

**A SURVEY OF INDIVIDUAL SOCIAL CAPITAL  
AND MENTAL WELLBEING OF OLDER PERSONS, LIVING IN A  
RESIDENTIAL FACILITY IN DURBAN, KWAZULU-NATAL AND  
THE READINESS OF THE SETTING FOR TECHNOLOGY DRIVEN  
MENTAL HEALTH PROMOTION.**

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2014

## DECLARATION

I, Mary Ann Jarvis declare that this dissertation entitled: "A SURVEY OF INDIVIDUAL SOCIAL CAPITAL AND MENTAL WELLBEING OF OLDER PERSONS, LIVING IN A RESIDENTIAL FACILITY IN DURBAN, KWAZULU-NATAL AND THE READINESS OF THE SETTING FOR TECHNOLOGY DRIVEN HEALTH PROMOTION", is my own work and has not been submitted for any other degree or examination in any other university other than the University of KwaZulu-Natal. I have given complete acknowledgment to the resources referred to in the study.



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## **DEDICATION**

This study is dedicated to my wonderful family; my eternal friend and understanding husband, Dennis; Ross my ever willing, IT King who despite his own studies continued to believe in his mother's ability; Kyle my gentle motivator and Hannah for her willingness, adaptability and availability. As a family your resilience, motivation and support is only surpassed by your unconditional love.

## **ACKNOWLEDGMENTS**

Dr Jennifer Chipps offered me immense guidance and patiently taught me so much about quantitative research. She never failed to believe in my efforts, and shared my enthusiasm for this study, despite the supervision having to accommodate a time difference of nine zones and technologically based communication.

My colleague and friend Amanda Smith provided me with tremendous encouragement and support, motivating me to the last day.

Fiona Walters, so willingly offered so much help, as well as moral support.

My motivating and supportive family, colleagues and friends, who kept reminding me of their beliefs in my ability, in particular Helen McKay, Waheedha Emmamally, Vedaste Baziga, Louise Turner and Clare Grobelar. My friend, Sue Wilson for the wonderful gift of a data capturer for a day and last, but certainly not least, Carole Randall for the steadfast support and proof reading.

The management and the core team of the residential facility became excited from the start and responded so promptly to all my numerous requests and allowed for ease of data collection. Each resident and staff member participated eagerly.

## **ABSTRACT**

### **Aim**

The aim of the study was to describe the individual social capital and mental wellbeing of older persons (60+) living in a residential facility in Durban, KwaZulu-Natal, and the readiness of staff and residents for the projected introduction of technologically assisted communication (TAC). The findings of the study were intended to facilitate planning for and implementation of, future interventions using technologically assisted communication for the purpose of improving individual social capital and mental wellbeing.

### **Methods**

The research design was a non-experimental quantitative two part descriptive survey using self-administered questionnaires for residents (75) and direct care staff (35). There was purposive sampling for the residential facility and convenient sampling of the respondents (residents and direct care staff) who met the inclusion criteria. Merging the Canadian Policy Research Initiative framework and the Technology Acceptance Model provided the structure for the study. The residents' questionnaire consisted of questions from the Australian Bureau of Statistics Indigenous Questionnaire, four well validated scales and the same questions to assess technological readiness in the staff and residents. Data was entered into SPSS v 21 and analysed using measures for central tendency, non-parametric tests as well as a logistic regression.

### **Results**

The 75 respondents were representative of the residential facility's population in all the demographic characteristics, but not generalizable to the South African older person population. The WHO-5 cut off score of 13, showed that the majority had a good sense of mental wellbeing, while measuring with any negative category showed residents' having a moderate sense of mental wellbeing. There was consistency between the Kessler-6 and the WHO-5. The levels of Loneliness were high. Social connectedness with outside activities was a strong predictor of

mental wellbeing. Within the residence having a say in issues increased the sense of self-efficacy that was strongly linked to mental wellbeing. Counter to mental wellbeing was the low trust in nurses and the particular emotional loneliness of those of Indian descent. The perceived ease of use and usefulness of technologically assisted communication was generally low, but attitudes were conducive to an intervention.

### **Conclusion and Recommendations**

The older person in the context of the residential facility is rich in resources that can be converted into bonding and bridging capital stocks which can buffer against loneliness. Technologically assisted communication, adapted with special consideration to the limitations of ageing offers potential to enrich networks and enhance mental wellbeing. Video chat has strong potential in this regard.

