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1. Introduction

Nowadays, the world population has undergone remarkable aging as the result of the demographic transition, a process whereby declining mortality is followed by declining fertility. Over the last 50 years, the number of older persons in the world has increased. In 1950, there were 205 million persons aged 60 and above. In 2000, the number of older persons increased about three times to 606 million (United Nations Department of Economics and Social Affairs, 2007). Increase in number of older persons resulted from demographic changes is associated with the likelihood for more people to stay alone and increased loneliness in later life (United Nations Department of Economics and Social Affairs, 2007). Some studies have revealed that when people are in advanced age, they inevitably lose social relationships with their kin and that they cannot easily find the new network members (Singh & Misra, 2009). They also claim that as people grow old, age-related losses (losses of spouse, retirement, losses of healthy life, etc.) are likely to increase. As a consequence, the older persons are at a higher incidence of loneliness. Loneliness is an important factor influencing quality of later life (Victor, Scambler, Bond, & Bowling, 2000), gerontologists, as a result, have a close interest in investigating the factors interpreting loneliness among the senior persons.

This thesis attempts to examine whether social support networks are likely to lower the feelings of loneliness among the older persons in Myanmar. Dividing into three parts; (i) measurement construction, (ii) quantitative analysis, and (iii) qualitative analysis, the thesis aims at contributing to the study of gerontology and research on the quality of life of Myanmar senior people. It also aims at providing some

suggestions and recommendations for policy makers and planners in implementing social welfare plans for the elderly as well as formulating strategies in improving the quality of life of older persons in Myanmar.

Any person in all age groups can experience loneliness. However, the adolescents and the elderly are the most vulnerable groups (Donaldson & Watson, 1996; Killeen, 1998). However, teenagers only temporarily feel lonely, while the elderly experience permanent loneliness (chronic loneliness) which means that their feeling of loneliness is not as easily relieved. As a result, more attention should be paid to the elderly because older persons face a risk of social isolation, which is a result of reducing social contacts with other people. Some studies state that when people are in advanced age, they inevitably lose social relationship with their kin and that they cannot easily find the new network members (Singh & Misra, 2009). They also claim that as people grow old, age-related losses (losses of spouse, retirement, losses of healthy life, etc.) are likely to increase. As a consequence, the elderly are at a higher incidence of loneliness.

Existing studies reveal that loneliness is getting widespread among the elderly (J. D. J. Gierveld, 1995; Victor et al., 2002). Data from Europe and the United Nations show that about 40% of the elderly have undergone some type of loneliness (Jylha & Jokela, 1990; Weeks, 1994). In addition, existing research indicates that almost 60% of people aged above 70 years have experienced some form of loneliness (Davis, 2006). A study in UK conducted by Women's Royal Voluntary Service (WRVS) finds that 17% of the elderly aged 75 to 79 report that they feel lonely and this figure increases to over 63% at the age of 80 and above.

Loneliness is an important attribute in evaluating one's well-being, social integration and isolation (J. D. J. Gierveld & Tilburg, 2006). The experience of loneliness can affect the individuals across their life not just physically but also psychologically (Lauder, Sharkey, & Mummery, 2004), which reflects social implications. In addition, loneliness can lower quality of life and can cause poor medical outcomes in later life (Victor et al., 2000). Lonely people are strongly prone to depression (Holmen, Ericsson, & Winblad, 1999; Mullins & Dugan, 1990; Prince, Harwood, Lizard, Thomas, & Mann, 1997). Loneliness has been shown to influence an increase in the use of health services (Ellaway, Wood, & Macintyre, 1999; Geller, Janson, McGovern, & Valdini, 1999). Loneliness can be linked to cognitive decline (Fratiglioni, Wang, Ericsson, Maytan, & Winblad, 2000; Tilvis, Pitkälä, Jolkkonen, & Strandberg, 2000) and it is also associated with the risk of mortality (Herlitz et al., 1998; Penninx et al., 1997; Tilvis et al., 2000). Another study reports that loneliness can cause a wide variety of poor health outcomes (Luanaigh & Lawlor, 2008). According to Seeman (2000), loneliness is likely to increase the risk of all causes of mortality. Waern, Rubenowitz, and Wilhelmson (2003) reveal that there is a strong association between loneliness and suicide. The likelihood of depression increases when feeling lonely (Cacioppo, Hughes, Waite, Hawkey, & Thisted, 2006). As well, among the elderly who are depressed, those who felt lonely are likely to have the excess mortality (Stek, Vinkers, & Gussekloo, 2005).

Existing studies illustrate that social support networks can buffer feelings of loneliness. Partnership has a significant adverse impact on loneliness among the elderly persons (Essex & Nam, 1987; Iecovich et al., 2004; Koropecj-Cox, 1998; Wegner, Davies, Shahtahmasebi, & Scott, 1996). Hall-Elston and Mullins (1999) find

that friendship is important in lowering the degree of loneliness. Furthermore, maintaining the frequency of contact and the satisfaction of the quality of the relationship with other social network members are likely to decrease feeling of loneliness (Mullins & Dugan, 1990). Whilst studies as mentioned above show that social support networks are related to a smaller degree of loneliness, in some other studies, social relation deficiency did not lead to loneliness. For example, while childlessness was a determinant of the increased feeling of loneliness (Iecovich et al., 2004; Shanas et al., 1968), some studies find that loneliness was not related to childlessness (Rempel, 1985; Zhang & Hayward, 2001). As a consequence, although there exist several studies examining the impact of social networks on loneliness, more work needs to be conducted to ascertain the effect of some characteristics of social support networks on loneliness under different circumstances.

In Myanmar, the aging population does not grow as rapid as other Asian countries, but the pace of aging has been increasing because fertility has steeply declined since the 1970s. According to the pyramids in the Appendix A, it can be observed that the age structure has changed over time. In this regards, the proportion of the population in age group of 0-4 has reduced and the proportions of the population in the age groups at the top of the pyramid have gradually increased, indicating that the population in Myanmar is aging in the near future. What is more, life expectancy at birth has increased from 62.94 in 2000-2005 (United Nations, 2015) to 66.8 in 2014 (Department of Population, 2015a). According to the 1973 census, the proportion of the population aged 60 years and older was slightly over 6 per cent, but it has gone up to 7.9 per cent in 2010 (United Nations, 2011). According to the United Nations projections, the percentage of the elderly in 2030 will become nearly twice as much as

that in 2010 (up to about 15% in 2030). United Nations also estimate that by 2050 a quarter of the Myanmar population will be at the age of 60 and over.

In Myanmar, like in other Southeast Asian countries, informal exchange of material and emotional support within the family plays an important role in determining the well-being of the older persons (World Bank, 1994). In the past as well as at present, family has remained important in caring and supporting the older people in Myanmar society (Knodel, 2014). The household size of the older persons is, on average, 4.7 members, and almost all of the older persons co-reside with several people in households.

Children are important providers of material and emotional support (Knodel, 2014). The current generation has, on average, over four children, and the significant proportion of the elderly, 78%, live with at least children; however, the older people in future will have fewer children who provide support and more will be without children compared to the current older generation as a result of lowering fertility rates to two per woman and declining marriage rates during past decades, and more adult children may migrate away from home for jobs; hence, in the near future, there will be fewer children, who co-reside with the elderly parents and provide material and emotional support to them than today. Accordingly, the older people tend to stay alone and can have less emotional support provided by children.

In Myanmar which is under political and socioeconomic transition is still higher poverty, compared to other ASEAN countries and one of the 23 world poorest countries (Tasch, 2015), children need to work outside. Moreover, international as well as internal migration is going up as consequence of slack non-peak agricultural

labor market, declining farm gate price and weather shocks resulting farming losses (World Bank, 2013, 2014). Consequently, the elderly parents are likely to stay alone at home and have less frequent contact with their children.

Spouses are second main source of care-giving during times of illness or frailty or when needing help carry out daily living activities, but currently, the percentage of getting remarried sharply declines with age (Knodel, 2014). According to the 2012 survey of older persons in Myanmar, although there was a difference by gender, the proportion of currently married couples has continuously and sharply declined across the age group of 60-64 to 80 and over by nearly half of 86% to 47% for men and by four fifths of 56% to 11% for women. Correspondingly, the likelihood of losing intimate relationship which can explain the feelings of loneliness becomes higher when aging. Such a situation suggests that loneliness is likely to be widespread among older persons.

In the Myanmar cultural and social context, it is generally believed that senior citizens are traditionally regarded highly and hold a special place in the family and in society (Department of Population & UNFPA, 2012). Myanmar society's norms and customs impress the mutual duties between parents and children. Likewise, it is claimed that most people recognize the life experiences of the elderly and believe that the advice of the elderly should be followed. To the extent this is the case, it implies that the elderly play a role in making decisions in the family. Additionally, Myanmar people tend to greatly emphasize family. In spite of these prevalent strong norms and values related to care for the elderly, both demographic and socio-economic changes are likely to place a great stress on these values (Department of Population & UNFPA, 2012).

Although the share of older people is increasing and social and economic conditions which can affect loneliness of older people are changing, public welfare system that provides formal support for elderly is limited. Informal social support can play an important role. Therefore, the thesis provides some evidence that social support networks can have impact on feelings of loneliness among older persons. It was also anticipated that the findings of the study can potentially provide some evidence that can help draw suggestions and recommendations for strategy implementation, which can enhance the quality of life in later life of the elderly. The study attempts to attain its aim by dividing into three parts which are (i) the construction of the measurements, (ii) quantitative analysis, and (iii) qualitative analysis.

The rest of the paper is organized as follows. Chapter 2 contains a review of the related literature. The objectives of the study and related hypotheses are presented in Chapter 3. Chapter 4 describes the data and the construction of the measurements for both the dependent and independent variables. Chapter 5 covers the empirical methodology for the quantitative analysis. Chapter 6 presents the empirical findings. Chapter 7 features the qualitative analysis. Finally, Chapter 8, on conclusions, contains discussions, limitations and implications.

2. Literature Review

This section will review the literature from existing studies on loneliness and social support network predicting loneliness, outlining the context in which the thesis's conceptual framework are guided.

2.1 Loneliness

Loneliness is defined in a number of ways in spite of general agreement over its definition. Some studies define it as psychological or emotional pain caused by a lag between desired and recognized social interrelationship (J. D. J. Gierveld, 1978; Perlman & Peplau, 1981). According to this definition, loneliness is not similar to isolation. In spite of being alone, if one likes staying alone, one may not feel lonely. On the contrary, although one is surrounded by many people, one may feel lonely. It means that loneliness is a subjective feeling rather than objective. In this regard, the notion describes the subjective feelings of emotional desolation caused by lack of social contact, absence in desired frequency of contacts, lack of satisfaction in achieved interrelationships, loss in intimate relationships, experience of others' vague need, misunderstanding and lack of participation in social activities. Besides, according to this definition, it is clear that self-rating of loneliness is an appropriate measure of loneliness. In addition, this definition only focuses on subjective feeling of loneliness, but does not consider social loneliness which arises when one is confined at participation in social activities, church attendance and volunteer work for some reasons like health condition (objective isolation).

Young (1982) describes loneliness as a psychological pain caused by the absence of satisfying social relationships. Basically, this concept points that loneliness can be partly caused by the lack of some important social provisions like a loss of an intimate social partner who can provide him/her love, kindness, help in making important decisions. It is also considered loneliness as the subjective feelings of psychological pain resulting from unsatisfying social relations of being achieved, pointing the gap

between expected and actual received relationships with other network members in terms of not only qualitative but quantitative aspect. This concept considers about only emotional loneliness caused by absence in intimate social attachment but does not take into account social loneliness (no friend, a few contacts with other people, rarely participating community activities). In other studies, loneliness is caused by being alone as well as the absence in social assistance from certain important relationships or set of relationships (Weiss, 1973). According to this definition, when one stays in isolation from others, one feels lonely. Or when no one is around one, he/she feels lonely, or when he/she loses their closed social partners, he/she feels lonely. This definition emphasizes that loneliness is caused by not only subjective feeling but also objective isolation.

Some studies define loneliness as “a feeling of social deficit arising due to the absence intimate social partners and continuing searching for such kind of social relations” (Derlega & Margulis, 1982; Gordon, 1976). When one loses someone who is socially closed to, as he/she would further search for someone who can provide him/her like who has already left, he/she would feel lonely due to social deficit if he/she could not find out his/her expected kind of social contacts. In this regard, loneliness is defined in a narrow sense, considering about only the discrepancy in qualitative form between expected and actual social relationships.

In spite of defining loneliness in various ways, every study commonly defines loneliness as subjective unpleasant feelings caused by the divergence between expected and actual achieved social interrelationships at all ages of individuals. According to the definition, it is obviously seen that self-rating of loneliness is an

appropriate measure of loneliness. This thesis focus on loneliness as defined by self-rating unpleasant feelings, which can arise even when one does not stay alone. According to the definition described by the thesis, feeling of loneliness is not isolation.

2.2 Social support Networks

2.2.1 Definitions

According to Walker, MacBride, and Vachon (1977), social support networks is defined as a set of personal contacts through which retain social identity, receive affective support, instrumental support, cognitive support and social outreach (new social contacts). If an individual is very close to others, he/ she can receive kind caring and love, tangible aid and services, information, advice and new social contacts from other network members. In this regard, it is clear that social interrelation can provide emotional and/or instrumental supports which can buffer depression and stress.

Existing studies describe social network in three characteristics: structural, interactional and functional (Israel, 1982; Mitchell, 1969). Structural characteristics are network size, density (the extent to which network members know to each other and interact each other); interactional characteristics refers to degree of reciprocity (the extent to which social support are both given and received in the web of social relationships), quality of relations (how satisfied social ties within social network are), durability (the extent to which one's social ties connected with other social network members is stable), frequency of contacts to each other, and geographic proximity

(the extent to which network members lives closely to easily contact to each other); and functional characteristic (informational support, emotional support, instrumental support, maintenance of social identity and development of new contacts).

Social network has been described as a set of personal contacts in which the characteristics of relationships can interpret the behavior of the people who are within the network (Mitchell, 1969). This definition implies how social networks influence human behavior. The social environment is the context in which people involved within the network can learn new behavior from other network members and memberships can provide information or encouragement to undertake or avoid some recommended behaviors. According to the diffusion theory, beliefs, perceptions, attitudes, and values can spread within the network. In terms of structural characteristics of network, if one has a large network size and very close (or) proximate network, one tends to achieve different kinds of encouragement and can learn different behaviors and different perceptions from others within the network. In terms of the nature of network, if one can maintain a different linkage of contacts (spouse, children, relatives, and friends), one is likely to attain different supports or encouragements or advice rooted from various perceptions, values, attitudes and experiences of network members with different nature. According to Berkman and Glass (2000), social network is a net of social relationships encircling individuals and social support is one of the important functions of social relationships. Therefore, social network is a set of contacts among people which may or may not serve social support and may give social support as well as other functions (Heaney & Israel, 2008). Functions of social relationships are: social support, social capital, companionship, social influence (spread of idea and behaviors), and social

undermining (criticizing and bothering one's welfare). There are four types of social support: emotional, instrumental, informational and appraisal (House, 1981). According Heaney and Israel (2008), the existence of social networks does not guarantee the provision of social support. For example, one may share leisure or other activities with some network member as well as he/she may give some advice which is beneficial for one. However, although some network member may be one's companion by sharing some activities or leisure, he/she may criticize one's behaviors and may hinder one's attainment of goals, making social relationships unsatisfied. It means that although he/she may serve companionship, emotional support may not be provided. Social support can be differentiated from other functions of social relationships (Burg & Seeman, 1994). In other words, social support is intentional positive interactions which can be distinguished from other functions like social undermining behaviors- expressing negative behaviors like irritating criticism and giving pressure.

Although social support networks is defined in different ways, in the thesis, social support network is defined as a set of linkages among individuals which may exchange different kinds of social supports as such informational, emotional and practical supports in social relationship. There are two types of social support networks: informal and formal. Whereas informal network includes spouses, children, relatives and friends; formal social support networks are professional organizations providing services (Whittaker & Garbarino, 1983).

Of these two types of social support networks, informal social support is the main focus in the thesis. Existing studies on social networks use three criteria to define such

networks: the structural, the interactional, and the functional. In the study, social support networks are described in terms of the structural, the interactional, and the subjective characteristics. The range of social network is described as structural characteristics, frequency of contacts with network members is identified as interactional characteristics, and subjective characteristics contains quality of social relationship.

2.2.2 Theories related to Social Support Networks

Previous studies state three models which can help understand social network and social functions. First, the convoy model of social support (Kahn & Antonucci, 1980) suggests that each individual is surrounded by a convoy, a set of people to whom the individual maintains reciprocal emotional and instrumental support. This convoy, in particular for the married couples, consists of specific people who make up the person's social network and affects his or her well-being. These social support networks help to buffer negative feelings and improve self-esteem and well-being (Bankhoff, 1983; Litwin, 1995b; Schaefer, Coyne, & Lazarus, 1981). Biegel (1985) also suggests that family, friends and neighbors are the important sources for assisting social support to the elderly. The following figure illustrates a convoy of people which surround the individual and that social support is exchanged among them. The following figure depicts that specific people around the elder person are family, other relatives, friends, and neighbors and all of the members in the convoy mutually provide social support.

Figure 1: Convoy Model of Social Support

Source: Author's construction based on the model

Second, according to the model of hierarchical compensation, it can clearly be seen the importance of preferences of the individual who will receive social support. This model postulates that older people seeking assistance have an ordered preference on the basis of relationship between care-provider and care-receiver. Accordingly, the preferred sources of assistance in order are spouse and children, followed by other relatives and neighbors and lastly by the formal groups like homes caring older persons (Antonucci, 2001; Cantor & Little, 1985). Thus, older persons firstly prefer their spouse's assistance and when the support from their spouse (partner) is not available, they turn to their kids and then to other relatives and non-kin. According to the model, family is the most important social element. Some studies state that the important sources of social support are spouse (or partner), children, and siblings going before close friends (Campbell, Connidis, & Davies, 1999). On the basis of the hierarchical compensatory model, figure 2 is constructed in order to clearly see that older individuals have a hierarchy of preferences in seeking support-providers. In the

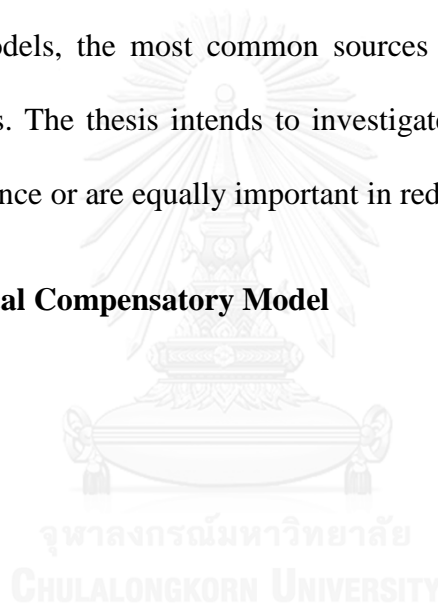
figure, a support-seeker can be achieved social support from informal groups (family, relatives, friends, and neighbors) and formal organizations. It can be seen the role of relationship between care-receiver and care-provider in the figure in the choice of care-givers. Correspondingly, it presents that family, which is the closest to the older individuals who need social support, is the first choice, followed by other relatives, friends and neighbors in serial order; and last by formal service providers.

