to allocate funds for disaster-relief when they live in a high-risk area such as for hurricanes than when they do not. That reciprocity may, at least to a degree, also play a role in the helping of kin is shown in the above mentioned study by Markovits, Benenson et al. (2003), which found that, for the most part, children tended to expect that their siblings would share their food with them.

In considering helping behaviour motivated for personal rewards, it is important to remember that these rewards do not always have to be material. Such matters are increasingly being examined in studies in social dilemmas, which have shown that when the rules of the game allow, a norm of strong reciprocity or cooperation can occur whereby those who fail to cooperate are punished such as in the form of exclusion from future games (Kerr 1999). Lending external validity to such findings is Spiro's (1963) exploration of life on an Israeli Kibbutz, or farm community. In this study, he notes that so much emphasis is placed on the community that even young children, when asked the question, "What are the things you could do for which others would praise you?" would respond by saying "generosity...[in] either assistance or goods" (p. 478). That a desire for social approval and avoidance of social sanctions can potentially be an important motivator in even more modern culture is illustrated by a study by Radley and Kennedy (1995), in which they noted how one British woman commented, "...if you're approached at the door [to give to a charity], I would probably give, rather than make a fuss..." (p. 690).

Further supporting the role of egoism in influencing human behaviour is supported when considering data on rates of volunteering. Indeed, particularly with regard to what people consider being “community” type helping of particular interest to this study, this type of behaviour is on decreasing.⁴ Moreover, in terms of the helping environment, despite perhaps a widespread awareness of the seriousness of environmental issues, people are still not taking many of the necessary steps to address them (McKenzie-Mohr and Associates 1999). This situation along with the data provided on examples of egoistic behaviour in the literature has negative implications for this study, which hopes to explore the degree to which CPMs can be undertaken out of an altruistic desire to help others in the community.

d) Internal Reward Seeking

Even if people can be convinced to carry out CPMs without a desire for external rewards such as to avoid being sick, the possibility exists that they may be motivated by internal reasons which can be considered pseudoaltruistic. With respect to this, some research suggests that “good” feelings can influence such behaviour. This is partly suggested by research which shows people can experience good feelings from helping others afterwards, such as noted in research on rescuers of Jews in Nazi Europe (Monroe 1996) as well as organ donors (see Simmons 1991; Butterworth, Simmons et al. 1993). Although this does not necessarily prove that a desire for a good feeling predicated such behaviour, it has been found that experiencing a pleasant emotion promotes helping behaviour (i.e. Lawler, Thye et al. 2000).

⁴ With respect to total volunteer hours, this particularly has been the case in Canada (Statistics Canada 2004) although a similar trend to be found at least the United States amongst the late baby-boomers in terms of community volunteering (Putnam 2000).

There is also the possibility that people can help others out of a desire for satisfaction from “doing the right thing”, a matter which has received a great deal of investigation in the literature, largely due to the norm-activation model put forward by Schwartz (1970; 1977). This model has emphasized the importance of norms, defined as “feelings of obligation”, in giving rise to altruistic behaviour. Studies on the norm-activation model reveal a strong correlation between personal responsibility and a wide range of helping behaviour, including environmental behaviour such as willingness to recycle (Hopper and Nielsen 1991; Guagnano, Stern et al. 1995), use recycled-material products (Guagnano 2001), conserve energy (Black, Stern et al. 1985), take public transportation (Bamberg, Hunecke et al. 2007), and environmental behaviour in general (Minton and Rose 1997; Widegren 1998). In addition to environmental behaviour, this model has been found to be applicable to taking political action (Stern, Dietz et al. 1993), and a general willingness to help one’s peers (Schwartz 1968; Schwartz 1968). Outside the realm of this norm-activation model research, interestingly other studies provide similar findings. For instance, about fifteen percent of the rescuers of Jews in Nazi Europe interviewed by Oliner and Oliner (1988) indicated that they were motivated by religious reasons. A survey by Borsky (1962) found that many philanthropists felt giving was a “must” to be good adherents to their religion. Bierhoff, Klein et al. (1991) determined that “first aiders” who had intervened to help the victims of traffic accidents had a greater sense of social responsibility than non-helpers. Moreover, that feelings of personal responsibility may particularly relation to CPMs is supported by Burnham (1987), in his discussion of how hygiene has been historically a moral cause.

Feelings of obligation do not negate the possibility of altruistic tendencies, however, a situation supported by how Staub (1991) notes how feelings of moral obligation are also often accompanied with concern for other people's welfare. With this final comment giving support to the existence, at least amongst some, of altruistic tendencies, attention will now be turned what evidence there is to support the possibility of pure altruism and thus its potential to be a motivating factor in the undertaking of CPMs.

e) *"Pure" Altruism*

Perhaps surprisingly given the popular academic bias against it, a fair amount of evidence exists which supports the possibility of "pure" altruistic behaviour. Amongst those grappling with this question is Leeds (1963), who surmises that the altruistic "moral norm of giving" in which people give as an end on its own and in a manner that accomplishes good may explain helping of those who are unable to reciprocate. Arguing that such behaviour is not routinized and thus not done for the avoidance of social sanctions or to receive rewards, she cites possible examples of such behaviour including teachers who takes an interest in the personal welfare of their students despite only being responsible for their academic situation, "good neighbours" who visit shut-ins, members of philanthropic and charitable organizations to which one might contribute time or money, helpers of roadside accident victims, and persons participating in rescue operations in mining accidents or during times of war. Added to these examples are the spontaneous inpouring of help during times of natural disaster or incidents of terrorism (Cone, Weir et al. 2003). There also exists the example of the donation of blood or organs, the latter of which there are numerous examples of people who purport to donate

organs to strangers from whom they can never expect benefit (i.e. Yoo, Han et al. 1996; Jendrisak, Hong et al. 2006). Although community type of volunteering has been noted to be on the decline, interestingly supporting the possibility of the existence of pure altruism is how the giving of blood has been generally on the increase both in the United States (American Association of Blood Banks 2005) and Canada (Canadian Blood Services 2006).⁵

While Leeds does not concern herself with proving whether such acts are done without the expectation of reward and thus purely altruistic, the literature does support the concept that some of these acts may be such. For instance, researchers have found that human response to disaster such as earthquakes or terrorist attacks is rarely characterized by panic flight (Quarantelli 1954; Fritz 1957; Aguirre 2005), but is instead often highlighted by acts of altruism (Fritz and Williams 1957; Steele 2005; Frank 2006). Frey and Meier (2004) found that even under anonymous conditions, a larger number of individuals (over 68% of the student body) voluntarily donate a significant sum of money at least once to two official Social Funds that for the most part do not benefit the majority of students, with the one fund offering cheap loans to students in financial difficulties and the other which helps foreign students at the university. This is despite the fact that well over three quarters of respondents indicated that their friends did not know about their contribution and that they did not talk about the fund with them. Moreover, without their explicit consent (by marking a box), students do not contribute to any funds at all.

⁵ Admittedly, with respect to Canada, this rise partly may be due to how the Canadian Blood Services was created in the wake of blood tainting scandals, resulting in an increase in trust in the organization. Furthermore, although blood collection in the United States was marginally (0.2%) less in 2004 than in 2001, increased collections during that time may be attributed to altruistic donation after the September 11, 2001 terrorist attacks.

Research by Finkelstein and Penner (2004) which examined prosocial workplace activities that exceed formal job requirements revealed that a desire to help co-workers ranked significantly higher than managing one's self-image. Depth-interviews by Monroe (1996) of philanthropists, organ donors, and rescuers of Jews in Nazi Europe did not reveal these individuals to be motivated by internal reward factors at all. Only one interviewee came close to explaining his actions in terms of guilt, and had been prompted by someone else (his psychiatrist) to think so. In other cases, interviewees argued against the notion that feelings of personal responsibility promoted their actions. Indicative of this, one rescuer of Jews in Nazi Europe interviewed by Monroe commented when asking whether it was important that she was the one who had provided the help to them, the rescuer responded, "Not at all. They just had to be saved" (p. 146).⁶

In terms of altruism with respect health matters, Simmons, Bruce et al. (1974) found that 77% of randomly sampled signers of organ donor cards claimed in an open-ended question regarding reasons for volunteering that a desire to help others in general was a motivating factor. Even more convincingly, Landolt, Henderson et al. (2001) identified that a desire to help others overall ranked 9.7 out of a scale of 10 for living anonymous organ donors. Skumanich and Kintsfather (1996) found empathy to play a significant role in motivating people to donate organs. Beddington (cited in Phillips 1961) discovered that service to community was included by 49% of respondents as a reason for donating blood, well ahead of any other reason for doing so. In a survey of blood donors in England during the spring of 1967, Beddington (cited in Titmuss 1970) found that

⁶ Along similar lines, another interviewee of Munroe (1996) called Bert commented, "I know what I did during the war, I did not do for religious reasons. No, it was not religious. I just never thought about it" (p. 112).

altruism was referenced on average 27% of the time as a motivating reason for giving blood. More recently, Oswalt and Gordon (1993) found similar results, with 47% claiming they donated blood to help others.

Although as noted above not always the case, people also have been noted to avoid smoking due to concerns about environmental smoke (Flynn, Worden et al. 1981; Goldman and Glantz 1998; Netemeyer, Andrews et al. 2005), a situation of which health educators have taken advantage in advertising and when pushing through anti-smoking legislation.⁷ Other research has shown that people undertake immunization to prevent infection in others besides oneself or one's children (Toy, Janosky et al. 2005; Capolongo, DiBonaventura et al. 2006) and use condoms partly to prevent the spread of STDs to others (Abel and Brunton 2005).

An extensive number of "sense of community" studies also touch on the matter of altruism. Repeatedly, these studies have found people to agree strongly with the statement, "If there is a problem on this block, people who live here get it solved" (Altman, Feighery et al. 1998; Chipuer and Pretty 1999; Peterson, Speer et al. 2006). Lending qualitative support to such findings is a study by Garcia, Giuliani and Wiesenfeld's (1999) of a "slum" neighborhood in a metropolitan area of Caracas, Venezuela, where one woman reported how neighbours would often work together to "help each other in a community way (woman, 51 years old)".

⁷ Reflective of this, Betta, Brusa et al. (2005) report how in the province of Alessandria, Italy, anti-smoking campaigns have been run that state, "Smoking not only damages your health, but other people's as well." Bero, Montini et al. (2001) note how, when arguing for anti-smoking legislation, one government employee in the U.S. stated, "This is not to deny "smokers' rights", it is to give non-smokers equal opportunities for a clean area. Why should a smoker have the choice to foul 'clean air' while the non-smoker nearby may have no choice but to breathe smoke contaminated air" (p. 333).

Lending additional support to the possibility that people can act in such a manner is experimental “bystander” research by Latané and Darley (1970) and others (for a review see Latané and Nida 1981). This research has shown repeatedly that people, at least when they identify there is a need and cannot diffuse their responsibility to others, will come to the aid of strangers. This is the case even in larger communities where the chances of meeting again are unlikely (Latané and Darley 1970; Moriarty 1975; Solomon, Solomon et al. 1982).

Another important area of research that lends support to the possibility of altruism is through research in social dilemmas discussed above. Specifically, in one variation thereof called “dictator” games, where one player is completely free to decide how much to help the other player, cases of generosity have been found to occur. Indeed, Ledyard (1995) in his review of the literature, comments that it seems a fairly reasonable assessment that at least in one-shot trials and in the initial stages of repeated trials, subjects generally were found to provide contributions halfway between the Pareto-efficient level (meaning the point at which it is possible to make at least one individual better off, without making any other individual worse off) and the free riding level. In other words, at least initially people seem to act in a manner that takes into account the interests of others. This has even been found to be the case even when the social distance between the dictators and recipients is significant, such as a study by Johannesson and Persson (2000) where respondents were randomly drawn from the general population. Along similar lines, research on social dilemmas has shown that a stubborn few refuse to take part in self-interested action (Brann and Foddy 1987; Murnighan, Oesch et al. 2001), even under conditions of anonymity from other players and with no possibility of group

punishment (Marwell and Ames 1979; Marwell and Ames 1980; Marwell and Ames 1981).

One other critical arena of investigation into the altruism question has been conducted by various “mood management” studies, which seek to determine the motivation of empathic individuals. To a large extent such studies support the possibility of pure altruism. For instance, studies assessing the allowance of an escape, rather than helping another, reveal that high-empathy individuals did not take advantage of such an opportunity (Batson, Duncan et al. 1981; Toi and Batson 1982; Batson, Oquin et al. 1983). Studies by Fultz, Batson et al. (1986) of thirty-two university students found a positive relationship between empathy, or feelings of sympathy for victim’s, and offers of help when the conditions for social evaluation was both low and high, despite how under the former condition thinking their decisions to be anonymous even from the experimenters. A study by Batson, Dyck et al. (1988) found that high-empathy respondents’ moods were more positive when the peers need was relieved than when it was not, regardless of whether they were the ones who performed the helping. In this same study, high-empathy individuals performed better than low-empathy individuals when the peer’s welfare was dependent on their performance.

Despite these promising findings from mood management research, studies exploring whether individuals help as a result of the positive feelings that arise from doing so have not been entirely conclusive. On the one hand, a study by Batson, Batson et al. (1989) found that typically high-empathy individuals helped regardless of whether helping would lead to being given the opportunity to watch a video that would cause “strong feelings of happiness”, suggesting that helping may not be undertaken purely for

the purpose of achieving good feelings. On the other hand, a study by Schaller and Cialdini (1988), which controlled for whether subjects were told that they would be able to watch a mood-enhancing audiotape even if they chose not to help, had less conclusive results. While no link between empathy and helping was found in the number of respondents willing to help, nevertheless only high-empathy individuals were more willing to spend more time helping others.

f) Other Evidence

Considering the evidence up to this point, at least the potential appears to exist that sometimes people are motivated for altruistic reasons, thus supporting the argument that altruistic could play a role in influencing the undertaking of CPMs. Beyond this evidence, however, there is also research that conversely refutes the possibility that people are as egoistically inclined as some may be inclined to believe. Indeed, a review of the literature by Simon and Das (1984) as well as studies by Zak-Place and Stern (2004), Lollis, Johnson et al. (1997), and Lollis, Antoni et al. (1995) found that there has not been consistent support for the theory that people are motivated out of a concern for their own personal health, refuting the popular Health Belief Model's premise that concern for personal health is a motivating reason for health-promoting behaviour. As for the reasons of such behaviour, quite possibly at least amongst men, the tendency to not undertake health-promoting behaviour for reasons of self-care can be due to the attitude that one should 'soldier on' rather than take steps to protect one's health (Aoun, Donovan et al. 2002). While not always the case (Kramer and Thompson 2005), nonetheless quite often for women, such tendencies can derive from gender stereotypes of women acting as caregivers rather than caretakers of themselves (Piliavin and Piliavin 1985). Even beyond

gender stereotypes, there is the body of research on risk management which has uncovered that people have a tendency to assume a “not-me” attitude that they are impervious to risks while deeming others to be potentially less fortunate (Slovic, Fischhoff et al. 1982; Joffe 1999).

In addition to people’s tendency to downplay concern for personal risks, some evidence suggests individuals may be hesitant to express their altruistic tendencies, thus suggesting the need for researchers to actively prompt individuals about their feelings in this respect. Miller (1999) points out that due to the “norm of self-interest”, people are not always comfortable admitting that they act to help others out of feelings of compassion or kindness. In an experiment by Holmes, Miller et al. (2002B), it was found that people do not allow themselves to express concern for victims unless set in a context that enabled them to pretend that they are helping themselves. Helping increased when given the opportunity to appear as though they were helping themselves (by buying candles) in direct relation to the level of need of those they were led to believe they were helping. Research by Ratner and Miller (2001) showed how men were much more likely to take action to oppose a budgetary change that would impede research on a women’s health issue when the organization supporting the cause possessed a name (specifically, “Princeton Men and Women Opposed to Proposition 174”) that legitimated their involvement.⁸

⁸ Another example of such behaviour is provided by Ozinga (1999), who noted that when a county worker asked for unpaid leave to transport his son to the hospital, the county-clerk contacted with the request decided to write a memo to the other county employees notifying them of the situation. These employees in turn donated a substantial amount of their sick-time so that it could be given to him instead. When the clerk was confronted about her unselfish activities, her response belittles the altruism, saying, “We knew it could happen to us someday” (Ager 1997)

That caution is nonetheless warranted in assessing such the degree to which altruism influences behaviour is pointed out by Schwartz (1977), who argues that overemphasizing the need for help can sometimes cause people to react in the opposite way. Referred to by him as the ‘boomerang’ effect, this has been found to occur in people that tend to be more socially concerned. While not necessarily due to this, nevertheless overly zealous efforts to raise awareness about public health and safety issues have been known to have the opposite effect. An example of this noted by Vandenberg (2005) was how raising awareness about how human release of smog-forming pollutants led to critics quipping “use a barbecue, go to jail” (Polakovic 2003).

In summary, the prejudices against the possibility of altruism are well-established both in mainstream culture and academia. This tendency appears to have spilled over into the field of health, with theories like the Health Belief model positing that an individuals’ willingness to undertake health-promoting behaviour is with the belief that he or she is personally susceptible to an ill-health condition. To a certain degree, a similar situation cannot be said to exist in the field of urban planning, with the growing recognition of the desire of ordinary citizens to become involved in planning issues and try to have a positive influence on public interests in general. More broadly speaking, in the area of environmental planning, emphasis on ecocentric values has tended to assume that people can be motivated by a desire to protect the biotic community as a whole rather than just the protection of individuals. Whether for these or other reasons, Piliavin and Charng

have been led to argue a “paradigm shift” is occurring which suggests people may not always be perceived to act for egotistic reasons.

That people sometimes undertake helping behaviour for apparently self-serving motives is difficult to deny, if only in the form of a desire to help one’s kin or to receive some personal reward, as supported respectively by kinship or reciprocity theory. Neither are personal rewards always tangible, such as with the seeking of social approval. People may also be motivated by a desire for internal rewards, such as a desire for satisfaction for “doing the right thing” either in adherence with one’s conscience or possibly religious beliefs. However, feelings of obligation can be accompanied by concerns about people’s welfare, suggesting that a desire for internal rewards alone do not negate the possibility of altruistic behaviour. That some behaviour at least at the surface appears to be purely altruistic is difficult to deny, with the giving of blood and organs to strangers along with other examples providing stark proof of this. In exploring the motivations for helping behaviour, research supports the notion that people may act in such a manner for the simple desire to help others. This is evidenced both by real-world examples, such as how volunteers rank values such as concern about those less fortunate as a motivating factor, to experimental research including social dilemma studies where a stubborn few refuse to take part in furthering their own self-interest. There are also findings that people are not always motivated out of a concern for their own personal health, often tending to have a “not-me” attitude about risks to themselves, which gives refutation to the popular Health Belief model that people are egoistically inclined. Whether this is due to gender stereotypes that men should simply “soldier on” or women should act as caregivers rather than caretakers of themselves, or simply due to an overall hesitancy manifesting in the

“norm of self-interest” that people are not always comfortable admitting that they help others out of feelings of compassion, altruism arguably is often ignored as a possible motivating reason for helping others.

In terms of what this means for the study at hand, quite arguably altruism appears to have the potential to be a motivating reason for the undertaking of CPMs to control WNV. To the degree that this is the case remains less clear, given that people can be influenced to act for a variety reasons, ranging from the most egoistic involving a desire to protect one’s own health or somewhat less egoistically the health of their close family or friends, to the pseudo-altruistic involving a desire to obtain a “good feeling” for helping others or to simply adhere to one’s own personal values and “do the right thing”, to the purely altruistic whereby individuals simply want to help others in their community. With these matters in mind, the study will now turn to explore more fully why an assessment of the influence of altruism on the undertaking of CPMs is important and the questions a study interested in the relationship of community and demographic factors to the influence of altruism should ask.

Chapter 4.0:

Exploring the Significance of Altruism in Relation to WNV

Beginning with the question of why attention has been focused on WNV, it needs to be admitted first off that the chances of infection from the disease are low and in some places on the decline.⁹ Most often infection from the disease is asymptomatic or results in only mild symptoms. Nevertheless, occasionally in <1% of cases (Murray and Weir 2005; Hayes and Gubler 2006; Petersen, Marfin et al. 2006; Kramer, Li et al. 2007), the effects can be quite serious, involving meningitis (which brings severe headaches), and encephalitis (which results in altered mental status and sometimes the loss of muscle coordination).¹⁰ Recovery from these more severe symptoms may take a year or longer and in some cases, death can occur (Pepperell, Rau et al. 2003; Klee, Maldin et al. 2004; Carson, Konewko et al. 2006; [Anon] 2007). Moreover, there has been a recent resurgence of the disease in Canada, with over 200 neurological cases being reported during 2007, making it over five times as many cases compared with 2006 (Public Health Agency of Canada 2008). Furthermore, in the United States, from 2002 onward with the exception of 2008, there are at least 100 deaths from the disease each year (CDC 2008). This is in addition to there being at least 500 cases of meningitis or encephalitis from the

⁹ Even in areas with a relatively high prevalence of the disease, risks of exposure have been estimated to be about 3% (Petersen, Marfin et al. 2006). Furthermore, the incidence of clinical cases of the disease appears to be on the decline in the United States, with less than half the number of cases being reported in that country from 2003 compared to 2007 (CDC 2008).

¹⁰ This form of the disease is frequently referred to as WNV Neurological Syndrome (MHLTC 2006A), or WNNS in its abbreviated form (CDC 2003A). Furthermore, in some cases, this form of the disease has been referred to as WNV meningoencephalitis (Campbell, Marfin et al. 2002; Drebot and Artsob 2005). To this, it should be added that Sejvar, and Marfin (2006) prefer to refer to “WN encephalitis” and “WN meningitis” separately, and add the classification of West Nile poliomyelitis, involving amongst other things the very rapid onset of limb paralysis.

disease beginning from 2002 onward. Combined, these facts suggest the disease continues to pose a significant risk

Given the potentially serious symptoms of this disease, not surprisingly governments have been under significant pressure about how best to respond.¹¹ With no means of treating or preventing illness from the disease, control efforts have been limited to attempts at preventing the public from coming into contact with potentially infected mosquitoes (CDC 2003A; Ontario Ministry of Health and Long Term Care [MHLTC] 2006A). To achieve this, governments have undertaken a three-pronged approach of (1) *applying pesticides* to destroy potentially infected mosquitoes, (2) encouraging the public to undertake *personal protective measures*, like the wearing of long-clothing, application of repellents, and repairing of window screens, and finally of greatest interest to this study (3) emphasizing what are referred to here as Community Protective Measures (CPMs) like the elimination of standing water where mosquitoes breed..