The recommendations focus around social connectedness - with the community by volunteering; contact with the nurses and participative management connecting residents and management. Further annual mental wellbeing screening is recommended

## ABBREVIATIONS

ABS	Australian Bureau of Statistics
Cellphone	Cellular phone
LMIC	Lower middle income countries
HRQOL	Health-related quality of life
K	Kruskal-Wallis test
K-6	Kessler-6
OSLO-3	OSLO-3 Social Support Scale
PEU	Perceived Ease of Use
PRI	Policy Research Initiative
PU	Perceived Usefulness
RSA	Republic of South Africa
SA	South Africa
SMS	Short message service
Stats SA	Statistics South Africa
TAC	Technologically assisted communication
TAM	Technology Acceptance Model
U	Mann-Whitney U test
WHO	World Health Organisation
WHO-5	WHO (five) Wellbeing Index

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## **CHAPTER 1: INTRODUCTION AND BACKGROUND OF STUDY**

### **1.1 BACKGROUND**

Advances in the medical sciences have contributed to both a global and local increase in life expectancy, and this trend is expected to continue (Wang et al., 2012). In upper-income countries, life expectancy for males is averaging 67 years and 84 years for females (Wang et al., 2012). In lower-middle-income countries (LMIC), although life expectancy is shorter, it is also increasing in keeping with global trends, and is set to increase further (Wang et al., 2012). An example is Swaziland, a lower-middle-income country, with one of the lowest life expectancies globally. Recent literature indicates that it has experienced an increase in healthy life expectancy at birth from 34 years for both sexes in 2006 to 50 years in 2011 (World Health Organisation [WHO], 2008, 2013). These changes ripple through the different age groups.

In comparison to other African countries, South Africa has one of the highest percentages of persons aged 60 years and over (Statistics South Africa [Stats SA], 2010). Despite some race group variation South African life expectancy has increased from 54 years in 2005 to 60 years in 2011 (Lombard & Kruger, 2009; Mayosi et al., 2012; Petersen, Bhana, & Swartz, 2012; Stats SA, 2010), and is likely to increase further as one of South Africa's minimum health targets for 2030 is the increase of life expectancy to 70 years (The Presidency, Republic of South Africa [RSA], 2011). The growth of the 60+ population band gives rise to significant public health concerns, in particular those bearing upon mental health (Lombard & Kruger, 2009; Luppia et al., 2012; Petersen, Bhana, & Swartz, 2012, Wang et al., 2012), and, within that domain, upon depression, which is expected to become the most prevalent non-communicable disease by 2020 (Tiong, Yap, Huat Koh, Phoon Fong, & Luo, 2013). Depression has an increased prevalence in the older population,

reported as between 16.9% and 22.9% for those living in residential facilities for older persons (Drageset, Kirkevold, & Espehaug, 2011; Luppá et al., 2012; Solhaug, Romuld, Ulla, & Eystein, 2012; Tiong et al., 2013).

The literature suggests that the increased incidence of depression in older persons is related to limited individual social capital due to isolation and limited social connectedness (social cohesion), lack of trust in others, restricted social networks and social support (Cornwell & Waite, 2009; Franke, 2006; Goswami, Köbler, Leimeister & Krcmar, 2010; Nyqvist, Forsman, Giuntoli, & Cattani, 2012; Petersen, Bhana, & Swartz, 2012). Mental wellbeing, the positive aspect of mental health, can be adversely affected by loneliness and depression, which have been seen as closely linked in older persons (Golden et al., 2009; Nyqvist et al., 2012).

In addition to depression, the natural ageing process subjects the older person to an increased risk of social exclusion, which in turn highlights the need for social integration and the building of social capital (Cornwell & Waite, 2009; Goswami et al., 2010). Briefly, social capital is defined as networks of social relations that have structural and dynamic properties allowing for individuals or groups to gain entry to resources and supports (Franke, 2006). The focus of this study is on surveying the individual social capital of older persons. As their social networks often shrink, despite the efforts made to strengthen them by increasing the frequency of social contacts and developing a perception of social support, the need to be proactive in promoting their mental wellbeing assumes added urgency (Franke, 2006; Lombard & Kruger, 2009; Nyqvist et al., 2012; Wright, 2000).