In seeking support-providers, it should be noted that different support elements perform different support functions for different needs of the older individuals. (Litwak, 1985) has developed the model of task-specific or complementary. The model implies that different social network groups have different natures and due to these different natures, each of network groups can fulfill different tasks in optimal and provide different types of support for different needs (Litwak, 1985; Messeri, Silverstein, & Litwak, 1993). For example, as spouses live together, they have face-to-face contact day to day and can provide social support through a long life whereas although neighbors live nearby and primary contact is face-to-face, they cannot provide long-term tasks like spouses. Although children may closely take care of their old parents emotionally or instrumentally, the older persons may seek some friends, who are peer groups and have similar experience and history, to consult some of their problems and to ask for some advice. Unlike the compensatory model, the task-specific model does not emphasize an ordered preference of the support elements and keeps that people turn to certain support groups depending on how well the characteristics of those support elements match the features of particular tasks.

According to the task-specific model, figure 3 is constructed in order to illustrate that the older people are provided social support without holding a hierarchy of preference for social groups. It can be observed that the figure does not depict the role of relationship between support-seeker and support-provider as well as hierarchical preference in choosing whom to ask for support groups. In the figure, different sources of social support accomplish different tasks to the receiver, without focusing on a hierarchy of preference.

According to the models, the most common sources of social support are family, friends and neighbors. The thesis intends to investigate whether the social elements have order of importance or are equally important in reducing loneliness.

Figure 2: Hierarchical Compensatory Model



Source: Author's construction based on the model

Figure 3: Complementary or Task specific model

Source: Author's construction based on the model

2.3 Loneliness and Social support Networks

Loneliness among the elderly has become a social issue in present-time societies (Guo, 2009). Loneliness is a crucial predictor which can explain quality of life, of later life as well as psychological well-being (Victor et al., 2002). Some research argue that the availability of social support and the existence of social support networks are emotional support (Thoits, 1995), reduce the psychological impact of negative events such as loss of partnership, disability, loss of wealth, (Taylor, 2007; Thoits, 1995) and improve a sense of self-esteem (Krause & Borawski-Clark, 1994). Other studies have also proved that interpersonal support and the availability of social networks can strongly buffers loneliness (Ekwall, Sivberg, & Hallberg, 2005; Hughes, Waite, Hawkey, & Cacioppo, 2004; Iecovich et al., 2004; Rokach, Orzeck, Moya, & Exposito, 2002).

Earlier studies reveal that some form of social relation deficit is a root cause of loneliness. Most of previous studies discover that marital status is the best demographic predictor which can explain the experience of loneliness. In some research, widows and divorced persons are more likely to feel lonely than married persons (Essex & Nam, 1987; Koropecj-Cox, 1998; Wegner et al., 1996). Iecovich et al. (2004) suggest that the elderly who are unmarried report the highest feelings of loneliness. It is noteworthy that older individuals who have recently been widowed are more likely to report loneliness (Forbes, 1996; Holmen, Ericsson, Andersson, & Winblad, 1992; Kivett, 1979; Ryan, 1996). On the other hand, J. D. J. Gierveld (1986) also finds that older married persons have lower mean loneliness scores comparing with the single persons. In several studies, whereas the older adults who have recently experienced a death of a partner express the highest levels of loneliness, those who lived with their spouse have the lowest level of loneliness (Holmen et al., 1992; Lopata, 1996; Mullins, Elston, & Gutkowski, 1996). Holmen et al. (1992) find that whilst the elderly living together with a partner have the lowest frequency of loneliness, widow/widower older individuals report the highest frequency of loneliness. According to Koropecj-Cox (1998), divorced individuals who are living alone tend to feel lonely more than those, who are married and live with a spouse, do. Iecovich et al. (2004) argue that marital status is the best predictor of experience of loneliness. However, some suggest that there may not be a direct impact of partner relationship on loneliness, but indirect effect on loneliness via the shortage of social network.

A variety of studies propose that association exists between childlessness and loneliness. According to Iecovich et al. (2004), being parents lead to reported lower

degrees of loneliness. Shanas et al. (1968) find that childlessness tends to increase unpleasant feelings of loneliness. Furthermore, maintaining contacts with children and satisfying those relationships can reduce the risk of loneliness among the elderly (Iecovich et al., 2004). In contrast, some research reveals that interaction with children cannot explain the experience of loneliness. The elderly without children are likely to receive the emotional as well as social support from the relationships with other family members, other kin and non-kin (Mullins & Mushel, 1992). According to Koropecyj-Cox (1998), it is noted that widowhood tends to experience higher degree of loneliness regardless of whether the older individuals had adult children. However, some studies propose that childlessness has no direct effect on loneliness of the older individuals. Childlessness is not linked to loneliness (Rempel, 1985; Zhang & Hayward, 2001). In some studies, older individuals with children report the highest level of loneliness and the elderly can experience the feelings of loneliness regardless of having children (Holmen et al., 1992). In addition of family ties, it is also noted that friendships can enhance morale and reduce loneliness in later life. Friends and neighbors are more important than children for lowering feelings of loneliness in widowhood (Mullins et al., 1996; Riggs, 1997). Another study propose that having other relatives or friends and maintaining good relationships with neighbors lead to express lower degree of loneliness regardless of whether the older individuals have children (Iecovich et al., 2004). Note is finding of Hall-Elston and Mullins (1999) that among the elderly who have children, those without friends tend to report a significantly higher risk of loneliness than those with friends. Earlier studies observe that feeling loneliness is associated to a lack of friends (Berg, Mellstrom, Persson, &

Svanborg, 1981). A study reveals that having more friends in one's social network tend to reduce the risk of loneliness (Arling, 1976).

Moreover, Fees, Martin, and Poon (1999) find that in-person and telephone contacts with family and friends are likely to buffer feelings of loneliness and enhance well-being. Maintaining contacts with children can reduce the risk of loneliness among the elderly (Iecovich et al., 2004). Moreover, some also discover that frequency of contacts with neighbors and friends (but not with family) is important for the elderly in buffering feelings of loneliness (Iecovich et al., 2004; Mullins & Dugan, 1990). Plouffe and Jomphe-Hill (1996) find that the quantity of interaction with one's social network members is one of the important predictors of loneliness. It is notable that there is a positive effect of a greater frequency of activity with friends on morale among European American older persons on one hand, but none among African American ones on the other hand.

Existing studies has also revealed that the experience of loneliness is more likely to related to the quality of relationships with other persons in an older person's social network than the network size (number of kin-- children, family, other relatives-- and number of non-kin (friends)) (J. D. J Gierveld, 1998). The quality of the relationships within social network is likely to predict the prevalence of loneliness (Plouffe & Jomphe-Hill, 1996).

As a result, this study aims at investigating whether objective characteristics (structural and interactional characteristics) as well as subjective characteristics (quality of relationships) of social support networks can explain feeling of loneliness among Myanmar elderly.

3. Objectives of the Study

This thesis aims to:

1. Assess the extent to which the elderly in Myanmar experience feelings of loneliness;
2. Investigate whether the social support networks play an important role in buffering feelings of loneliness among the elderly in Myanmar; and
3. Identify that whether the substitute source¹, as well as the primary source², can reduce the degree of loneliness.

In order to thoroughly achieve the objectives of the study, the following detailed research questions are posed:

1. Can marital status buffer feelings of loneliness?
2. Can having children reduce feelings of loneliness?
3. Are having relatives (grandchildren, siblings and other relatives) likely to reduce loneliness?
4. Does the frequency of the contact with children have a significant effect on loneliness?
5. Does the frequency of contact with relatives (grandchildren, siblings and other relatives) have a significant effect on loneliness?

¹Non-kin, that is, friends and neighbors

² Kin , that is, spouse and children

6. Does the frequency of contacts with friends and neighbors associate with the reduction in feeling of loneliness?
7. Can the quality of relationships with the family affect the level of loneliness?
8. Can the quality of relationships with the neighbors and community members affect the level of loneliness?

By dividing into three parts, the thesis attempted to attain the above objectives by (i) carefully constructing the measurements of loneliness and social networks, (ii) performing the quantitative analysis, and (iii) complementing the quantitative analysis by more detailed in-depth qualitative analysis. Before discussing these three parts, the following section presents data which will be utilized in the analysis.

4. Research Method

4.1 Data

The study makes use of a sample of 4080 people of the age 60 and older drawn from the 2012 Survey of Older Persons in Myanmar. The survey is nationally representative except for the exclusion of Kachin State and was conducted by Myanmar Survey Research in conjunction with HelpAge International. It employed a multi-staged random sampling in selecting the sample. First, 60 sample townships were randomly selected; second, 90 urban wards and 150 rural village tracts within these townships were chosen at random; third, households were randomly drawn from the lists provided by the chairman of the ward or village; finally, the sample design required one respondent from each household to be interviewed and randomly chosen in the household with more than one eligible member. Since the design required a

moderate over-representation of persons aged 70 and above in favor of enhancing the reliability of the results for respondents at advanced ages, of the respondents involved in the sample, 1960 (48%) were in the age range of 60-69 and the remained 2120 (52%) were 70 and older. However, according to the survey team records, it was decided that the actual prevalence of the two age strata was 50.7% and 49.3% respectively. In order that the shares of the two age strata are proportionate to the actual shares indicated by the records of survey teams, in the following analysis, statistics and results to the total sample are adjusted by assigning weights. The weights take into account both the designed modest over-representation of persons 70 and older as well as the sample design feature that there is only one older person interviewed in each household. While results shown in tables are weighted, when the number of cases on which they are based are shown they are the actual un-weighted number.

The total response rate was 92.6% and the refusal rate was only 0.6%. Most of non-response was due to the fact that the respondent was not available for interview at the time the survey team was at the sample site. Data were collected through face-to-face interviews using a close-ended questionnaire covering a wide range of subjects relevant to assessing the situation of older persons.

In the qualitative analysis, the study will be based on a focus group discussion or an open-ended interview with the proposed total participants of 18 elderly people, from the urban, suburb and rural areas, who have different characteristics. The qualitative analysis will further clarify the themes which will emerge from the quantitative analysis and should provide additional important information about the culture and

social setting of Myanmar society, which can reflect social role of senior people in their family and community. For instance, focus group discussions can provide the information which can capture the changes in social structure in Myanmar society; it can be seen intensity of loneliness (how severe the elderly feel lonely) through the group discussions; and the FDGs can also provide the important information about the participants' suggestions to reduce the loneliness.

4.2 Construction of Measurements

This section covers how the measures of dependent and independent variables are constructed. Measurement construction of the variables is very crucial for quantitative analysis because measurements turn concepts of the variables of interest of the study into scores which can reflect the behaviors of the participants in the study and can be quantitatively analyzed. When a variable is measured by multiple items, a composite index for that variable needs to be developed. The composite index enables drawing on multiple items, and can cover multiple criteria and aspects that are essential to the concept that individual items in the questionnaire aim to represent. The section is organized as follows. Firstly, it will describe measurements of loneliness and secondly, measurements of social support networks.

4.2.1 Loneliness

The outcome variable of interest of the study is the feeling of loneliness. Existing studies have used two approaches to measure loneliness: single-item variables and derivative scales or multiple-item measurement. In the thesis, three measures of loneliness are used: self-reported scale of loneliness (single-item variable), single-

item deprivation scale (measurement of intensity of loneliness) and a combined intensity two-item loneliness scale.

First, of 149 studies included in the meta-analysis of loneliness of middle-age to older adults, 73 studies utilize a self-reported (single-item) measurement of loneliness (Pinquart & Sorensen, 2001). Other gerontology studies have also used single-item self-rating measurement to investigate loneliness (Andersson, 1982; Holmen et al., 1992; Hughes et al., 2004; Pinquart & Sorensen, 2001). Additionally, the face validity of self-reported measures of loneliness has been documented in some previous studies (J. D. J. Gierveld, 1987 ; Zhang & Hayward, 2001). Similarly, Roger et al. (2007) states that self-reported items on loneliness appear to have good validity. Other studies have documented that a self-reported loneliness scale is associated strongly with the overall score obtained from a multi-item loneliness scale (Chadsey-Rusch, DeStefano, O'Reilly, Gonzalez, & Collet-Klingenberg, 1992).

According to the above-mentioned literature, it can be clearly seen that the self-reported loneliness measure has the good validity. Furthermore, there are also other advantages of single-item loneliness measure. For example, it is simply used and seems to be highly acceptable to the participant (Victor, Scambler, Bowling, & Bond, 2005). On the other hand, its simplicity is a disadvantage. For instance, the measures include only one direct question which may only capture the public view rather than private feeling because loneliness may be seen as a state which compromises or damages a person's identity.

The study defines loneliness as subjective feelings caused by a lag between the expected and perceived social relationship. According to this definition, self-reported

measure is an appropriate measure for the investigation of loneliness. Therefore, this study incorporates a single-item variable based on only one direct question, “How often did you feel lonely in the past month?”, with the scores of 1 (not at all), 2 (some of the time) and 3 (often felt lonely) to investigate the feeling of loneliness.

A second measure of loneliness that is employed is intended to ascertain the relationship between social support networks and loneliness. For this purpose, the study uses the question, “Who can you count on to console you if you are very unhappy or sad?”, with nine response categories, which are “no one”, “spouse”, “son”, “daughter”, “son in law”, “daughter in law”, “other relatives”, “friend/ neighbor” and “other”. The reason why the question will be utilized is that it can capture the intensity of the perceived social deprivation, one of the dimensions of loneliness. The existing study states that there are three dimensions in loneliness: intensity (concerning the nature and intensity of perceived social deprivation), time perspective (concerning the changeability vs. temporal stability of loneliness) and emotional characteristics (absence of positive feelings such as happiness and affection, and the presence of negative feelings such as fear, sadness, and uncertainty) (J. D. J. Gierveld & Tilburg, 1990). J. D. J. Gierveld and Raadschelders (1982) utilize a deprivation scale formed by nine items to assess intensity dimension of loneliness. One of those nine items is “You actually have no one you want to share your joy or sorrow with”. This item is relatively similar to the question employed in this thesis. Thus, in what follows, the thesis constructs the second measure of loneliness on the basis of the above question. To construct the deprivation scale, the study counts the response categories to the question of who console the participants if they are unhappy or sad. Three categories are constructed; (i) “no one”, (ii) “one or two”, and “more than two”

to indicate the number of categories mentioned. The scores are ranging from 1 (more than two), 2 (one or two) and 3 (no one). The variable has validity because it is correlated with the pre-existing single-item loneliness measure which has already had good face validity ($r = 0.1$, $p < 0.001$).

Lastly, the thesis also uses a derivative scale of loneliness. In this case, the composite variable is constructed by using two items to assess loneliness: (i) self-reported item, which is the first measure of loneliness, covering three categories, and (ii) the second measure of loneliness, which describes intensity dimension of loneliness, also covering three categories. The study computes the two-item derivative scale by summing the scores of these two items. The scores of two-item derivative measure range from 1 to 5, indicating that the higher the scores are, the greater the degree of loneliness is. The two-item derivative scale of loneliness is highly correlated with the simple self-reported item ($r = 0.649$ and $p < 0.001$).

Table 1 provides a summary of the construction of three measurements of loneliness with ordered responses and meanings of each response category of the measurements. The three measurements are given simple names to ease the understanding. The first measurement is frequency of loneliness, the second is intensity of loneliness, and the third is experience of loneliness.

Table 1: Construction of Measurement of Loneliness

Measure I (Frequency of Loneliness)	Measure II (Intensity of Loneliness)	Measure III (Experience of Loneliness)		
Question used for Measure I “How often did you feel lonely in the past month?” Response Categories in order: 1 Not at all 2 Some of the time 3 Very often	Question used for Measure II “Who can you count on to console you if you are very unhappy or sad?,”with nine response categories: “no one,” “spouse,” “son,” “daughter,” “son-in-law,” “daughter-in-law,” “other relatives,” “friend/neighbor,” and “other.” Constructed response categories in order: 1 More than 3 2 One or two 3 No one »“More than 3” means “Network members from any three categories or more console the respondent if he/she is very unhappy or sad.” »“One or two” means “Network members from one or two categories console the respondent if he/she is very unhappy or sad.” » “No one” means “No one consoles the respondent if he/she is very unhappy or sad.”	Measure I + Measure II -1		
		Measure I	Measure II	Measure III ^a
		1	1	1 “Not at all lonely and no one console”
		1	2	2 “Not at all lonely and someone from one or two categories console”
		1	3	3 “Not at all lonely and someone from more than two categories console”
		2	1	2 “Sometimes lonely and no one console”
		2	2	3 “Sometimes lonely and someone from one or two categories console”
		2	3	4 “Sometimes lonely and someone from more than two categories console”
		3	1	3 “Often lonely and no one console”
		3	2	4 “Often lonely and someone from one or two categories console”
3	3	5 “Often lonely and someone from one or two categories console”		

^aThe scores of Measurement III range from 1 to 5, instead of 2 to 6 because the scores are from the sum of the scores of first two measurements subtracted by one.

Table 2 illustrates the summary statistics of the above raw measurements of loneliness. According to the table, the highest percentage, 46.74%, is found among the older persons who are not lonely at all and have at least someone who had at least someone who could console them if they felt unhappy or sad. As reported, although

the three of them provide different angles of loneliness, there exists also some correlation between them.

Table 2 Measurements of Loneliness

Frequency of Loneliness (N=3758)		Intensity of Loneliness (%)			
	No one	One or Two	More than two		
Not at all	64.5	70.9	78.3		
Some of the time	28.7	24.4	18.2		
Often	6.8	4.8	3.5		
Total	100	100	100		

Experience of Loneliness (Total Obs.= 3758)					
Categories	% (N)	Categories	% (N)	Categories	% (N)
Not at all lonely and no one console	11.25 (357)	Sometimes lonely and no one console	2.62 (95)	Often lonely and no one console	0.49 (17)
Not at all lonely and someone from one or two categories console	46.74 (1706)	Sometimes lonely and someone from one or two categories console	16.08 (672)	Often lonely and someone from one or two categories console	3.14 (137)
Not at all lonely and someone from more than two categories console	12.69 (473)	Sometimes lonely and someone from more than two categories console	5.64 (241)	Often lonely and someone from one or two categories console	1.34 (60)

4.2.2 Social Support Networks

In order to describe social networks, two measures are used in this study: objective and subjective measures (Iecovich et al., 2004).

As for the objective measures, the study describes structural characteristics and interactional characteristics of social support networks. The structural characteristics of social support networks are marital status, having children, having other kin in network and having other non-kin in network. In this regard, the study aims at using the variable of marital status to identify whether partnership can reduce feeling of

loneliness. Furthermore, in order to investigate the effect of parenthood on the experience of loneliness, the binary variable of having children or not would be used, and in order to understand the effect of other sources of social networks on loneliness, the thesis uses the binary variables of whether the older people have grandchildren or siblings or other relatives in the same household and/or living nearby (Yes=1, No=0).