Although not necessarily criticizing this approach, the first two of these measures have a number of shortcomings. With respect to pesticides, they are admittedly to a degree preemptive in how they control mosquitoes, the vector that spreads the disease. Nonetheless, they still at best to only destroy already infected mosquito larvae, or at worst, adults capable of spreading the disease. The chances of success are somewhat limited as generally they are applied by governments only in places where the disease is believed to be found¹². Typically such locales are limited to public areas like catchment

¹¹ Indeed, reflecting the high degree of divergence of these matters, although later overturned, a \$100-million lawsuit was filed against the Ontario government on behalf of individuals who had either died or experienced serious illness because of the disease (Canadian Press 2004).

¹² In this respect, it is also worth noting that at least some of the more toxic pesticides may not prove to continue to offer protection as they have been noted to bring the possibility of vector resistance

basins as opposed to private areas deemed the responsibility of property owners. To a greater or lesser degree depending upon the toxicity and method applied, pesticides have been noted to bring certain environmental and occasionally even human health risks (see Shapiro and Micucci 2003).¹³ Pesticides also carry the issue of a lack of public acceptance to a lesser (Allan and Mandalakas 2003; Wilson, Varia et al. 2005; Zielinski-Gutierrez and Hayden 2006) or greater (Health Canada 2003) degree.¹⁴ Personal protective measures, rather than preemptively reducing the risk of the disease, only impede mosquitoes' ability to bite. Much of the public seems unwilling to undertake personal protective measures, at least partly due to perceptions that chemical repellents smell or cause skin reactions (Zielinski-Gutierrez 2004), if not also bring more serious risks.¹⁵ Source control measures are undoubtedly the most preemptive means of

following repeated treatments of adulticides (see CDC 2003A; New York City Department of Health and Mental Hygiene 2006).

¹³ Of course, these risks mainly apply to “adulticides”, the type of pesticides used in the control of adult mosquitoes. Indicative of this, one of these adulticides, *Malathion*, has been shown to affect honeybees (Hester, Shaffer et al. 2001; Pankiw and Jay 1992) and occasionally workers handling and applying insecticides (CDC 2003B). Admittedly, the use of such pesticides is discouraged in government guidelines. However, some environmental risks also apply to a certain degree for larvicides used in the control of immature larval mosquitoes. For instance, research has shown that *Methoprene*, when applied in water to mosquito eggs, is moderately toxic to warm-water and fresh-water fish, is slightly toxic to cold-water fish and is acutely toxic to some estuarine invertebrates like crayfish (Glare and O'Callaghan 1999). Although some estimates have been made that suggest that even the more toxic of these pesticides are less risky than WNV, based even on that researcher's own admission, these were only preliminary estimates that future studies will attempt to refine (Peterson, Macedo et al. 2006). Furthermore, although undoubtedly undergoing many studies to meet government regulatory standards, much is still not known for certain about the risks of pesticides, particularly their potential for chronic effects when used widely over the long term, as these pesticides are being employed (Thier 2001).

¹⁴ Albeit associated with the aerial spraying of pesticides, in some cases such concern has triggered vehement neighborhood disputes (Foss 2002) and even legal suits (No Spray Coalition Inc. v. City of New York 2000).

¹⁵ In terms of willingness to undertake these measures, studies have found participation rates of just above half (Aquino, Fyfe et al. 2004; Blendon, Benson et al. 2002; CDC 2003C; McCarthy et al. 2001), and in certain cases even fewer (Fox, Averett et al. 2006; Mostashari et al. 2001; Wilson 2002) participants report to taking some of the personal protective measures like the application of repellents and wearing of long clothing. Moreover, other studies that have sought to identify how frequently people undertake these measures suggest actual participation rates are even lower (Loeb, Elliott et al. 2005; Porter Novelli Healthstyles Survey [PNHS] cited in Zielinski-Gutierrez 2003; Zielinski-Gutierrez 2004; see also Averett, Neuberger et al. 2005). As for reasons for this reluctance, a Health Canada (2003) survey found over half of

controlling the disease by preventing mosquitoes from breeding in the first place. They achieve this control with minimal environmental and public health risks, at least insofar as they are undertaken in settled areas where the species of mosquitoes most responsible for carrying the disease are believed to thrive¹⁶ and where the greatest concentration of individuals are at risk. Because they can be undertaken in both public and private areas, they are more capable of protecting entire communities.

Despite these advantages of CPMs, the public has not always seemed willing to undertake them. Studies show participation rates to range between from about 75% to as little 33%.¹⁷ Even assuming the higher range figures are reflective of the general population, Rosenstock (1960) has pointed out with respect to communicable diseases in general that a lack of inaction on the part of only a few households is all that is needed for a disease to become established in an area.

To a certain extent, this lack of response could be due to insufficient understanding about the importance of CPMs. However, this situation may be attributed more to ineffectiveness of educational efforts, rather than a lack of information. A review of available studies (McCarthy, Hadler et al. 2001; Elliott, Loeb et al. 2003; Zielinski-

parents were worried about using repellents based on DEET (*N, N'*-Diethyl-*m*-toluamide) on their preadolescent children.

¹⁶ This specifically has to do with the *Culex* species of mosquitoes, whose primary role in the disease' spread and transmission is supported by both observations in the laboratory (Turell, Dohm et al. 2005) as well as numerous field studies (CDC 2002A; Smith, Hayes et al. 2006). As to why these particular measures are useful in controlling the disease, opposed to mosquitoes which develop merely in the wild such as in marshes or woodlands, the *Culex* species of mosquitoes are capable of maturing in standing water found in artificial catchment basins (MHLTC 2003).

¹⁷ Results in the upper range of about three-quarters were found by Aquino, Fyfe et al. (2004) and seventy-percent by Wilson, Varia et al. (2005). However, findings in the lower range specifically showed participation rates to be around half (Fox, Averett et al. 2006; McCarthy et al. 2001; Porter Novelli Healthstyles Survey [PNHS] cited in Zielinski-Gutierrez 2004), to as little as a third (Blendon, Benson et al. 2002; Loeb, Elliott et al. 2005; PNHS cited in Zielinski-Gutierrez 2003).

Gutierrez 2003; Aquino, Fyfe et al. 2004; Averett, Neuberger et al. 2005), and educational materials (CDC 2003D; PHAC 2004; MHLTC 2006B; Health Canada 2007; CDC 2007A) produced on the disease suggests a fairly extensive educational campaigns has been ongoing from the beginning when the disease first appeared. Providing direct evidence on this matter, Averett, Neuberger et al. (2005) note how, despite conducting a fairly extensive multimedia education campaign in the subject area prior to surveying respondents, only about a third knew to eliminate standing water to reduce the risk of the disease. Even with knowledge about these measures and their importance though, the public does not always seem willing to take steps to undertake them. Supporting this is the study by Elliott, Loeb et al. (2003) which found that despite nearly all respondents knowing at least about the disease and that mosquitoes were the vector, only about one third had taken action to eliminate standing water.

In considering how to respond to this situation, one approach could be to, as some places have done (City of Hamilton 2003; Hodge and O'Connell 2005), introduce legislation requiring the undertaking of these measures. In considering how these measures are to a certain extent carried out in privacy, such mandates arguably cannot be as effective as motivating people to do so on their own volition. Another approach could be to better emphasize the personal risks of the disease, to provide people with an impetus to learn how to avoid it. However, at least in the study by Elliott, Loeb et al. (2003) where very few people had taken action to eliminate standing water, nearly eighty-percent of respondents were somewhat or very worried about becoming sick with WNV. What is more, this tendency to be concerned about the disease does not seem to be the norm given how numerous surveys indicate only near half, if not fewer, of people are

personally concerned about the risks it presents.¹⁸ Furthermore, such tendencies may be amplified by the way much of the educational material has emphasized that those of advanced age and, in some cases, immuno-compromised individuals, are the most susceptible (MHLTC 2004; Health Canada 2005; CDC 2007A; New York Department of Health and Mental Hygiene 2008). That such education is having an effect is indicated by a Connecticut 2002 study, where 96 percent respondents believed that elderly persons were more likely than others to have severe illness from WNV infection.¹⁹ This situation seems to reinforce the assertion by Joffe (1999) and others that people tend to downplay their perceived level of personal risk.

In considering these points as well as the significant evidence that people may at least sometimes act for altruistic reasons, but at the same time cognizant of the point made by Schwartz (1977) that an overzealous approach to encouraging altruistic behaviour can have a boomerang effect on people acting the opposite way, this study has put forward the following research question:

- 1) *Do, or at least would, people undertake CPMs out of an altruistic desire to help others in their “community”?*

¹⁸ Specifically, a study undertaken in Ottawa during July 2002, showed that just over half of participants felt WNV was an important health issue (Wilson, Varia et al. 2005); and a study in Connecticut during October 2000 found that 58 percent of participants reported were at least a little worried about WNV (McCarthy, Hadler et al. 2001). Additionally, in a later study of Connecticut residents conducted during August-November 2002, only 56% of participants reported that they were very or a little worried about WNV (CDC 2003C). Similarly, research conducted by Mihaela (2007) in Alberta found only 49% of individuals to be worried about the disease. Finally, a more qualitative indicator of the lack of concern people show for themselves about the disease is reported in a group study conducted by the Centers for Disease Control. In the study, one of the participants reported, “One of my younger neighbors, he thought that he ought to go ahead and get it so he would build up an immunity...” (Zielinski-Gutierrez 2004).

¹⁹ It should also be noted that in the same study, 63 percent believed the same to be true for infants.

With a few small exceptions like emphasizing how the reporting of potentially infected birds which has been portrayed as an activity which can help the community (CDC 2007A), an analysis of the educational literature on WNV reveals that so far an emphasis on the community benefits to reducing the risk of the disease has not been documented. Rather, most educational literature such as that posted in brochures and on the Internet simply highlights the benefits to oneself of taking action by saying things such as “Three steps *you* can take to reduce your risk.” (CDC 2007A [emphasis added]), “Why protect *yourself* mosquito bites?” (PHAC 2004 [emphasis added]), and “If they can’t get to *you*, *you* won’t get bitten” (MHLTC 2006B [emphasis added]). At most, the one variation to this was emphasis on the benefits to one’s family, with statements like “How can you protect *yourself* and *your family* from mosquito bites and West Nile virus?” (PHAC 2004 [emphasis added]) and “How to protect *yourself* and *your family*” (MHLTC 2005 [emphasis added]).

Recognizing, that there are many reasons why people may not undertake CPMs in order to help others in the community, the study investigated (a) how knowledgeable are people about the disease and CPMs, (b) whether there any reasons why people have not undertaken these measures (i.e. physical disability), (c) how much have respondents been influenced to undertake these measures out of “pure” altruistic motives as opposed to a desire for external (i.e. yard maintenance, social approval) or internal rewards (i.e. a desire to “feel good” or the “right thing to do”)., and (d) who people that are motivated to undertake CPMs to help others specifically are motivated to protect (i.e. family members versus the community in general) Also, to assess the absolute effectiveness of altruism as

a motivating reason to carry out CPMs, the study assessed whether people could be doing more in terms of the undertaking of these measures.

Given that this study is interested in taking a proactive approach to learning what characteristics of a community and people naturally give rise to altruistic tendencies, this study also explored the characteristics of both in relation to a desire to help others. By “community”, this study is referring both to the larger communities such as towns, cities and hamlets as well as the smaller unit of neighbourhoods that can comprise such communities.

In part, the study assessed tangible characteristics of communities. Specifically, given how research frequently has shown that people in small or medium-sized towns and cities were often at least more helpful than those in larger metropolitan areas,²⁰ the study asked,

2) *Are small or medium-sized communities more likely to already be influenced by altruistic reasons to carry out CPMs than larger communities?*

Considering research on adult lifestyle communities (ALCs) suggesting that the more homogenous the age composition, the more people would have in common with their

²⁰ Although some studies have found no difference of helping in larger as opposed to smaller sized communities (Forbes and Gromoll 1971; Schneider and Mockus 1974; Korte, Ypma et al. 1975; Rotton 1977; House and Wolf 1978; Bridges 1996; Bridges, Ryan et al. 1998; Bridges, Ryan et al. 2000), the majority of studies have found a difference (Merrens 1973; Korte and Kerr 1975; Levine, Vilena et al. 1976; Takooshian, Haber et al. 1977; Rushton 1978; Amato 1980; Korte 1980; Amato 1981; Korte and Ayvalioglu 1981; Yinon, Sharon et al. 1981; Amato 1983; Amato and Cook 1983; Hedge and Yousif 1992; Bridges and Coady 1996; Bridges, Welsh et al. 1997; Schubert and Tweed 2004). The trend is further supported when considering examples of greater helpfulness that were non-deviant as opposed to deviant (i.e. whether or not letter needed to be returned to member of the communist party) (Hansson and Slade 1977; Whitehead and Metzger 1981). Although not supported in the Netherlands, Korte (1976) did note a similar trend when comparing cities to towns in the United States.

neighbours (Osgood 1982) and consequent likelihood of altruistic tendencies towards them (Somers 1993), the study explored,

- 3) *Are communities with homogeneous as opposed to heterogeneous age populations more likely to be influenced by altruistic reasons to carry out CPMs?*

With regard to Miller's (1997) claim stated earlier that people living in the suburbs truly are more egotistical than those more centrally located in a community, it was asked,

- 4) *Would people living in urban areas be more likely to undertake CPMs out of altruism than those living in suburban places?*

In view of how people in older communities may have had more time to get to know each other and a greater sense of concern for their community given its greater cultural heritage, consequently affecting the degree of willingness to act out a concern for their neighbours, the study assessed

- 5) *Is it possible that places established for a longer period of time are more likely to be habited by people influenced by altruistic reasons to undertake CPMs?*

Along these same lines, the study inquired,

- 6) *Does living in one's home, neighbourhood, or city or other major settlement for longer periods of time result in a greater likelihood of carrying out CPMS for altruistic reasons?*

While this encompasses the tangible characteristics of communities that were examined in relation to the likelihood of undertaking CPMs, it should be added that such an

investigation was felt to be capable of potentially shedding some light on useful ways to establish and develop the physical character of communities that cultivate altruistic tendencies in general.

As for intangible community qualities, in keeping with the assumptions that communities established over a longer length of time and with residents who had lived their longer would be more altruistic given at least partly that they knew their neighbours more, the study asked,

7) *Could knowing people in the community have a positive influence on altruistic tendencies with respect to the undertaking of CPMs?*

This was deemed important given how much of the research on altruism and prosocial behaviour has tended to focus on incidents of helping amongst at least relative strangers (i.e. Latané and Darley 1970), but nonetheless has to some degree been supported by findings by Korte (1981) that at least relatives and friends are no less likely to help each other in the city as compared with smaller-sized places,²¹

Additionally, the study explored,

8) *Is being involved in the community positively related to carrying out CPMs due to an altruistic concern for others?*

While not necessarily directly encouraging altruistic tendencies, it was felt that people who are involved in their community in other ways may wish to do the same with regard

²¹ Additionally, although not exactly investigating the influence of receiving help due to knowing people in the community, Shapiro (1980) found that female undergraduates at least were more likely to seek help from a friend than from a stranger, particularly when the costs of helping were high. More relevant to this study, in terms of the effect that knowing people will increase the degree of helpfulness, a study by Morgan and Sawyer (1979) found that while “strangers” (dormitory resident from another floor) increased their competition in an experimental game in response to perceived inequality, whereas “friends” (roommates) did not.

to the undertaking of CPMs. Indeed, while Lee, Piliavin et al. (1999) found no relationship between different forms of helping behaviour, other studies have concluded there can be a relationship. Examples supporting this include how people who help with disasters tend to be already affiliated with some other type of volunteer organizations (Disaster Research Center cited in Dynes 1980) and how those who undertake public service activities also often well exceed ordinary job requirements by demonstrating “organizational citizenship” involving the assisting of others (Kim 2006). Additionally, Jones (2006) showed that whether a household donated to charity was associated with strong community ties, defined as frequent participation in associations and the amount of time spent with others. In a less formal manner, Unger and Wandersman (1983) found a relationship between the amount of neighbouring, which measured amongst things social contact and willingness to help neighbours, and residents who had developed active block organizations. Assuming these latter studies are correct, the degree of helpfulness in a community could be directly related to the likeliness that people are willing to undertake CPMs out of a desire to help others.

Furthermore, the study assessed,

- 9) *Does having a sense that people help each other in the community translate into a willingness to undertake CPMs for altruistic reasons?*

Although the assumption of this question could be considered to support reciprocity theory not characteristic of altruism, it could also be representative of a more spontaneous tendency towards helpfulness that does not necessarily expect the favour be returned.

While much literature was found to support the contention that a perception of living in a

helpful community is linked to willingness to help one's community, no literature was found to provide insight into this question.

Additionally, the study asked,

10) *Would having a sense of attachment to a community be associated with people carrying out CPMs for altruistic reasons?*

The supposition here was that those who feel a strong affection with a place will want to take care of it. This is supported by research showing how a sense of regional identity, and consequently likely feelings of attachment, can create a greater desire for protection of local areas of environmental significance (Carrus, Bonaiuto et al. 2005). Furthermore, identification with one's neighbourhood appears even to influence the undertaking of environmentally sustainable activities like the purchasing of "green" products (Uzzell, Pol et al. 2002).

The last intangible characteristic of communities that the study assessed was the influence of perceptions of the size of the community in which people lived. Specifically, the following question was put forward:

11) *Could relating to a smaller sized rather than a larger-sized community be associated with people undertaking CPMs due to altruism?*

This is in keeping with *research question 2* that seeks to determine whether smaller sized communities tended to be more altruistic.

As for the characteristics of people that were assessed, it is useful perhaps as a starting point to consider the review of literature by Eagly and Crowley (1986) that argues in part that helping is more likely to occur in situations where gender stereotypes

have resulted in people gaining the necessary skills to do so. They also point out that values of chivalry may influence males to be more helpful in situations where helping behaviour is undertaken publicly. Given that CPMs involve tasks which both sexes have the ability to, and consequently are likely to undertake (with the possible exception of cleaning of eaves troughs which men may be more likely to do) and do so more-or-less privately, it seems safe to assume that willingness to undertake these measures may be equal between gender. This is in addition to research discussed earlier which suggests that while men may not be motivated to undertake health-promoting behaviour to reduce personal risk due to the attitude that one should 'soldier on', women are influenced by gender stereotypes where they act as caregivers rather than caretakers of themselves. Consequently, the study inquired,

12) *Is willingness to undertake CPMs out of altruistic concerns the same between genders?*

According to Midlarsky and Kahana (1994), whereas formal helping increases from the essentially middle-aged (45 or more years) to the elderly (up to 80 years), informal helping declines. These results are not supported by Putman (2000), however, who demonstrates age is one of the most important predictors of civic engagement.

Specifically, involvement in activities ranging from both formal and informal activities increased with age, including membership in a community organization, attendance of church, voting, reading and watching the news, interest in politics, and working on community projects. Assuming Putman is correct, the study asked,

13) *Are older people more likely than younger ones to be influenced by altruistic reasons to undertake CPMs?*

Additionally, although not discussed in the literature, the study sought to determine the influence of marital, parental and home ownership status. This was done given the potential that being married or at least having remained as such until becoming widowed, setting down roots in an area by purchasing a home, and having children may cause one to be more “other” oriented. Consequently, the study put forward the following questions:

14) *Are married or widowed people more likely to be influenced to perform CPMs out of altruistic tendencies than single or divorced people?*

15) *Do those who own homes have a greater likelihood of carrying out CPMs due to altruism than those who rent?*

16) *Is there a tendency for people with children to more often be influenced by altruistic reasons to undertake CPMs than those without children? Further to this question, does this trend increase in relation to the number of children that people have?*

17) *Are individuals with younger children more likely to be influenced by carry out CPMs for altruistic reasons than those with older children?*

The final question was explored on the assumption that given that those with younger children may be more likely to already be thinking of protecting “others”, namely their children, from the disease, such individuals may naturally tend to be more concerned for others in general in the community.

This concludes discussion of the reasons for focusing the study on the undertaking of CPMs in the control of WNV; the relevance of altruism as a means of encouraging people to undertake CPMs; and the factors that are deemed important to assess in

exploring the conditions that may naturally give rise to a tendency for people to undertake CPMs out of an altruistic desire to help others in their community. Before discussing the results of the study, however, attention will be turned to the research methodology that was employed to carrying out this study.

Chapter 5.0:

Research Methodology

The study involved 164 face-to-face, one-on-one semi-standardized interviews conducted by a researcher in the Regional Municipality of Waterloo (RMoW), located in south-western Ontario. The interviews were conducted during the summer and fall of 2006 (September 11-December 8) and a response rate of 27% was obtained with the total sample size being 610.

Choosing the RMoW offered a couple of advantages. Firstly, the disease has been prevalent in the Region since 2002, with although human cases not appearing every year nonetheless infected birds being found consistently during this time (Lindsay Blashill, Public Health Planner, pers. comm., November 18, 2008) . Secondly, the RMoW has conducted a fairly vigorous public education campaign on the disease since 2002, distributing its own brochure on the disease in stores, posting ads on buses, and the publication of news releases about the disease (Robert Bromley, Health Promotion Officer RMoW, pers. comm., August 14, 2007), so it was fairly likely that residents from this area would be aware about the disease and the various CPMs. Thirdly, the RMoW has a long history of volunteerism (J. Hennig, Director, Volunteer Action Centre, pers. comm., January 7, 2008) which could translate into a general willingness to undertake CPMs for the health of the community. Fourthly, and related to the previous point, the RMoW has implemented a number of locally-driven environmental initiatives (Krause 1994), which could further enhance residents' tendencies to think of matters beyond their own personal welfare. Conducting the study at the time chosen was helpful since the summer and fall is generally when the disease poses a threat and the RMoW's public

health agency conducts awareness campaigns on the disease. Consequently, it was more likely that at that time the disease would at least be more on people's minds and that they would be able to provide an accurate assessment of their thoughts and feelings on the disease.