A number of factors are responsible for the shrinkage of older people's social networks and the decreased opportunities for social contact (Lombard & Kruger, 2009; Nyqvist et al., 2012; Tsai, H-H., Tsai, Y-F., Wang, Chang, & Chu, 2010). These factors are usually socio-economic or medical in their bearings and include retirement on a fixed – and often reduced - income, a diminished role in the family, loss of partners or friends to death or illness, international emigration or in-country migration and, finally, inadequate access to resources (Goswami et al., 2010;



Lombard & Kruger, 2009; Nyqvist et al., 2012; Tsai, H-H et al., 2010, Wright, 2000). This reduced social capital has a negative impact on mental wellbeing and manifests as depression and loneliness with its sub-types of emotional and social loneliness (de Jong Gierveld, 1998; Golden et al., 2009; Nyqvist et al., 2012).

Nyqvist and colleagues (2012) in their systematic review examined numerous definitions of mental wellbeing and concluded that no single definition commands general assent; there is agreement, however, on the complex subjective nature of the concept and on the minimalist proposition that mental wellbeing is the positive aspect of mental health. The above authors' conclusion comes as no surprise as upon investigation definitions were found to be long and cumbersome (Gallagher & Lopez, 2009; Goswami et al., 2010; Nyqvist et al., 2012; Ottmann, Dickson, & Wright, 2006; Theurer and Wister, 2010; WHO, 2011). Different authors, inclusive of the WHO (2011), have attempted to classify mental wellbeing into different domains with different outcomes (Gallagher & Lopez, 2009; Nyqvist et al., 2012; Ottmann et al., 2006; WHO, 2011). Briefly, mental wellbeing is less a biomedical than a social construct and rather than being defined negatively in terms of an absence of psychiatric symptomatology or an absence of depression and loneliness, is built on positive concepts such as autonomy, life satisfaction, self-efficacy, positive affect and hope (Gallagher & Lopez, 2009; Goswami et al., 2010; Nyqvist et al., 2012; Ottmann et al., 2006; WHO, 2011).

In older persons the aim of mental health promotion is to improve mental wellbeing through increasing social capital by means of social connectedness, involving family and friends who play a crucial role in the provision of social support (Nyqvist et al., 2012). For those living in residential facilities, social support is often provided through the family visiting or through contact with them (Nyqvist et al., 2012). It is relevant to recognize in this context that there is a difference between social support and companionship which Wright (2000) has highlighted. Though this difference affects mental wellbeing, it does not mean that social support and companionship are mutually exclusive, as Wright (2000) acknowledges. The older person might indeed choose to initiate social contact with family members or with a companion,

but such initiatives do not always bear fruit, and when they do not, it becomes necessary to consider alternatives. One such alternative for bringing about social contact is communication products of recent technology (Wright, 2000).

In order to promote social contact, technologically assisted communication (TAC) such as social media (e.g. Facebook®), use of the internet, e-mailing and video chat (Skype™) has been suggested as an aid to expanding and strengthening older persons' social networks and alleviating depression and loneliness (Cody, Dunn, Hoppin, & Wendt, 1999; Danowski & Sacks, 1980; Fokkema & Knipscheer, 2007; Goswami et al., 2010; Sum, Mathews, Pourghasem, & Hughes, 2008; Wright, 2000; Xie, 2008).

There have, however, been some negative results reported in the use of technologically assisted communication in older persons related to feelings of being overwhelmed by, and fearful of, computer technology (Fokkema & Knipscheer, 2007; Tsai et al., 2010). Despite these reported barriers to acceptance, older South Africans' access to cellphones and landlines increased to 87% in 2009 (Stats SA, 2010). In addition, according to the recent South African Census (2011), 89% of the general population own cellphones and 35% of households have access to the internet, while 21% of households own computers (Stats SA, 2012). This offers opportunities for older persons living in residential facilities to increase their individual social capital and mental wellbeing and alleviate depression and loneliness (Dickinson & Gregor 2006; Golden et al., 2009; Visser, Dadlani, van Bel, & Yarosh, 2010). Despite this opportunity, Davis (1989) stated that for there to be gains from information technology as reflected in user acceptance, a precondition is perceived ease of use and perceived usefulness.