Table 3 presents the variables which measure the structure of social support networks. According to the table, about 53% of the respondents are married, whereas nearly 47% are unmarried; about 39% are widowed; approximately 3 % are divorced and separated; about 5% have never married. Almost all of the elderly, by about 93%, have children whereas childless proportion is much lower at 6.8%. The respondents have, on average, 4.26 children. Among the participants who have children, 42.5 % had 4 to 6 children, 32.1% had 1 child to 3 children, and only about 19% had 7 or more children. The table also covers the proportions of the elderly who live together with the relatives and who have relatives nearby. With regards to defining relatives, the study counts grandchildren aged 18 and above, siblings, parents, parents-in-law, grandparents and other relatives as relatives. Whereas about two-thirds of the elderly report that their relatives live nearby, the proportion of the elderly, who live together with their relatives in the same household is relatively low by almost one-fourth.

Table 3: Structural Characteristics of Social Support Networks

Variables	% (N=4080)
Marital Status	
Single (never married)	4.5
Currently married	53.4
Separated	0.8
Divorced	1.8
Widowed	39.4
Parenthood	
Having children	93.2
Childless	6.8
No. of children	
0	6.8
1 to 3	32.1
4 to 6	42.5
7 to 9	16.8
≥10	1.7
Mean Number of children	4.26
Having relatives (adult grandchildren, siblings and other closed relatives) living nearby	
Yes	78.0
No	22.0
Having relatives (adult grandchildren, siblings and other closed relatives) in household	
Yes	25.1
No	74.9

Regarding the interactional characteristics of social networks, the frequency of contacts with kin (children, siblings, adult grandchildren, and other relatives) and non-kin is utilized in the study. In order to examine how often the older persons contact other network members, the study constructs composite variables. First of all, the respondents with children will be divided into mutually exclusive six groups: (1) living together with children in the same household; (2) having daily or almost daily contact with children living outside; (3) having at least weekly contact with children living outside; (4) having monthly or in every few months contact with children residing outside; (5) having at least annually contact with children living outside; (6) no contact with children residing outside.

In addition, other composite measures are created to express the variation of the frequency of contacts with relatives (grandchildren aged 18 and older, siblings, parents, parents-in-law, grandparents, and other relatives). In this regard, there are mutually exclusive six subgroups: (1) living together with relatives in the same household; (2) having daily or almost daily contact with relatives nearby; (3) having at least weekly contact with relatives nearby; (4) having monthly or in very few months contact with relatives nearby; (5) having less than once a month contact with relatives nearby; (6) no relative in same household as well as nearby. Table 4 covers the interactional characteristics of social support networks.

Table 4: Interactional Characteristics of Social Support Networks

Response Categories	Frequency of contact		
	With children if	With other relatives in	With non-kin ^a (%)
	having children (%) (N=3820)	household or nearby (%) (N=4080)	(N=4080)
In same household	82.8	25.1	-
Daily or almost daily	10.2	40.3	46.4
At least weekly	2.7	9.2	18.0
Monthly or almost monthly	2.1	3.6	5.6
At least annually	1.5	3.2	19.5
No contact	0.7	18.7	10.5

^a Friends and Neighbors

According to table 4, about 83% of the elderly who have children reside together with their children in the same household. About 17 % of them have children who live outside. While merely about 1% of them have no contact with children living outside, about 10% contact their children daily or almost daily. In conclusion, most of them have some forms of contact with their children.

Regarding contact with other relatives, about 25% of the elderly live together with their adult grandchildren, siblings and other relatives in the same household. Furthermore, nearly half of the respondents are in a very often contact with their relatives who live nearby. In the case of contact with non-relatives, the statistics from the table 3 show that most of the elderly maintain social relationship with their friends and neighbors by very often chatting, eating together or playing games.

Finally, the subjective measures consist of perceived quality of relationships with family with the range of scores from 1(very unsatisfied) to 5(very satisfied) and

perceived quality of ties with neighbors and community members with the scores ranging from 1(very unsatisfied) to 5(very satisfied).

Table 5: Quality of Relationships with the Network Members

Response Categories	Quality of relationship	
	With family (%) (N=3785 ^a)	With neighbors and community (%) (N=3791 ^b)
Very Satisfied	61.6	58.2
Somewhat satisfied	30.5	34.0
Neither satisfied nor unsatisfied	6.7	7.4
Somewhat unsatisfied	0.9	0.3
Very unsatisfied	0.3	0.1

^{a,b}“Don’t know” was identified as Missing value.

Table 5 exhibits the quality of relationship with network members. According to the table, it is observed that about 62% of the respondents report that they are satisfied with the relationships with their family, and only 0.3% feels unsatisfied. Regarding the relationship with neighbors and community, just only 0.1% report unsatisfied, and more than half of the respondents feel satisfied. Briefly, most of the respondents are satisfied with the relationships with their network members and the proportion who is unsatisfied is relatively low.

5. Data Analysis

5.1 Quantitative Analysis

The thesis attempts to analyze the impact of social support networks on the feeling of loneliness among the older persons in Myanmar. The analyses include descriptive

statistics to review the distributions in form of frequency, percentage and measures of central tendency for response variable and all explanatory variables. In order to investigate whether social support networks is likely to reduce feeling of loneliness among senior people in Myanmar, the thesis conducts regression analyses which estimate the statistical significance and direction of the relationship between each explanatory variable and loneliness, as well as the marginal effects of each relationship. Owing to the ordered response nature of the explained variable, the study employs three ordered logit models for three measurements of loneliness. Since ordered outcome variables are non-linear, the models cannot be consistently estimated by using OLS and instead, it will be estimated by maximum likelihood estimation method. Although the ordered logit and ordered probit usually give very similar results, depending on the assumption on distribution of error term, ϵ_i , type of analysis can be chosen. If one assumes that error is normally distributed, the appropriate analytic technique will be ordered probit analysis. If one assumes that error term has logistic distribution, the ordered logit regression can be appropriately chosen for analysis. The study administers the ordered logit model.

Model Specification

For self-reported loneliness, which is an ordinal variable with three categories (“not at all”, “some of the time” and “often”) and second single-item measurement of loneliness which is also the ordered variable with three categories (“more than two”, “two” and “no one”), the proposed latent (or unobserved) variable model is as follows:

$$y_i^* = \beta_0 + \beta_1 x_{1i} + \beta_2 x_{2i} + \beta_3 x_{3i} + \beta_4 x_{4i} + \beta_5 x_{5i} + \beta_6 x_{6i} + \beta_7 x_{7i} + \beta_8 x_{8i} + \beta_9 x_{9i} + \beta'_{10} x_{10i} + \epsilon_i \dots \dots \dots (1)$$

$$y_i = 1 \text{ if } y_i^* \leq \mu_1$$

$$y_i = 2 \text{ if } \mu_1 < y_i^* \leq \mu_2$$

$$y_i = 3 \text{ if } y_i^* > \mu_2$$

where y_i^* is the dependent variable of loneliness measured by self-reporting coded as 1 (not at all), 2 (some of the time) and 3 (often). It is also measured by deprivation scale coded as 1 (no one), 2 (two), and 3 (more than two) which is a linear function of social networks characteristics of i , marital status (x_{1i}), having children (x_{2i}), having other kin in network (x_{3i}), having non-kin in network (x_{4i}), frequency of contacts with children (x_{5i}), frequency of contacts with other kin (x_{6i}), frequency of contacts with non-kin (x_{7i}), quality of ties with kin (x_{8i}) and quality of ties with non-kin (x_{9i}); a vector of control variables (x_{10i}); and error term, ϵ_i . In the latent variable model, if y_i^* is smaller than unknown threshold parameter of μ_1 , y_i is equal to 1. If $\mu_1 < y_i^* \leq \mu_2$, y_i is 2. If y_i^* is greater than μ_2 , y_i is equal to 3. Both μ_1 and μ_2 are unknown threshold parameters to be estimated with β_i in the model.

Similarly, for composite variable which is in ordered responses ranging from 1 to 5, indicating that the higher score, the higher degree of loneliness. The latent variable model is:

$$y_i^* = \beta_0 + \beta_1 x_{1i} + \beta_2 x_{2i} + \beta_3 x_{3i} + \beta_4 x_{4i} + \beta_5 x_{5i} + \beta_6 x_{6i} + \beta_7 x_{7i} + \beta_8 x_{8i} + \beta_9 x_{9i} + \beta'_{10} x_{10i} + \epsilon_i \dots \dots (2)$$

$$y_i = 1 \text{ if } y_i^* \leq \mu_1$$

$$y_i = 2 \text{ if } \mu_1 < y_i^* \leq \mu_2$$

$$y_i = 3 \text{ if } \mu_2 < y_i^* \leq \mu_3$$

$$y_i = 4 \text{ if } \mu_3 < y_i^* \leq \mu_4$$

$$y_i = 5 \text{ if } y_i^* > \mu_4$$

where, y_i^* is the outcome variable of loneliness measured in terms of composite variables ranging from 1 to 5, indicating that the higher score, the higher degree of loneliness and the same predictors and the same control variables used in Eq.(1) are undertaken. In the model, if y_i^* is smaller than unknown threshold parameter of μ_1 , y_i is equal to 1. If $\mu_1 < y_i^* \leq \mu_2$, y_i is 2. If $\mu_2 < y_i^* \leq \mu_3$, y_i is 3, and if $\mu_3 < y_i^* \leq \mu_4$, y_i is 4. If y_i^* is greater than μ_4 , y_i is equal to 5. μ_1 , μ_2 , μ_3 and μ_4 are unknown threshold parameters to be estimated with β_i in the model. Figure 4 depicts the framework which presents dependent variable, independent variables and control variables used in the study.

Control Variables

The study uses some individual characteristics and social environmental factors which are potential predictors of the social support networks and loneliness to control for possible confounding effects. Several existing studies identify several variables which are strongly associated with loneliness. Some studies argue that age is related to loneliness (Barretta, Dantzler, & Kayson, 1995; Holmen et al., 1992; Victor et al., 2002).

Some researchers believe that urban seniors are likely to have less chance to participate in community integration and tend to be lonelier (Mullins et al., 1996). However, according to the evidence provided by some studies, two-thirds of rural elderly also experience loneliness (Miedema & Tatemichi, 2003). The rural elderly probably experience loneliness because of geographical isolation, low income, low education, children moving to big cities, less social support and limited access to resources and activities (Kivett, 1979). A more recent study has examined the

loneliness of 1241 randomly-sampled subjects and found that degrees of loneliness do not vary by geographical location (Lauder et al., 2004). Moreover, existing study also discovers that urban and rural residents have not reported differences in loneliness (Mullins et al., 1996).

With the regard to gender difference, studies reveal that the higher incidence of loneliness is found in older females (Pinquart & Sorensen, 2001). It has been discovered that older women are more likely to experience loneliness than older men (Berg et al., 1981; Holmen et al., 1992; Kivett, 1979). The reasons for this are: firstly, women may be allowed to describe their feelings more openly than men (Tijhuis, De Jong-Gierveld, Feskens, & Dromhout, 1999); secondly, women are more likely to value human relationships than men (Berg et al., 1981); and thirdly, women can live longer so that they are exposed to widowhood and other life losses (Tijhuis et al., 1999). However, some studies find that older men tend to suffer more from loneliness than women (Mullins et al., 1996). This is because men may not be as sociable or have more difficulty to establish social relationship than women, they may be less reticent in describing their emotional needs, and they are more probable to have no children or friends than women (Mullins et al., 1996). In several studies, it has not been discovered any direct relationship between genders and loneliness (Tilvis et al., 2000).

Functional status may be related to loneliness, but the findings concerning this issue are inconsistent. Some studies describe that the older persons who need help with activities of daily living (ADL) functions or those with decreased functional status may probably experience loneliness more than those who do not need to depend on

others (Jylha & Jokela, 1990). One study finds that feelings of loneliness are more common among the elderly who are suffering from illnesses or physical limitations (Teh, Tey, & Ng, 2014). By contrary, the dependency on ADL support may lower loneliness. This may be because those needing help can have more social contacts with their helpers than those managing alone (Bondevik & Skogstad, 1998). From the existing study, concerning only men, ADL-function cannot explain the experience of loneliness (Tijhuis et al., 1999).

The relation of income to loneliness has been paid clearly less attention in research compared to, e.g. living conditions (Andersson, 1982). Mullins et al. (1996) suggest that the elderly with low income have higher rates of living alone, which may lead to loneliness. Most studies have found that the people who dissatisfied with their income may be more likely to express feelings of loneliness than those who are satisfied with their income (Mullins et al., 1996; Victor et al., 2005). Moreover, weak economic situation (i.e. consider one's own economy as worse than others') is correlated with low mental quality of life (Ekwall et al., 2005). In a French study which shows the impact of poverty on social relationships, *an insecure economic situation doubles the risk of relational isolation and also accelerates the risk of falling into isolation. According to this study*, nearly one-fifth of people who earn lower than 1000E/month are at risk of experiencing isolation (Diana-M2, 2013). In addition, some studies suggest that low-income levels bring about higher degree of loneliness (Savikko, Routasalo, Tilvis, Strandberg, & Pitkälä, 2005). However, some small-sized studies have not suggested that income is a predictor of loneliness (Kivett, 1979).

Victor et al. (2005) show that educational attainment is significantly associated with loneliness. A study demonstrates that participation in leisure and social activities in the community tend to lower the level of loneliness (Schwartz & Gronemann, 2009).

With reference to the findings in the literature, the following demographic and socio-economic factors are used as control variables in the multiple regression analysis. The control demographic characteristics include age, sex, race, residence and health status. The control socio-economic characteristics include educational attainment, working status--current and lifetime--, family's economic condition, family income, respondent's contribution to family income, access to mass media and access to communication. The Barthel ADL (activities of daily life) index is used to measure health status. The variable of ADL is measured by a 5-item scale: eating, dressing, bathing, standing from lying down and toilet with scores ranging from 0 (no difficulties without help) to 3 (cannot do without help). Scores will be summed up to create a composite ADL score ranging from 0 (independent on others) to 15 (totally dependent on others).

In the following figure, it can be seen the framework which displays outcome variable, explanatory and control variables utilized in the study.

Figure 4: Conceptual Framework of the Impact of Social Networks on Loneliness among the Elderly

Control Variable Variable	Independent Variables	Dependent
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Table 6 covers the demographic and social characteristics used in the quantitative analysis. From the table, more than half of the respondents, by 54%, are females, leaving 46% as males. The majority of the participants, about 72%, are Burmese and the remaining are minorities, Indian and Chinese. About two-thirds of the respondents are living in rural areas, the rest are staying in urban areas. The mean of age of the participants is about 70, with age ranging from 60 to 106. It can be seen that mean ADL score is 0.86 (SD=0.04) with the range of 0 to 15. With regards to the social characteristics, the study uses educational status. In this regard, of the respondents,

about 30%, attended monasteries for their education; about 22% has no education; 15% completed primary education; and only approximately 9% achieved higher education.

Table 6: Demographic and Social Characteristics

Demographic Characteristics		Social Characteristics	
Variables	% (N=4080)	Variables	% (N=4069)
Sex		Educational Status	
Male	46.0	None	22.1
Female	54.0	Monastic	29.8
Ethnicity		Some primary	15.0
Burmese	71.9	Complete primary	14.9
Others	28.1	Middle school	9.7
Residence		High school or more	8.5
Urban	31.4		
Rural	68.6		
Mean Age ^a	70.46		
Health Status			
Mean ADL score ^b	0.86		

^a Possible range: 60-106

^b Possible range 0-15 : higher score indicates higher dependence

Table 7 reports the participants' working status, their economic contribution to family and their family's economic situation. As for working status, of the respondents, 1155 are still working; more than half of them are farmers and some have own account sales or service (including street vendors or selling at house shop). The similar figure can also be seen in the lifetime occupation status. Regarding the economic contribution to the family, about 41% of the elderly in the study do not or barely contribute to family economics. The proportion that gives total economic support to the family is only about 13%. Comparing the respondents' current economic situation

of the participants to that of 3 years earlier, according to the table, more than half of them have the same economic situation and nearly 24% report that their economic situation becomes somewhat worsen during three years. Of the elder persons' family in the study, nearly 30%, on average, earns 25,001 kyats (\$25) to 50,000 kyats (\$50) monthly, 23.5 %, 50,000 kyats (\$50) to 75,000 kyats (\$75) and about 22%, 100,000 kyats (\$100) and above.



Table 7: Economic Characteristics

Working Status	%		Economic Contribution to family (N=4080)	%	Economic situation (N=4080)	%	Monthly Household Income (N=3944 ^a)	%
	Current (N=1155)	Lifetime (N=3827)						
Farmer (incl. livestock)	55.2	53.5	None/only a little	41.1	Much better	3.1	Less than Ks 25,000	9.4
Agricultural laborer	4.4	6.0	More than a little but less than 1/2	21.7	Somewhat better	17.2	Ks 25,001 to 50,000	29.7
Non-agric laborer	12.6	9.7	About 1/2	16.1	About same	53.2	Ks 50,001 to 75,000	23.5
Own account	21.6	17.2	More than 1/2 but not all	8.3	Somewhat worse	23.8	Ks 75,001 to 100,000	15.5
Employee (incl. government)	3.7	11.1	Total support	12.9	Much worse	2.7	Over Ks 100,000	21.9
Other	2.5	2.5						

Table 8 describes the extent to which the respondents can access mass media, utilize mass media and participate in community activities. It is noticeably seen that about 90% of the participants cannot access the internet. Of the participants, 53% do not read newspapers or magazines and one-fourth reports that those print media are not available. About one-third listen to radio daily or almost daily and about 27% does not. While the proportion of the respondents who are watching TV was over 47%, 32% said that they did not watch TV at all and nearly 21% reported that that kind of media was not available. According to the data, the sort of mass media which most of the participants utilized are radios and televisions.

Access to telephone is taken into account for access to communication. In this regard, most of the elderly, about 90%, have no phone at their home. However, nearly 74% of the elderly can use the telephone owned by someone nearby if they need to in spite of not having phone at their home whereas 16% have no phone as well as cannot access

the phone nearby if they require to. Regarding the participation in community activities, most of the respondents have seldom participated in community activities. The proportion of respondents, who have monthly attendance, is relatively low, by about 14%, but the proportion, who have participated at religious ceremonies once a year or a few times in a year, is high by almost 57 %, and 21% of them have never attended. More than half of the participants have not attended meetings held by community. Similarly, most of them, by nearly 90%, have never attended the political meetings or events.

Table 8: Percentage distribution of participants who access mass media and participate in community activities

Response categories	Access to Mass Media				
	Reading newspapers or magazines	Listen to radio	Watching TV	Using the internet	Hearing public speaker announcements
	N=4080				
Not at all	53.0	26.8	31.8	9.9	16.6
A few times	13.8	15.0	14.4	0.2	59.7
Weekly/ almost weekly	4.3	7.9	8.7	-	7.7
Daily almost daily	6.8	34.0	24.2	0.1	7.9
Not applicable/not available	22.1	16.2	20.9	89.8	8.1
	Participation in community activities				
	Community or religious ceremonies	Community meetings	Political Meetings or Events		
	N= 4080				
Never	20.9	50.3	89.9		
Once or only a few times	56.8	37.6	9.4		
Monthly/ almost monthly	13.7	7.7	.3		
Weekly/ almost weekly	7.6	3.2	.2		
Daily almost daily	1.1	1.1	.1		

6. Empirical findings from the quantitative analysis

6.1 Summary statistics: Prevalence of Loneliness

Table 9 displays the summary statistics of the percentages of the elderly who felt lonely by social support networks characteristics. In terms of measurement of loneliness, self-reporting measure of loneliness based on the direct question, “How often did you feel lonely in the past month?” with three ordered responses was dichotomized the score 1 as 0 (no lonely) and 2 to 3 as 1(lonely). From the summary statistics, it can be found that there is a variation in the degrees of loneliness in relation to different types of social support networks.