Face-to-face interviews were selected over other research methods partly because they allow more time for questioning than phone surveys (Palys 2003). This was considered partly important as many of the questions were open-ended in order to interpret, as well as possible, the meaning intended by respondents (Geertz 2000). Additionally, face-to-face interviews made it easier for respondents to express privately held thoughts than would have not been possible in a group setting such as focus groups (Palys 2003). This was also deemed imperative given that respondents might otherwise feel pressure to answer in certain, socially acceptable ways. Putting respondents at ease was considered particularly important given both how WNV can be a volatile topic, given the potentially serious risks it present, and the "norm of self-interest" noted earlier, where people may not always feel comfortable admitting they are motivated by a desire to help others. An advantage of conducting semi-standardized interviews was that it allowed for changing the order of questions, unlike what is possible with a standardized interview (Berg 2007). This was important given the exploratory nature of the questions being asked.

Due to the greater time required in conducting face-to-face interviews, it was not possible to obtain a random sample. However, the study attempted to gain an understanding into how those living in different types of communities differ by conducting purposive sampling (Palys 2003). The study ultimately followed a method

suggested by Morse (1998) of maximum variety sampling, in which a fairly diverse range of people in a variety of communities were examined. In this respect, the study area was narrowed down to not include rural areas, owing to their lower population densities which made the risk of the disease much lower there. In terms of the exact locales, respondents were sampled from a variety of places, including the areas of Central and the ALC of Luther Village located in the core urban district of the City of Waterloo; Laurelwood and Willowdale located more on the outlying suburban areas of the City of Waterloo; the town of New Hamburg, excluding any ALCs located there, and the relatively distinct ALC of Morningside located in New Hamburg; and the ALC of Foxboro located out in the rural area of Wilmot Township (Map 1).

Sampling from these different communities partly allowed for an examination of the effect of living in different sizes of communities, including mid-sized city of Waterloo (population 478,121), the small town of New Hamburg (population 8,424) and the even smaller hamlet of Foxboro (population 400).²² Within these communities, it permitted the comparison of sub-communities of a relatively large size (including Central with a population of 8,735, Willowdale with a population of 8,150, and Laurelwood with a population of 3,350) compared to the ALCs which were generally all about the same size (with an approximate population of 400). Given the locations of the ALCs, it additionally allowed for the examination of ALCs located in communities of different sizes.

²² The former two statistics are obtained from Statistics Canada (2006) while the later is based on data provided by Judith Byrom, Property Manager of Foxboro.

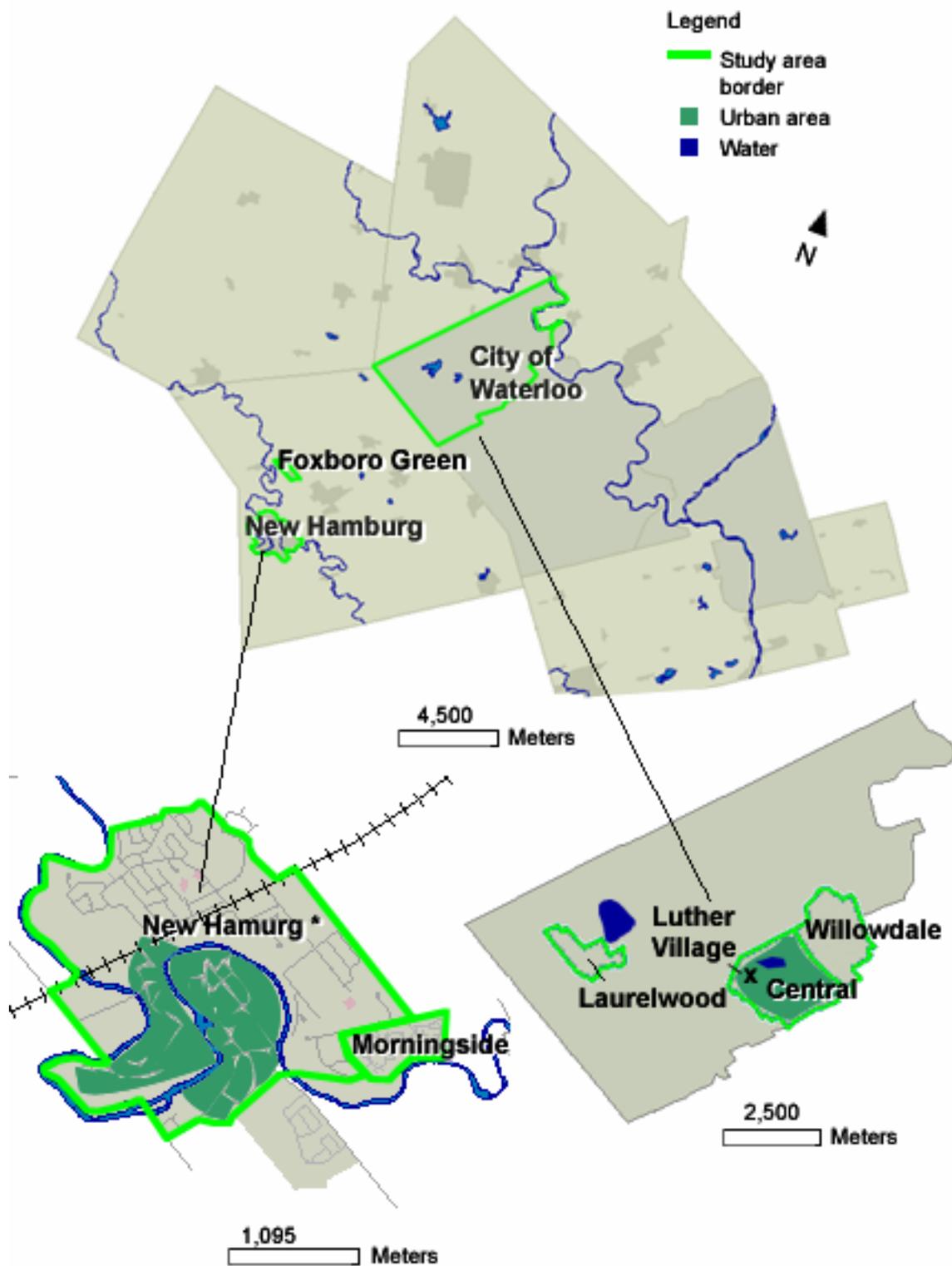


Figure 1: Overview of study areas within the Regional Municipality of Waterloo (RMoW) (City of Waterloo 2008; RMoW 2008)

* Excludes Adult Lifestyle Communities (ALCs).

Another advantage of selecting these communities is that it enabled an examination of how different ages of the physical communities could influence altruism. This is given how Laurelwood, Morningside, Foxboro and Luther Village were relatively new (0-29 years old) communities, Willowdale was a medium-aged (30-59) community, Central with some exceptions was essentially an old (60+) community, and New Hamburg had a mixture of different aged areas. Sampling communities of different ages also allowed for investigation into communities with mature trees, which made the undertaking of one of the CPMs, cleaning of eaves troughs, necessary. This issue also made it helpful to sample from Morningside, given that although still a relatively young community, nonetheless had an older portion (≥ 15 years) with more mature trees. To allow for a cross-comparison between communities based on age in New Hamburg, information on the age of communities in that town was originally gathered through a reconnaissance of the town and from the participants themselves. Once data was data provided by the Wilmot Township planning department, however, data was no longer collected from participants. To ascertain the ages of communities in the City of Waterloo, information was obtained through a combination of consultation with city planners as well as a review of aerial photographs.

A final reason for choosing the communities that were selected had to do with intangible characteristics like level of community involvement and feelings of attachment for one's community. Laurelwood was felt to potentially be particularly high with respect to such positive community feelings given that it was identified as amongst the most active in the city (L. Ludwick, pers. comm., July 10, 2006). Other communities that were presupposed to score strong in this respect included New Hamburg, which was known for

taking a significant amount of pride in its heritage (A. Martin, pers. comm., August 20, 2006), and Foxboro given that informal conversation with one resident revealed that people seemed to have fairly strong, positive feelings for their community. The addition of the areas of Central and Willowdale allowed for a comparison with places where none of these characteristics seemed generally to be prevalent.

In terms of the people sampled, the study did not include people that lived in apartments, since residents of such dwellings need to undertake far fewer, if any, CPMs. Additionally, to increase likelihood of recruiting respondents as well as the speed at which information was gathered, only one individual was typically interviewed per household. However, by asking respondents what measures they or members of their household carried out, the study attempted to characterize as accurately as possible the undertaking of such measures on a household basis.

With respect to the interview guide (see Appendix A), questions about people's homes and communities were asked first in order to avoid biasing their answers with knowledge about what the study was about. Furthermore, respondents were only told that the study was about a health-related issue, the exact nature of which was revealed later during the interview. When people were asked about their feelings about various issues, a five point scale was used where one was "Not at all", two was "Hardly", three was "Moderately", four was "A fair amount", and five was "Extremely". Such a scale was deemed fairly easy to understand as opposed to a more exact, ten point scale. Furthermore, it followed the measures used in quality of life studies such as those mentioned previously. Given that willingness to help others is often measured in such studies, it was thought that using this scale could increase the applicability of this study's

results to this other research. Additionally, people were always provided an opportunity to describe, in their own words, their feelings through the asking of open-ended questions. This provided a greater understanding of what they meant as well as an opportunity to ensure that their ranking of their feelings matched the description of their feelings. To ensure that knowledge was not a limiting factor when asking respondents about their thoughts on the disease, respondents were informed about the characteristics of the disease as needed.

In terms of how the interview was conducted, an effort was made to increase the validity and usefulness of the information gathered using a few techniques. Firstly, prior to the actual interviews, the interviewer conducted a few trial runs with acquaintances beforehand, to minimize overlooked items and avoid wasting time during the real interviews (Wholey, Hatry et al. 1994). Secondly, given that these acquaintances could not simulate all the scenarios that arose during the real interviews, a few of the initial interviews with respondents were deemed trial runs as well. Thirdly, the interviewer dressed in street clothes and conducted the interviews in the naturalistic setting of coffee-shops to set respondents at ease as much as possible (Gubrium and Holstein 1997). Fourthly, notes were taken of the interviews and audio recordings were made to ensure an exact record was obtained of respondents thoughts. In a few cases where questions were accidentally omitted, respondents were called to obtain remaining information. However, in all such cases the answers to questions was immediately recorded to ensure the accuracy of information provided. Fifthly, in a few cases, respondents were accompanied by another member of their household. Whenever this occurred, the opinions of these individuals were documented when relating to factual matters such as how often the

birdbath was cleaned. However, with respect to questions about opinions, only the responses of the individual identified as the one being interviewed were recorded.

Further to these comments, it should be noted that a few alterations were made to the interview guide. Firstly, when specifically assessing respondent's feelings about their communities, although originally focusing on those at the level of a city, town or other community or smaller, when it was noticed that people were expressing feelings of identity with the wider Region (i.e. the RMoW/Wilmot Township), a point was made of asking such people their feelings about areas within there as well. Secondly, originally the study was also asked people about their feelings about the uniqueness of their communities, whether they felt their city/town/hamlet had a sense of history, and how frequently they used community services. It was realized that these questions were largely irrelevant and consequently were removed. Thirdly, the study ceased from asking people what was the age of people in their neighbourhood and larger community since this information was obtained from Statistics Canada and through correspondence with the managers of the ALCs. Fourthly, the study stopped asking people the size of their neighbourhood, due to the unusualness of the question, which made it difficult for many people to answer.

With respect to the analysis of the data, some additional points should be made. To determine whether people lived in the urban as opposed to suburban portion of the City of Waterloo, the boundaries provided by the municipal planning department encompassing Central planning district were relied upon. However, since such a clearly marked area was not available for New Hamburg, residents were classified as living within the urban area of this town if they were situated roughly within the older (60+

years) along with some adjacent newer sections of town situated around Peel and Huron Street where the main business district is located (Map 1). It was felt that the general similarity of type of homes (for the most part Victorian style homes) in this area would lend to a sense of commonality to the area similar to the urban area of Central in the City of Waterloo. When assessing the age of neighbourhoods, it was possible to identify the area of all the respondents' perceived neighbourhoods with the exception of one individual who defined it as a five minute walk, another who claimed not to have a neighbourhood, and one individual who felt their neighbourhood was in another town outside the study area. In terms of assessing whether people could be doing more respect to the undertaking of CPMs, in order to qualify as needing to clean one's eaves troughs, people either indicated that they did not do so even if needed or performed the task less than once per year, less than needed, or something to the effect of hardly ever (i.e. "once in a blue moon"). With regard to the emptying of bird baths or other objects that collect water, if they indicated that they did so less than twice per week, it was noted that they could take more action to do so. As for emptying flower pot saucers, if they indicated that they did not do so without saying that they did not generally collect water (i.e. by saying "usually drains quickly"), it was noted that they could need draining. In terms of composting, if respondents indicated that they did not turn compost or generally indicated that do not turn it often, they were classified as needing to do it. The presence of dense vegetation was not noted as a measure respondents could take, given that many people had such vegetation because they desired it that way for landscaping purposes or because they liked it "natural". Finally, given the significant amount of data collected and desire

to accurately analyze it in a variety of ways, data from the study was placed in Microsoft Access and Excel and largely processed using Visual Basic (Appendix C).

Beyond these comments regarding the analysis of the data, some comments should be made regarding how the significance of the findings was determined. Given that the population sampled was very small and the nature of the population distribution was not known, in all cases non-parametric tests were conducted. For the most part, chi-square goodness-of-fit tests using SPSS software were conducted. This test was deemed suitable given that much of the data involved categorical scaling such as the age of respondents and the goal was to compare the proportion of responses per category (Siegel and Castellan 1988). In keeping with the guidelines of this test, results were deemed significant at the 0.05 significance level and no more than 20% of the results are less than the expected count of five (Kitchin and Tate 2000). Only three exceptions were made with respect to this. The first involved manually undertaking a one-way chi-square test to compare the total number of people who already were willing to undertake CPMs to protect others versus those that required prompting to do so (Siegel and Castellan 1988). The second involved conducting a Krustal-Wallis test (Kitchin and Tate 2000) using SPSS software with regard to assessing the weight of people's altruistic feelings, where the data was ordinal (on a scale from 1-5). The third concerned the undertaking of a Binomial probability test that was manually done (Mendenhall and Reinmuth 1978) to assess the impact of the weight of positive feelings such as knowing people in the community, being involved in the community, having a sense that people help each other in the community, and being attached to the community. This test was deemed appropriate since the categories were not consistently either mutually exclusive or

inclusive, given how people could, but not necessarily, have numerous positive feelings about their community, and these feelings could be held at the neighbourhood, city/town/hamlet, and regional level. Consequently, the data was simply assessed in binary mode as to whether or not people with altruistic tendencies were more likely to have positive feelings about their community. It was recognized that ideally all of these tests should be conducted on a random sample and that consequently the results of the study cannot be entirely conclusive. However, at least by conducting these tests some general idea can be obtained of the significance of the findings that would not be possible otherwise.

In order to recruit respondents, names of potential respondents were first identified using the reverse address lookup feature on the Canada 411 Web site (Yellow Pages Group Co. 2006). Although not everyone had their number listed online meaning the sampled population was smaller than its actual size, this was not considered important given that the study was not seeking a representative sample. However, an effort was made to spread out sampling from as many different streets in the identified sample areas as possible, thus ensuring a less biased representation of the population. In New Hamburg, also an effort was made to sample from streets built in different time periods, since unlike the communities sampled elsewhere which were built at generally the same time, this town was built gradually, resulting in a mix of different street ages. The degree to which this was achieved varied, as in some cases more people were willing to participate from some streets than others. As well, sampling was not as spread out in New Hamburg as would have been preferred, given that an effort was made to roughly evenly divide urban and suburban sampling and there was a greater number of the latter which

meant that all streets could not be surveyed. Using the contact information gathered, letters were mailed to homes containing an introduction about the study (Appendix D) along with a consent form (Appendix E). In Foxboro Green, an introductory letter was also provided to the property manager (Appendix F), signs were posted in the community centre (Appendix G), and a resident of the community independently volunteered to place a newspaper ad highlighting the study in the community newsletter (Appendix H). Individuals who learned about the study in this manner were also provided an introductory letter along with the consent form. With the exception of a couple individuals who independently contacted the interviewer after receiving the letter, those receiving the letter were given a follow-up phone call to determine their interest (Appendix I).

To increase willingness to participate in the study as well as a token of appreciation for participation, respondents were compensated with a \$5 dollar Tim Hortons' gift certificate. Following these interviews and completion of the study, all study respondents will be sent a letter of appreciation thanking them for participating in the study (see Appendix J). Included with this letter will be a summary of the study conclusions.

Chapter 6.0:

Results

Moving onto the results of the study, respondents were selected from the areas of Central (31 respondents) and the ALC of Luther Village (10 respondents) located in the core urban district of the City of Waterloo; Laurelwood (26 respondents) and Willowdale (30 respondents) located more on the outlying suburban areas of the City of Waterloo; the town of New Hamburg (44 respondents), excluding any ALCs located there, and the relatively distinct ALC of Morningside (10 respondents) located in New Hamburg; and the ALC of Foxboro (13 respondents) located out in the rural area of Wilmot Township. A roughly equal number of men (80) and women (84) were sampled in each of these communities with the exception of Central and Foxboro, where one and three more women than men respectively were sampled (Table 1). A variety of street ages were sampled, although more young streets (0-29 years) were sampled than older streets owing to how the ALC's, which made up a large portion of the sample, were built relatively recently (Table 2). When sampling New Hamburg, a roughly even number of urban (21) versus suburban (23) participants were surveyed. The study focused on adults (≥ 18 years old) given that older individuals are more likely to be primarily responsible for ensuring the carrying out of CPMs. Although no screening was done based on respondent age, because the study assessed several ALCs, the average age of respondents tended to be fairly high (52.7 years).

Table 1: Demographic breakdown of sampling according to gender

| | Central | Luther Village | Laurel-wood | Willowdale | New Hamburg | Morning-side | Fox-Boro | Total |
|--------------|-----------|----------------|-------------|------------|-------------|--------------|-----------|------------|
| Male | 15 | 5 | 13 | 15 | 22 | 5 | 5 | 80 |
| Female | 16 | 5 | 13 | 15 | 22 | 5 | 8 | 84 |
| Total | 31 | 10 | 26 | 30 | 44 | 10 | 13 | 164 |

Table 2: Demographic breakdown of sampling according to age of street

| | Central | Luther Village | Laurel-wood | Willowdale | New Hamburg | Morning-side | Fox-boro | Total |
|--------------|-----------|----------------|-------------|------------|-------------|--------------|-----------|------------|
| 0-29 years | 1 | 10 | 26 | 0 | 16 | 10 | 13 | 76 |
| 30-59 years | 4 | 0 | 0 | 30 | 13 | 0 | 0 | 47 |
| 60+ years | 26 | 0 | 0 | 0 | 15 | 0 | 0 | 41 |
| Total | 31 | 10 | 26 | 30 | 44 | 10 | 13 | 164 |

As for the findings of the study, it was promisingly found that a substantial number of respondents (125 out of 164 participants) claimed that they do or would undertake CPMs partly to protect the health of others. Referred to from now on as “RMHOs” for Respondents Motivated to Help Others, this includes five respondents who had just learned about the disease and/or measures one could take to help control it. Of those who did not make such claims and while a one-way chi-square test revealed them to be significantly less (where $\chi^2 = 100.4$ and $p = 0.0001$) than the total number of RMHOs, an additional nine individuals indicated they would more carefully undertake CPMs upon hearing their benefits to the community for the reason that it made them more community minded. Together, the total amounted to 134 (or 82%) of respondents who were either already or could be motivated out of a concern for others. These results are impressive

given that of the RMHOs and those who would more carefully undertake CPMs upon hearing the benefits to the community combined, sixty-six people could at least be doing a little more to help prevent the spread of the disease. Moreover, this was the case with no one claiming to be unable to personally do, or at least have done for them, any of these measures. What is more, these results were obtained despite how sixty respondents (37%) were not at all concerned about the effect of the disease on themselves, despite only two of all respondents not knowing about the disease or how it was a threat in their area. Furthermore, with respect to RMHOs, nearly a third (40 individuals) claimed to be even more influenced by the statement that undertaking CPMs helped protect the community.

Admittedly, amongst individuals who responded positively to the statement regarding the benefits of CPMs on the community, the degree of enthusiasm varied. Indicative of those only moderately (or three on a scale from one to five) influenced by the statement, one man, when asked to explain the reasons for his feelings with respect to the statement, claimed,

I guess primarily I'd look at it from how it would affect me first. But trying to motivate people that would positively influence their community but yet does not have any...bearing on themselves is...a very hard task...In our society, we tend to be very self-motivated unfortunately. And I am too. So if it affects me directly, then...I tend to have a higher motivation towards that (aged 49).