## **1.2 PROBLEM STATEMENT**

The current literature suggests that loneliness, decreased social capital, a lowered sense of mental wellbeing and depression are linked (Biddle, 2012; Cornwell & Waite, 2009; Golden et al., 2009; Hughes & Evans, 2007), with depression being most prevalent in the older persons' population group and highest in the oldest of this group (Boen, 2012; Luppá et al., 2012). Persons living in residential facilities are confronted with the additional problem of separation from significant others who have the potential to offer social connectedness and support and thereby to create social capital (Biddle, 2012; Drageset et al., 2011; Lombard & Kruger, 2009; Stats SA, 2010).

The increasing availability of technologically assisted communication provides new opportunities for improving older persons' social contact. Several studies in upper-income countries show that older persons' mental wellbeing can be positively influenced through increasing social contact with existing or rekindled social networks (Cornwell & Waite, 2009; Golden et al., 2009; Nyqvist et al., 2012; Theurer & Wister, 2010). Various strategies, inclusive of technologically assisted communication, have been suggested for enhancing older persons' social contact (Dickinson & Gregor 2006; Fokkema & Knipscheer, 2007; White et al., 2002). Despite these suggestions there is little evidence that the critical issue of technological readiness has been satisfactorily addressed, and several studies have reported the failure of technology assisted communication initiatives due to respondents feeling overwhelmed by the technology (Fokkema & Knipscheer, 2007; Tsai et al., 2010; White et al., 2002).

There are no South African studies measuring the contribution of individual social capital to the mental wellbeing of older persons (Petersen et al., 2012). Research is required in this area and it is argued that such research needs to take into account the key factor of technological readiness if the implementation of technologically assisted communication programmes is truly to bear fruit.

### **1.3 SIGNIFICANCE OF THE STUDY**

This research study is particularly significant at present in South Africa as it is related to the 2030 National Development Plan objectives, specifically those of increasing life expectancy to 70 years and reducing the prevalence of non-communicable diseases (RSA, 2011). The research findings could be used to inform policy development with regard to social connectedness and resource distribution, specifically in residential facilities for older persons. In addition, at a local level, the management of a non-profit organization for a cluster of residential facilities in Durban requested assistance in increasing social contact for the residents using technologically assisted communication, in particular video chat. As a first step, however, it is necessary to identify the need for this amongst the residents in relation to their levels of social capital and mental wellbeing and, beyond that, the technological readiness of residents and staff (healthcare and support) ahead of the possible introduction of a TAC programme. It is likely that the results of this study could inform the planning and implementation of any such initiative.

Information technology has been used effectively in South Africa in the areas of e-health, particularly in symptom management or diagnostics (Chipps, Brysiewicz, Ramlall, & Mars, 2012), but its potential effectiveness has yet to be evaluated in relation to mental wellbeing. There is no empirical evidence in South Africa related to enhancing social contact by means of technologically assisted communication, specifically in the older person population group (Patel et al., 2007). The results of this study will add to the body of international literature on the subject and provide data specific to the local context. This in turn may furnish a basis for further research into developing the kinds of social contact most advantageous to the mental wellbeing of persons living lives blighted by loneliness and social disconnectedness.

The results of this study can also inform nursing practice, as it relates to facilitating social contact to enhance mental wellbeing, with an eye specifically to planning for such facilitation. As gerontology nursing modules are developed in response to the changing demographics of the South African population, the findings of this study

could augment and update the information on social contact and mental wellbeing included in the programs being developed.

In addition, it is possible that the involvement of the nursing staff at the research site will prompt them to reflect on the importance of social connectedness and mental wellbeing, and this increased awareness could lead to changes in nursing practice that might impact positively on health care outcomes.

#### **1.4 SUMMARY OF THE CHAPTER**

This chapter has served to set the context for the study by providing an introduction and background to the principal issues in play, as well as highlighting the identified problem and the significance of the study. The background outlined the increases globally in life expectancy, the need to address social capital and the social construct of mental wellbeing of older persons in the face of shrinking social networks and possible social exclusion, with the opportunity to use technology in mental health promotion programmes. The problem statement led into the significance of the study which highlighted the critical need of identifying the existing levels of social capital, mental wellbeing and technological readiness to ensure success in program implementation. Further the value add of this study towards policy development and meeting the targets of the 2030 National Development Plans was stressed. Lastly mention was made of an opportunity to add to local and international knowledge on social capital, mental wellbeing and technological readiness of older persons.

In chapter two, the literature relating to social capital, loneliness, mental wellbeing and technologically assisted communication will be examined.