Results in the table indicate that the older persons who are widowed had the highest degree of loneliness by 43.65%, followed by the single while the corresponding degree of currently married is the lowest by 81.5%. Furthermore, it can be observed that the percentage of those who felt lonely was higher among those who had no child than those with child. The elderly who have no relatives in their social web report higher level of loneliness than those who have relatives do. As unexpectedly, the higher percentage of lonely older persons exists among those with non-relatives within their network (47.97%) than those who do not have (31.44%). The possible explanation for this unexpected result is that although the elderly have non-relatives in their network, their desired relationship may not be provided by them, and non-relatives do not seem to substitute for the people who can provide the relationship they want.

The table further shows that the highest percentage of lonely older persons is among those who do not contact with their children (60%) and followed by contact at least annually with 53.7%, while the lowest correspond with those living together with their children in the same household (28.77%). Almost no variation in degrees of loneliness is found by frequency of contact with relatives in the network ($\chi^2 = 6.5782, p = 0.254$). In terms of the role of frequency of contact with non-kin in lowering loneliness, whereas the older people who contact daily or nearly daily with their non-relatives reported to feel lonely with the lowest percent of 29.02%, the corresponding figure for those contacting a few times or once a year was the highest by 44.99%.

It is further pointed out that loneliness had a statistically significant association with maintaining good relation with their family ($p=0.000$). Whereas 46.97 per cent of those who were very unsatisfied the relation with the family felt lonely, the lowest percentage, by about 28.84%, existed among those who could maintain good relationship. Likewise, results indicate that the older people who had no good relation with non-relatives had the highest level of loneliness by about 66.67% whereas the lowest percentage, by 31.13%, was among those who are somewhat satisfied the relationship and the second lowest percentage, by 31.60%, exist among those who are very satisfied.

Table 9 Summary Statistics-Percentages of Older persons by Loneliness and Social Support Networks Variables

Variables	Not lonely (%)	Lonely (%)
Marital Status		
Currently married	81.50	18.50
Separated	62.96	37.04
Divorced	63.53	36.47
Widowed	56.35	43.65
Single(never married)	60.76	39.24
*Chi2 = 254.1521, **p < 0.001		
Having Child		
No	55.46	44.54
Yes	68.30	31.70
*Chi2 = 16.7313, **p < 0.001		
Having Kin in network		
No	64.25	35.75
Yes	68.26	31.74
*Chi2 = 4.3238, **p < 0.05		
Having Non-kin in network		
No	68.56	31.44
Yes	52.03	47.97
*Chi2 = 28.6350, **p < 0.001		
Child network		
in HH	71.23	28.77
Daily or almost daily	56.49	43.51
At least weekly	49.48	50.52
Monthly or every few months	61.19	38.81
At least annually	46.30	53.70
No contact	40.00	60.00
*Chi2= 74.1165, **p < 0.001		

Table 9 (Cont.)

Variables	Not lonely (%)	Lonely (%)
Kin network		
in HH	68.02	31.98
Daily or almost daily	69.02	30.98
At least weekly	65.88	34.12
Monthly or every few months	64.93	35.07
At least annually	70.40	29.60
No kin in hh as well as nearby	64.25	35.75
*Chi2 = 6.5782 , **p=0.254		
Non-kin network		
Daily or almost daily	70.98	29.02
At least weekly	70.93	29.07
Monthly or almost monthly	65.50	34.50
Once or only a few times	55.01	44.99
Never	69.48	30.52
*Chi2 = 65.5754 , **p<0.001		
Quality of relationship with family		
Very Satisfied	71.16	28.84
Somewhat satisfied	65.76	34.24
Neither satisfied nor unsatisfied	50.59	49.41
Somewhat unsatisfied	36.84	63.16
Very unsatisfied	23.08	76.92
*Chi2= 76.7346 , **p < 0.001		
Quality of relationship with non-kin		
Very Satisfied	68.40	31.60
Somewhat satisfied	68.87	31.13
Neither satisfied nor unsatisfied	55.24	44.76
Somewhat unsatisfied	54.55	45.45
Very unsatisfied	33.33	66.67
*Chi2 = 23.8911 **p < 0.001		
Number of observations	2,532	1,220

*This Chi2 (chi-square) statistic is to evaluate whether there is a relationship between the two categorical variables.

**p-value for chi-square, noting that if $p < 0.001$, there is a relation between two variables at 0.1% level of significance; if $p < 0.01$, there is a relation between two variables at 1% level of significance; and if $p < 0.05$, there is a relation between two variables at 5% level of significance.

6.2 Empirical Results: Predictors of Loneliness

In order to explore the social network variables predicting feelings of loneliness, three ordered logistics regression models were administered. In the first model, the outcome variable was measured by self-reporting; in the second, the deprivation scale; and in the third, the composite index. For all three models, the higher the scale is, the higher the degree of loneliness will be. Additionally, factors influencing loneliness are also investigated by analyzing different samples.

6.2.1 Social networks and loneliness: the entire sample

The first model

Table 10 presents the predictors of loneliness resulted from analyzing the entire sample. As shown in table, for the first model, all of the social networks variables play important role in explaining feelings of loneliness. In exploring the effect of marital status on loneliness, findings indicate that the elderly whose spouses stayed separately are about 2.4 times more likely to feel lonely than the elderly who were currently married. Likewise, it can be observed that those who are divorced, widowed, and single are about 2, 3.1 and 1.8 times more likely to report loneliness. Regarding to marital status, it can be drawn a conclusion that loneliness is higher among older persons who are not currently married than those who are currently married. In other words, it can be said that partnership plays a significant role in reducing feelings of loneliness among the elderly.

It is further shown in the table that the odds of being lonely are nearly 60% lower for the older persons with children than for those without children. The elderly who have

kin within their social networks have a lower probability of being lonely, by 40 percent, than those without relatives do. In term of non-kin, from the summary statistics, it is a statistically significant factor in explain feelings of loneliness, yet the first model provides the unexpected association between having non-kin and loneliness. Those who have non-kin are 1.5 times more likely to be lonely than those without non-kin. One plausible explanation is that although they have non-relatives within their networks, the non-relatives cannot provide them the relationship they expect when they require and they cannot be substituted for the children and family members. For example, when an older person wants to consult with their friends about something, his/her friends cannot fulfill their desire or when he/ she does not receive the social contact from his/her partner, children or family members, as non-relatives cannot provide his/her expected relationship, he/she will feel lonely in spite of having non-relatives.

Frequency of contact with the network members

In investigating if frequency of social contact with the network members can influence feelings of loneliness, results indicate that all variables related to frequency of contact with the network members can be related to loneliness.

With reference to the frequency of contact with children, the level of loneliness is higher even among the non-co-resident elderly who have contact daily or almost daily with their children living outside than those who co-reside with one or more children in the same household. Similarly, the older persons, who contacted with their children at least once a week, monthly or every few months and at least annually, are approximately 2, 1.8 and 2.5 times more likely to feel lonely. Yet no difference is

found between those without contacting at all and those who co-reside with their children. The plausible reason is that when the elderly realize they have no contact with their children who stay outside at all, they may suffer sense of loss temporarily but their feelings of loneliness will fade over time, which allows them to find other ways of emotionally depending on themselves. Overall, the elderly with less frequent contact with their children tend to be lonelier.

In terms of frequency of contact with relatives, those who contact with their relatives daily or nearly daily and at least weekly are approximately 1.4 and 1.8 times more likely to feel lonely than those who co-reside with their relatives in the same household, but no differences are found between those who contact monthly and at least once a year with relatives and those who stay together. Perhaps those who less frequently contact than at least weekly do not emotionally depend on relatives.

Concerning with contact with non-relatives, apart from the category of contacting once a year or a few times, there is no significant results on other categories. This is perhaps because the older persons who contact at least weekly or monthly with non-relatives may satisfy with their relationship and although they contact with non-relatives less than daily, contacting at least once a week and monthly may not be the frequency which can make the elderly feel lonely. The elderly without contacting at all may have neutral feeling on contact with non-relatives. Nevertheless, those who hardly contact with non-relatives are probably lonelier.

Quality of relationship with network members

In determining the role of quality of social relationship with network members, findings of the first model show that maintaining good quality of relationship with the family can ward off loneliness. On the other hand, the first model do not support the expected association between quality of relationship with non-kin and loneliness, indicating that the odds of being lonely are about 20% lower for those who are somewhat satisfied with non-relatives than for those who are very satisfied. The possible explanation is that those who have lower degree of satisfaction of social relationship with non-relatives can have better social relationship with other network members than those who have higher degree of satisfaction can.

The second model

The second model in which loneliness is measured in terms of deprivation scale provides the same picture to the first model. But regarding with having non-kin in network, the second model offers the expected effect of having non-kin on loneliness, revealing that those with non-kin have lower likelihood of being lonely, by 86 percent than those without non-kin do. In term of marital status and having children, the second model supports the same picture to the first model. As for frequency of contact with children, loneliness is higher among those who contact with their children, who stay outside, daily or nearly daily and at least annually than those who stay together with their children whereas no differences are found between the other categories and the reference. According to the results presented by the second model, frequency of contact with kin and non-kin in social web influences the feelings of loneliness and dissatisfaction of family relationship can lead to greater degree of

loneliness while the probability of being lonely is about 37 percent less for those who are neither satisfied nor unsatisfied relationship with non-kin than those who are very satisfied.

The third model

As shown in the table, the third model generating the composite index as the dependent variable presents that each of social network variables can influence feelings of loneliness. As expected, this model identifies almost all of the social network variables as predictors of loneliness, except quality of relationship with non-kin. According to the results, those who are not currently married tend to be lonelier than the currently, and those who have children, relatives and non-relatives are less likely to feel lonely than their counterparts who do not have. It is further shown that those with less frequent contact with children are likely to be lonelier. The elderly who contact with kin daily or almost daily and at least weekly are 1.3 and 2.1 times more likely to feel lonely than those who co-reside with their kin while no significant results on other categories are observed. Results indicate that those with less frequent contact with non-kin tend to be lonelier. In terms of quality of relationship with family, those with less degree of satisfaction of relationship with family have greater likelihood of being lonely. By contrary, those with less degree of satisfaction of relationship with non-kin are less likely to be lonely. This is perhaps because those who have lower degree of satisfaction of social relationship with non-relatives can have better social relationship with children and family than those who have higher degree of satisfaction can.

Control variables

In addition to the social networks variables, several demographic and socio-economic variables are taken into account in this study as control variables. The control variables taken into account are age, sex, race, residence, health status, educational attainment, working status (current and lifetime), family's economic condition, family income, respondent's contribution to family income, participation in community activities, access to mass media and access to communication. All of the three models consistently present that family's economic condition and family income are associated with loneliness with statistical significance. Much worse family's economic condition can make the elderly feel lonelier. Higher family income of the elderly can lead to lower level of loneliness. In addition, age, race, place of residence, health status, respondent's contribution to family income, participation in community activities, access to mass media and access to phone (access to communication) can interpret loneliness. Age is negatively related to loneliness. Existing study has also found that advanced age was identified as a protective factor of loneliness (Victor et al., 2005). Moreover, it has been revealed that loneliness flattens out after 90 years of age (Holmen et al., 1992). This is perhaps because of adapting to loneliness and it is no longer viewed as a great problem. Burmese tend to be lonelier than other ethnicity. The older persons in urban residence have higher probability of being lonely than those in rural. Those who cannot do activities of daily life without others' help are more likely to be lonely than those who can do independently. Those who can contribute to family's economic support have lower odds of being lonely than those who cannot. The elderly who can access any kind of media are less likely to feel lonely than the elderly who cannot at all. Results show that those who have no phone

on their own but access nearby and have no phone at their home as well as do not access nearby tend to be lonelier than those who have phone at their home.

Taken together, each of the three models identifies all of the social networks variables as factors influencing loneliness. In general, these models consistently provide that social support networks tend to reduce loneliness. Partnership plays a significant role in reducing feelings of loneliness, and having children and relatives in network is an effective antidote to loneliness. Those who have less frequent contact with children, relatives, and non-relatives are more likely to be lonely. In addition, dissatisfaction of social relationship with family can result in higher degree of loneliness. All of the three models do not offer the expected association between quality of relationship with non-kin and loneliness. In terms of having non-kin, the models present different results. This is related to how the variables are constructed. In this regard, since the survey does not provide adequate information about “non-relatives”, the thesis uses a proxy variable. The proxy variable assumes that non-relatives are friends whom the elderly can contact if they are feel lonely. This proxy is one of the response categories which have been used in the question³ for model II. The thesis constructs outcome variable used in model II with the scores of 1 "3 or more", 2" 1 or 2" and 3 "no one", meaning that the higher the score, the more intensely they feel lonely. According to the construction of outcome variable for model II, if the older persons have at least one network member to console them if they are unhappy or sad then they can be categorized as those who are less intensely lonely. In other words, if they have non-relatives to console them if they are unhappy or sad, they can be identified as those

³ “Who can you count on to console you if you are very unhappy or sad?,” with nine response categories: “no one,” “spouse,” “son,” “daughter,” “son-in-law,” “daughter-in-law,” “other relatives,” “friend/neighbor,” and “other.”

who are less intensely lonely. This is why having non-relatives is negatively highly related to loneliness in Model II. Findings of the last two models are consistent with existing study, indicating that those with non-relatives who can console them if they are unhappy or sad are less likely to be lonely than those without non-relatives whereas the first model administering self-rating loneliness as dependent variable report that those with non-relatives are more likely to report loneliness.



Table 10 Results of Ordered Logistic Regression of Social Networks Variables Influencing Feelings of Loneliness

Variables	Model I ¹		Model II ²		Model III ³	
	Odds Ratio	SE	Odds Ratio	SE	Odds Ratio	SE
<u>Structure</u>						
Marital status						
Currently married						
Separated	2.541*	1.106	2.665*	1.156	3.279**	1.270
Divorced	2.010**	0.523	3.535***	0.874	3.214***	0.723
Widowed	3.080***	0.312	2.699***	0.252	3.670***	0.313
Single(never married)	1.817*	0.488	2.759***	0.702	2.473***	0.585
Having child						
No						
Yes	0.435***	0.096	0.522**	0.110	0.377***	0.074
Having Kin in network						
No						
Yes	0.601***	0.076	0.745*	0.088	0.597***	0.064
Having Non-kin in network						
No						
Yes	1.529**	0.226	0.136***	0.020	0.356***	0.050
<u>Interaction</u>						
Child network						
in HH						
Daily or almost daily	1.640***	0.218	1.461**	0.188	1.700***	0.200
At least weekly	2.049**	0.454	1.537	0.346	2.081***	0.423
Monthly or every few months	1.760*	0.507	1.583	0.425	1.959**	0.480
At least annually	2.476**	0.722	3.154***	0.930	3.813***	1.037
No contact	1.513	0.713	2.360	1.083	2.492*	1.029
Kin network						
in HH						
Daily or almost daily	1.379**	0.149	1.124	0.113	1.338**	0.122
At least weekly	1.794***	0.284	1.761***	0.260	2.148***	0.286
Monthly or every few months	1.476	0.325	1.062	0.214	1.424	0.266
At least annually	1.027	0.241	1.082	0.234	1.082	0.213
No kin in hh as well as nearby	-	-	-	-	-	-
Non-kin network						
Daily or almost daily						
At least weekly	1.013	0.116	0.934	0.096	0.954	0.089
Monthly or almost monthly	1.272	0.224	1.389*	0.227	1.426*	0.211
Once or only a few times	1.974***	0.200	1.122	0.112	1.673**	0.152
Never	1.021	0.148	1.066	0.141	1.011	0.122

Table 10 (Cont.)

Variables	Model I ¹		Model II ²		Model III ³	
	Odds Ratio	SE	Odds Ratio	SE	Odds Ratio	SE
Quality						
Quality of relationship with family						
Very Satisfied						
Somewhat satisfied	1.411**	0.147	1.458***	0.141	1.536***	0.135
Neither satisfied nor unsatisfied	1.922***	0.331	3.133***	0.529	3.095***	0.485
Somewhat unsatisfied	3.326**	1.167	3.223**	1.200	4.486***	1.520
Very unsatisfied	4.540*	2.708	2.101	1.344	4.872**	2.801
Quality of relationship with non-kin						
Very Satisfied						
Somewhat satisfied	0.799*	0.082	0.929	0.087	0.821*	0.070
Neither satisfied nor unsatisfied	1.212	0.203	0.634**	0.103	0.824	0.123
Somewhat unsatisfied	0.901	0.617	1.599	1.032	1.077	0.645
Very unsatisfied	2.147	2.812	1.565	1.964	1.561	2.125
Control Variables						
Log Likelihood	YES		YES		YES	
Model Chi-Square	-2429.474		-2798.890		-3943.470	
Total Number of Cases	722.04***		676.34***		1028.39***	
	3630		3662		3630	

¹Dependent variable of loneliness was measured by self-reporting coded as 1 “not at all”, 2 “some of the time” and 3 “often”

²Dependent variable of loneliness was measured by deprivation scale coded as 1 “no one”, 2 “one or two” and 3 “more than two”

³Dependent variable of loneliness was measured by composite index with the scores ranging from 1 to 5. Higher score indicates higher loneliness.

*** $p < 0.001$. ** $p < 0.01$. * $p < 0.05$

6.2.2 Social networks and loneliness among the currently married elderly

In the next two subsections, currently married elderly and currently unmarried elderly are analyzed separately. This is because they may have different underlying social-network determinants of loneliness. In particular, they may have different degrees of emotional dependence on children, as partners may strongly substitute for the need of children. In addition, contact with kin and non-kin and satisfaction of relationship

with other network members may alleviate loneliness in the currently married elderly more than in those with a spouse.

The first model

Table 11 displays the factors influencing loneliness for the currently married elderly. Firstly, the first analysis generating self-reporting loneliness as dependent variable identifies four social network variables associated with loneliness: having kin in network, frequency of contact with children and non-kin and quality of family relationship can influence loneliness. In contrast, having child and non-kin, frequency of contact with kin and quality of relationship are not identified as predictors of loneliness. Having kin tend to reduce feelings of loneliness among the currently married. The elderly who contact with their children at least once a week are about 2.9 times more likely to be lonely than those who are co-residing with their children. No significant differences in loneliness are found between the elderly who contacted less frequently than at least weekly and those who stay together with children in the same household. This is maybe because their partner can be substituted for their children. In terms of frequency of social interaction with non-kin, the elderly who contact with non-kin a few times or once a year are 2.2 times more likely to feel lonely than those who contact every day or nearly every day. It is notably found that loneliness is higher among those who are very unsatisfied with family relationship than those who very satisfied.