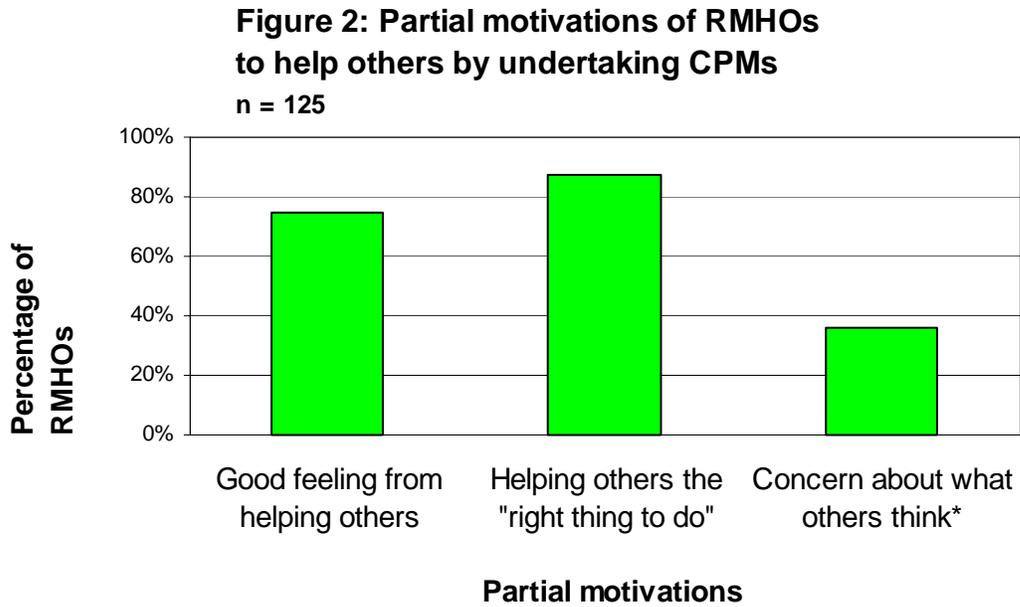
Similarly, another woman, who also responded moderately to the statement, commented, "Maybe it's selfish. But I just think of my family" (aged 43). Additionally, one man who claimed to be hardly influenced (or two on a scale from one to five) by the statement admitted, "If you're getting more in depth about it, I'd say that would be maybe one of the subconscious reasons...But I usually don't think about this sort of thing (aged 20).

Having said this, a number of others were affected more positively, making comments

like “I guess it made me think of it in a different light. Farther outside of my family” (woman, aged 47), “I guess it's not just for me. It helps everybody” (woman, aged 32), and how hearing the statement “...puts it in the bigger picture” (woman, aged 53). Perhaps best summarizing the potential awareness-raising effects of the statement, one young man who ranked his influence of the statement as a fair amount (or 4) commented, “It’s the things that I’ve been doing without actually giving a thought of it... now you kind of made me realize, well there is actually a reason, quite a bit of reason for doing it” (aged 20). More to the point about how such awareness can motivate people to undertake these measures, one man who was also influenced a fair amount by the statement commented, “It makes the individual actions that you do more important than yourself. So I think that does motivate you more. Because I like to think I'm not motivated just by my own interests (aged 35).”

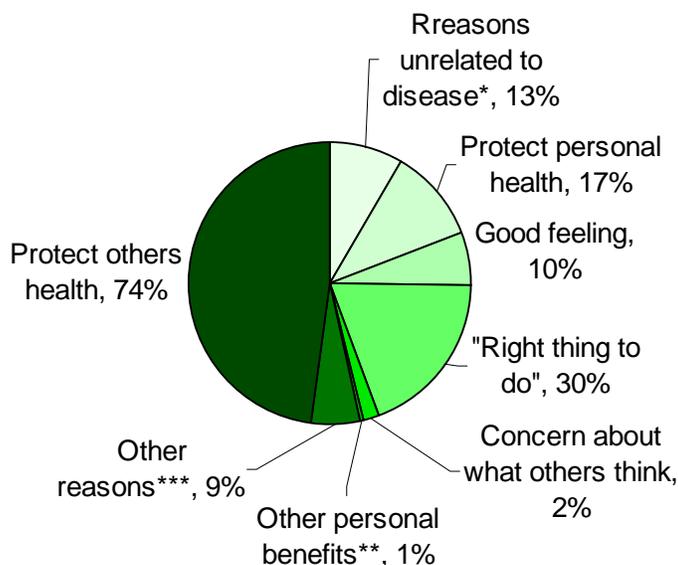
Having said this, with regard to RMHOs, a high number (87 or 70%) of respondents claimed to be at least partly by other reasons besides the disease (i.e. general yard maintenance or consideration of mosquitoes to be a pest). Additionally, 117 (or 94%) of these respondents were also motivated to undertake CPMs to protect their personal health. In terms of underlying reasons of RMHOs to protect the health of others, as shown in Figure 2, internal reward factors such as a belief that it was the “right thing to do” or how it gave them a “good feeling” proved to be important motivators. Interestingly, external rewards in the form of concern about what others thought or pressure from being asked by others did not play as important a role. However, when asked what their key motivation was for taking action against the disease, as shown in Figure 3, the majority (74%) claimed to do so to protect others. By comparison, only 17%

mentioned protection of personal health as a reason to take action against the disease. Furthermore, other reasons besides the disease (i.e. yard maintenance) or possible internal benefits (like being the “right thing to do” or obtaining a “good feeling”) were mentioned much less frequently than simply protection of others’ health.



* Includes one individual who was asked by someone to do so and felt pressured as a result.

Figure 3: Strongest reported motivators of RMHOs
n = 125



* Such as a desire to conduct yard maintenance.

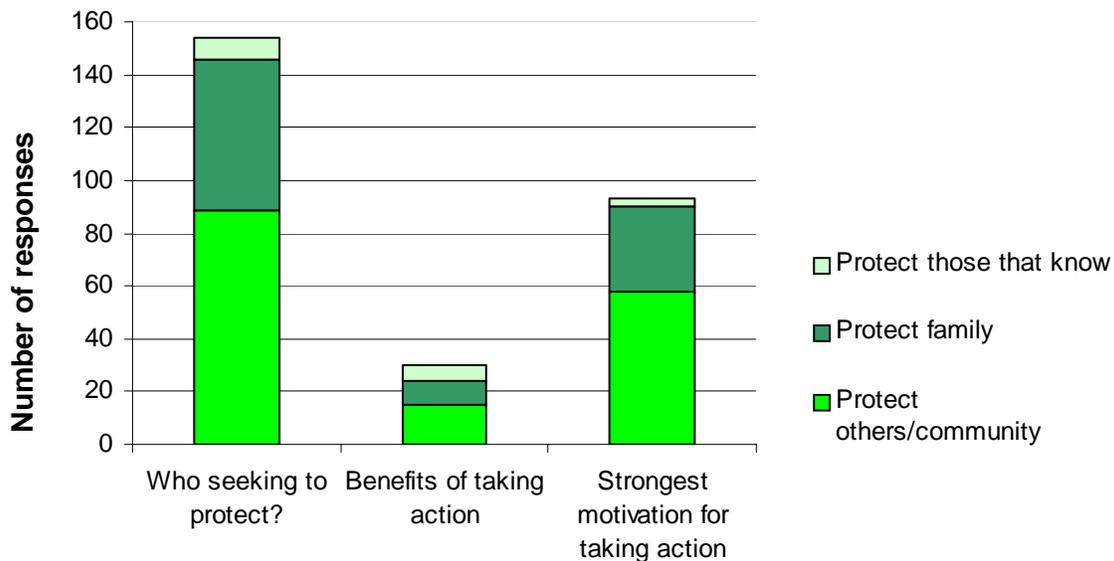
** Specifically, this includes one that felt it meant they would get along better with their neighbours by undertaking CPMs.

*** Includes amongst other reasons three individuals who just wished to get rid of disease, one that felt it was just a matter of awareness, one that believed it was simply their personal nature, another that did not think about it, one who felt it was just common sense, another who did not know and one that felt it was none of the discussed reasons.

While the above results show that protection of others' health was a primary concern of many respondents, the study was also interested in who they were seeking to protect. Interestingly protection of others health in general or that of the community ranked higher than protection of one's own family or those respondents knew. This was the case consistently with respect to RMHO's when asked 1) who they were seeking to protect by taking action against the disease, 2) whether they could see any benefits by undertaking CPMs, and 3) what their strongest motivation was for taking action against the spread of the disease (Figure 4). Combined with how a number of people became more community minded upon hearing the benefits of CPMs, these results answer

research question 1 by revealing that people indeed do, or at least would, undertake CPMs out of an altruistic desire to help others in their community.

Figure 4: Who RMHOs motivated to protect
n = 125

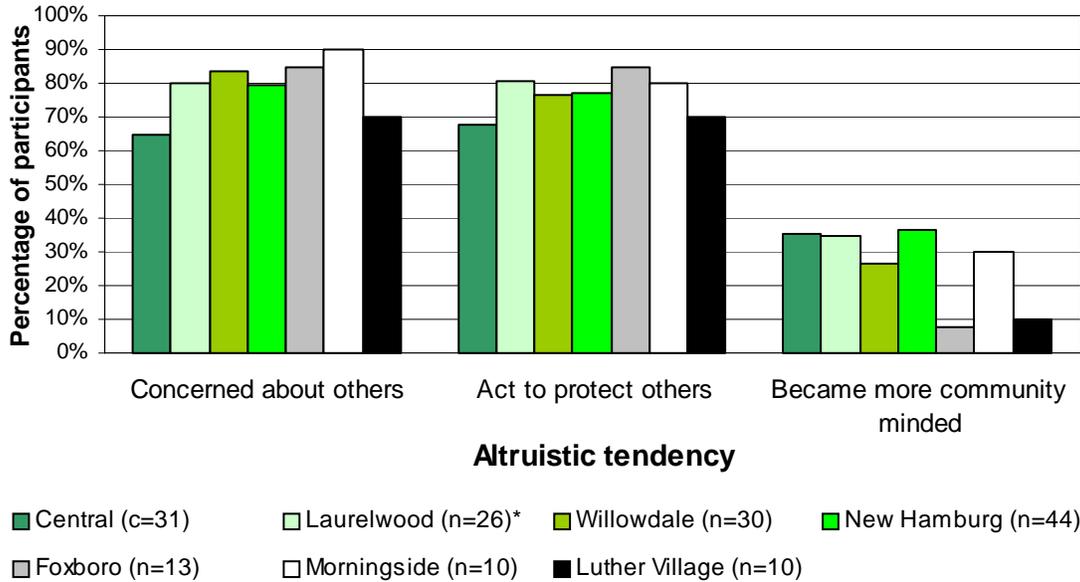


Response to questions relating to who RMHOs seeking to protect

Although the above findings are useful in ascertaining that people can, or at least could be motivated to undertake CPMs out of a concern for the health of others in their community, another important question this study sought to determine was in which communities this was the case. When looked at separately, no communities scored significantly different results with respect to altruistic tendencies (Figures 5 and 6). A similar finding was found when comparing communities located in small (Foxboro) to medium-sized (New Hamburg and Morningside) to larger-sized (Central, Laurelwood, Willowdale, and Luther Village) communities, both when comparing the actual number of respondents using the chi-square goodness-of-fit test and the weight of their response

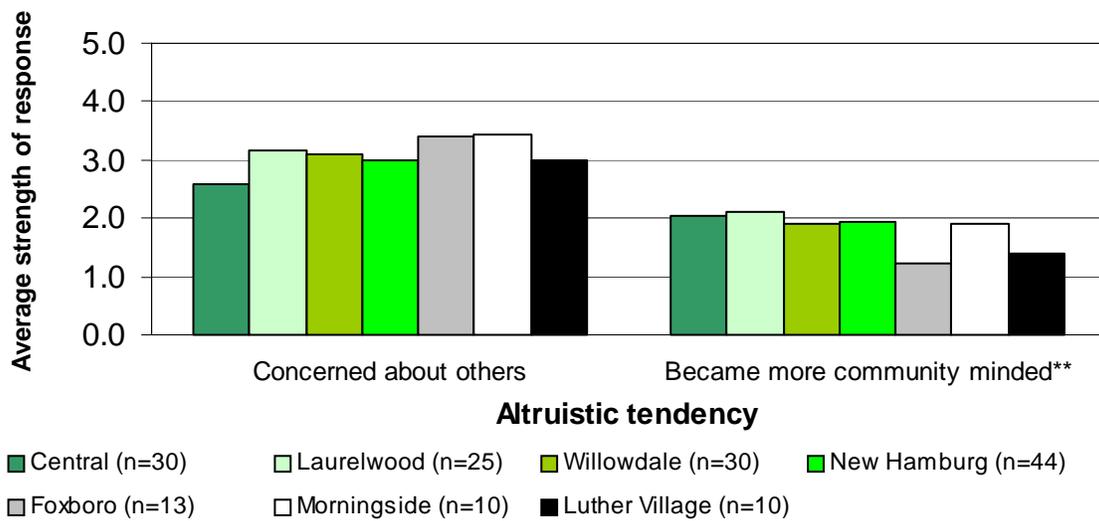
through the Kruskal-Wallis test. Thus, no evidence was found to either support or refute *research question 2* as to whether those living in smaller or medium sized communities are more altruistic than those living in larger communities. With respect to *research question 3*, regarding whether those living in communities with homogenous ages would be more altruistic than those that did not, for the most part no significant results were found with those living in ALCs being no more or less altruistic than those living in communities with a wide range of age groups. This was again determined using the chi-square goodness-of-fit test and the Kruskal-Wallis test to assess respectively the number of respondents and the weight of their feeling. The only exception to this was when assessing the weight of responses with regard to becoming more community minded, in which case the Kruskal-Wallis test found non-ALCs to be significantly more affected (where $\chi^2=3.896$ and $p=0.048$) than ALCs.

Figure 5: Comparison of respondents' altruistic tendencies by community



* The total population for Laurelwood with respect to concern about others was actually 25 given that one person did not know about the disease and consequently could not be concerned. Subsequent analysis consistently removes one respondent from the total number of concerned individuals for this reason.

Figure 6: Comparison of respondents' average strength of altruistic response by community (scale 1-5)*

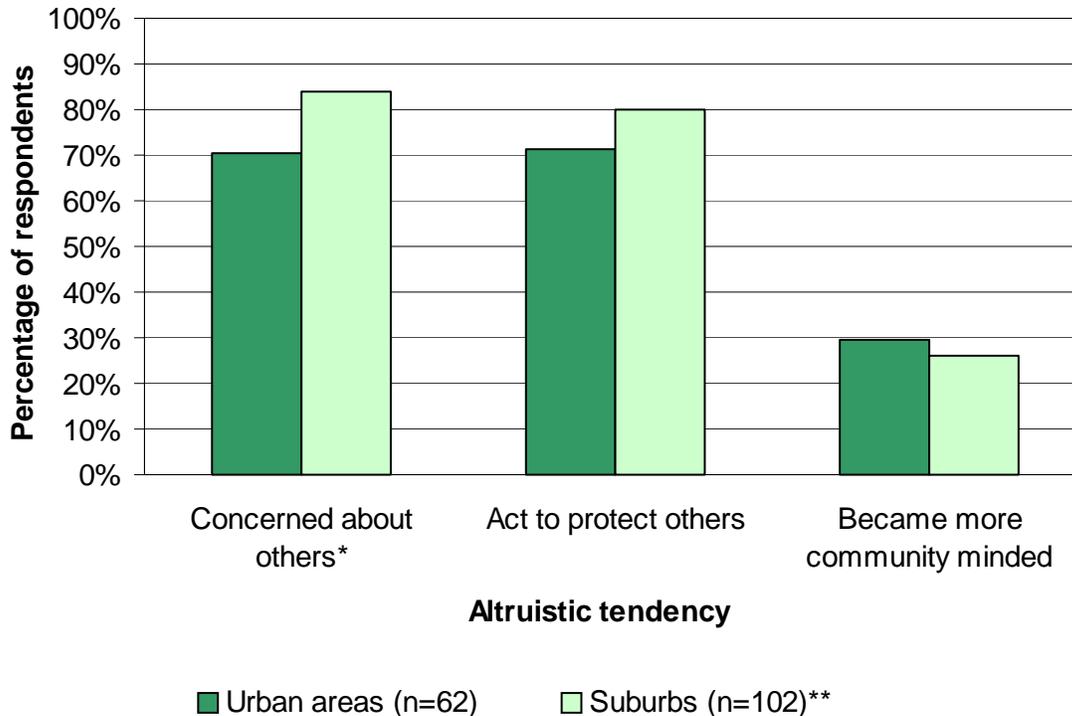


* The total population for some communities is less than the total number of participants given that some did not have a response to the question. For this reason, the total population for Morningside regarding concern about others health is actually 9.

** Using the Kruskal-Wallis test, the tendency for non-ALCs to become more community minded was found to be significant with $\chi^2=3.896$ and $p=0.048$.

Having said this, a nearly fourteen percent difference was found between those living in urban as opposed to suburban areas with respect to whether people were concerned for others about the disease, with those living in the suburbs scoring higher in this respect (Figure 7). This finding was significant, with chi-square analysis showing that $\chi^2=4.26$ and $p=0.039$. The results were significant even when separating those that live in urban areas in New Hamburg from those that live in such areas in Waterloo, the latter having to deal with a transient community given that a large number of residents are now university students. This contravenes *research question 4* that asks whether those living in suburbs are more self-absorbed than those living in urban areas. Further analysis could potentially find more evidence to support this finding on the altruistic potential of suburbs, given that these areas also scored nearly eight percent higher with respect to existing tendencies to act to protect others. Interestingly, at the same time, although not found to be significant, those that lived in urban areas were slightly more likely to become more community-minded upon hearing the benefits of CPMs, suggesting that they may simply need reminding to bring out their altruistic tendencies.

Figure 7: Comparison of altruistic tendencies according to whether respondents live urban area or suburbs



* Using chi-square analysis, the tendency for those living in the suburbs to be more concerned for others about the disease than those in urban areas was found to be significant with $\chi^2=4.26$ and $p=0.039$.

** The total population for the suburbs with respect to concern about others was actually 101.

In terms of *research question 5* regarding the influence of the length of time communities were established, no significant trend was found at least with respect to neighbourhoods in which residents perceived that they lived²³. It should be noted, however, that determining the significance of responses was not possible with respect to whether people became more community minded upon hearing the benefits of CPMs, as more than 20% of responses had an expected count of less than five which prevents chi-

²³ It was important to base this on perceived neighbourhoods since the definition of neighbourhood is subjective. To allow for chi-square analysis which does not allow respondents to be in more than one category unless everyone is in other categories, the responses of seven respondents who perceived themselves to live in a neighbourhood of more than one age were discarded.

square analysis. Similarly, with respect to *research question 6* regarding the affect of becoming more altruistic the longer respondents lived in an area time, for the most part no significant trends were found. The only exception to this was with respect to becoming more community minded upon hearing the benefits of CPMs for those who lived in their city /town/hamlet. With chi-square tests finding that $\chi^2=12.946$ and $p=0.012$, it would appear that there may be an initial surge in potential for altruistic feelings upon first moving to a community from (0-5 years), followed by a decline, and then after a period of time another increase (11-25 year) followed by another decrease (Figure 8).

Figure 8: Relation of length lived in a city/town/hamlet to becoming more community minded*



* Using chi-square analysis, the tendency for newcomers (0-5 years) and fairly long-time residents (>10-25 years) to become more community minded was found to be significant with $\chi^2=12.946$ and $p=0.012$.

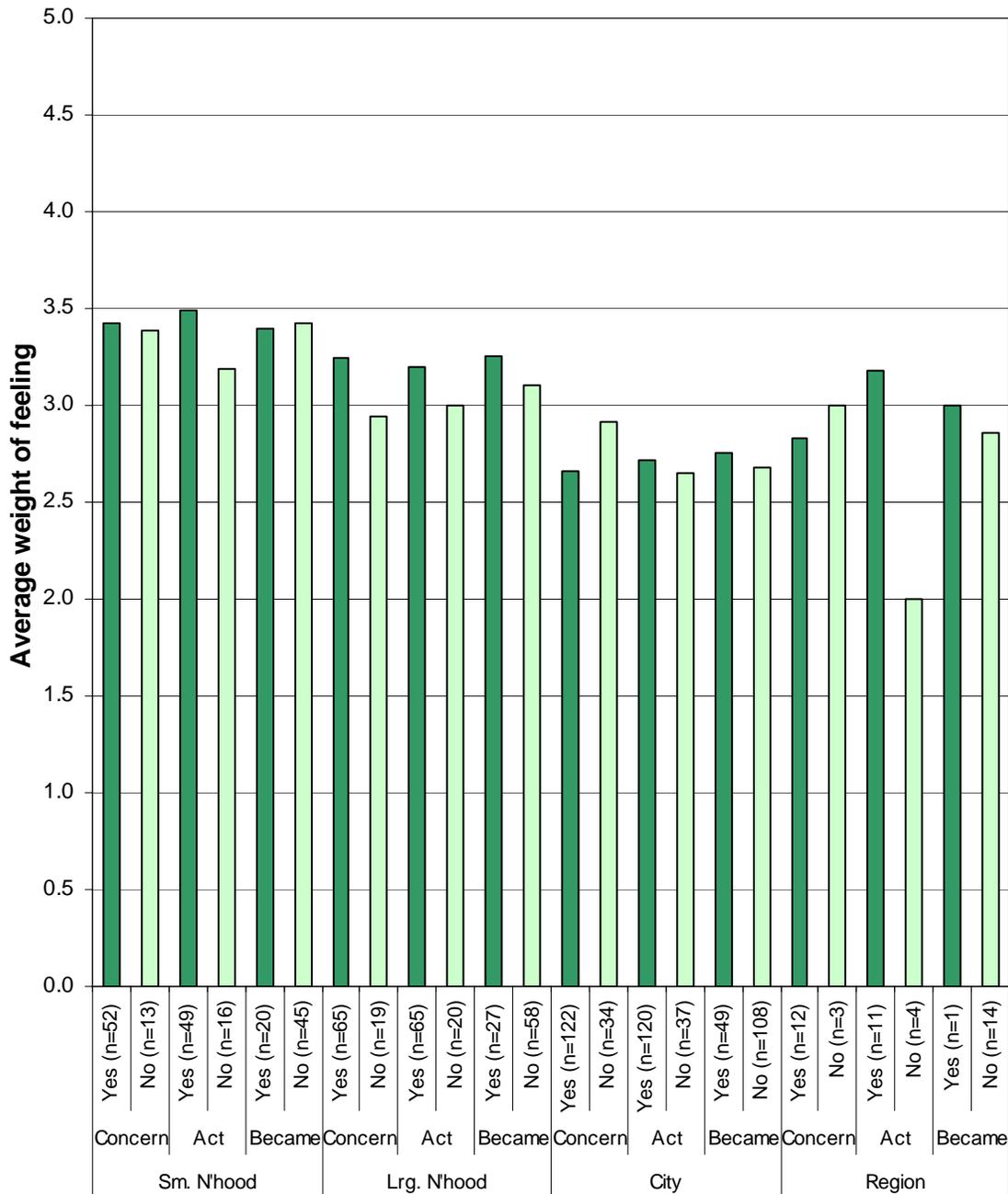
As for intangible community qualities, starting with regard to feelings about community, some interesting results were found. When taking into account the whether those with altruistic or non-altruistic tendencies scored higher in terms of average weight

of feeling per respondent (on a scale from 1 to 5), overall those with altruistic tendencies rated higher. This suggests that those with positive feelings about their community would tend to be more altruistically inclined than those who did not have such feelings.