## CHAPTER 2: LITERATURE REVIEW

### 2.1 LITERATURE SOURCES

Various strategies were adopted to review the literature. Firstly, the major bibliographic databases were searched: Google Scholar, EBSCO Host and Science Direct. The key words/phrases used were as below. In the psychiatric literature the constructs of loneliness and social connectedness do not appear as frequently as the serious mental illnesses, whose search results were drawn primarily from the social psychology and gerontology journals. A general paucity of literature for African and especially South African studies in relation to the key words was noted. The gerontology data, largely emphasizing community care, are primarily sourced from Western European countries (predominantly the Nordic countries and the Netherlands). Studies of older persons in residential facilities (nursing homes) often focus on those who are cognitively impaired. Studies relating specifically to cognitively unimpaired older persons in residential facilities were limited in number and came mainly from Norway. Articles relating to social capital have their origins primarily in Canada and Australia.

All titles and abstracts of journal articles found were read for their relevance to the topic, thereafter relevant articles were retrieved. A hand search was used in the articles that provided relevant information for further sources, such as books, journals, legislation or policy statements. Experts who were consulted recommended further journal articles which in turn paved the way to yet others.

**Key words/phrases:** depression in the elderly; life expectancy in the elderly; loneliness in the elderly; mental wellbeing; social capital; social connectedness in the elderly. *Words specifically linked to technology use with the elderly:* internet, e-mail and video chat.

## 2.2 INTRODUCTION

Life expectancy is rising globally and the trend is set to continue in upper, lower-middle and lower income countries (Wang, et al., 2012). The World Health Organisation (WHO) examined the mortality rates of 187 countries in relation to the burden of disease from 1970 to 2010, and for this period the reported life expectancy at birth for men showed a rise from 56 to 67 years, and for women from 61 to 73 years (Wang et al., 2012). In Upper Income Countries such as Switzerland, Iceland, Sweden, Israel and Australia the life expectancy of men was over 79 years, while that of women was in excess of 84 years in Japan, Andorra, France, Iceland, Spain and Switzerland (Wang et al., 2012). This was in contrast to the 44 years' life expectancy at birth found in the Lower Income Countries of Swaziland and Lesotho (Wang et al., 2012). In 2011, South Africa reported that life expectancy had increased to 60 years (Mayosi et al., 2012). This has been attributed to increased governmental efforts to inform the most at-risk groups about responsible life-style choices and practices, as well as the scaling-up of anti-retroviral roll outs (Mayosi et al., 2012). At the same time, policy initiatives in the area of mental health have been broached.

In step with this move it is pertinent to examine the influence of social capital on mental wellbeing. This may be viewed as a counterweight both to South Africa's quadruple disease burden (pre-transitional diseases, chronic diseases, injuries and HIV), with depression expected to increase, as well as the natural ageing with a concomitant increase in the incidence of social exclusion (Goswami et al., 2010; Lombard & Kruger, 2009; Mayosi et al., 2009). Nyqvist and colleagues (2012) have pointed out that where studies concentrated on the negative aspects of mental health such as depression or loneliness, a weak association between social capital and mental wellbeing was shown, while but few studies have measured mental wellbeing. This underlines the need in South Africa, highlighted by Petersen, Bhana and Swartz (2012), for greater attention to be given to the promotion of mental health and the prevention of mental illness, and it explains why these authors have brought

to the fore their concern that mental health promotion for older persons is so limited in this country.

The literature consulted is viewed through a social-capital, mental-health-promotion lens, with a focus on individual social capital (as distinct from collective capital) in its bearing on the advantages the individual can draw from being included in social networks. This involves a systematic examination of social networks and the relational dynamics that exist within them, and of social and mental health outcomes, giving consideration to the possibility of technologically assisted communication in mental health promotion.

### **2.3 OLDER PERSONS IN THE SOUTH AFRICAN CONTEXT**

The United Nations Organization defines an older person as a person 60 years and over and South African law has been aligned with this definition (Stats SA, 2010). The anticipated improvement in South African life expectancy will increase the number of those in the over-60 band, the prediction being that by 2015 it will account for 9.5% of the South African population, a figure 1.5% greater than the 8.01% recorded in the 2011 Census (Lombard & Kruger, 2009; Stats SA, 2012). This percentage is set to increase further, assuming one of the minimum health targets of the National Development Plan is attained, namely, the increase of life expectancy to 70 years by 2030 (The Presidency, Republic of South Africa, 2011).