The second model

Further, results of the second model show that except child variables and having kin, the remained ones are statistically related to loneliness. The possible reason why child variables are not significant is because for the elderly with partner, children become less important. The currently married elderly substitute their partner for children and emotionally more depend on partner than children. The elderly with non-kin are less likely to be lonely. Moreover, those who monthly or almost monthly contact with non-kin are about 2.1 times more likely to report loneliness than those who contact every day or almost every day. As for the quality of family relationship, those who are somewhat satisfied with family have a higher probability of developing loneliness than their counterparts who are very satisfied. Furthermore, it can also be seen the similar pattern for the elderly who are neither satisfied nor satisfied. However, it cannot be observed significant results on other groups. These results may be because those who are not unsatisfied with family relationship can find other ways which can mitigate their unpleased feelings like participating in community activities, taking meditation, visiting to temples or pagoda or having entertainment and so forth. Unexpectedly, those who are neither satisfied not unsatisfied with non-relatives are less likely to be lonely than those who are very satisfied. The possible explanation is that those elderly can more maintain good relationship with other network members.

The third model

The third model generating composite index as outcome variable reports that loneliness is considered to be associated with social networks variables. With regard to this, except having child and the quality of relationship with non-relatives in social

network, the rest of the social networks variables play significant role in buffering loneliness among the currently married elderly.

Control variables

In exploring the role of demographic and socio-economic factors, the models consistently suggest that no access to communication (no access to phone) can lead to higher degree of loneliness. Furthermore, currently married older females are more prone to be lonely than males. Those who totally depend on others for doing activities of daily life are probably lonelier. Burmese report more loneliness than do other ethnicities. Loneliness is more widespread among the currently married in urban residents. It is noted that those who live with worse economic situation compared that of last three years may be at higher risk of loneliness. Higher income of their family can bring about lower level of loneliness, and the currently married elderly who can contribute to their family economic support may be at lower risk of loneliness than their counterparts who cannot at all.

In sum, for the currently married older persons, having children is expressed as an insignificant factor in explaining feelings of loneliness by all of three analyses. In addition, the second analysis describe that contact with children is not related to loneliness. This suggests that for the elderly who have partner, children are less significant. Nonetheless, all models provide the consistent evidence that contact with non-kin and quality of relationship with family play important role in reducing feelings of loneliness. Findings of the first and last models describe that having kin in network is significant while the second one dose not. Having non-kin is important in reducing loneliness according to the second and last models whereas the first one does

not suggest that it is not. The first and last analyses provide that frequency of contact with children is significant, but the second does not. Likewise, although the first model does not show any significant results on frequency of contact with relatives, the second and last ones describe the significant results. In terms of quality of relationship with non-kin, according to findings of the first and last models, it is not considered to be related to loneliness. Nevertheless, the models report that for the currently married older persons, social support networks play important role in lowering level of loneliness.



Table 11 Predictors of Loneliness among the Currently Married Elderly

Variables	Model I ¹		Model II ²		Model III ³	
	Odds Ratio	SE	Odds Ratio	SE	Odds Ratio	SE
<u>Structure</u>						
Having child						
No						
Yes	0.692	0.274	0.837	0.269	0.674	0.213
Having Kin in network						
No						
Yes	0.589*	0.153	0.771	0.145	0.690*	0.123
Having Non-kin in network						
No						
Yes	0.964	0.353	0.136***	0.038	0.177***	0.049
<u>Interaction</u>						
Child network in HH						
Daily or almost daily	1.319	0.319	1.080	0.198	1.178	0.207
At least weekly	2.881**	0.980	1.136	0.352	1.932*	0.563
Monthly or every few months	1.810	0.822	1.523	0.546	1.771	0.611
At least annually	1.924	1.276	1.850	1.027	2.294	1.200
No contact	0.577	0.676	2.078	1.590	1.514	1.078
Kin network in HH						
Daily or almost daily	1.271	0.313	1.146	0.197	1.162	0.189
At least weekly	1.668	0.506	1.665*	0.372	1.847**	0.388
Monthly or every few months	1.556	0.644	1.244	0.382	1.377	0.401
At least annually	0.743	0.376	0.924	0.311	0.799	0.258
No kin in hh as well as nearby	-	-	-	-	-	-
Non-kin network						
Daily or almost daily						
At least weekly	1.377	0.272	1.026	0.148	1.141	0.157
Monthly or almost monthly	1.492	0.475	2.094**	0.492	2.028**	0.451
Once or only a few times	2.247***	0.423	1.240	0.187	1.719***	0.247
Never	1.328	0.358	1.148	0.237	1.182	0.233

Table 11 (Cont.)

Variables	Model I ¹		Model II ²		Model III ³	
	Odds Ratio	SE	Odds Ratio	SE	Odds Ratio	SE
Quality						
Quality of relationship with family						
Very Satisfied						
Somewhat satisfied	0.828	0.165	1.590**	0.222	1.315*	0.174
Neither satisfied nor unsatisfied	1.300	0.439	2.914***	0.791	2.646***	0.695
Somewhat unsatisfied	2.109	1.601	3.490	2.519	3.207	2.240
Very unsatisfied	7.257*	7.044	1.963	1.758	6.610*	5.690
Quality of relationship with non-kin						
Very Satisfied						
Somewhat satisfied	0.725	0.140	1.000	0.136	0.858	0.111
Neither satisfied nor unsatisfied	1.253	0.397	0.544*	0.139	0.655	0.161
Somewhat unsatisfied	0.289	0.449	0.634	0.700	0.553	0.567
Very unsatisfied	0.0000002	0.0004	0.651	1.398	0.118	0.236
Control Variables						
	YES		YES		YES	
Log Likelihood	-753.950		-1335.460		-1638.604	
Model Chi-Square	176.120***		221.580***		262.120	
Number of Observations	1567		1579		1567	

¹Dependent variable of loneliness was measured by self-reporting coded as 1 “not at all”, 2 “some of the time” and 3 “often”

²Dependent variable of loneliness was measured by deprivation scale coded as 1 “no one”, 2 “one or two” and 3 “more than two”

³Dependent variable of loneliness was measured by composite index with the scores ranging from 1 to 5. Higher score indicates higher loneliness.

*** $p < 0.001$. ** $p < 0.01$. * $p < 0.05$

6.2.3 Social networks and loneliness among the currently unmarried elderly

In this section, the determinants of loneliness resulted by analyzing the group of currently unmarried elderly are presented. Concerning with the sample analyzed in this section, it consists of only the separated, widows and divorced elderly, excluding the single. This is because the study intends to bring attention the possibility of effect of having children among those who used to get married but unmarried now. The elderly who lose spouse may search for the new network members who can meet needs for intimacy, closeness and sharing, so the social network members are

probable to be more important in reducing loneliness among the elderly who lack spouse than those with spouse.

The first model

As shown in the table 12, the first model identifies the following factors associated with loneliness: having children, kin and non-kin in social network, frequency of contact with children, relatives and non-relatives and quality of relation with family. The currently unmarried elderly with children and relatives are less vulnerable to be lonely than their counterparts without children and relatives. Moreover, contact with children, relatives and non-relatives are negative predictors of loneliness (less contact associated more loneliness). Unexpectedly, the separated, widowed and divorced with non-relatives are about 1.6 times more likely to be lonely than those without non-relatives. This may be because non-relatives the currently unmarried cannot substitute non-relatives for their partner and children. For example, when losing their partners or not being able to receive their expected relationship from children, they will try to find someone to fulfill that need. However, non-relatives within their social network may not be able to fulfill their desire as they expected, so they are still lonely in spite of having non-relatives. In terms of quantity of contact with non-relatives, those who contact only a few times or once a year with non-relatives are 2.05 times more likely to experience loneliness than those who daily or nearly daily contact. Although quality of relation with non-kin is not significant, quality of relation with family is strongly related to loneliness.

The second model

The second model reports evidence suggesting that having children and non-kin in network, quantity of contact with children and relatives and quality of family relationship are statistically significant factors in reducing loneliness.

The third model

According to the results of the third model, all of the social networks variables can interpret prevalence of loneliness. However, the third model does not offer the expected direction of the effect of quality of relationship with non-kin. Those who can maintain somewhat satisfied relationship with non-relatives have lower likelihood of being lonely than those who can keep very satisfied relation. The possible explanation is that the former can maintain better relationship with children and family than the latter.

Control variables

Concerning with demographic and socio-economic characteristics, the three models reveal that ethnicity, health status, contribution to family's economic support, family's economic situation, family income, participation in community activities, access to media and access to phone are significant predictors of loneliness.

All in all, for the currently unmarried older persons, the three models consistently point out that having children, more frequent contact with children and relatives and maintaining good quality of relationship with family can bring about lower level of loneliness. In the first and last models, having relatives and more frequent contact

with non-relatives can reduce feelings of loneliness although the second do not provide that they are not important. The second and last models suggest that loneliness is less likely to spread among the currently unmarried with non-kin whereas the first one presents the opposite result.

According to the results shown in the tables 11 and 12, for the currently married, children play less important role in lowering feelings of loneliness than do children for the currently unmarried. This is consistent with the hierarchical compensatory model which postulates that older people seeking assistance have an ordered preference on the basis of relationship between care-provider and care-receiver. Accordingly, the preferred sources of assistance in order are spouse and children, followed by other relatives and neighbors and lastly by the formal groups like homes caring older persons (Antonucci, 2001; Cantor & Little, 1985).

Table 12 Predictors of Loneliness among the currently unmarried Elderly

Variables	Model I ¹		Model II ²		Model III ³	
	Odds Ratio	SE	Odds Ratio	SE	Odds Ratio	SE
<u>Structure</u>						
Having child						
No						
Yes	0.367**	0.114	0.387**	0.128	0.276***	0.081
Having Kin in network						
No						
Yes	0.623**	0.096	0.747	0.124	0.573***	0.081
Having Non-kin in network						
No						
Yes	1.578*	0.282	0.088***	0.018	0.361***	0.065
<u>Interaction</u>						
Child network						
in HH						
Daily or almost daily	1.807***	0.301	1.998***	0.365	2.281***	0.367
At least weekly	1.526	0.445	2.280*	0.734	2.213**	0.628
Monthly or every few months	1.593	0.629	1.809	0.738	2.202*	0.800
At least annually	2.660**	0.891	4.431***	1.606	4.873***	1.577
No contact	1.873	1.051	2.400	1.447	2.808	1.497
Kin network						
in HH						
Daily or almost daily	1.377*	0.178	1.074	0.148	1.380**	0.164
At least weekly	1.899**	0.384	1.850**	0.401	2.355***	0.437
Monthly or every few months	1.348	0.370	0.921	0.264	1.334	0.343
At least annually	1.161	0.321	1.236	0.371	1.304	0.338
No kin in hh as well as nearby	-	-	-	-	-	-
Non-kin network						
Daily or almost daily						
At least weekly	0.868	0.130	0.842	0.133	0.843	0.113
Monthly or almost monthly	1.316	0.298	0.908	0.223	1.171	0.248
Once or only a few times	2.046**	0.264	1.043	0.149	1.738***	0.215
Never	0.929	0.166	0.948	0.177	0.890	0.142

Table 12 (Cont.)

Variables	Model I¹		Model II²		Model III³	
	Odds Ratio	SE	Odds Ratio	SE	Odds Ratio	SE
<u>Quality</u>						
Quality of relationship with family						
Very Satisfied						
Somewhat satisfied	1.713***	0.223	1.289	0.183	1.660***	0.202
Neither satisfied nor unsatisfied	2.214***	0.476	3.574***	0.824	3.510***	0.720
Somewhat unsatisfied	3.266**	1.322	3.299**	1.493	4.595***	1.821
Very unsatisfied	4.385	3.530	3.532	3.323	6.002*	4.852
Quality of relationship with non-kin						
Very Satisfied						
Somewhat satisfied	0.808	0.104	0.883	0.121	0.779*	0.091
Neither satisfied nor unsatisfied	1.138	0.241	0.778	0.180	0.923	0.185
Somewhat unsatisfied	1.302	1.082	3.134	2.706	1.981	1.515
Very unsatisfied	8.440	12.366	1.601	2.476	7.503	13.999
Control Variables	YES		YES		YES	
Log Likelihood	-1522.305		-1309.518		-2099.127	
Model Chi-Square	346.59***		411.52***		509.28***	
Number of Observations	1914		1931		1914	

¹Dependent variable of loneliness was measured by self-reporting coded as 1 “not at all”, 2 “some of the time” and 3 “often”

²Dependent variable of loneliness was measured by deprivation scale coded as 1 “no one”, 2 “one or two” and 3 “more than two”

³Dependent variable of loneliness was measured by composite index with the scores ranging from 1 to 5. Higher score indicates higher loneliness.

*** $p < 0.001$. ** $p < 0.01$. * $p < 0.05$

6.2.4 Social networks and loneliness among the elderly with children

In the next two subsections, the elderly with children and the elderly without children are separately analyzed. This is because for the elderly who have children, other social network members may be less significant in interpreting loneliness than for those who do not have. Table 13 presents the factors determining feelings of loneliness among the elderly who have child.

The first model

Findings describe that for those with children, marital status is a strong predictor of loneliness. The separated with children are more likely to feel lonely than the currently married. Likewise, the widow and the divorced have the higher probability of being lonely than the currently married. However, no difference is not found between the single group and the currently married. As expected, the first analysis reports that those who have relatives are less likely to report loneliness than their counterparts. Yet, in terms of non-relatives, those who have non-relatives are more probable to feel lonely than those who do not have. For those who have children, contact with children, relatives, and non-relatives plays important role in lowering prevalence of loneliness. Furthermore, it can be observed that those who have lower degree of satisfaction of family relationship tend to be lonelier. By contrast, the probability of feeling lonely is about 20 percent lower for those who have somewhat satisfied relationship with non-relatives than those who have very satisfied relationship.

The second and third models

The second and third models identify the similar factors determining feelings of loneliness to the first one. However, concerning with non-kin, unlike the first analysis, the last two present the different picture, indicating that those who have non-kin are less likely to feel lonely than those who do not.

Control variables

Regarding with the demographic and socio-economic factors, among the elderly with children, Burmese are less prone to feel lonely. Loneliness is found to be more common among the elderly in urban areas. Those who totally depend on other people for doing activities of daily life are probable to be lonelier. Additionally, those who live with much worse economic situation compared that of last three years may be at higher risk of loneliness, higher income of their family can result in lower level of loneliness, and those who can contribute to their family economic support may be at lower risk of loneliness than their counterparts who cannot at all. Participating in community activities, reading newspaper or magazines, listening to radio, watching TV and using internet and access to communication (access to phone) are significant factors in reducing loneliness among the elderly who have children.

Overall, for those who have children, all of the three models consistently present that social support networks can interpret feelings of loneliness among the elderly with children.

Table 13 Predictors of Loneliness among the Elderly with Children

Variables	Model I ¹		Model II ²		Model III ³	
	Odds Ratio	SE	Odds Ratio	SE	Odds Ratio	SE
<u>Structure</u>						
Marital Status						
Currently married						
Separated	2.564*	1.120	2.521*	1.087	3.172**	1.227
Divorced	1.939*	0.531	3.432***	0.874	3.123***	0.729
Widowed	3.055***	0.315	2.593***	0.244	3.590***	0.311
Single (never married)	1.558	0.937	1.917	0.976	1.602	0.766
Kin in network						
No						
Yes	0.597***	0.078	0.770*	0.094	0.607***	0.067
Non-kin in network						
No						
Yes	1.386*	0.225	0.125***	0.020	0.295***	0.045
<u>Interaction</u>						
Child network						
in HH						
Daily or almost daily	1.627***	0.218	1.444**	0.186	1.679***	0.198
At least weekly	2.059**	0.457	1.523	0.341	2.080***	0.424
Monthly or every few months	1.763*	0.508	1.553	0.414	1.951**	0.478
At least annually	2.507**	0.732	3.069***	0.904	3.789***	1.032
No contact	1.559	0.740	2.332	1.062	2.508*	1.038
Kin network						
in HH						
Daily or almost daily	1.387**	0.158	1.102	0.115	1.319**	0.125
At least weekly	1.882***	0.308	1.741***	0.264	2.187***	0.299
Monthly or every few months	1.499	0.339	1.061	0.216	1.438	0.273
At least annually	1.017	0.244	1.083	0.236	1.083	0.217
No kin in hh as well as nearby						
Non-kin network						
Daily or almost daily						
At least weekly	1.039	0.123	0.944	0.100	0.973	0.093
Monthly or almost monthly	1.277	0.236	1.420*	0.240	1.468*	0.226
Once or only a few times	2.077***	0.219	1.141	0.117	1.752***	0.165
Never	1.106	0.165	1.044	0.142	1.058	0.131

Table 13 (Cont.)

Variables	Model I ¹		Model II ²		Model III ³	
	Odds Ratio	SE	Odds Ratio	SE	Odds Ratio	SE
Quality						
Relationship with kin						
Very Satisfied						
Somewhat satisfied	1.366**	0.147	1.459***	0.143	1.498***	0.135
Neither satisfied nor unsatisfied	1.967***	0.355	3.292***	0.576	3.265***	0.533
Somewhat unsatisfied	3.367**	1.186	3.242**	1.201	4.607***	1.560
Very unsatisfied	5.320**	3.366	2.278	1.530	5.756**	3.497
Relationship with non-kin						
Very Satisfied						
Somewhat satisfied	0.796*	0.085	0.918	0.087	0.814*	0.071
Neither satisfied nor unsatisfied	1.192	0.207	0.602**	0.101	0.778	0.120
Somewhat unsatisfied	0.871	0.597	1.560	1.005	1.047	0.627
Very unsatisfied	1.920	2.571	1.397	1.760	1.297	1.791
Control Variables	YES		YES		YES	
Log Likelihood	-2254.647		-2661.834		-3709.246	
Model Chi-Square	659.57***		628.77***		953.5***	
Number of Observations	3410		3437		3410	

¹Dependent variable of loneliness was measured by self-reporting coded as 1 “not at all”, 2 “some of the time” and 3 “often”

²Dependent variable of loneliness was measured by deprivation scale coded as 1 “no one”, 2 “one or two” and 3 “more than two”

³Dependent variable of loneliness was measured by composite index with the scores ranging from 1 to 5. Higher score indicates higher loneliness.

*** $p < 0.001$. ** $p < 0.01$. * $p < 0.05$

6.2.5 Social networks and loneliness among the elderly without children

Table 14 displays the predictors of loneliness resulted from three analyses among the elderly who have no child.

The first model

The first model, for those who have no children, shows that having partnership, having relatives, and maintaining good relationship with family are significant factors

in interpreting loneliness. Concerning with marital status, the odds of being lonely are approximately 66 percent lower for those who are currently married than their counterparts. Additionally, the probability of being loneliness is about 77 percent lower for those who have relatives than those who do not have. It can be seen that those who have lower degree of satisfaction with family relationship are more likely to feel lonely.

The second model

As shown in the table, the second model also provides that having partnership, having kin in social network and frequency of contact with them are associated with loneliness with a statistical significance.