Furthermore, Binomial probability tests found this trend to be significant with respect to knowing people better in the community ($p=0.0418$), having a sense that people help each other in the community ($p=0.0107$), and being attached to the community ($p=0.0107$). Taken as a whole, this evidence would seem to affirmatively support *research questions 7, 9 and 10* which asked respectively whether knowing people better in the community, having a sense that people help each other in the community, and being attached to the community is positively related to altruistic tendencies. However, no evidence is found to support *research question 8* that being involved in the community tends to be positively related to altruistic tendencies. When investigated more closely, however, a Binomial probability test found a significantly high relationship between the tendency to already be willing to act to help protect the health of others and knowing people better in the community ($p= 0.0228$), being involved in the community ($p= 0.0228$), and having a sense that people help each other in the community ($p= 0.0228$) (Figure 9). The test also revealed a significantly high ($p= 0.0228$) relationship between feeling concerned about others and being attached to the community. Overall, it would seem that while strong feelings of knowing others in the community and a sense that others help each other in the community are consistently related to altruistic tendencies, a more tentative relationship exists between such tendencies and feelings of attachment to, and involvement in, the community.

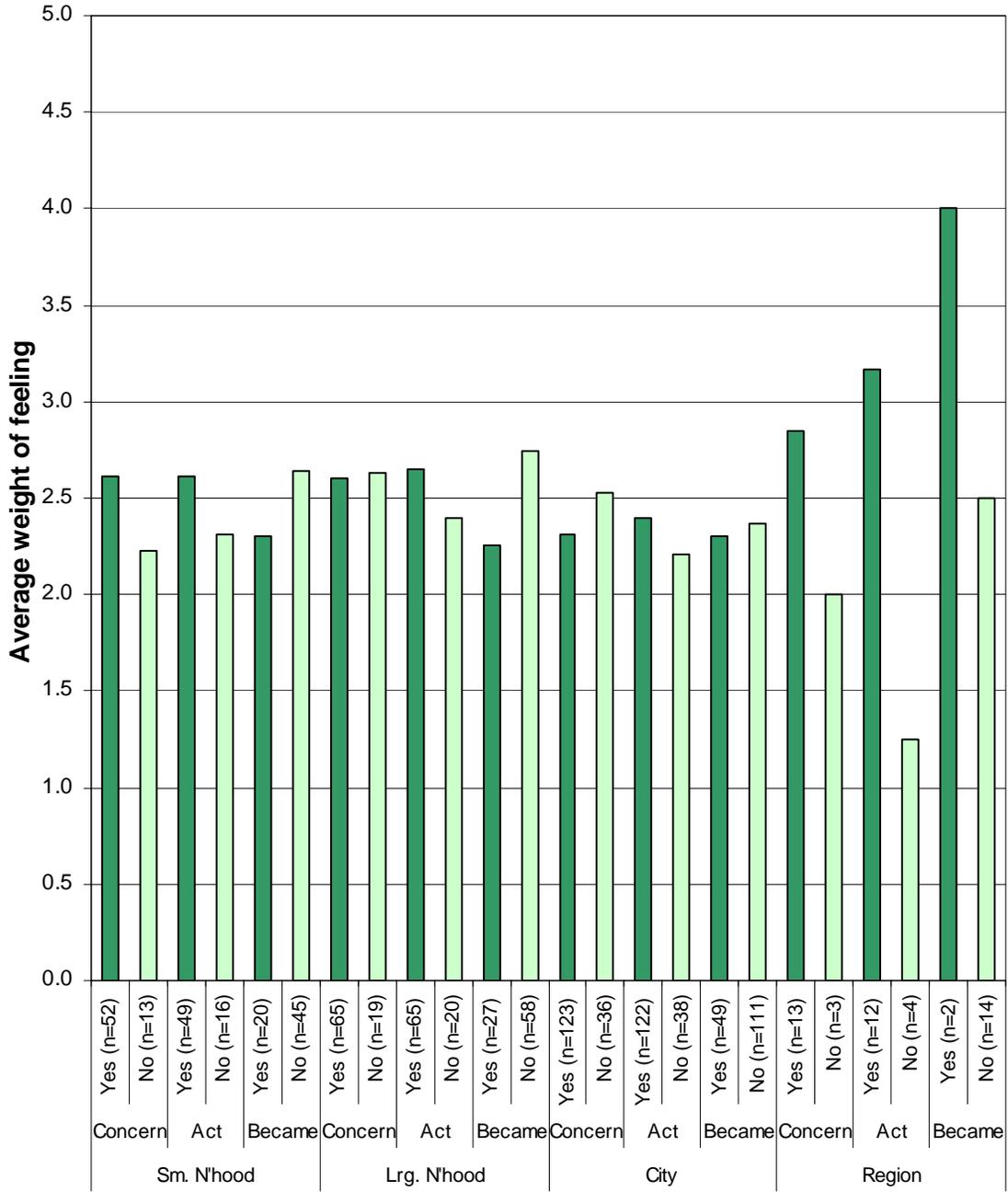
Figure 9: Comparison of altruistic and non-altruistic tendencies based on respondents' strength of feeling (on a scale from 1 to 5) about their community

(a) Comparison based on how much respondents feel they know people in their community*



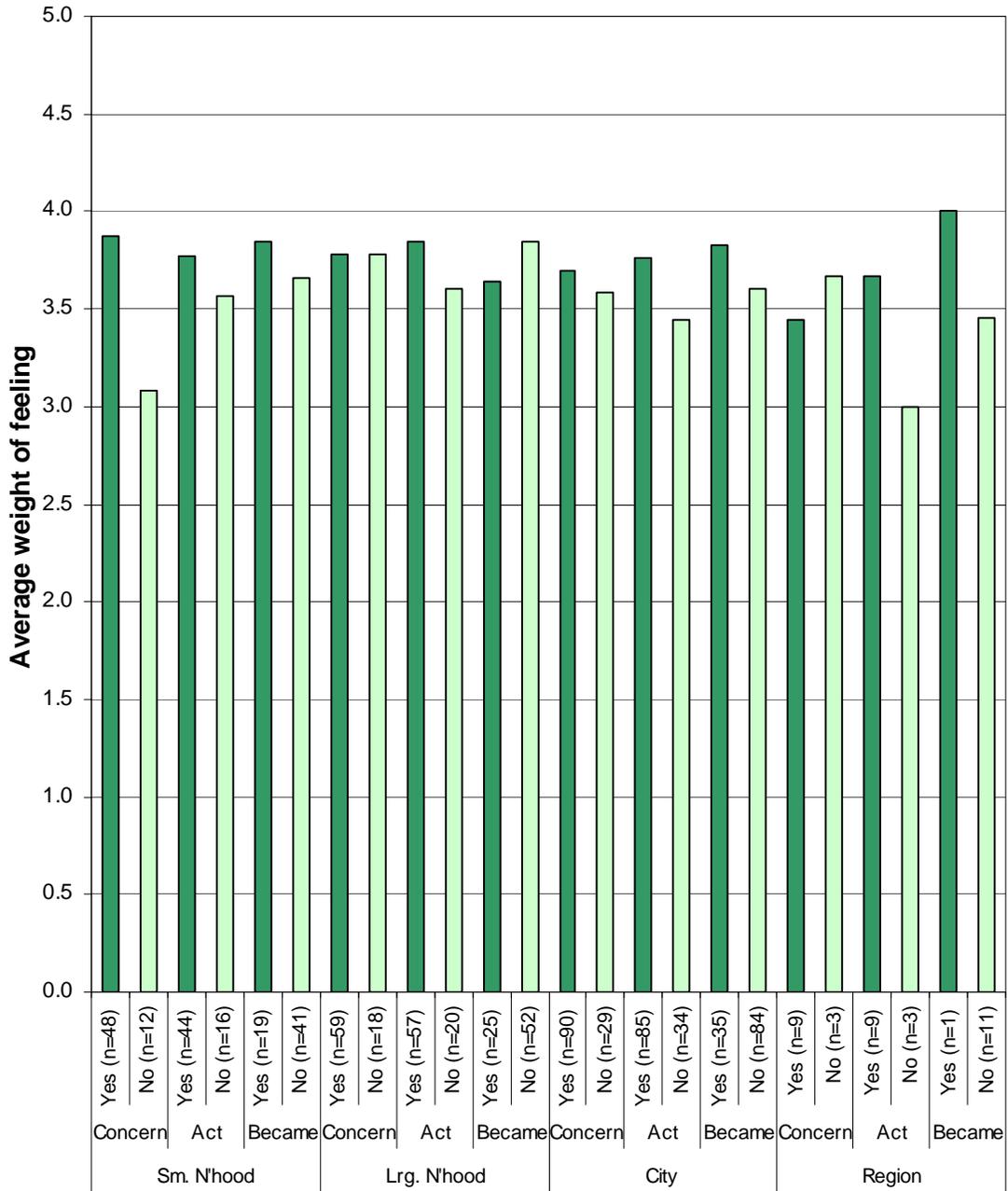
* A Binomial probability test revealed knowing people in the community to be significantly ($p=0.0418$) related to altruistic tendencies. More specifically, a Binomial probability test found this feeling to be significantly ($p=0.0228$) related to already be willing to act to help protect others.

(b) Comparison based on how involved respondents feel they are in their community*



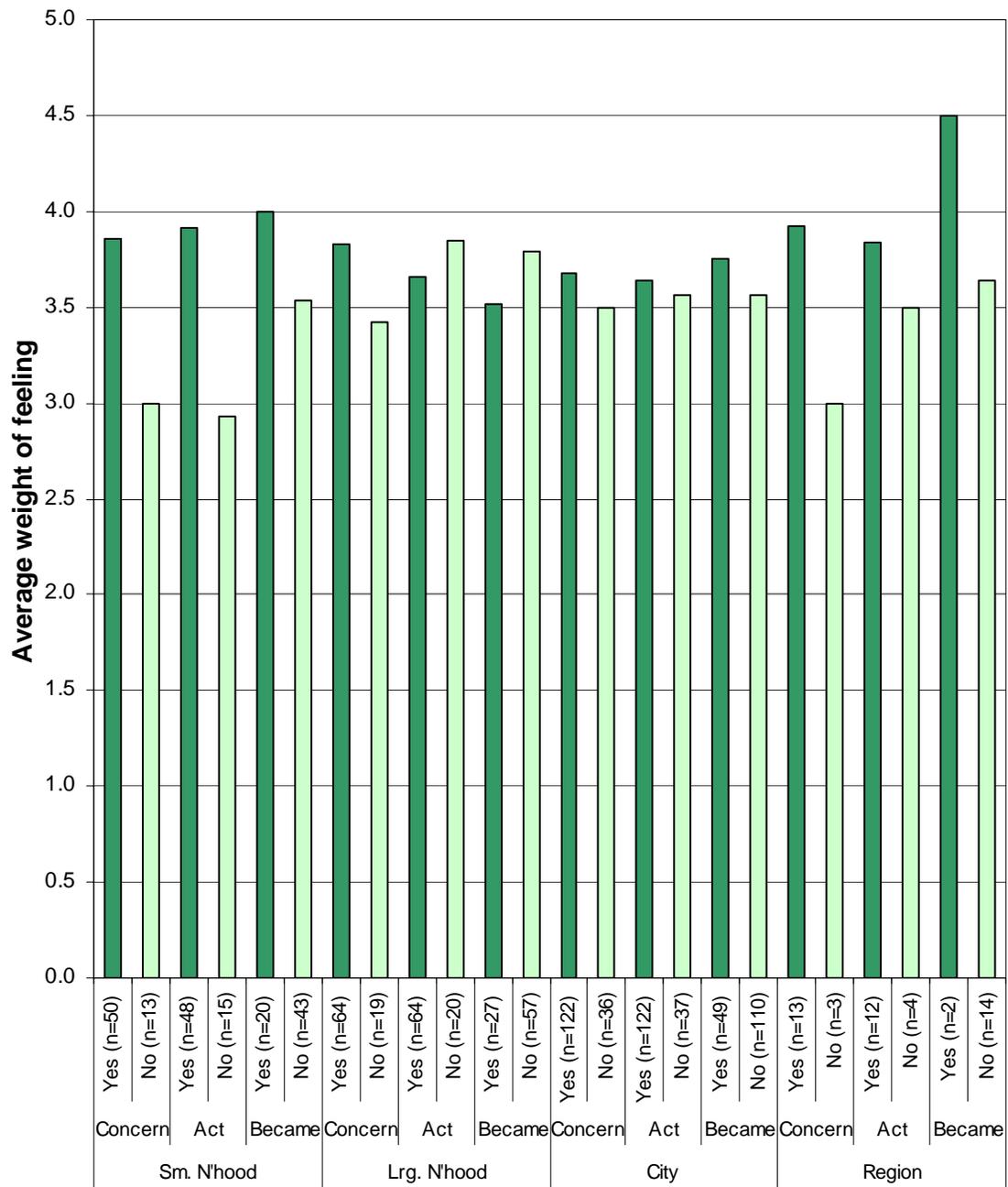
* A Binomial probability test found that being involved in the community was significantly ($p=0.0228$) related to already be willing to act to help protect others.

(c) Comparison based on how much respondents people help each other in their community*



* A Binomial probability test revealed that a sense that people help each other in the community to be significantly ($p=0.0107$) related to altruistic tendencies. More specifically, a Binomial probability test found that this feeling was significantly ($p=0.0228$) related to already be willing to act to help protect others.

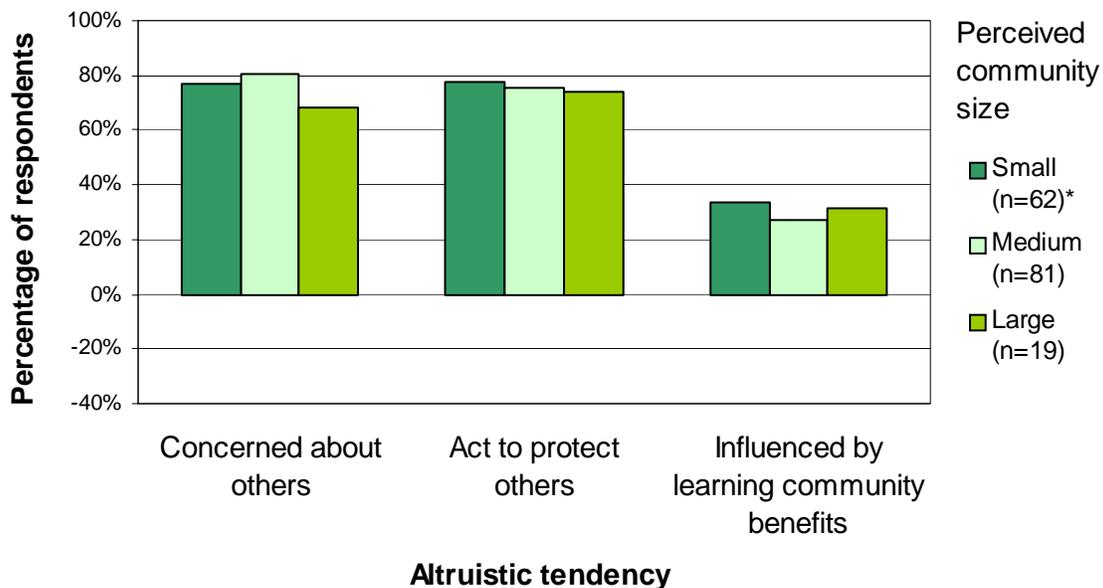
(d) Comparison based on how attached respondents are to their community*



* A Binomial probability test revealed being attached to the community to be significantly ($p=0.0107$) related to altruistic tendencies. More specifically, a Binomial probability test found that this feeling was significantly ($p=0.0228$) related to being concerned for others about the disease.

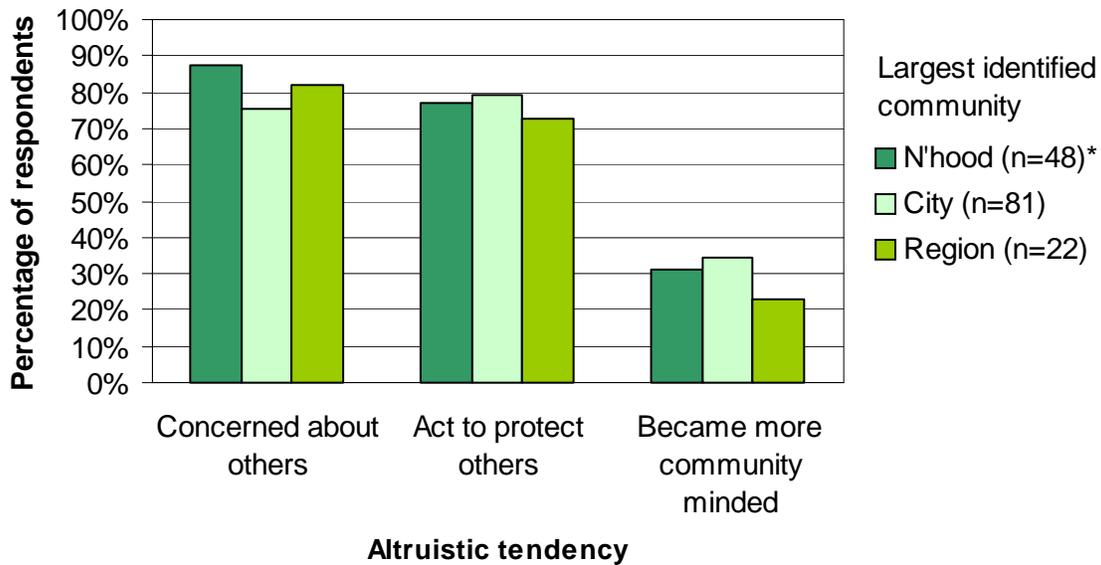
In terms of *research question 11* as to if people who perceive their communities to be smaller tend to be more altruistically inclined, no significant findings were made to support this question. This was the case with respect to respondents' perceptions as to the size of their community, whether that be small, medium, or large (Figure 10); the largest area that they identified as their community, specifically with respect to neighbourhood, city, or region (Figure 11); and the size of the neighbourhood in which they perceived themselves to live, including small as in a few blocks; medium as in Foxboro, Morningside or Luther Village, or large as in an entire subdivision such as Laurelwood or a downtown core (Figure 12). However, albeit not significantly, it was found that those who perceived themselves to live in a small- or medium-sized neighbourhood as opposed to a larger neighbourhood (Figure 11) or a city/town/hamlet as opposed to region (Figure 12) tended to be more influenced upon hearing the community benefits of CPMs.

Figure 10: Comparison of altruistic tendencies based on respondents' perceived community size



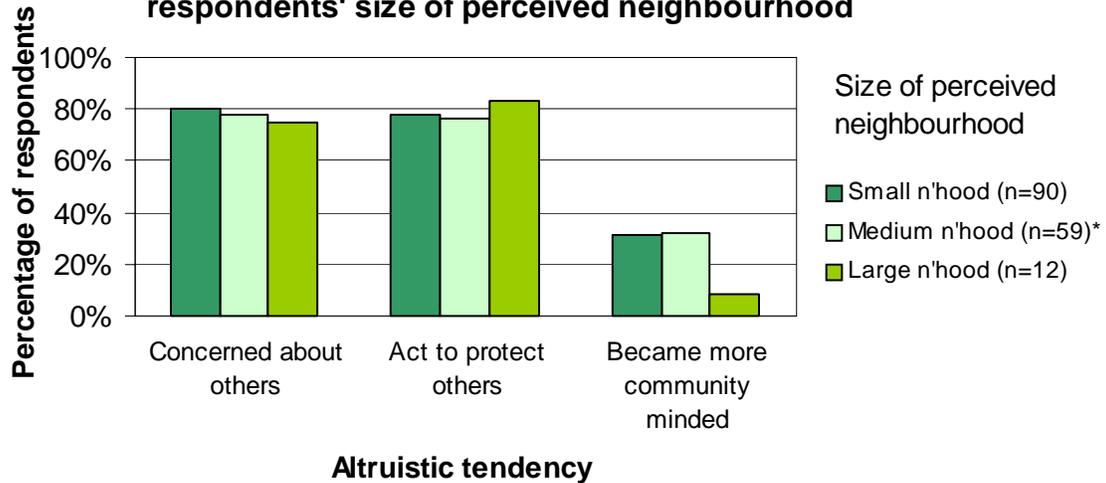
* The total population with respect to concern about others for those that perceived themselves to live in a small community was actually 61.

Figure 11: Comparison of altruistic tendencies based on respondents' largest identified community



* The total population with respect to concern about others for those that defined their community in terms of their neighbourhood was actually 47.

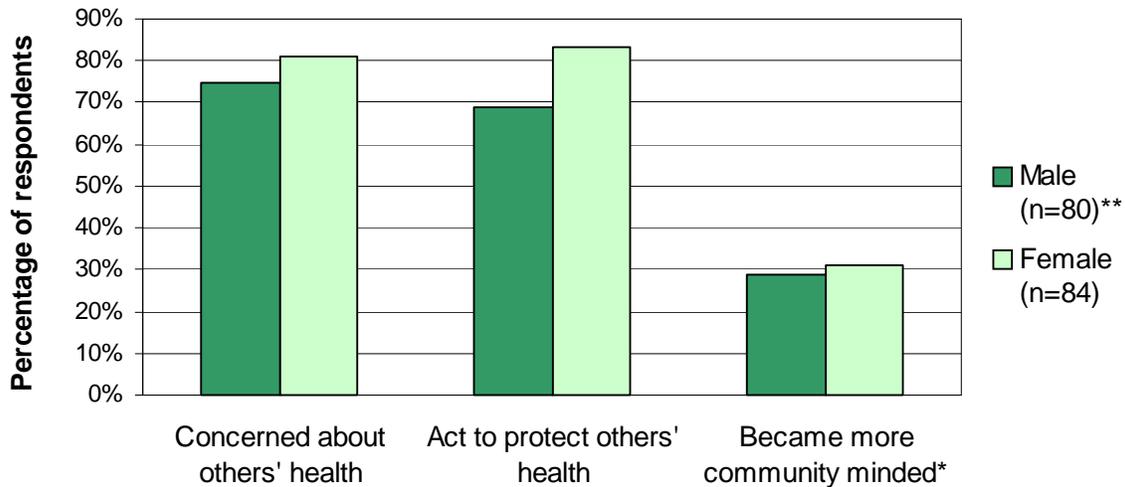
Figure 12: Comparison of altruistic tendencies based on respondents' size of perceived neighbourhood



* The total population with respect to concern about others for those that defined their neighbourhood as being medium-sized was actually 58.