The third model

According to the results from the third analysis, those who are currently married are less likely to feel lonely than those who are currently unmarried, and the older widows who have no children are 2.71 times more likely to report loneliness than their counterparts. Previous studies have revealed that widowhood increases risk of loneliness in comparison of the married (Fees et al., 1999). One possible explanation is that loss of spouse, for the widows, means loss of long-time soul mate and best friends and even though they find themselves in the midst of family and friends, offering well-intentional social support and much needed practical help or advice, they still feel lonely. Additional explanation is that for the elder widows without children, when their spouse is lost through death, when they have no children to substitute for their spouse, their experience of loneliness becomes worse. However, no

difference in loneliness is found between the divorced and their counterparts who are not divorced. This may be because loneliness seems to be more common among the individuals who experience marriage that is associated with stress and the divorcees are free from his/her stressful marriage life. It further shows that for those who have no children, having kin leads to reported lower degree of loneliness, and lower degree of satisfaction of family relationship results in higher level of loneliness.

Control variables

In addition to social support networks variables, some demographic and socio-economic variables -age, sex, race, place of residence, health status, household income, participation in community activities, access to media and access to communication (access to phone)- are entered. Age is a negatively correlated to loneliness. Burmese elderly without children have higher degree of loneliness. Moreover, higher household income, participating in community activities and having access to communication (phone) lead to reported lower level of loneliness.

In sum, all three models, for the elderly without children, consistently identify marital status and having kin as predictors of loneliness. The first and last models do not describe at all that frequency of contact with kin is significant whereas the second model expresses that it is associated with loneliness. In terms of quality of relationship with family, the first and last models reveal that it is significant factor in interpreting loneliness although the second provide that it is not significant. Nonetheless, it can be generally concluded that having partnership, having kin in network, frequency of contact with kin and quality of relationship with family can explain feelings of loneliness among the elderly without children. According to the

results from the table 13 and 14, it can be obviously seen that partnership, for both groups, is much significant in explaining loneliness. Similarly, relatives play important role in reducing loneliness. However, non-relatives are less significant for the elderly who have children.



Table 14 Predictors of Loneliness among the Elderly without Child

Variables	Model I ¹		Model II ²		Model III ³	
	Odds Ratio	SE	Odds Ratio	SE	Odds Ratio	SE
<u>Structure</u>						
Marital Status						
Currently married						
Divorced	7.234*	7.168	12.938	18.337	11.770**	11.049
Widowed	6.169**	3.925	58.073***	58.833	15.437***	9.209
Single (never married)	2.948*	1.598	29.869***	25.800	5.692**	2.849
Kin in network						
No						
Yes	0.226*	0.144	0.029***	0.029	0.119***	0.072
Non-kin in network						
No						
Yes	3.061*	1.348	0.000	0.000	0.780	0.318
<u>Interaction</u>						
Kin network						
in HH						
Daily or almost daily	0.866	0.380	4.993**	2.924	1.631	0.670
At least weekly	0.506	0.388	5.757	7.443	0.904	0.635
Monthly or every few months	1.705	2.326	4.076	6.163	2.517	3.127
At least annually	10.931	14.409	1.409	2.326	8.657	10.624
No kin in hh as well as nearby	-	-	-	-	-	-
Non-kin network						
Daily or almost daily						
At least weekly	0.619	0.303	0.761	0.453	0.661	0.287
Monthly or almost monthly	0.878	0.627	0.661	0.579	0.944	0.591
Once or only a few times	1.040	0.468	0.565	0.311	0.832	0.340
Never	0.223*	0.165	1.267	0.978	0.357	0.226

Table 14 (Cont.)

Variables	Model I ¹		Model II ²		Model III ³	
	Odds Ratio	SE	Odds Ratio	SE	Odds Ratio	SE
Quality						
Relationship with kin						
Very Satisfied						
Somewhat satisfied	5.158**	2.767	3.001	2.003	5.509***	2.627
Neither satisfied nor unsatisfied	2.624	1.996	2.738	2.767	3.254	2.274
Somewhat unsatisfied	-	-	-	-	-	-
Very unsatisfied	0.570	1.177	1125.430	2294143	0.293	0.566
Relationship with non-kin						
Very Satisfied						
Somewhat satisfied	0.594	0.317	0.976	0.672	0.615	0.283
Neither satisfied nor unsatisfied	0.746	0.574	0.625	0.575	0.840	0.582
Somewhat unsatisfied	-	-	-	-	-	-
Very unsatisfied	-	-	-	-	-	-
Control Variables						
YES	YES		YES		YES	
Log Likelihood	-154.745		-87.171		-201.074	
Model Chi-Square	87.44		92.59		85.5	
Number of Observations	220		225		220	

¹Dependent variable of loneliness was measured by self-reporting coded as 1 “not at all”, 2 “some of the time” and 3 “often”

²Dependent variable of loneliness was measured by deprivation scale coded as 1 “no one”, 2 “one or two” and 3 “more than two”

³Dependent variable of loneliness was measured by composite index with the scores ranging from 1 to 5. Higher score indicates higher loneliness.

*** $p < 0.001$. ** $p < 0.01$. * $p < 0.05$

7. Qualitative Analysis

The survey data used by the study does not much focus on psychological well-being of the older adults. As result, the quantitative analysis cannot provide the complete picture of psychological context of the older individuals. Besides, information about social networks provided by the survey is not adequate. Understanding why social structure in Myanmar society is changing is also useful to describe the whole context

of loneliness. However, the quantitative analysis cannot express this social context. Another important one is that qualitative data can provide the opinions of older persons how to mitigate loneliness which cannot be derived from the quantitative analysis. Thus, the study conducts a more in-depth approach based on qualitative data in order to:

1. understand why social structure in Myanmar society is changing ;
2. explore and clarify further themes which will emerge from the quantitative analysis; and
3. describe the good ways to alleviate the feelings of loneliness

To achieve these objectives, the FGDs are administered the following procedure.

7.1 Procedure

In terms of sample size, some literature describes that the preferably recommended size of a group discussion is 6-8(Krueger, 2002), while some provides 8-12 (Bellenger, Bernhardt, & Goldstucker, 1976). The thesis carries out three focus group discussions in three different areas, organizing each group with 6 participants.

The thesis collects qualitative data by administering three focus group discussions with 18 participants at age of 60 and over in three different places of residence- urban, suburb and rural. Each group is equally composed of 3 males and 3 females, a total of 6. The three FGDs are conducted in the three different areas, which are rural, sub-urban and urban, because social relationship patterns are likely to be different by residence and the older persons from the different areas may provide the different perceptions on the determinants of loneliness. The study selects the participants with

different economic status and different ages who can discuss the guidelines, regardless of educational status. However, The FGDs for collecting the qualitative data were conducted in July, 2015.

Before conducting the FGDs, firstly, focus group discussion guidelines, which capture the participants' opinions of the social relationship patterns in Myanmar society, their perceptions of experience of loneliness and their advice to alleviate feelings of loneliness, are prepared and revised many times. The FGDs guidelines will be seen below.

Concerning with choosing place of residence, firstly three townships in Yangon Region are chosen depending on convenience of transportation and contact with administrative offices: San Chaung Township⁴ (urban), South Dagon Township⁵ (suburb) and Hmawbi Township⁶ (rural). After that, the administrators of the townships are contacted for permission to conduct FGDs in their areas and to obtain list of wards and villages. After getting permission of them and obtaining list of wards and villages, wards and villages are randomly selected. Then, administrators of the selected wards and villages are contacted and asked for inviting the participants. Focus group discussions are conducted in administrative office and religious buildings.

⁴ Total population is 99619; San Chaung is in the West Yangon District (Department of Population, 2015b); and population density is between 20001 and 53814 per sq-km (Myanmar Information Management Unit, 2015)

⁵ Total population is 371464; South Dagon is in the East Yangon District (Department of Population, 2015b); and population density is between 1001 and 10,000 per sq-km (Myanmar Information Management Unit, 2015)

⁶ Total population is 244607; Hmawbi is in in the North Yangon District (Department of Population, 2015b)(Yangon Region Report 2014);and population density is between 251 and 1000 per sq-km (Myanmar Information Management Unit, 2015)

Before starting the discussions, the FGDs guidelines are given to participants so that they can read them in advance. Each group discussion takes, on average, about one and a half hours. The discussions are taken notes and audio-recorded as well. After carrying out all of FGDs, note-taker re-writes transcribes. On completion of each focus group discussion, participants are offered gifts for spending their valuable time and involvement and the administrative officers are also given for their kind support to accomplish my work.

7.2 Analysis

The content analysis involves coding categories directly derived from the text data, counting and comparing words or content, followed by interpreting the underlying context. Nowadays, although computer-assisted software can be utilized for qualitative data analysis and they can, but not completely, reduce time-consuming and labor demand, they are not necessarily used for doing qualitative research. In the study, paper-and-pencil traditional approach to qualitative data analysis is used for coding, counting and comparing words.

Regarding with analytical process, six steps are undertaken: i) transcription of the discussions, ii) reading the transcriptions, iii) making brief notes in the margin when interesting or relevant information is found, iv) going through the notes in the margin and listing different types of information, v) listing the categories, vi) abstracting two subthemes and theme and vii) discussing

In order to explain the effect of social networks on loneliness in qualitative aspects, the following guidelines are developed for focus group discussions.

1. Do you think there is any difference between the patterns of family relationship in the past and at the present? If so, how and why?
2. Do you think there is any difference between the patterns of social relationship with other community members in the past and at the present? If so, how and why?
3. Do you think attitudes within Myanmar society towards the elderly has changed from the past to the present? If so, how and why? [Probe: values on Elderly, respect to Elderly].
4. Do older persons receive emotional support from friends and neighbors? [Probe: offering affection, kind care, sympathy, worry and trust and listening to your feelings carefully]. If yes, when receive? If not, what kind of emotional support do they expect? When expect? Do older persons consider support from friends and neighbors a substitute for the support from relatives and children? Why or why not?
5. Do older persons receive emotional support from relatives? [Probe: offering affection, kind care, sympathy, worry and trust and listening to your feelings carefully]. If yes, when receive? If not, what kind of emotional support do they expect? When expect? Do they consider support from their relatives a substitute for the support from their children? Why or why not?
6. Do older persons receive emotional support from their children? [Probe: offering affection, kind care, sympathy, worry and trust and listening to your feelings carefully]. If yes, when receive? If not, what kind of emotional support do they expect? When expect?

7. Do the kinds of support grown children provided to parents in the past differ from the present time? How and why?
8. Are any of you aware of some elderly who suffer from loneliness in your community? If so, what kind of persons feels lonely and what can be the possible causes of their loneliness?
9. When do elderly usually feel lonely? How do they try to reduce their loneliness?
10. Is loneliness a problem for elderly and their families? Why or Why not?
11. Is loneliness also a problem for community? Why or Why not?
12. What suggestions can you make to reduce loneliness for older people now and into the future?
 - (a) What could individuals do? (Friends, family, neighbors)
 - (b) What could the community do?
 - (c) Are there any organizations / groups that reach out to those who are lonely? If so what do they do? What can organizations and groups best do to reduce loneliness among older persons?
 - (d) Do you think religion plays role in reducing the elderly's loneliness? [Probe: Listening to Dhamma talks, taking meditation, visiting the temples]. Why or why not?

7.3 Qualitative findings

7.3.1 Change in Pattern of Social Relationship

In order to analyze the participants' opinions of social relationship patterns of Myanmar society, investigate the determinants why the elderly experience lonely and describe how to mitigate feelings of loneliness, which can complement the quantitative analysis and can provide the additional intuitions which cannot be descended from the quantitative study, I conduct three focus group discussions with a sample of 18 participants at age of 60 and above by administering 6 participants, 3 males and 3 females, in each group.

First of all, in order to describe the social relationship patterns of Myanmar society under transition, nine categories, two sub-themes and three main themes are identified from the analysis of focus group discussions. The themes, sub-themes and categories are depicted in Table 15. Regarding the change in the social relationship patterns in Myanmar society, the study presents in terms of three major themes: 'family relationship'; 'community relationship'; and 'reasons'.

Table 15 Overview of categories, subthemes and themes in qualitative analysis of change in pattern of social relationship

Categories	Sub-themes	Themes
Warm	Past	Family relationship
Respectful to the seniors		
Not close relationship	Present	Community Relationship
Not respectful to the seniors		
Close relationship	Past	Reasons
Help		
Respectful to the seniors		Reasons
Not close relationship	Now	
Devalued respect		Reasons
Religion	Family	
Education system		Reasons
Working outside		
Struggling for basic needs		Reasons
Religion	Community	
Education system		Reasons
Different community members		
Migration		Reasons
Housing design		

Family relationship

The first major theme points out the discussants' perceptions of the difference between patterns of family relationship in the past and that at the present. For obtaining the theme, two sub-themes are merged: 'past' and 'now'. Two categories are combined for the sake of the first sub-theme: 'warm social relationship' and 'respectful to the seniors'. Likewise, further two categories are also abstracted to the second sub-theme: 'not close relationship' and 'not respectful to the seniors'. From

information expressed in the sub-themes and categories, the participants discuss that in the past, family members have warm relationship and the senior people in the family are also paid respect to, but nowadays, family members are not close each other and the older people are decreasingly paid respectful. Some participants have this to say:

Once we were young, if our parents asked us to do something, we immediately did that. But whenever we ask to do something to the young people these days, they act like “What the hell is this old man asking for? He’s just messing around me”. All of their manners and attitudes have changed like that. (Male, South Dagon Township)

When we were young, we always paid respect to our parents and relatives. I lived with my aunts and they were very strict disciplined. We obeyed them. However, we cannot use the same way to guide the children these days. They never accept our ideas and they only stick to theirs. (Male, San Chaung Township)

Families those days were warm and close.People these days are worried of many things.They love each other as we did before but they can no longer care and be close each other.....(Female, Mawbi Township)

Community Relationship

The second major theme indicates that the current social relationships within community are different from the past. For sake of major theme, two sub-themes are combined; ‘past’ and ‘now’. Five categories are merged to the sub-themes: ‘close relationship’; ‘help’; ‘respectful to the seniors’; ‘not close relationship’; and ‘devalued

respect'. According to categories and sub-themes, the interviews demonstrate that in the past, community members are close each other, help each other and the older persons are paid respect to, but not now. Some FGD participants put it this way:

.....we knew well with our neighbors and helped one another. Now, there are many buildings and housings so people can live and do everything in their own apartment. The communication becomes poor. (Female, San Chaung Township)

In the past,the people knew how to treat the elders and the people of the same age and status with respect. They showed their sympathy to younger. But later,when the times have changed, people's attitudes and moralities has been poor. (Male, South Dagon Township)

Reasons

The third major theme describes the reasons why the social relationship patterns of Myanmar society are under transition, which were broken into 'family' and 'community'. The reasons for the change in family relationship include religion, education, working outside, struggling for basic needs, and that in community relationship are religion, education, different community members, migration, housing design and boundary of property area.

Accordingly, the discussions describe that weakness in religion and change in education system result in the change in social relationships of family as well as community. For example,

In my opinion, as you all know, children nowadays are not very devout. In our era, we learnt a lot about religion..... To be honest, when they don't have religious knowledge, they become wilder. When they are wilder,

their manners and attitudes in communicating with people will be weaker.

(Female, San Cheung Township)

In my opinion, the communication has been amended especially because of education. When we were young, we were sent to the monastery to study. Our education was based on religious teaching. Since this is the IT age, the monastery education becomes weaker and dimmer. Our education used to be based on 38 Blessed analysis of Buddha. These 38 Blessed analyses depend on society and ways of being wealthy. Both children and adults followed this system so there were many polite people. At present times, the monastery education system becomes unpopular and because of that, the gentleness and politeness in people's hearts also come to blur. According to present situation, parents don't have the proper knowledge of Buddha's teaching so they cannot guide their children effectively. As the consequence, the children face a lot of problems and difficulties in communicating and dealing with the people in their society. (Male, South Dagon Township).

Furthermore, working outside and struggling for basic needs bring about a decrease in frequency of contact among family members and poor quality of relationship. Some respondents put this as follow:

In the past, how a family could make their living depends on the income of their head of household. Now, our children come to be adults and enter into work areas. Every day they go to work early and come back late. They are busy with their work. Therefore, although we live in the same house, we rarely have time to talk to each other. That becomes problem in families. As they become adults and start being busy with their careers almost every time, we

rarely meet and have family conversations though we live under the same roof. Sometimes, we face many problems concerning our relationship. (Male, Mawbi Township)

In those days, family economy was easy going as it was possible for a 4 or 5-member family to rely on one of those income. But not anymore these days. At that time, we worked in our parents' farms just to help them. We need not do other work but now, the children have no choice and have to work just as they become adolescents. (Female, Mawbi Township)

Families those days were warm and close. They were content with what they had.People these days are worried of many things. They are under pressure. They love each other as we did before but they can no longer care and be close each other as they are busy struggling for their survival. Back in those days, people in a family loved one another as a hen hatches her children but nowadays people do not love their family like in past days. (Female, Mawbi Township)

Concerning the reasons why social relationships within community at the present are different from the past, some participants mention that community relationship becomes poor because community members are different as a result of migration. For example,

Most of our neighbors were our relatives. We all loved and cared for one another. In current era, as the population increase, many strangers settle in our ward. Since there are many strangers,..... We cannot love and care for our new neighbors because they are not our relatives. (Female, Mawbi Township)

Nowadays, since there are so many strangers people barely know each other and people keep everything as secrets so their communications become poorer. (Male, San Chaung Township)

It can be observed in the FGDs that change in housing design and separated boundary of property area also make the communication among community members poor.

Some respondents have this to say:

There were no big buildings on the road before. Only houses existed here so people easily noticed one another. Nowadays, since there are so many tall buildings, people barely know each other. People keep everything as secrets so their communications become poorer. Sometimes, we even don't know the crimes happened in our ward. We don't recognize one another since there are more and more huge and tall buildings....(Male, San Chaung Township)

.....we only had separate wooden houses so we knew well with our neighbors and helped one another. Now, there are many tall buildings and housings so people can live and do everything in their own apartment. The communication becomes poor..... People live in there and that cuts people's communication with others. Before this, we supported one another. Now, we don't know even when the stranger goes inside our neighbor's house. (Female, San Chaung Township)

We fence our houses securely..... no one had fences before. Now, people fence their houses with bricks and wood. That makes us more and more distant to our community members. (Female, Mawbi Township)

Overall, in the opinion of some participants, the social relationship patterns in Myanmar at the present are different that from the past. Today's family members are

not close to each other, have no warm relationship, rarely have time to talk to each other and the senior people in the family are not paid respect to, and community members have less contact to each other. According to the opinion of some older persons, working outside and struggling for basic needs these days can lead to a decrease in frequency of contact among family members and poor quality of relationship. Moreover, immigration of new community members, changing housing style and setting boundary of property area are likely to cause less contact among community members. Weakness in religion and change in education system can probably bring about the poor social relationships within family as well as community. The following sections analyze the elderly's feelings of loneliness, factors, in particular social support networks, which affect their loneliness, and how the elderly mitigate the feeling of loneliness under the changing society of Myanmar.

7.3.2 Qualitative findings on Loneliness

In order to elucidate how the elderly participants describes experience of loneliness, what factors they think may result in loneliness and what can alleviate their feelings of loneliness, two major themes are identified from the analysis of qualitative data: 'experience of loneliness' and 'mitigating loneliness'. Categories, subthemes and themes are presented in Table 16.

Table 16 Categories and themes found through a qualitative content analysis of loneliness

Categories	Subthemes	Themes
Feel depressed	Emotional pain	Experience of loneliness
Feel sad		
Loss of partner		
Loss of work	Losses	
Loss of self-reliance		
Ignorance of children	Poor relationship with children	
Dissatisfied relation with children		
No one around		
Stay alone	Social isolation	
Left alone		
Listening to dhamma talks	Role of Religion	Mitigating Loneliness
Doing good deeds		
Visit Monastery or Pagodas		
Worship		
Meditation		
Children's emotional support	Kinship and friendship	
Visit from relatives		
Relatives' encouragement		
Neighbors' kind care		
Having conservation with neighbors		

Experience of loneliness

The first major theme includes how the participants express loneliness and what factors can result in loneliness. Four sub-themes are combined into the major theme: 'emotional pain'; 'losses'; 'poor relationship with children'; and 'social isolation'. According to the categories abstracted to first subtheme, some of respondents describe loneliness as emotional pain- feeling depressed and sad. The most typical example from each category is presented as follow:

I feel lonely mostly when I am depressed. I feel so depressed and sad of not having my family with me. At that time, I feel lonely. (Male, South Dagon Township)

I also shed tears because of loneliness. If you are abandoned, you will also feel the same way. (Male, South Dagon Township)

Sometimes, I feel sad for my children's attitudes toward me. I bred them well but they treat me badly, sometimes, the way they treat me makes me heartbroken. Although I feel lonely, I never show it. (Female, San Chaung Township)

The second subtheme, 'losses' describes that when the elderly lose someone who are special for them like spouse, life events like retirement or their self-reliance, they feel lonely. As one participant said:

Loneliness happens when a man or woman loses his or her spouse. It can occur when someone suddenly leaves his or her job or gets retire from job. They always miss their partner whatever they do. (Male, San Chaung Township)

.....When we were young, we could work and depend on ourselves for our living. However, when we get old, as although we want to work, we cannot work, we feel lonely. (Female, Hmawbi Township)

The third theme, 'poor relationship with children', demonstrates that since the older parents do not receive kind care from their children and they have no satisfied relationship with children, they feel lonely. Indicated comments include:

It is simply because of his children no longer paying attention to him. They no longer take care of him though they live together with him.....All his children cannot take care of him since they are busy with their works and businesses. So he always feels small for being lonely. (Male, South Dagon Township)

.....the old people who don't get their children's love and care feel lonely even though they have money. (Female, San Chaung Township)

Although living with children, some of people feel lonely because they don't receive care and love from their children. (Female, Mawbi Township)

I have experienced being lonely. My children abandon me so I become alone and feel very unhappy. (Male, San Chaung Township)

There are many causes of being lonely..... The most common reason of old people's loneliness is being abandoned by their children. (Male, Mawbi Township)

Sometimes, I feel sad for my children's attitudes toward me. I bred them well but they treat me badly. Sometimes, the way they treat me makes me heartbroken. Although I am lonely, I never show it. Sometimes, their unconscious words hurt me a lot. (Female, San Chaung Township)

The fourth subtheme, 'social isolation', describes that when the older persons are socially isolated, they feel lonely. When they have no one around, they stay alone or they are left alone, they are lonely. For instance,

My co-brother-in-law is lonely. He has to live alone in his house since his wife has passed away. He has a son and a daughter but they don't look after him and they even don't come to him. He is suffering from that loneliness. (Male, South Dagon Township)

I feel lonely mostly when I am alone or when I am depressed..... I feel small and sad whenever I realize that no one is with me. (Male, South Dagon Township)

Some feel lonely when they are left alone at home while their children are at work. (Male, San Chaung Township)

All in all, regarding the opinions of the participants, experience of loneliness is a state dominated by emotional pain, which is consistent with loneliness defined by the existing studies (Gierveld 1978). Respondents argue that the elderly who are experiencing changes in life (loss of spouse, loss of work and loss of self-reliance) feel lonely, consistent with quantitative findings offering that partnership plays significant role in lowering the degree of loneliness. What is more, in spite of having children, if the children do not provide support or care to them or they cannot maintain good relationship with children, they are lonely. This finding provides the use of qualitative relationship as an additional measure in the quantitative analysis. It further implies that apart from the quantitative characteristics of social networks like frequency of contact and network size, quality of relationship with their network members also matters in reducing feelings of loneliness, supporting the quantitative findings offering that maintaining good relationship with their family members.

Social isolation can lead them to the experience of loneliness. Those who stay alone, have no one around or are left alone report to feel lonely.

Mitigating Loneliness

The second main theme, ‘mitigating loneliness’, was identified from the analysis in order to describe the participants’ advice for mitigating the feelings of loneliness. In this regard, the two subthemes are woven under the main theme. The first subtheme, ‘role of religion’ indicates that religion is thought to be a good way of alleviating loneliness. One of the participants think that listening to dhamma talks and doing good deeds can reduce their feelings and comfort them. For example:

We’d better concentrate on Buddha’s sermons, listen to dhamma talks, supporting to monks and do good deeds to reduce our feelings. (Male, South Dagon Township)

Some of the respondents say that loneliness can be mitigate through taking meditation and worship. For example,

I have experienced of being lonely. My children abandon me so I become alone and feel very unhappy. That time, I think of nothing but remember our Buddha’s sermons and then I take mediation to calm down myself. (Male, San Chaung Twonship)

Some of the respondents describe that visiting to pagodas and monasteries can reduce their feelings. For example,

When I feel lonely, I go to a pagoda or monastery where is quite far from my home and I stay there the whole day. I get back home only in the evening. All my depression and loneliness are driven away. (Female, Mawbi Township)

The second subtheme describes that kinship and friendship are thought to be the way of mitigating feelings of loneliness. Some of the participants say that children's emotional support is important in reducing experience of loneliness, as indicated by the following statements:

.....If they treat them with love and care, parents will no longer feel lonely or abandoned so their sufferings and peacefulness depend on how children treat their parents. (Female, Mawbi Township)

A female participant at age of 64 from San Chaung Township discuss that relatives' support can make loneliness lessen.

If relatives come and visit us, say encouraging words and support us what they can afford, our feelings of loneliness will lessen. (Male, Mawbi Township)

Some of the respondents discuss about the role of friendship which can lessen feelings of loneliness.

Neighbors would better persuade their lonely friend to accompany the pagodas with them. They can even invite them to have a conversation with them. They might forget their sufferings while they are talking with friends. That will also encourage the lonely people. (Female, San Chaung Township)

.....when they are not feeling well, the neighbors wash their clothes, comb their hair, massage, send them to religious places if they can't go by themselves. If doing so, they will be peaceful in mind for some moments even if it is not forever.By the help of good neighbors, their loneliness will be fled away for a while. (Male, Mawbi Township).

One of the female participants, who does not receive children's care, makes discussion that in spite of having friends, she is still feeling lonely.

Sometimes, I visit pagodas with my friends just to release stress. As I have a lot of friends, I often spend my free time with my friends. However, when I get home, I feel lonely. (Female, San Chaung Township)

In conclusion, qualitative findings suggest that religion is thought to be the way to mitigate feelings of loneliness. In addition to religion, the qualitative analysis reveals that kinship (children's emotional support, visiting from relatives, relatives' encouragement) can also be a significant factor to interpret the feelings of loneliness. Consistent with the quantitative analysis, it can be observed that although having friends within their network, the elderly are still feeling lonely. On the other hand, neighbors play important role to mitigate the degree of loneliness. Therefore, friendship is also thought to be the way to alleviate the prevalence of loneliness.

8. Discussion and Conclusion

8.1 Discussion

The study attempts to describe the extent to which the older persons in Myanmar experience loneliness. What is more, the thesis provides some insights into the contribution of social support networks to our understanding of experience of loneliness support evidence that primary source of social support as well as substitute source plays significant role in reducing degree of loneliness by administering not only quantitative analysis but also qualitative analysis.

It is found that in Myanmar, loneliness is an issue for about twenty-nine percent (one-third) of the sample, with about twenty-four percent reporting being lonely sometimes and nearly five percent reporting being lonely often. Among the lonely older persons, those who are widow and childless are more vulnerable to loneliness. Moreover, those who have no relatives and non-relatives in network are also more prone to feel lonely.

Further, quantitative empirical analysis provides some evidence that social support networks play a significant role in generating loneliness among the older persons. Specifically, the thesis observes that spouse and children identified as primary source of social support play important role in lowering loneliness among the older persons. In addition to them, other relatives and non-relatives identified as substitute source of social support have the impact on loneliness.

In terms of partnership, marital status is the strongest demographic predictor of self-reporting loneliness in older persons, consistent with existing studies (Page & Cole, 1991). For the elderly with children as well as those without children, partnership

plays much important role in lessening feelings of loneliness. Findings from the qualitative analysis also offer that loss of spouse can bring about loneliness.

Results from three quantitative analyses administered in the study have consistently indicated that children are seen as a very important factor to lessen loneliness. In this case, the elderly who have children are less likely to report loneliness than those who have no children, Moreover, results describe that children, for the elderly who are not currently married, are more significant in reducing loneliness than for those who are currently married. It is worthy to note that frequency of contact with children is significantly associated with loneliness. Older persons who have less frequency of contact with children are more likely to feel lonely. Additionally, according to the findings, it is noteworthy that for the elderly who are not currently married, frequency of contact with children is more important in buffering loneliness than for those who are currently married. This is consistent with the hierarchical compensatory model, which implies that there is an order of support providers who may be replaced by others as required, indicating that children may compensate for the lack of partner.

Findings from the study support clear evidence showing that later-life loneliness is associated with relatives. The elderly who have relatives in social network are less likely to feel lonely than their counterparts who do not have. In addition, results support that the relatives, for the currently unmarried, are more significant in reducing experience of loneliness than for the currently married. It is consistent with the hierarchical compensatory model. On the other hand, while having relatives in social web is a significant factor in lowering loneliness among the elderly without children, it is significant too among those with children. The qualitative analysis also supports

that visit from relatives, relatives' encouraging words and care can make loneliness of the elderly less. It implies that different groups of social support networks, who can provide different types of support to the social support receivers, seem necessary to alleviate loneliness, consistent with the complementary or task-specific model.

The quantitative analysis of the study further observes that loneliness is related to non-relatives. From the findings of the qualitative analysis, having conversation with neighbors and receiving neighbors' kind care can reduce degree of loneliness. Yet, in contrast with other studies, one of the three models undertaken in the quantitative analysis of the study provides that the senior people with non-relatives in network have a greater likelihood of being lonely than their counterparts without non-relatives. One possible explanation is that contact with non-relatives may not be always positive. Another explanation is that most of the older persons with non-kin may not receive social support they want from the network members (e.g., partners, children or family members) they expect. It seems possible that non-relatives cannot substitute their family members, especially partner or children. The qualitative results describe that the elderly, who do not receive children's kind care, feel lonely when they are back home although they go out with friends to release stress. It is found no association between non-relatives and loneliness among the elderly without children. This may be because most of the elderly without children may be single and as the single may stay independently, although none is around them, they will not feel lonely.

Existing studies have revealed that the experience of loneliness is more likely to be related to the quality of relationships with other persons within an older person's social network than the network size (number of kin-- children, family, other

relatives-- and number of non-kin(friends)) (J. D. J Gierveld, 1998). Consistent with existing studies, the study proves that maintaining good quality of relationship with family members is seen as a very significant factor in buffering feeling of later-life loneliness. Additionally, the qualitative analysis reveals that quality of relationship with their children plays important role in mitigating loneliness. On the other hand, unexpectedly, the results support that the elderly who are satisfied relationship with non-relatives have a higher probability of being lonely than those who are not. This is perhaps because the elderly who have a satisfied relationship with non-relatives cannot maintain the good relation with their family members and cannot achieve their desired relationship from the family members. It appears possible that non-relatives cannot substitute family member and family members, especially partner or children, are more important in alleviating later-life loneliness. According to qualitative data, education of children is reason why the older parents cannot keep good relationship with children. The older parents do not have good relationship with their educated children because the educated children think highly of themselves.

In investigating the effect of social support networks on loneliness, some demographic and socio-economic characteristics are considered as control variables. Results provide that age is negatively related with loneliness, inconsistent with previous studies. This may be because the older persons may adapt to loneliness and as consequence, it is no longer viewed as a problem. Moreover, the respondents in urban residence have higher likelihood of loneliness than do those in rural. One possible explanation is that comparing with the urban elderly, there may be a greater sense of identity, togetherness, belonging and traditional spirit of sharing among the rural ones. Another is that with urbanization, traditional spirit of sharing and

socializing may break down and as result, social transformation may bring about adverse effect on the traditional familial role and respect for the senior people. Burmese elderly are more likely to feel lonely than other ethnicities. Health status is a strong predictor of loneliness. The elderly in good physical health are less likely to be lonely than their counterparts in lower health status, consistent with findings of qualitative analysis providing that when the elderly are unhealthy, they feel lonely. This is perhaps because as the elderly in lower physical health status depend on other people for their daily activities, they may feel insignificant. Findings support evidence that the less the contribution to family's economic contribution, the lonelier the older persons feel. This may be because as they cannot support their family or they have no income on their own, they may lose their confidence and may feel insignificant. Some studies find that loneliness has been found to be more common among the elderly who feel dissatisfied with their income than among those who feel satisfied. Family's income is one of the predictors of loneliness. Getting worse of family economic status can make the elderly be lonely. This may be because as they experience loss of a good economic status, they may feel stressful. Previous studies have also hypothesized that losses experienced throughout the life-course such as loss of partner, loss of closed relationship, getting retired and losing good economic status can affect the likelihood of loneliness. Access to media is a predictor of loneliness. Those who can access any kind of media are less likely to feel lonely than those who cannot at all, revealing that reading, listening to radio or watching TV can fill the social gap. Access to telephone can lead to lower feelings of loneliness. The plausible explanation is because the elderly can have frequent contact with their children who are away, their relatives or their friends via the telephone.

According to the results of qualitative analysis, religion plays a vital role in mitigation loneliness, but since the survey data do not provide enough information about religion, the impact of religion on loneliness cannot be quantitatively analyzed.

In conclusion, the results clearly provide that partnership is very important to ward off loneliness, and so are children. Maintaining good relationship with family members plays significant role in buffering feelings of loneliness, revealing that quality of relationship can influence feelings of loneliness. In addition to spouse and children, other relatives and non-relatives are also significant factors in interpreting loneliness. Therefore, it can be drawn a conclusion that not only primary source⁷ of social network but also substitute source⁸ of social network can reduce loneliness.

8.2 Limitations of the study

The study is marked by some limitations, which suggest further investigation. Firstly, since the survey used in the research does not particularly focus on psychological well-being of the elderly, information about feeling of loneliness may not be adequate. As consequence, the study utilizes single-item variable using a direct question and one composite variable by cooperating two items to assess loneliness. Using single-item is possibly a threat to validity of measurement of loneliness. However, existing studies have proved validity of one-item measure of loneliness (J. D. J. Gierveld, 1987 ; Zhang & Hayward, 2001).

In addition, when a direct question assessing the feeling of being lonely is used, it is possible that the respondents underreport the experience of loneliness because the

⁷Kin: partner and children

⁸Non-kin: friends and neighbors

feeling of loneliness has negative exposure and the respondents concern that their answer may damages the identity of people nearby.

Secondly, existing literature describes that friends play vital role in explaining loneliness. Hall-Elston and Mullins (1999) find that among the elderly who have children, those without friends tend to report a significantly higher risk of loneliness than those with friends. A study reveals that having more friends in one's social network tend to reduce the risk of loneliness (Arling, 1976). The previous studies separately analyzed the importance of friends in alleviating loneliness. Although having friends is an important predictor of loneliness in literature, any information about friends (number of friends or satisfaction of relation with friends) is not separately provided by the survey dataset utilized in the thesis. Due to lack of separate information about friends, in analyzing the effect of non-kin network on loneliness, the thesis cannot separately provide the importance of friends in reducing loneliness. In terms of the strength of the study, in order to support the quantitative analysis which administers the data from the survey which does not much focus on psychological well-being, the thesis conducts qualitative analysis which further provides meaningful findings that support the quantitative results.

Thirdly, social networks could potentially be endogenous to loneliness. Unobserved omitted variables such as personal traits and past experience and reverse causality resulted from that the lonely persons probably find new contacts could drive variations in both loneliness and social networks. As a result, any correlation between loneliness and social networks found in subsequent quantitative analysis may be biased, and the causality that runs from social networks to loneliness cannot be

rigorously established. To mitigate such endogeneity problems, one may adopt a fixed-effects estimation that helps control for time-invariant omitted variables, or conduct the instrumental variables estimation. Nevertheless, with only cross sectional data, the fixed-effects estimation cannot be utilized. In addition, appropriate instrumental variables for social networks that are independent of individual outcomes, such as loneliness, are notably hard to find. Thus, due to such data limitation, although the study is unable to pinpoint exactly the causality that runs from social support networks to loneliness, it can potentially offer a first step to understand suggestive impacts of social support networks on loneliness among the elderly in Myanmar.

8.3 Conclusion and implications

Quantitative data analysis has revealed that higher likelihood of loneliness has been found to be more common among the currently unmarried than currently married. Moreover, the elderly who are childless have greater probability of loneliness, and those with less contribution to family economic support are more likely to feel lonely. These may call for providing the currently unmarried older persons or without children with opportunities which alleviate loneliness; for instance, initiating programs which encourage and facilitate them to participate in gainful work as they grow older, in accordance with their individual needs, preferences, and capacities.

As maintaining good relationship with family members can weaken feelings of loneliness among the senior people, regional governments should establish social organizations for the elderly, which can provide emotional support the older persons at greater risk of loneliness in collaboration with INGOs. Those organizations should

implement the programs which aim at enabling the older people to maintain and strengthen established relationships with family, relatives and non-relatives, adapt to the changes which take place within relationships, chiefly as a result of loss of intimacy, and improve their ability to establish new satisfying relationships.

The elderly's family income can weaken feeling of loneliness. This may call for a Special Old Age fund, which can enable the elderly to afford their necessities, including media equipment which has been found to be associated with loneliness.

Higher degree of loneliness has been found to be more common among the older persons who are at lower health status. Interventions which can address age-specific health challenges that limit the elderly's mobility and socialization should be considered in order to mitigate later-life loneliness. Local government should consider a health care system which can manage the elderly.

Findings show that the urban older residents are more likely to feel lonely than rural ones. Thus, future research should be conducted to investigate the different determinants of loneliness between the older persons in urban and those in rural. Besides, since the widowed have the highest level of loneliness, in future, researchers should study the factors bringing about loneliness among the widowed older persons. As the thesis cannot study whether grandchildren are important in interpreting loneliness because of data limitation, future study should investigate whether grandchildren have impact on loneliness. Finally, in conducting focus group discussions (FGDs) in order to complement the empirical quantitative analysis, the study conducts FGDs only within Yangon area, so the participants' opinions on

loneliness may not be generalized to the older group in other areas. For future research, focus group discussions should be administered in other regions.