With respect to the characteristics of the respondents themselves, a few findings were made. In terms of *research question 12* that asked whether levels of altruistic tendencies would be gender neutral, for the most part this was found to be the case with the exception of existing willingness to undertake CPMs in order to help protect others' health. In that respect, a significant difference of $p=0.028$ was found where $\chi^2=0.93$, with over 10% more women displaying this quality than men. Interestingly, women also scored higher with respect to all the other altruistic indicators (Figure 13), suggesting that further investigation could reveal women to be consistently more altruistically inclined.

Figure 13: Comparison of altruistic tendencies based on respondents' gender



Altruistic tendency

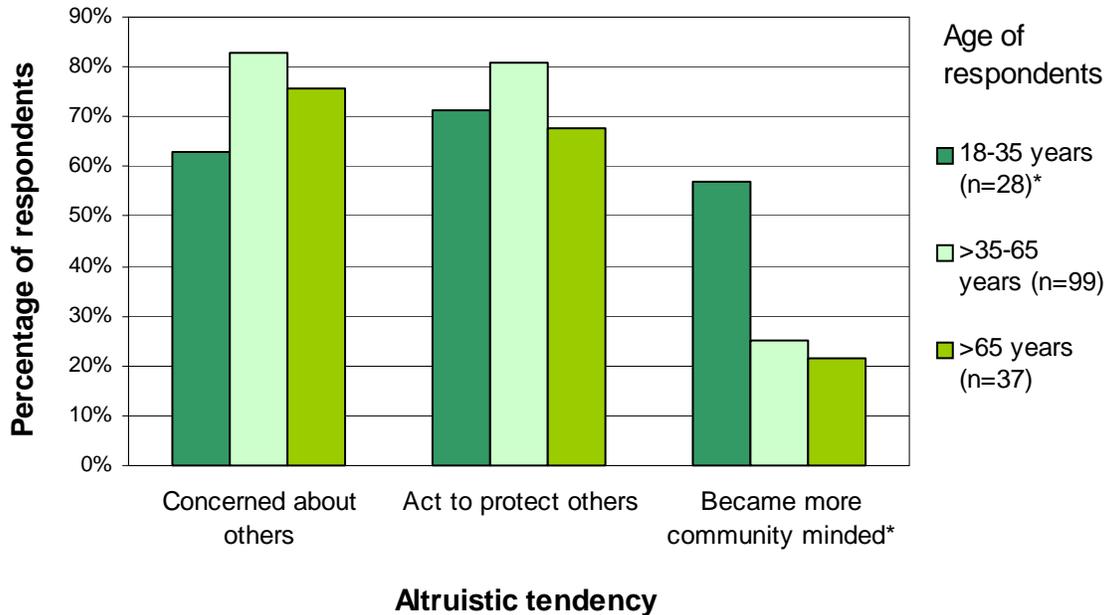
* Using chi-square analysis, the tendency for females than males to already be willing to act to protect others was found to be significant with $\chi^2=0.93$ and $p=0.028$.

* The total population with respect to concern about others for those that were male was actually 79.

As for *research question 13* that asked older people would demonstrate more altruistic qualities than younger individuals, no evidence to support this assertion was found. Rather, age seemed to be significantly (where $\chi^2=12.15$ and $p=0.002$) inversely related to altruistic tendencies with respect to becoming more community minded upon

hearing the benefits of CPMs (Figure 14). Although found to be somewhat the case for those >35-65 years of age, the greatest likelihood for this tendency was found for those aged 18-35 years.

Figure 14: Comparison of altruistic tendencies based on respondents' age

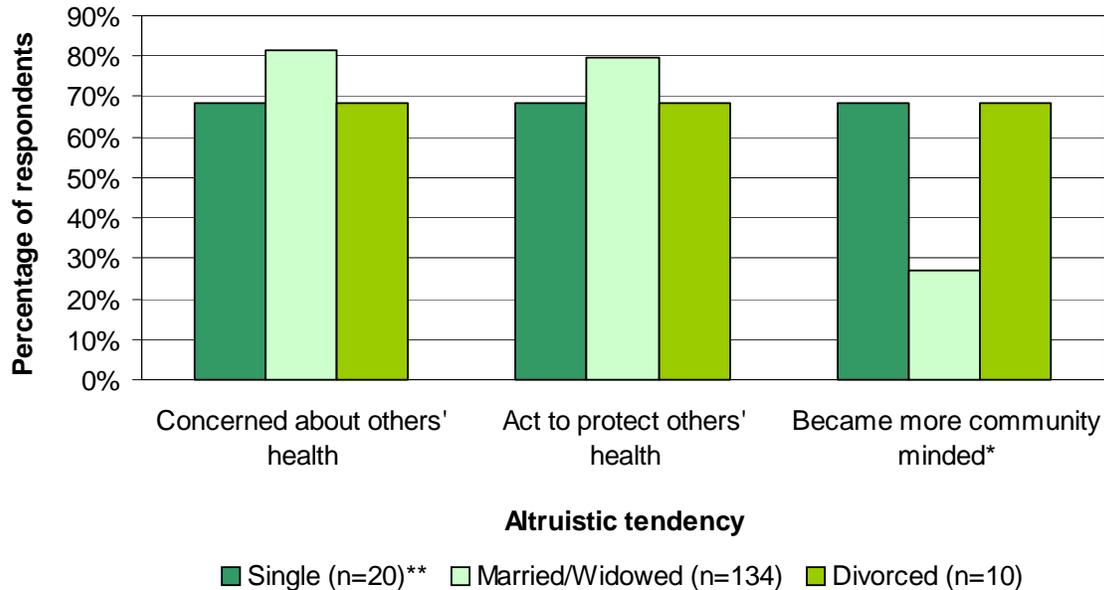


* Using chi-square analysis, the tendency for younger individuals (18-35 years) to become more community minded was found to be significant with $\chi^2=12.15$ and $p=0.002$.
 ** The total population with respect to concern about others for those that were aged 18-35 years was actually 27.

In terms of *research question 14* that married or widowed people tended to be more altruistic, the data almost consistently supported this conclusion. Specifically, with respect to being concerned for others about the disease and existing willingness to act to protect others from it, χ^2 -values of 6.439 and 6.157 and p-values of 0.04 and 0.046 were found respectively with married or widowed people consistently scoring at least ten percent more than singles or divorcees in this respect (Figure 15). However, single or divorced people were over forty percent more likely to be influenced upon hearing the

community benefits of CPMs, with an χ^2 -value of 7.071 and a p-value of 0.029 indicating these findings were significant.

Figure 15: Comparison of altruistic tendencies based on respondents' marital status

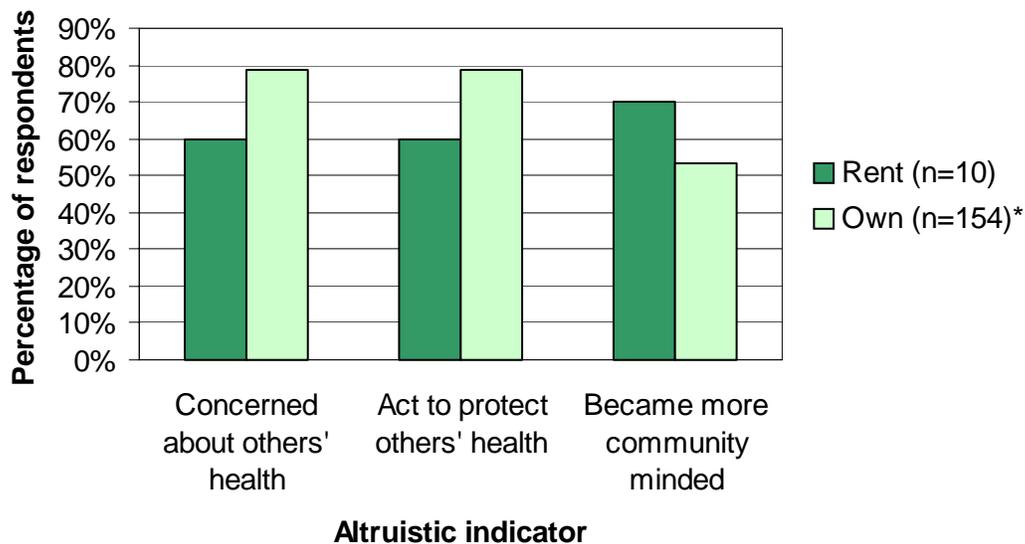


* Using chi-square analysis, married or widowed people were found to be significantly more concerned for others (where $\chi^2=6.439$ and $p=0.04$) and already willing to act to protect others from the disease (where $\chi^2=6.157$ and $p=0.046$). However, the tendency for single and divorced people to more likely become more community minded was found to be significant with $\chi^2=7.071$ and $p=0.029$.

** The total population with respect to concern about others for those that were single was actually 19.

As for *research question 15* that inquired if those who own their homes may be more altruistically inclined than those who rent, no evidence was found to support or refute this given that the total number of renters surveyed was one less than is required to do a proper chi-square analysis. However, further research may provide insight into this question at least with respect to existing altruistic tendencies, given a review of mean responses (Figure 16). By comparison, renters showed themselves to be nearly 20% more influenced by hearing the community benefits of CPMs, suggesting that they may simply require reminding of their community responsibilities.

Figure 16: Comparison of altruistic tendencies based on respondents' land ownership status

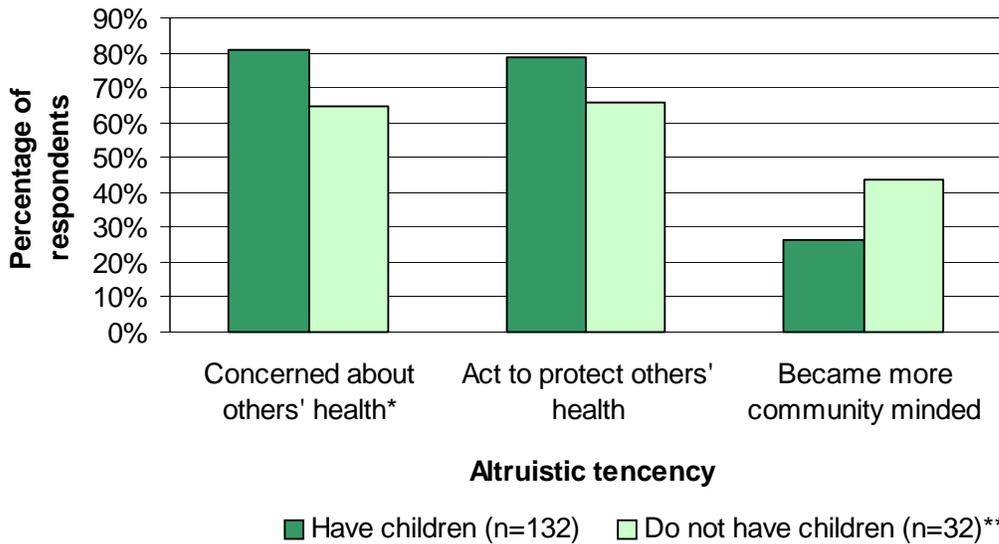


* The total population with respect to concern about others for those that owned their home was actually 153.

With respect to *research question 16* as to whether those with children may be more altruistically inclined, this was found to be positively the case over fifteen percent of the time in relation to concern for others about the disease. A chi-square test revealed this conclusion to be significant, with an χ^2 value of 3.993 and a p-value of 0.046. Although not found to be significant, respondents with children were also found to already be acting to protect others health more frequently than those without children. At the same time, those without children tended to be approximately 20% more often to become more community minded upon hearing the benefits of CPMs, suggesting that they may simply need reminding to consider the impacts of WNV on others (Figure 17). However, no pattern was found with respect to the number of children people had and altruist

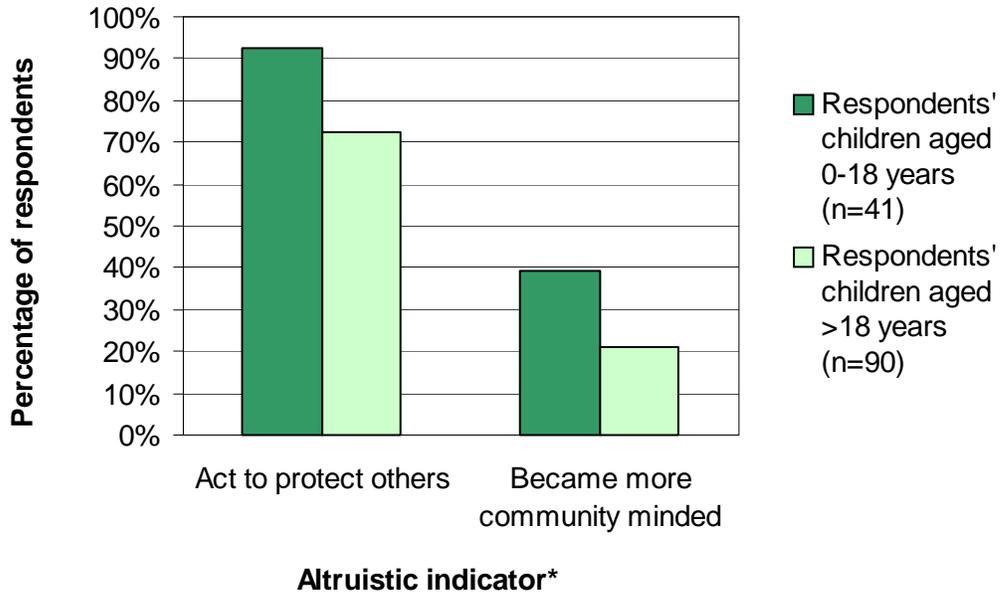
tendencies. This was found to be the case even when collapsing the data (to compare people who had 1-2 children, 3 children, and 4 or more children) to ensure that less than 20% of cells had an expected count less than 5. As for *research question 17*, that investigated whether those with younger aged children may be more altruistically inclined than those with older children, this was found to be significantly the case 20% (where $\chi^2=7.017$ and $p=0.008$) and 18% (where $\chi^2=4.616$ and $p=0.032$) more often respectively in terms of existing willingness to act to protect others and becoming more community-minded upon hearing the benefits of CPMs (Figure 18).

Figure 17: Comparison of altruistic tendencies based on whether respondents have children



* Using chi-square analysis, the tendency for those with children to be more concerned for others about the disease than those without children was found to be significant with $\chi^2=3.993$ and $p=0.046$.
 ** The total population with respect to concern about others for those that did not have children was actually 31.

Figure 18: Comparison of altruistic tendencies based on age of respondents' children



* Using chi-square analysis, the tendency for those with younger children to already be willing to act to protect others and become more community minded was found to be significant with $\chi^2=7.017$ and $p=0.008$, and $\chi^2=4.616$ and $p=0.032$ respectively.

Chapter 7.0:

Synthesis and Direct Implications of Findings

The findings of this study provided empirical support for many of the assertions in the literature. Starting with the central matter to this paper as to the potential of altruism to influence behaviour, this admittedly was not always the case. Indeed, although a minority, some people were not motivated to undertake CPMs to help others at all, lending partial support to the theorists such as Ghiselin (1974) that people are egotistically motivated. Furthermore, some respondents seemed to be motivated by more egoistic behaviour such as a desire to protect one's kin, lending support to *kinship theory* (Hamilton 1963; 1964), or at least those that they know, lending potential support to *reciprocity theory* (Trivers 1971). Furthermore, although again a minority, some individuals were motivated by quasi-altruistic internal rewards such as the good feeling that can be achieved by doing so or the fact that undertaking these measures allows one to adhere to one's conscience given that they are the "right thing to do". This suggests that the findings in the literature, as to how internal rewards can accompany helping behaviour (i.e. Monroe 1996), in at least some cases actually drives helping behaviour. Nevertheless, despite these findings, the study surprisingly revealed that the majority of respondents either were already, or had the potential to be motivated by purely altruistic reasons to undertake CPMs. Far from being limited to just a handful of communities, such tendencies were found across many different types of communities ranging in size, location in urban or suburban areas, and composition of homogenous versus heterogeneous resident ages. Given that a significant majority of respondents already possessed altruistic tendencies, this lends the greatest support for striving to develop

communities where people naturally want to help others in the community. However, in considering how some individuals who were not altruistically inclined became so, and those who were already altruistically inclined respectively became more so, upon hearing the benefits of CPMs on the community, this lends support that such an emphasis could play a beneficial role in educational efforts about the disease.

With respect to the exact characteristics of communities and individuals where altruistic tendencies are more likely to occur, the study made some important findings which shed some light on the literature as well as planning. To begin, the study did not find any trends with respect to *actual* community size and altruistic tendencies. A possible reason for this could be that the study did not assess the opinions of respondents that live in a large metropolitan centre like New York City or Toronto as was often done in the literature (Korte and Kerr 1975; Levine, Vilela et al. 1976; Takooshian, Haber et al. 1977; Rushton 1978; Amato 1980; Korte 1980; Amato 1981; Hedge and Yousif 1992)²⁴, with the largest city assessed in the study being Waterloo with a population of around 500,000. However, it is interesting to note that, although not found to be significant, the study did find a potential link between the potential for altruistic tendencies, in terms of becoming more community minded upon hearing the benefits of CPMs, and *perceived* community size at least with respect to neighbourhoods believed to be small- or medium-sized as opposed to large and communities felt to encompass neighbourhoods or cities as opposed to a region. This finding suggests the need to assess for the influence of helping behaviour on perceived, rather than just actual, community

²⁴ Also potentially characteristic of such studies includes research by Korte and Ayvalioglu (1981) and Yinon, Sharon et al. (1981) as both studies claim to assess the responses of those living in cities but do not indicate the size of the cities assessed.

size. The discovery has significant implications for planning given how today it has become commonplace for entire, large neighbourhoods to be planned and developed at once, rather than organically based on one house at a time as has been done in the past. Thus, there is conceivably greater potential for people in new developments to view their neighbourhood as being very large, and consequently not be as helpful to one another. This does not necessarily have to be the case though, as not everyone surveyed that lived in large neighbourhoods like Laurelwood perceived their neighbourhood to be as such, sometimes instead identifying their neighbourhood to be their immediate neighbours or the street. Further research could reveal the factors that help cultivate the feeling of living in a small- to medium-sized neighbourhood, so as to create communities where residents can be more easily encouraged to act to help others.

As for the influence of living in a community where the residents are of relatively homogeneous ages, no evidence supported the contention put forward in the literature (Somers 1993) that such places tend to give rise to greater altruistic tendencies. Rather, communities whose residents are of heterogeneous ages were found to be significantly more likely to become more community minded upon hearing the benefits of CPMs. A possible reason for this may be that those living in communities with residents of heterogeneous ages may be less in touch with their neighbours as opposed to those living in communities with residents of homogeneous ages and consequently simply require reminding of the impact of their actions on others. Another possible reason could be that the communities where residents are homogeneously aged are also older and consequently more susceptible to the disease, making them already more sensitive to the benefits of undertaking CPMs for themselves and their neighbours. Additional

investigation in communities of homogeneously aged, but young residents would be useful to explore this question.

With respect to the affect of living in an urban as opposed to suburban area, the study challenged Miller (1997)'s assertion that suburbia is a "cultural breeding ground of self-absorption". Rather, although those who lived in urban areas were slightly more likely to become more community minded upon hearing the benefits of CPMs, the study found that it was actually those living in suburban areas who were significantly more concerned about the impact of the disease on others. While not necessarily supporting the development of suburbs *per se* given their propensity to use vital greenspace and perpetuate reliance on less sustainable forms of transit, this finding suggests that there may be unique characteristics of suburbs that cultivate altruistic tendencies. To the degree that such characteristics can be identified and replicated in urban centres is an area of research that could provide useful insights.

The finding that those living in older communities established for a longer period of time may did not exhibit more altruistic tendencies was not surprising. This is the case given the conclusion that those living in suburban areas, which are typically established more recently, can actually possess residents who exhibit greater altruistic tendencies than those living in urban areas, which are typically built a greater time ago. Nonetheless, the results are concerning and helps further underscore a need to investigate ways to reintroduce the sense of community present in younger communities into older ones.

As for the influence of living in a place for a longer period of time, it was important to note that altruistic feelings with respect the potential to become more community minded surged initially during the first five years, followed by a decline

between five to ten years, and ultimately an even higher increase between ten to twenty-five years. The relationship between length of residency and altruistic sentiment appears to have not been explored in the literature and further investigation to assess the validity of these findings would be valuable. Assuming the findings are correct, given the ultimate surge in altruistic feeling following residence in a community for a long length of time (10-25 years), it would also seem the challenge for planning in general to find ways to encourage people to remain in their place of residency. This conclusion holds serious planning implications at a time when, for a variety of reasons, people are becoming increasingly transient.

With respect to feelings of community, it was encouraging to learn that for the most part people with greater strength of feelings for their community tended to more likely to exhibit altruistic tendencies given that such feelings could conceivably be influenced by the introduction of programs or services aimed at cultivating such feelings (i.e. through sponsorship of community BBQs). What is more, such efforts can conceivably be undertaken after the establishment of communities, something which bears significance for the numerous communities which have already been built. As to the exact types of feelings which tended to encourage altruistic tendencies, it was not entirely surprising to learn that this was, with one exception, most consistently the case specifically for strength of feeling relating regarding knowing others in the community, given how the literature supported this contention. The one exception to this had to do with the feeling that others help each other in the community, a finding that was not as expected given that no research could be found either to support or refute this contention. Additional research exploring the impact of a general sense of community helpfulness

may be worthwhile in light of this finding. The potential impact of knowing others in the community, being involved in the community and the sense of attachment to a community should not be overlooked, however, given the support of their influence by the literature as well as at least partially by this study.