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APPENDIX**Appendix A: Population Pyramids**

Sources: World Population Prospects, 2011 and Myanmar Population and Housing Census, 2014



Appendix B: Odds ratios of the Control variables for the Whole Sample

Variables	Model I		Model II		Model III	
	Odds Ratio	SE	Odds Ratio	SE	Odds Ratio	SE
<u>Demographic Characteristics</u>						
Age	1.007	0.006	0.974***	0.005	0.988*	0.005
Sex						
Male						
Female	1.156	0.114	0.860	0.078	0.979	0.080
Race						
Other						
Burmese	0.981	0.091	0.751**	0.065	0.835*	0.066
Residence						
Rural						
Urban	0.957	0.092	1.451***	0.130	1.226*	0.099
Health Status						
Independent						
Dependent	1.177	0.115	1.208*	0.116	1.286**	0.112
<u>Socio-Economic Characteristics</u>						
Educational Status						
No School						
3R's education (reading, writing, and arithmetic)	2.919	1.755	0.802	0.535	2.040	1.223
Monastic	1.146	0.130	1.218	0.134	1.213	0.121
Some primary	0.847	0.108	0.867	0.104	0.829	0.090
Complete primary	1.010	0.135	0.961	0.121	0.945	0.108
Middle school	1.021	0.167	1.134	0.171	1.068	0.148
Vocational	0.573	0.677	10.557*	9.267	4.956*	3.754
High school or more	0.858	0.177	0.833	0.147	0.809	0.130
Working Status						
Current Occupation						
No						
Yes	1.125	0.131	0.994	0.103	1.040	0.098
Lifetime Occupation						
No						
Yes	0.921	0.149	0.916	0.145	0.908	0.131
Contribution to household income						
None/only a little						
More than a little but less than 1/2	0.779*	0.085	1.032	0.104	0.894	0.081
About 1/2	0.634**	0.084	0.889	0.107	0.706**	0.077
More than 1/2 but not all	0.503***	0.093	1.298	0.203	0.868	0.123
Total support	0.756	0.118	1.296	0.185	1.013	0.131

Appendix B (Cont.)

Variables	Model I		Model II		Model III	
	Odds Ratio	SE	Odds Ratio	SE	Odds Ratio	SE
Economic situation of household						
Much better						
Somewhat better	0.903	0.236	1.152	0.262	1.141	0.245
About same	0.954	0.236	1.416	0.306	1.339	0.274
Somewhat worse	1.590	0.404	1.580*	0.356	2.012**	0.429
Much worse	3.655***	1.163	2.359**	0.715	5.142***	1.462
Monthly household Income						
Less than US\$ 25						
US\$ 25.001 to US\$ 50	0.838	0.111	0.702**	0.091	0.682**	0.082
US\$ 50.001 to US\$ 75	0.858	0.125	0.625**	0.088	0.654**	0.085
US\$ 75.001 to US\$ 100	0.710*	0.121	0.551***	0.087	0.539***	0.078
Over US\$ 100	0.963	0.155	0.472***	0.073	0.586***	0.083
Participation in community activities						
Never						
Once or only a few times	1.047	0.119	1.090	0.120	1.076	0.106
Monthly/ almost monthly	0.711*	0.107	1.048	0.143	0.864	0.107
Weekly/ almost weekly	1.176	0.197	0.625**	0.099	0.857	0.124
Daily almost daily	0.904	0.298	0.818	0.231	0.848	0.216
Access to Mass Media						
Not at all						
A few times	1.715**	0.282	1.141	0.179	1.513**	.213
Weekly/ almost weekly	1.298	0.244	0.892	0.158	1.087	0.173
Daily almost daily	1.271	0.212	0.765	0.121	0.979	0.139
Not applicable/not available	2.081*	0.717	0.888	0.303	1.564	0.490
Access to communication						
Telephone access						
Phone in HH						
No phone in HH but access	1.761**	0.306	1.280476	0.178	1.522**	0.193
No phone and No access	2.148***	0.425	1.277	0.212	1.813***	0.273
Log Likelihood	-753.950		-1335.460		-1638.604	
Model Chi-Square	176.120***		221.580***		262.120	
Number of Observations	1567		1579		1567	
cut 1	4.132	1.250	-2.799	0.931	-2.051	0.885
cut 2	6.637	1.264	0.517	0.928	0.766	0.884
cut3	-	-	-	-	3.103	0.891
cut4	-	-	-	-	5.650	0.972

Appendix C: Odds ratios of Control Variables for the Sample composed of Currently Married Older Persons

Variables	Model I		Model II		Model III	
	Odds Ratio	SE	Odds Ratio	SE	Odds Ratio	SE
<u>Demographic Characteristics</u>						
Age	1.023	0.012	0.977*	0.009	0.990	0.009
Sex						
Male						
Female	1.444*	0.249	0.965	0.128	1.099	0.139
Race						
Other						
Burmese	1.123	0.198	0.772*	0.101	0.891	0.111
Residence						
Rural						
Urban	1.038	0.185	1.391*	0.189	1.274	0.165
Health Status						
Independent						
Dependent	1.564*	0.295	1.123	0.179	1.361*	0.207
<u>Socio-Economic Characteristics</u>						
Educational Status						
No School						
3R's education (reading, writing, and arithmetic)	0.000002	0.004	1.352	2.014	1.105	1.527
Monastic	0.922	0.222	1.081	0.202	1.010	0.180
Some primary	0.813	0.227	1.034	0.216	0.925	0.183
Complete primary	1.090	0.291	0.735	0.153	0.762	0.151
Middle school	0.921	0.288	1.166	0.274	1.046	0.235
Vocational	0.000001	0.010	20.697*	27.468	5.298	5.543
High school or more	0.821	0.285	0.764	0.191	0.733	0.174
Working Status						
Current Occupation						
No						
Yes	0.930	0.181	0.845	0.117	0.837	0.111
Lifetime Occupation						
No						
Yes	1.667	0.633	1.302	0.360	1.488	0.397
Contribution to household income						
None/only a little						
More than a little but less than 1/2	0.538**	0.112	1.049	0.163	0.810	0.120
About 1/2	0.489**	0.114	0.915	0.157	0.689*	0.113
More than 1/2 but not all	0.546*	0.159	1.327	0.278	1.002	0.199
Total support	0.831	0.204	1.312	0.249	1.097	0.197

Appendix C (Cont.)

Variables	Model I		Model II		Model III	
	Odds Ratio	SE	Odds Ratio	SE	Odds Ratio	SE
Economic situation of household						
Much better						
Somewhat better	0.760	0.309	0.984	0.300	0.941	0.284
About same	0.673	0.257	1.188	0.342	1.069	0.307
Somewhat worse	1.112	0.435	1.484	0.446	1.552	0.463
Much worse	2.598	1.370	1.581	0.706	2.644*	1.165
Monthly household Income						
Less than US\$ 25						
US\$ 25.001 to US\$ 50	1.613	0.482	0.851	0.188	1.085	0.230
US\$ 50.001 to US\$ 75	1.244	0.402	0.786	0.183	0.929	0.207
US\$ 75.001 to US\$ 100	1.342	0.471	0.649	0.163	0.794	0.191
Over US\$ 100	1.684	0.581	0.607	0.152	0.813	0.195
Participation in community activities						
Never						
Once or only a few times	0.939	0.218	1.072	0.201	0.983	0.174
Monthly/ almost monthly	0.631	0.176	1.053	0.222	0.857	0.171
Weekly/ almost weekly	1.053	0.331	0.682	0.165	0.776	0.179
Daily almost daily	0.330	0.212	0.865	0.326	0.655	0.234
Access to Mass Media						
Not at all						
A few times	1.721	0.710	1.187	0.351	1.442	0.402
Weekly/ almost weekly	1.630	0.725	0.746	0.239	0.957	0.290
Daily almost daily	1.239	0.514	0.798	0.235	0.917	0.254
Not applicable/not available	1.909	1.305	0.552	0.319	0.986	0.544
Access to communication						
Telephone access						
Phone in HH						
No phone in HH but access	1.934*	0.620	1.592	0.310*	1.693**	0.318
No phone and No access	2.843**	1.033	1.553	0.366	2.150**	0.485
Log Likelihood	-753.950		-1335.460		-	1638.604
Model Chi-Square	176.120***		221.580***		262.120	
Number of Observations	1567		1579		1567	
cut 1	4.132	1.250	-2.799	0.931	-2.051	0.885
cut 2	6.637	1.264	0.517	0.928	0.766	0.884
cut3	-	-	-	-	3.103	0.891
cut4	-	-	-	-	5.650	0.972

Appendix D: Odds Ratios of Control Variables for the Sample consisting of Currently Unmarried Older Persons

Variables	Model I		Model II		Model III	
	Odds Ratio	SE	Odds Ratio	SE	Odds Ratio	SE
<u>Demographic Characteristics</u>						
Age	1.006	0.007	0.969	0.007	0.988	0.006
Sex						
Male						
Female	1.162	0.149	0.717	0.098	0.927	0.108
Race						
Other						
Burmese	0.947	0.110	0.677	0.084	0.786*	0.084
Residence						
Rural						
Urban	0.936	0.113	1.556	0.200	1.219	0.135
Health Status						
Independent						
Dependent	1.082	0.129	1.359	0.176	1.319*	0.147
<u>Socio-Economic Characteristics</u>						
Educational Status						
No School						
3R's education (reading, writing, and arithmetic)	2.924	2.030	0.463	0.386	1.605	1.134
Monastic	1.248	0.171	1.306	0.199	1.365	0.175
Some primary	0.814	0.123	0.751	0.122	0.743	0.103
Complete primary	0.857	0.144	1.338	0.237	1.057	0.162
Middle school	0.950	0.198	1.136	0.249	0.982	0.188
Vocational	1.317	2.031	21.387*	30.875	8.743	10.666
High school or more	0.896	0.266	0.753	0.235	0.770	0.203
Working Status						
Current Occupation						
No						
Yes	1.302	0.210	1.112	0.189	1.271	0.187
Lifetime Occupation						
No						
Yes	0.766	0.145	0.728	0.151	0.708	0.128
Contribution to household income						
None/only a little						
More than a little but less than 1/2	.937	0.126	1.017	0.150	0.991	0.122
About 1/2	.699*	0.121	0.859	0.160	0.701*	0.112
More than 1/2 but not all	.451**	0.119	1.140	0.291	0.666	0.149
Total support	.731	0.168	1.334	0.328	0.975	0.207

Appendix D (Cont.)

Variables	Model I		Model II		Model III	
	Odds Ratio	SE	Odds Ratio	SE	Odds Ratio	SE
Economic situation of household						
Much better						
Somewhat better	0.986	0.341	1.463	0.538	1.437	0.466
About same	1.170	0.384	1.859	0.652	1.827	0.568
Somewhat worse	1.896	0.641	1.881	0.684	2.684**	0.863
Much worse	4.398***	1.854	3.633**	1.670	8.011***	3.256
Monthly household Income						
Less than US\$ 25						
US\$ 25.001 to US\$ 50	0.654**	0.107	0.702*	0.124	0.586**	0.092
US\$ 50.001 to US\$ 75	0.793	0.143	0.588**	0.115	0.630**	0.108
US\$ 75.001 to US\$ 100	0.618*	0.133	0.549**	0.124	0.521**	0.103
Over US\$ 100	0.769	0.154	0.431***	0.094	0.536**	0.101
Participation in community activities						
Never						
Once or only a few times	1.082	0.149	1.129	0.167	1.115	0.141
Monthly/ almost monthly	0.764	0.147	1.037	0.208	0.848	0.147
Weekly/ almost weekly	1.243	0.261	0.551*	0.128	0.877	0.172
Daily almost daily	1.721	0.806	1.507	0.763	1.904	0.805
Access to Mass Media						
Not at all						
A few times	1.913**	0.362	1.099	0.220	1.640**	0.281
Weekly/ almost weekly	1.251	0.279	1.006	0.237	1.182	0.236
Daily almost daily	1.380	0.267	0.664*	0.136	0.994	0.173
Not applicable/not available	2.334	1.018	1.202	0.551	2.119	0.844
Access to communication						
Telephone access						
Phone in HH						
No phone in HH but access	1.574*	0.339	1.121	0.242	1.421	0.260
No phone and No access	1.940**	0.479	1.134	0.288	1.728*	0.372
Log Likelihood	-1522.305		-1309.518		-2099.127	
Model Chi-Square	346.59***		411.52***		509.28***	
Number of Observations	1914		1931		1914	
cut 1	0.690	0.808	-6.750	0.887	-5.127	0.760
cut 2	3.157	0.812	-2.311	0.870	-1.788	0.749
cut3	-	-	-	-	0.326	0.748
cut4	-	-	-	-	2.694	0.761

Appendix E: Odds Ratios of Control Variables for the Sample with Children

Variables	Model I		Model II		Model III	
	Odds Ratio	SE	Odds Ratio	SE	Odds Ratio	SE
Demographic Characteristics						
Age	1.009	0.006	0.975***	0.005	0.989*	0.005
Sex						
Male						
Female	1.163	0.120	0.850	0.080	0.972	0.083
Race						
Other						
Burmese	1.039	0.100	0.726***	0.065	0.848*	0.069
Residence						
Rural						
Urban	0.950	0.095	1.519***	0.141	1.256**	0.106
Health Status						
Independent						
Dependent	1.159	0.117	1.240*	0.121	1.291**	0.115
Socio-Economic Characteristics						
Educational Status						
No School						
3R's education (reading, writing, and arithmetic)	2.486	1.611	0.561	0.380	1.464	0.910
Monastic	1.121	0.132	1.191	0.135	1.175	0.120
Some primary	0.823	0.110	0.890	0.110	0.822	0.093
Complete primary	0.942	0.132	0.971	0.126	0.907	0.108
Middle school	1.001	0.170	1.164	0.181	1.062	0.151
Vocational	0.664	0.802	20.149**	19.386	7.520**	5.847
High school or more	0.802	0.176	0.765	0.141	0.738	0.124
Working Status						
Current Occupation						
No						
Yes	1.140	0.139	0.987	0.106	1.049	0.103
Lifetime Occupation						
No						
Yes	0.919	0.152	0.906	0.145	0.895	0.132
Contribution to household income						
None/only a little						
More than a little but less than 1/2	0.850	0.095	1.039	0.107	0.951	0.089
About 1/2	0.645**	0.089	0.899	0.110	0.721**	0.081
More than 1/2 but not all	0.509***	0.098	1.265	0.203	0.871	0.127
Total support	0.800	0.133	1.315	0.198	1.062	0.145

Appendix E (Cont.)

Variables	Model I		Model II		Model III	
	Odds Ratio	SE	Odds Ratio	SE	Odds Ratio	SE
Economic situation of household						
Much better						
Somewhat better	0.812	0.214	1.149	0.266	1.070	0.234
About same	0.884	0.219	1.410	0.310	1.279	0.267
Somewhat worse	1.406	0.360	1.545	0.355	1.841**	0.400
Much worse	3.185***	1.051	2.294**	0.731	4.548***	1.360
Monthly household Income						
Less than US\$ 25						
US\$ 25.001 to US\$ 50	0.795	0.112	0.731*	0.100	0.673**	0.056
US\$ 50.001 to US\$ 75	0.836	0.128	0.636**	0.094	0.647**	0.088
US\$ 75.001 to US\$ 100	0.718	0.128	0.572**	0.094	.5481193	0.083
Over US\$ 100	0.903	0.152	0.490***	0.079	.569***	0.084
Participation in community activities						
Never						
Once or only a few times	1.071	0.127	1.105	0.125	1.109	0.114
Monthly/ almost monthly	0.753	0.119	1.057	0.150	0.909	0.117
Weekly/ almost weekly	1.169	0.204	0.635**	0.103	0.863	0.128
Daily almost daily	1.088	0.376	0.959	0.286	1.048	0.282
Access to Mass Media						
Not at all						
A few times	1.970***	0.341	1.177	0.191	1.681	0.246
Weekly/ almost weekly	1.390	0.276	0.928	0.170	1.155	0.191
Daily almost daily	1.431*	0.251	0.770	0.126	1.056	0.155
Not applicable/not available	2.199*	0.791	0.967	0.344	1.675	0.541
Access to communication						
Telephone access						
Phone in HH						
No phone in HH but access	1.568*	0.277	1.355*	0.193	1.492**	0.194
No phone and No access	2.059***	0.416	1.361	0.232	1.880***	0.292
Log Likelihood	-2254.647		-2661.834		-3709.246	
Model Chi-Square	659.57***		628.77***		953.5***	
Number of Observations	3410		3437		3410	
cut 1	2.946	0.618	-3.479	0.575	-2.157	0.520
cut 2	5.387	0.625	0.280	0.571	0.838	0.519
cut3	-	-	-	-	2.969	0.522
cut4	-	-	-	-	5.262	0.539

Appendix F: Odds Ratios of Control Variables for the Sample without Children

Variables	Model I		Model II		Model III	
	Odds Ratio	SE	Odds Ratio	SE	Odds Ratio	SE
<u>Demographic Characteristics</u>						
Age	0.996	0.028	0.928*	0.033	.967	0.024
Sex						
Male						
Female	1.625	0.610	0.530	0.253	0.066	0.0349
Race						
Other						
Burmese	0.470	0.197	2.921*	1.573	0.888	0.344
Residence						
Rural						
Urban	1.084	0.423	0.433	0.229	.885	0.310
Health Status						
Independent						
Dependent	1.565	0.754	0.673	0.454	1.149	0.511
<u>Socio-Economic Characteristics</u>						
Monthly household Income						
Less than US\$ 25						
US\$ 25.001 to US\$ 50	1.390	0.651	0.218*	0.129	0.653	0.280
US\$ 50.001 to US\$ 75	0.787	0.495	0.755	0.558	0.676	0.370
US\$ 75.001 to US\$ 100	0.401	0.274	0.269	0.208	0.329	0.192
Over US\$ 100	1.533	1.048	0.115*	0.108	0.536	0.336
Participation in community activities						
Never						
Once or only a few times	0.667	0.313	0.853	0.525	.712	0.307
Monthly/ almost monthly	0.233*	0.139	0.670	0.495	.299*	0.156
Weekly/ almost weekly	1.393	0.978	0.546	0.584	1.115	0.741
Daily almost daily	0.128	0.162	0.056	0.101	0.101*	0.101
Access to Mass Media						
Not at all						
A few times	0.324	0.206	0.435	0.350	.338	0.204
Weekly/ almost weekly	0.639	0.455	0.175	0.165	.385	0.256
Daily almost daily*	0.266	0.171	0.441	0.356	.235*	0.144
Not applicable/not available	2.645	0.4267	0.297	1.078	3.024	4.532
Access to communication						
Telephone access						
Phone in HH						
No phone in HH but access	21.412*	25.867	0.269	0.201	2.295	1.428
No phone and No access	10.297	12.979	0.201	0.180	1.230	0.873
Log Likelihood	-154.745		-87.171		-	
					201.074	
Model Chi-Square	87.44		92.59		85.5	
Number of Observations	220		225		220	
cut 1	1.158	2.615	-37.585	2866.337	-10.069	2.407
cut 2	3.961	2.624	-7.083	3.018	-10.069	2.407
cut3	-	-	-	-	-1.842	2.144
cut4	-	-	-	-	1.779	2.223