In terms of the influence of gender, the finding that women rated significantly higher than men with respect to existing willingness to undertake CPMs to help protect others and, albeit not significantly, nonetheless higher with respect to all the other altruistic tendencies was not predicted. This is because the undertaking of tasks required in undertaking CPMs quite arguably, with the exception of the clearing of eaves troughs, are fairly evenly split between the genders. It could be though that women more often perform other activities such as emptying water from flowerpot saucers and toys. As the division of tasks related to CPMs was not explored in the study, the influence of gender on altruistic tendencies is not entirely clear and is a matter for further study.

As for how those of a younger age became more community minded upon hearing the benefits of CPMs, it was interesting to note that this was significantly the case with respect to younger people (18-35 years old). This somewhat contravenes the evidence provided by Putman that suggests increased age is positively related to increased altruism manifested as greater involvement in civic activities. However, it supports the research by Midlarsky and Kahana (1994) which found that informal types of helping, of which the undertaking of CPMs arguably qualifies, declines with age.

The study also made a valuable contribution with respect to characteristics of people that could make them more “other” oriented and thus consequently exhibit more altruistic tendencies. Indeed, although not found consistently or always significantly,

overall people who were married or widowed, rented as opposed to owned, had children, or had younger children tended more often to exhibit existing altruistic tendencies. This conclusion did not entirely hold up however with respect to becoming more community minded upon hearing the benefits of CPMs. While those with younger children (0-18 years) were found to be significantly more likely to exhibit this tendency, this was also the case for those who were single or divorced. Additionally, although not found significant, those without children and renters also had a greater chance of expressing this tendency. These findings further support the contention that while people who already are altruistically oriented tend to not be influenced by messaging which encourages them to become so, those who are not simply need reminded to become so.

In terms of next steps, given that the study did not involve a random sample and how the literature revealed that there can be many reasons which motivate helping behaviour, a pilot study is recommended which would educate the public about the community benefits of CPMs. Another reason a pilot study is recommended is that despite working to ensure that respondents felt they could express their feelings in confidence without having to worry what others may think, some may have felt led to provide certain responses given that they were directly asked questions relating to their feelings of altruism. Further to this point, people do not always follow through in the helpful activities they say they will perform, nor do they know how they will act when the exact situation arises because they themselves do not fully understand their motivation (Ross and Nisbett 1991).²⁵ In terms specifically where such a study would be

²⁵ With respect to the former point, a survey conducted recently on behalf of Canadian Blood Services (2006) showed that nearly 30 out of every 100 eligible Canadians (28%) say they intend to donate blood in the next year, but in reality less than four (3.7%) of them will do so. With respect to the latter point, beyond the complex array of possible motivators of seemingly altruistic behaviour discussed earlier,

conducted, based on the findings, for greatest impact it would occur in a place with people of heterogeneous (i.e. a non-ALC) and young (18-35 years) ages. Ideally it would also be conducted where people perceive themselves to live in a small- or medium-sized neighbourhood and the majority of residents have lived for a long period of time (>10-25 years). However, it is recognized finding data on people's perceptions of community size and length of residency is not as easily obtained, and consequently may need to be gathered informally through word-of-mouth. For practical purposes, it would make most sense to conduct the study in a community where people are responsible for conducting all of their own yard maintenance if not also have older trees whose falling leaves would necessitate the cleaning of eaves troughs thus placing the community at higher risk of being exposed to WNV. As for the types of people targeted in the study, people who were single or divorced, people without children or those with children aged 0-18 years, and possibly also renters and women would be targeted by the campaign.

In addition to a pilot study, planners may wish to consider finding ways to cultivate people's belief that they live in a "small-town" or at least mid-sized neighbourhood; desire to remain for a long period of time in their city/town/hamlet; strong positive feelings about their community in terms especially of knowing people in the community and having a sense that people help each other in the community. By undertaking such measures, it is feasible that planners may not need to undertake as much

other theories exist which have not even been explored here. One such example of how some theorists suggest that altruistic behaviour can be undertaken because it fits a larger pattern of acts which, according to behaviourists, has reinforcement value (Lacey 2002). A variation thereof not explored here is how altruism fits a larger pattern of self-control, similar to eating in moderation, which people have found to be valuable and consequently apply across various situations (Rachlin 2003).

of an effort to encourage people to undertake CPMs, but may create conditions where people naturally wish to do so.

As one final note, it has been suggested in the future an altruistic index could be created that could be used in parametric analysis that assesses variance from the mean such as a one-way ANOVA test. Such analysis could be useful in drawing inferences from the data rather than simply noting trends. However, the creation of an overall altruistic index would not be appropriate given that the study needed to distinguish between existing altruistic tendencies, useful for helping in the planning of communities, and potential altruistic tendencies, important for understanding populations that could be targeted in educational campaigns against the disease. Having said this, it would be possible to generate an altruistic index with respect to existing willingness to act to protect others from the disease. Such an index could be created based on responses recorded in Table 1 located in Appendix A, regarding the undertaking of CPMs such as the emptying of flower pot saucers and the changing of water in bird baths. Given that not everyone has the potential to undertake such measures though (i.e. not everyone has toys located in their yard), it would be necessary to divide existing willingness to undertake such measures by the total number of measures that they are able to carry out. The ability to make inferential conclusions, though, from such analysis is limited though given that participants were not randomly sampled and sample size is frequently smaller than the recommended 30 per group (Kitchin and Tate 2000).

Chapter 8.0:

Broader Implications

The findings of this study, although useful in helping with the control of WNV in North America, quite arguably have important implications elsewhere. Specifically, the reliance on, and encouraging of altruistic tendencies to help communities could be arguably applied in 1) *controlling WNV elsewhere outside North America*, given how the disease affects, to greater or lesser degrees, various other places throughout the world;²⁶ 2) *combating other mosquito-borne diseases*, including those for which (a) CPMs are needed, including St. Louis Encephalitis (CDC 2007B) and Eastern Equine Encephalitis (CDC 2006) which are common to North America (see Booss and Esiri 2003; Public Health Agency of Canada 2005), and dengue and yellow-fever (Lines, Harpham et al. 1994) found in warmer climates, and (b) ones requiring more drastic alterations of the environment, such as through community-wide efforts to alter irrigation systems in the control of malaria;²⁷ 3) *fighting other infectious diseases* such as HIV and influenza (Pollard and Dobson 2000), many of which remain more of a priority in developing countries (Manderson 1999), but which nonetheless exist as concern in developed countries as well (Cockerham 2007), 4) *discouraging other community health-*

²⁶ As noted by Murgue, Zeller et al. (2002), outbreaks of the disease have been noted for many decades throughout numerous countries in Africa, Asia and Europe. However, indicative of these lesser effects, WNV has been noted to be less severe in Europe, possibly in part due to lower prevalence of mosquitoes that can act as bridge vectors between birds and humans (Fonseca, Keyghobadi et al. 2004).

²⁷ Admittedly isolated to rural areas (Zucker 1996) given how mosquito vectors are generally not successfully reproducing in smaller catchment basins found in urban areas (Lines, Harpham et al. 1994), nevertheless malaria can still be a problem in urban areas, such as Yohannes, Haile et al. (2005) note due to the introduction of irrigation schemes near human settlements. Interestingly, they comment that in these types of situations, community efforts to eliminate mosquito breeding sites have proven effective in vector control. Similar opportunities exist for communities to undertake other mosquito control measures with respect to other mosquito-borne diseases such as Japanese encephalitis (see Keiser, Maltese et al. 2005).

threatening behaviour, including smoking in public, avoidance of immunization, and driving under the influence of drugs or alcohol, all of which bring with them, in addition to the personal health risks, the potential for harming the health of others; 5) *encouraging health-promoting behaviour in the community*, the failure of which to undertake brings potential problems, such as by increasing people's willingness to act as organ donors, for which a significant demand exists (UNOS 2008); providing social support to address issues like stress (Williams and House 1991), eating disorders (Skomorovsky, Matheson et al. 2006), the undertaking of physical activity (Bull, Eakin et al. 2006); or even the provision of health services such as by helping as community health volunteers (Maru 1983) or with the running of community health clinics (Stratas and Boyd 2003); 6) *creating clean and vibrant communities*, such as by addressing basic community maintenance like cleaning off sidewalks or picking up after one's dog (see Poppe 2005), reduction of waste directed to local landfills, or more ambitious goals of community revitalization (Mayer 1984), and sustainable development (Hoff 1998); and finally 7) *addressing wider national as well as global socio-economic or environmental issues* such as addressing issues like poverty, acid rain and global climate change, the latter of which ironically some research suggests has exacerbated the spread of WNV (Epstein 2001).

Although the findings of study may hold implications for a wide range of issues, some caution is nonetheless warranted. This is because, only to the extent that other situations have factors in common with this study's topic, inferences can be drawn between them. Such a stance agrees with the arguments of Lincoln and Guba, who state that whether results hold true for some other context depends on "...the degree of

similarity between sending and receiving...contexts” (1985, p. 316). For instance, altruism has been noted to differ between cultures (Cohen 1978), with some cultures tending to offer help only out of self-interest whereas others almost being overly-altruistic.²⁸ Furthermore, the degree to which cooperation at the local level translates to cooperation at greater scales is disputable (Hipp and Perrin 2006). Added to this, the potential exists for negative impacts associated with increasing a sense of concern for others, such as how such feelings for one group can lead to apathetic if not hostile feelings toward another (Druckman 1994). While this latter point of group hostility is less a concern for this study, given that action to control the disease at the local level can help control the disease in other locales, nonetheless these are matters for further study with respect to other issues. For instance, with respect to waste management, one community may seek to block the location of a landfill in one community only to have it located in another. Similarly, with respect to global climate change, people may be concerned about the loss of jobs such as in the auto-manufacturing industry due to the introduction of tougher environmental controls. In this respect, it at least can be safely said with respect to a study by Morrison (1999), people’s scope of concern can to a degree be affected

²⁸ On this former point, Colin Turnbull (1972) gives an account of the mountain-dwelling Ik offering assistance to each other on the basis of reciprocity, saying

...you have the odd phenomenon of these otherwise singularly self-interested people going out of their way to “help” each other. In point of fact they are helping themselves and their help may very well be resented in the extreme, but it is done in such a way that it cannot be refused, for it has already been given. Someone, quite unasked, may hoe another’s field in his absence, or rebuild his stockade, or join in the building of a house that could easily be done by the man and his wife alone. At one time I have seen so many men thatching a roof that the whole roof was in serious danger of collapsing, and the protests of the owner were of no avail (p. 146).

By comparison, Opler’s (1981) points out with respect to the village of Penridge outside of London that so much money has been collected through community charities that “Oddly enough, spending the[ir] money has been more troublesome than collecting it...the demand for Council funds is surprisingly and disconcertingly weak...” As a result, “The Council fears that with no concrete project to support, people will tire of raising money for the sake of raising money (p. 45).

depending on the community that is made salient. In the case of this study, while the creation of smaller communities and neighbourhoods seems useful to helping create more altruistic tendencies amongst residents, other educational campaigns should make salient communities at different sizes depending on the scope of issue.

This study has important implications beyond the matter of altruism and how it can be encouraged, however. Indeed, in revealing the relation between community as well as demographic factors and health, this study supports the need for a more holistic approach to health planning. In part, such an approach would recognize the links between the “environment”, relating to the conditions in which people live, and the promotion of health-promoting behaviour. Admittedly, the recognition of health-environmental linkages is not a new concept in the area of health planning, with the literature increasingly emphasizing the relation between the environment and illness (Dubos 1959; Dubos 1968; Lalonde 1974; Califano 1979; Duhl and Tamer 1986; Dahlgren and Whitehead 1991; Australian Institute Of Health and Welfare 2004). Furthermore, such thinking can be placed under the broad banner of *medical sociology* which in part seeks to understand how social determinants such as poverty contribute to medical problems (Cockerham 2007). It also more specifically is related to the emerging field of *social epidemiology*, which seeks to understand the societal causes of disease (Kawachi 2002). Nevertheless, that this approach to health planning is particularly important is underscored by how, by recognizing the social determinants of disease, health issues can be addressed *a priori* before they become serious health problems. This type of preventative approach is in keeping with the long-recognized but difficult to achieve ‘preventive’ approach in the health field (Meshenberg, Beal et al. 1974; Tones and Green

2004; Cohen, Châavez et al. 2007). Not only is this beneficial from the perspective of promoting optimal community health during a period of arguably growing government accountability, but it reduces the need for costly health care at a time of increasing budget constraints (Canadian Federation of Nurses 2005). Giving further recognition to a preventative approach to health is important given how, despite a movement to give credence to such matters (Meshenberg, Beal et al. 1974; Cohen, Châavez et al. 2007), the literature has nonetheless noted a failure to undertake preventative approaches to health care (Cohen, Châavez et al. 2007) .

Even beyond these matters, this study has other important implications for planning processes. Specifically, to the degree that encouraging altruistic behaviour with respect to WNV also encourages altruistic behaviour for other issues, this study challenges the traditional “rational” approach to planning which seeks to address problems in a linear fashion of identifying one health issue and then undertaking policies and programs that address it. Rather, by identifying the factors that naturally give rise to altruistic tendencies, planners can conceivably seek ways to naturally build capacity for helping behaviour on a range of issues. Furthermore, the fact that so many respondents were already willing, or could be encouraged to act in a helpful manner, quite often for no other reason than to assist others, supports the growing recognition of the importance of involving ordinary citizens in addressing health (Frankish, Kwan et al. 2002) and other community (Mayer 1984; Kalinosky and Desmond 2000) and environmental (Hoff 1998) issues. Taken a step further, quite arguably this study lends support to the extreme advocacy approach to planning which seeks to give ordinary citizens direct control over planning decisions affecting their community. In encouraging more direct forms of

community action, planners can side-step the controversial issue of to what degree governments should become involved in the lives of the public it serves. By doing so, health and other planners can move away from blaming the “victim” approach that health planners have been accused of following in the past to enabling individuals to solve their own problems. That there is momentum for this type of an approach is evidenced by the movement to involve the public in policy and planning decisions (Arnstein 1969; Dryzek 1990; Fischer 1993; DeLeon 1997; Schneider and Ingram 1997; Roberts 2004) including those related to health care (Charles and Demaio 1993). This is opposed to how, quite arguably, planning activity still tends to be conducted via a top-down approach whereby governments tend to implement decisions independently of public input (Checkoway 1982; Sawyer 1995; May 2006), leaving significant opportunity for increased public involvement in the addressing of health and other planning matters.

In conclusion, the evidence found here and elsewhere suggesting that people are capable of exhibiting altruistic behaviour suggests a need for more serious consideration of the potential of altruism both with respect to the undertaking of CPMs and other behaviour. While to a certain extent concern for one’s self and one’s family and those that one knows appears to play a role in health-promoting behaviour, to a large extent concern for others in the community as a whole seem to play an important, although often overlooked, role. The fact that such matters appear to have frequently been ignored in theory and research, with respect to WNV as well as other issues, suggests that much remains to be done to achieve a genuine “paradigm shift” which Piliavin and Charng (1990) has claimed to be occurring towards altruism. That nonetheless such a paradigm shift is needed is emphasized when considering the wide range of issues with the

potential to be better addressed by encouraging altruistic behaviour. Given that altruistic behaviour can help the addressing of social and environmental issues before they become serious, if not costly, problems further emphasizes the need for such an approach.

However, in order to ultimately encourage this type of an approach to planning, health and other planners need to revise their approach to planning. Specifically, rather than solving each issue one matter at a time, planners need to more think of how to encourage in ordinary citizens the tendency to spontaneously promote healthy, caring communities from the grass-roots up.

Appendices

Appendix A: Interview Guide for Members of Community

The following section outlines the interview questions to ask the participants of the study.

Note: If necessary, the interviewer can change the order of the questions. Also, *italicized* font denotes instructions about questions to be asked whereas plain font indicates exactly what should be stated. The use of square brackets ([]) containing text indicates wording to be used as appropriate.

A. Introduction

Thank you for agreeing to participate in this study on health issues. Just as a reminder, participation in this study is voluntary. You may withdraw from the study at any time and decline answering any questions that you do not wish to answer. Also, all information provided will be considered confidential and grouped with responses from other participants; however, with your permission anonymous quotations may be used. Depending upon whether you agreed, these quotations would only include your gender, and if you choose to provide, your age. I should also mention that this is an exploratory interview, so feel free to elaborate on, and revise your answers. Before delving into the particular health issue of interest, I would first like to ask you some questions about your home and community.

B. Home

The first questions concern specifically your home.

1) Out of the following categories, which best describes the type of dwelling that you live in? (*Read as Needed - Code One Only.*)

Single detached

Semi-detached (double)

Row or terrace house

Trailer

Other _____

2) Out of the following categories, which best describes your home? (*Read as Needed - Code One Only.*)

Single-family dwelling

Multi-family dwelling

Non-family dwelling

3) How many people live in your home?

Full-time _____ people

Part-time _____ people

Comments _____

4) Do you have any children?

Yes

No

No response/Refused

Comments _____

5) *If answered yes to the previous question,*

(a) How many children do you have?

_____ children

(b) What are their ages?

_____ years

(c) Do they live with you?

Yes

No

No response/Refused

(d) *If answered yes to the previous question,* How many live with you?

_____ children

6) Out of the following categories, which best describes your marital status? (*Read as Needed - Code One Only.*)

Single

Married/common-law

Divorced/separated

Widowed

7) Can you tell me whether you own or rent your home?

Own

Rent

No response/Refused

8) How long have you lived in your home?

_____ years

Comments _____

9) People sometimes develop strong feelings of attachment to their homes. Having said this, how attached would you say you are to your home?

Comments _____

10) On a scale from one to five, where 1 is “Not at all”, 2 is “Hardly”, 3 is “Moderately”, 4 is “A fair amount”, and 5 is “Extremely”, how attached would you say you are to your home?

1 2 3 4 5 *No response/Refused*

C. Community

1) The next few questions concern your community. Community is a fairly vague term that can mean many things to different people. What do you consider your community to be?

City/town *Neighbourhood* *RMoW* *Church* *Other*

Comments _____

2) [As this study is most interested in the communities where people live,] could you describe your [city/town/other large community]?

Comments _____

3) *If needed*, Also, do you consider yourself to have neighbourhood?

Yes

No

4) *If answered yes to the previous question or stated previously that have a neighbourhood, ask,*

a. *If needed*, Could you describe what your neighbourhood is?

Street

Comments _____

b. Could you describe your neighbourhood?

Comments _____

- 5) How long have you lived in your:
- a. *If needed*, [city/town/other large community]?
_____ years
 - b. *If needed*, neighbourhood?
_____ years

Comments _____

6) *If needed*, What would you estimate is the overall age of your neighbourhood?
(*Read all - Code One Only.*)

- 0-29 years
- 30-59 years
- 60-99 years
- 100+ years
- No response/Refused*

7) How large do you consider your [city/town/other large community] to be? (*Read all - Code One Only.*)

- Large
- Medium-sized
- Small
- Not applicable

Comments _____

- 8) How well do you feel you know people in your:
- a. *If needed*, [city/town/other large community]
 Not applicable

Comments _____

- b. *If needed*, neighbourhood?
 Not applicable

Comments _____

9) On a scale from one to five where 1 is “Not at all”, 2 is “Hardly”, 3 is “Moderately”, 4 is “A fair amount”, and 5 is “Extremely”, how well would you say you know people in:

- a. *If needed*, your [city/town/other large community]?

1 2 3 4 5 No response/Refused

- b. *If needed*, your neighbourhood?

1 2 3 4 5 No response/Refused N/A

10) How involved are you in your [city/town/other large community] and neighbourhood? *Clarify if needed*, This can include both formal involvement with community organizations (i.e. health club, church) and informal involvement whereby you visit with, and help your neighbours.

If needed, comments for [city/town/other large community]

Not applicable

Comments _____

If needed, comments for neighbourhood

Not applicable

Comments _____

11) On a scale from one to five where 1 is “Not at all”, 2 is “Hardly”, 3 is “Moderately”, 4 is “A fair amount”, and 5 is “Extremely”, how involved would you say you are in:

- a. *If needed*, your [city/town/other large community]?

1 2 3 4 5 No response/Refused N/A

- b. *If needed*, your neighbourhood?

1 2 3 4 5 No response/Refused N/A

12) Could you tell me why you have chosen the amount of involvement you have in [insert communities discussed here]?

If needed, comments for [city/town/other large community]

Not applicable

Comments _____

If needed, comments for neighbourhood
 Not applicable

Comments _____

Comments Overall
 Not provided

Comments _____

13) How much would you say people in your [city/town/other large community] [and neighbourhood] help each other? *Clarify if needed*, I am referring to more ordinary types of help, like if you wanted someone to talk to, needed to borrow something, or required a hand to do something. If you could provide some examples involving you, that would also be helpful.

If needed, comments for [city/town/other large community] Not applicable

Comments _____

If needed, comments for neighbourhood
 Not applicable

Comments _____

14) On a scale from one to five where 1 is “Not at all”, 2 is “Hardly”, 3 is “Moderately”, 4 is “A fair amount”, and 5 is “Extremely”, how much would you say people help each other in

a. your [city/town/other large community]?

1 2 3 4 5 No response/Refused N/A

b. *If relevant*, your neighbourhood?

1 2 3 4 5 No response/Refused N/A

15) How attached would you say you are to:

a. *If needed*, your [city/town/other large community]?

Not applicable

Comments _____

b. *If needed*, your neighbourhood?

Not applicable

Comments _____

c. *If cannot divide, your community?*
 Not applicable

Comments _____

16) On a scale from one to five, where 1 is “Not at all”, 2 is “Hardly”, 3 is “Moderately”, 4 is “A fair amount”, and 5 is “Extremely”, how attached would you say you are to:

a. *If needed, your [city/town/other large community]?*
1 2 3 4 5 No response/Refused N/A

b. *If needed, your neighbourhood?*
1 2 3 4 5 No response/Refused N/A

c. *If cannot split, your community overall?*
1 2 3 4 5 No response/Refused N/A

17) Why do you think you feel the degree of attachment you do to [*insert communit(ies) here*]? *Mention as needed any of the other comments made up until this point (i.e. small community, attachment to home etc.).*

Comments _____

18) Do you care to add anything regarding [*insert communit(ies) here*]?

Comments _____

D. Health Issue

D.1. Knowledge about Disease

1) We have now finished the part of the interview exploring questions about your home and community. I can now say that the specific health issue being investigated with you is West Nile virus (WNV). Have you have heard about the disease?

- Yes
- No

If answered no, read the following:

WNV is a mosquito borne virus that can cause illness in humans. It was first found in North America, in New York City, during the summer of 1999 and has since spread dramatically into other parts of the U.S. and Canada. It was first identified in the Regional Municipality of Waterloo in the summer of 2001. The virus usually circulates within a bird-mosquito-bird cycle. Birds carry the virus; mosquitoes bite the birds and become infected. Mosquitoes then bite other animals and birds, passing the virus on. People can become infected when an infected mosquito bites them. Most people who become infected with the virus do not get sick. For those who do become ill, symptoms can include mild fever, headache, muscle aches, stiff neck, swollen glands, and skin rash. A much smaller number of people will develop encephalitis (swelling of the brain) and may experience prolonged muscle weakness and neurological problems. Recovery from these more serious symptoms can take up to a year or more. In some cases, death can occur. Although WNV has been identified in a wide range of ages, the likelihood of more severe symptoms increases with age and those with weak immune systems are more likely to develop more serious forms of the disease.

Then go to D.2 (p. xiii).

Otherwise, go to the next question.

2) What do you know about the disease?

Comments _____

3) *If needed, ask them, Do you know how the disease is spread? Probe specifically to see if they know the conditions that favour the breeding of mosquitoes.*

- Yes
- No

Comments _____

4) *If mentioned that knew disease was spread by mosquitoes, ask, Do you know the conditions that favour the breeding of mosquitoes?*

Yes

No

Comments _____

5) *If needed, ask, Can the disease cause illness in humans?*

Yes

No

6) *If they answered yes to the previous question, ask the following: Do you know what symptoms can it cause? Record yes immediately below if participant knows at least some symptoms.*

Yes

No

Comments _____

7) *If needed, ask them, Do you know if any particular groups of people have more reason to be concerned about the disease than others? Probe specifically to see if they know that the likelihood of serious illness increases with age and for those with weak immune systems.*

Yes

No

Comments _____

8) *Don't ask, but record if they know that the likelihood of serious illness increases with age and for those with weak immune systems.*

Yes

No

If participants did not know about the effect WNV can have on humans, how it is spread by mosquitoes, or specific groups that are more susceptible to severe symptoms of the disease, go back and read the appropriate part of the description of the disease provided above in D. 1.1.

D.2 Concern about Disease

1) [How/Having heard this, how] concerned are you about contracting the disease?

2) On a scale from one to five, where one is “Not at all”, two is “Hardly”, three is “Moderately”, four is “A fair amount”, and five is “Extremely”, how concerned are you about contracting the disease?

1 2 3 4 5 [] No response/Refused

3) Are you concerned for others about the disease? If so, how concerned are you? *If necessary, state*, As an example, this can include family, friends, co-workers, other associates, and particular groups. It can also include people from any of the communities just described. *Clarify as needed*, Are these people members of your [*neighbourhood, town, city, other geographical community*]?

[] *Yes*

[] *No*

Comments _____

4) *If mentioned that would be concerned about others becoming ill with the disease, ask*, On a scale from one to five, where one is “Not at all”, two is “Hardly”, three is “Moderately”, four is “A fair amount”, and five is “Extremely”, how concerned are you for these people about the disease?

1 2 3 4 5 [] No response/Refused

D.3. Actions Taken that Help Control Disease

1) *For participants that knew the disease caused illness in humans and how it was spread before this study, go to (a). Otherwise go to (b).*

(a) Do you or anyone in your household undertake any actions that help prevent the disease from spreading? *For actions that require regular maintenance (i.e. emptying containers), ask how often they undertake them. Record answers in Table 1 below. If they mention reporting of birds, clarify that interested only in actions that directly help control the spread of the disease. Although not the primary focus of the study, record any actions that they have undertaken in the past in Table 1 below.*

After they have fully answered the question, hand them Appendix B outlining the possible actions the public can take to directly help prevent the spread of WNV.

Also ask as needed, [Do / did] you undertake any of these actions for reasons other than the threat of the disease? As examples, some people clean their eaves troughs to prevent water damage to their home and remove standing water to prevent odour. Record answers in Table 1 below.

(b) State the following:

*In order to help prevent the spread of the disease, the public has been asked to undertake a number of actions. These include preventing mosquitoes from laying their eggs in standing water in places like bird baths and eaves troughs and clearing dense vegetation where mosquitoes breed and seek shelter. Here is a list of the possible actions that people are being asked to undertake to help prevent mosquitoes from breeding (*hand them Appendix B*).*

After providing them time to look over the list, ask them the following:

Do you take any of these actions around your home? If you do, can you tell me how often you do so? Record comments in Table 1 below. Although not the primary focus of the study, record any actions that they have undertaken in the past in Table 1 below.

2) After reading this, could you see yourself taking any additional actions to help control the disease? Record comments in Table 1 below.

Table 1: Possible Actions Undertaken to Directly Help Control the Disease

| <i>Action</i> | <i>Take</i> | | <i>Not Able</i> | <i>Done Before</i> | <i>Now Would Take</i> | <i>Frequency Taken</i> | <i>Reasons Done other than Disease</i> |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|------------------------|--|
| | <i>Yes</i> | <i>No</i> | | | | | |
| <i>Empty objects that can collect water</i> | <input type="checkbox"/> | | <input type="checkbox"/> _____ |
| <i>Empty flower pot saucers</i> | <input type="checkbox"/> | | <input type="checkbox"/> _____ |
| <i>Empty toys</i> | <input type="checkbox"/> | | <input type="checkbox"/> _____ |
| <i>Change water in birth bath</i> | <input type="checkbox"/> | | <input type="checkbox"/> _____ |
| <i>Change water in pet bowls</i> | <input type="checkbox"/> | | <input type="checkbox"/> _____ |
| <i>Store wheel barrows upside down/inside</i> | <input type="checkbox"/> | | <input type="checkbox"/> _____ |
| <i>Store wading pool upside down/inside</i> | <input type="checkbox"/> | | <input type="checkbox"/> _____ |
| <i>Store canoes upside down/inside</i> | <input type="checkbox"/> | | <input type="checkbox"/> _____ |
| <i>Clean eaves troughs</i> | <input type="checkbox"/> | | <input type="checkbox"/> _____ |
| <i>Clear off pool covers</i> | <input type="checkbox"/> | | <input type="checkbox"/> _____ |
| <i>Clear off flat roofs</i> | <input type="checkbox"/> | | <input type="checkbox"/> _____ |
| <i>Clear dense vegetation such as shrubbery</i> | <input type="checkbox"/> | | <input type="checkbox"/> _____ |
| <i>Turn over compost</i> | <input type="checkbox"/> | | <input type="checkbox"/> _____ |
| <i>Dispose tires at landfill/keep inside</i> | <input type="checkbox"/> | | <input type="checkbox"/> _____ |
| <i>Place mesh screen on rain barrels</i> | <input type="checkbox"/> | | <input type="checkbox"/> _____ |
| <i>Install aerator in pond</i> | <input type="checkbox"/> | | <input type="checkbox"/> _____ |
| <i>Fill in low spots on property</i> | <input type="checkbox"/> | | <input type="checkbox"/> _____ |
| <i>Clean common areas</i> | <input type="checkbox"/> | | <input type="checkbox"/> _____ |
| <i>Other</i> | <input type="checkbox"/> | | <input type="checkbox"/> _____ |

Comments _____

3) *If it seems appropriate ask, Can I ask whether you are physically able to undertake [insert action here]?*

- Yes
- Partly yes
- No

Comments _____

4) *If it seems appropriate ask, Did you undertake any of these actions before you knew about the disease?*

- Yes
- No

Comments _____

5) *For any actions that they could be undertaking but will not, ask them as needed, Can I ask what are your reasons for not [insert action(s) here]?*

Comments _____

6) *If participants currently have been taking, are willing to take, or at least did take action at least partly for express purpose of helping prevent the spread of the disease, state the following:*

The following questions may seem personal but are meant to explore in depth some of the reasons for your willingness to take action to help prevent the spread of the disease.

Now ask them the following questions as needed:

(a) Would you say you [are/would be/were] motivated to take action against the disease to in order to protect your health?

- Yes*
- No*

Comments _____

(b) [Do you currently take / would you take / have you taken] any of these actions to help protect anyone else against the disease? If so, who? *If necessary, state, As an example, this can include family, friends, co-workers, other associates, and specific groups of people. It can also include people from any of the communities just described. Clarify as needed, Are these people members of your [neighbourhood, town, city, other geographical community]?*

- Yes*
- No*

Comments _____

D.4 Concern for Others about Disease

If answered affirmatively to the last question (D.3.6 (b)), ask them the following:

1) If you were to reflect in depth on the reasons why you [are/were/would be] willing to take action to help protect others from the disease, why do you think you feel this way? *Leave the question deliberately open so they can provide their own reasons.*

Comments _____

2) *Say as needed, Sometimes helping others brings with it a good feeling. This feeling can be experienced, for instance, when people recycle, help a neighbour or volunteer. Would you say you that this [would] contribute[d/s] to you wanting to take action to help protect others from the disease? If so, feel free to elaborate as to why it does.*

- Yes*
- No*

Comments _____

3) *Say as needed the following:* Sometimes people are motivated to help others as a result of their conscience that tells them it is the “right thing to do”. Would you say you that this [would] contribute[d/s] to you wanting to take action to help prevent the spread of the disease? If so, feel free to elaborate as to why it does.

- Yes*
 No

Comments _____

4) *If participants knew about the disease **before** this survey, ask them, Have you been asked by anyone to take action to help prevent the spread of the disease? If necessary, state, As an example, this can include family, friends, co-workers, other associates, and particular groups. It can also include people from any of the communities just described. Clarify as needed, Are these people members of your [neighbourhood, town, city, other geographical community]?*

- Yes*
 No

Comments _____

5) *If they responded affirmatively to the last question, ask, Have you been influenced by this? If they did, ask, Did you feel a degree of pressure into taking these actions as a result of them asking you?*

| <i>Influenced</i> | <i>Pressured</i> |
|---|---|
| <input type="checkbox"/> <i>Yes</i> <input type="checkbox"/> <i>No</i> | <input type="checkbox"/> <i>Yes</i> <input type="checkbox"/> <i>No</i> |

Comments _____

6) *Ask if not already discussed:* Sometimes concern about what others think can act as a motivating reason for behaviour. Would you say you that this [would] contribute[d/s] to you wanting to take action to help prevent the spread of the disease?

- Yes*
 No

Comments _____

7) *Ask if not already discussed*, Can you think of any benefits to you from helping protect others from the disease?

Yes

No

Comments _____

8) [Have you, / would you] consciously considere[d] [*insert benefit here*] as a reason to undertake action to prevent the spread of the disease?

Yes

No

Comments _____

9) A lot of reasons have been discussed as to why you [have taken / would take] action that helps directly prevent the spread of the disease including [control of odour etc. / protection of personal health / protection of health of others / good feeling that get / feeling that it is the right thing to do / pressure from others / concern what others think / other benefits]. Of these reasons, which [has / could you foresee] most strongly [influenced / influencing] you?

Comments _____

10) *As an extension of the previous question*, Which, if any, would you consider to not be a key influencing reason, but more just a side-benefit?

Comments _____

D.5 Community Awareness

Tell participants the following:

I am now going to read a statement to you. After reading it I will ask you for your thoughts concerning it.

Unlike other protective measures like the application of repellents that protect individuals and the repairing of window screens which safeguard households, actions like eliminating standing water can benefit the health of entire communities where people live.

Then ask the following:

1) On a scale from one to five where 1 is “Not at all”, 2 is “Hardly”, 3 is “Moderately”, 4 is “A fair amount”, and 5 is “Extremely”, how [much more / much] does hearing this influence your willingness to take action against the disease?

1 2 3 4 5 [] *No response/Refused*

2) *With regard to the last question ask, Can I ask why?*

Comments _____

E. Socio-Demographic Information

1) For statistical purposes only, would you mind telling me how old are you?
_____ years

If they are unwilling to provide an exact age, ask them the following: Could I at least ask you for a range your age that falls within? *If answered affirmatively then ask, I have some predefined ranges here. Are you (Read as Necessary - Code One Only.):*

- [] 18-24
- [] 25-34
- [] 35-44
- [] 45-54
- [] 55-64
- [] 65+
- [] Other _____
- [] *No response/Refused*

F. Conclusion

The interview is now complete. You may be interested to know this information will be used to help the Region of Waterloo Public Health in addressing health issues in the community. If you could keep the particular health issue that this survey was about confidential until you have received the results, it would be greatly appreciated. Do you have any questions? *Provide them with the Tim Hortons' gift certificates along with a copy of the Region's brochure and fact sheet (Appendix C) on the disease if they are interested.*

G. Questions that can be answered for Participant

1) *What is the study key code of the participant (look up on code sheet)?*

2) *What sex is the participant?*

Male

Female

Unknown

3) *Where is the interview taking place? Include address and type of establishment*

(i.e. coffee shop, park)

4) *What unusual events, if any, took place during the interview?*

5) *Date of interview* _____

Appendix B: Community-Wide Protective Measures

Actions requiring public assistance that directly help control West Nile Virus

- Empty or remove objects that collect standing water (i.e. flower pot saucers, buckets, and toys)
- Change the water in birdbaths and pet bowls regularly
- Store wheelbarrows, wading pools and canoes upside down
- Clean clogged eaves troughs where water can collect
- Clear pool covers and flat roofs
- Clear dense vegetation such as shrubbery
- Turn over compost
- Dispose of discarded tires at landfill or keep inside
- Place mesh screens on rain barrels
- Install aerators in ponds
- Fill in low spots on property that collect water
- Clean common areas

Appendix C: Software

Microsoft Access was used to perform complete SQL queries that identified subjects which matched particular criteria. More specifically, modules were written using Visual Basic that allowed for querying of a single or multiple criteria. In addition, the modules were written in a way to allow for systematic cycling through all the possible variations of one criteria (such as the number of individuals falling in certain age groups). Following the performing of these queries, the data was further broken down using a spreadsheet formatting program written for Microsoft Excel. By automating the process of data analysis, it was for more likely to obtain more accurate results than performing the same queries manually.

Appendix D: Letter to Participants

[Address]

Dear [insert name here],

I am a Master's student at the University of Waterloo in the Department of Urban Planning conducting research on public attitudes towards health-related issues that affects people in the Regional Municipality of Waterloo. Your household has been contacted because the opinions of someone in your household on these issues are of interest. With your permission, I would specifically like to conduct a face-to-face interview with an adult in your household on one health-related issue such as non-smoking, exercise, protection against West Nile, or low-fat foods consumption. Information concerning the particular health-related issue will be given at the time of the interview. The study is being conducted under the supervision of Professor Murray Haight (519-885-1211 ext. 3027). In recognition of the time given to this study some financial compensation in the form of \$5 worth of Tim Hortons' gift certificates would be provided.

Participation in this study is voluntary and would involve a forty-five minute interview at a convenient time to you. Ideally, the interview would be held in a public location such as the university, but if a disability prevents you from going to such a location it could be held in your home. There are no known or anticipated risks to your participation. As well, the person participating may withdraw from the study at any time and decline answering any questions. With permission, the interview will be tape-recorded to facilitate collection of information, and later transcribed for analysis. All information provided will be considered confidential and grouped with responses from other participants; however, with permission anonymous quotations may be used. Only your gender and, if you choose to provide it, your age will be included in the study. Furthermore, the person who participates will not be identified by name in my thesis or in any report or publication resulting from this study. The data collected through this study will be kept for a period of five years at my home.

Thanks very much for your assistance with regard to this matter. **I can be reached at 519-501-9920 to further discuss the study and how to best proceed.** Both I and Professor Murray Haight can be contacted should you

have any concerns about the study that you wish to discuss. As well, I should note that this project was reviewed and received ethics clearance through the Office of Research Ethics at the University of Waterloo. If you have comments or concerns, please feel free to contact this office at 519-888-4567 ext. 6005 or ssykes@uwaterloo.ca.

Sincerely,

Alisa Krause

Encl.

Appendix E: Participant's Consent Form

I agree to participate in an interview being conducted by Alisa Krause of the Department of Planning under the supervision of Professor Haight. I have made this decision based on the information I have received in the Information Letter and have had the opportunity to receive any additional details I wanted about the study. As a participant in this study, I realize that I will be asked to take part in a 45 minute interview and that I may decline answering any of the questions, if I so choose. I understand that all information that I provide will be held in confidence and grouped with responses from other participants. I understand that I may withdraw this consent at any time by asking that the interview be stopped.

I acknowledge that this project has been reviewed by and received ethics clearance through the Office of Research Ethics at the University Waterloo and that I may contact this office at 519-888-4567 ext. 6005 if I have any comments or concerns about my participation in this study.

With full knowledge of all foregoing, I agree, of my own free will, to participate in this study.

Yes No

I agree to have my interview tape recorded.

Yes No

I agree to the use of anonymous quotations in any thesis or publication that comes of this research.

Yes No

I agree to allow with my anonymous quotations the providing of my gender and, if I choose to provide, my age, in any thesis or publication that comes of this research.

Yes No

Participant's Name:

Participant's Signature:

Name of Witness:

Signature of Witness:

Date:

Appendix F: Letter to Adult Community Managers

July 10, 2006

[address of organization]

Dear Sir/Madam,

I am a Master's student at the University of Waterloo in the Department of Urban Planning conducting research on public attitudes towards health-related issues that affects people in the Regional Municipality of Waterloo. You have been contacted because residents in the retirement community you manage may hold unique opinions on these issues. With your assistance, I would like to interview some of your residents concerning one health-related issue such as non-smoking, exercise, protection against West Nile, or low-fat foods consumption. Information concerning the exact health-related issue to be discussed will be given at the time of the interview. The study is being conducted under the supervision of Professor Murray Haight (519-885-1211 ext. 3027). In recognition of the time given to this study some financial compensation in the form of \$5 worth of Tim Hortons' gift certificates will be provided to participants.

Participation in this study is voluntary and would involve a forty-five minute interview at a convenient time to the participants. Ideally, the interview would be held in a public location such as a coffee shop, but if a disability prevents a participant from going to such a location it could be held in his/her home. There are no known or anticipated risks to participation in this study. As well, participants may withdraw from the study at any time and decline answering any questions they do not wish to answer. All information provided will be considered confidential and grouped with responses from other participants. Only the gender and, if provided, age of participants will be included in the study. Furthermore, participants will not be identified by name in my thesis or in any report or publication resulting from this study. The data collected through this study will be kept for a period of five years at my home.

Thanks very much for your assistance with regard to this matter. I can be reached at 519-501-9920 to further discuss the study and how to best proceed. Both I and Professor Murray Haight can be contacted should you have any concerns about the study that you wish to discuss. As well, I should note that this project was reviewed and received ethics clearance through the Office of Research Ethics at the University of Waterloo. If you have comments or concerns, please feel free to contact this office at 519-888-4567 ext. 6005 or ssykes@uwaterloo.ca.

Sincerely,

Alisa Krause

Appendix G: Sign



School of Planning Health Related Study

Participants are needed for an interview study being conducted on public attitudes towards a health related issue that affects people in this area. In recognition of the time given to this study some financial compensation in the form of \$5 worth of Tim Hortons' gift certificates will be provided to participants. If you are interested in helping with this study, please call 519-501-9920.

Note: This project was reviewed and received ethics clearance through the Office of Research Ethics at the University of Waterloo. If you have comments or concerns, please feel free to contact this office at 1-519-888-4567 ext. 6005 or ssykes@uwaterloo.ca.

Appendix H: Message in Community Newsletter

Would you consider helping a university student by being interviewed (approximately 45 minutes) on health related matters? She needs to interview people in the Foxboro community and is willing to conduct the interviews at the Centre. You would be compensated with \$5 worth of Tim Horton's gift certificates for your time. For further information contact Alisa Krause at 519-501-9920. (Wendy Wilson).

Appendix I: Follow-up Phone Call

Hello,

I am a Master's student at the University of Waterloo in the Department of Urban Planning conducting research on public attitudes towards a health related issue that affects people in the Regional Municipality of Waterloo. The reason why I'm calling is because I'm conducting a study on a health-related issue. Although I cannot say what the issue is about specifically, it is something like non-smoking, exercise, protection against West Nile, or low-fat foods consumption. I sent you a letter recently regarding conducting an interview with you for this study. The letter asks whether you would be interested in conducting a face-to-face interview on the subject. In recognition of the time given to this study some financial compensation in the form of \$5 worth of Tim Hortons' gift certificates would be provided.

[If agree and not from high-density sample]

Before I arrange a time, can I ask, do you live in an apartment?

[If answered yes]

Unfortunately, currently I am not surveying people who live in apartments. Thanks very much for your interest however.

Appendix J: Letter of Appreciation

Dear Sir/Madam,

Thank you very much for participating in my study on health-related issues. Without your help, this study would not have been possible. Now that it is complete, I wanted to mail you a summary of the conclusions of the study. I hope you find the results as interesting as I have.

You may find it useful to know that the study was specifically about public willingness to take action to help control West Nile Virus. To avoid biasing the study this was not mentioned at the time.

You may also be interested to know that the study results have been forwarded to the Regional Municipality of Waterloo to assist them with their educational program with regards to the disease. As well, efforts are underway to publish the study to make it available to a wider audience.

Once again, thank you very much for participating in this study. If you have any questions or comments, please feel free to contact me at 519-501-9920 or my supervisor, Professor Murray Haight, at 519-885-1211 ext. 3027. I should also note that this project was reviewed and received ethics clearance through the Office of Research Ethics at the University of Waterloo. If you have comments or concerns, please feel free to contact this office at 1-519-888-4567 ext. 6005 or ssykes@uwaterloo.ca.

Sincerely,

Alisa Krause

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