Despite the predictions of increased life expectancy, an increase in widowhood has been registered, with women living longer than men (Stats SA, 2010). Above 70 years, 76.8% of women are divorced, widowed or single, which contrasts sharply with males in the same age bracket (29.1%) (Stats SA, 2010). The figure for females in the 70+ age group is, moreover, distinctly higher than for females in the 50-59 age groups where 42.5% are divorced, widowed or single, while for men in the 50-59 year band it is 22.2% (Stats SA, 2010).



At present there are considerable race group variations in the South African population profile, with the mean age in the “white” group being 39 years, but only 24 years in the “black” group (Stats SA, 2012). These variations continue into the older-person age band, where the white race group exhibits an older person’s profile typical of developed countries, with increases in an ageing population (Stats SA, 2010). Amongst the older persons in South Africa, 24% are white, in the same age band the figure for Indians is 4%, 64% for Blacks and 9% are Coloureds (Stats SA, 2010). There is a vast difference between the black and white race groups in terms of economic status, with poverty more prevalent among black persons. Relative to emerging patterns for the other race groups, however, that of the white group is beginning to show change, reflecting the changed political dispensation and also retrenchments and early retirements (Stats SA, 2010). Further racial disparities are evident: in 2009, older Indian persons predominantly (47.2%) had incomplete secondary education, while in the white group 39.7% had completed secondary schooling, with 27.5% having completed post-school studies. Compare this with the black race group where in 2009 the single largest category among older people was that of persons with no schooling (40.5%).

Racially-based inequalities extended beyond longevity and education to types of accommodation, where the pattern was similar. Older white persons during the apartheid period made extensive use of institutional care that was not accessible to older black persons (Stats SA, 2010). The outcome of institutional care was physical separation from family, with a strong possibility of decreased social connectedness; in the black race group older persons were also subject to decreased social connectedness as they headed up “skip-generation households”, which resulted in social and emotional isolation (Lombard & Kruger, 2009; Stats SA, 2010). Decreased social connectedness contains the possibility of depression as an outcome.

The positive influence of mental wellbeing on longevity has been shown (Diener & Chan, 2011). Conversely, when there is a concurrence of loneliness and depression in older persons, mortality and morbidity rates increase in step with the increase in the prevalence of hopelessness (Cornwell & Waite, 2009; Golden et al., 2009;

Luanaigh & Lawlor, 2008). This manifestation plainly runs counter to the goal of increasing life expectancy in South Africa. While the focus of this study is *mental* wellbeing, it would be an oversight not to touch upon the influence of loneliness and depression on *physical* health: these conditions are associated with ailments such as hypertension, diabetes, stroke and cardiac disorders, which are prevalent in South Africa (Luanaigh & Lawlor, 2008; The Presidency, Republic of South Africa, 2011) where chronic illness registers a 55% increase in persons over 70 years (Stats SA, 2010). It bears pointing out that the healthcare facilities older persons visit vary according to race group. Blacks (79.2%) and “Coloureds” (45.3%) predominantly make use of public clinics, while whites (83.7%) and Indians (51.0%) typically make greater use of private doctors/clinics/hospitals. Statistics do not provide information on how many admissions to healthcare facilities are linked to depression.

## **2.4 LONELINESS AND DEPRESSION IN OLDER PERSONS**

This study has mental wellbeing promotion as its focus, but since loneliness and depression are inseparable from mental wellbeing – or, more exactly, the lack of it – they clearly need to be discussed.

The concept of loneliness has been discussed by various authors. Despite authors defining it differently there is a commonality which is reflective of how Perlman and Peplau (1981) defined loneliness. First, loneliness is a subjective perception of unpleasantness as a result of a cognitive evaluation of existing relationships; second, the desired level of social connectedness can be expressed quantitatively by frequency and/or qualitatively by degree of intimacy; third, a discrepancy is perceived between the actual and desired levels of social connectedness (Blazer, 2002; de Jong Gierveld, 1998; de Jong Gierveld & van Tilburg, 2006; de Jong Gierveld, van Tilburg, & Dykstra, 2006; Perlman & Peplau, 1981). Loneliness is also referred to by some authors as subjective social isolation (Golden et al., 2009). Cornwell and Waite (2009) subsumed the terms ‘loneliness’ and ‘perceived lack of social support’ under the construct of perceived isolation. Weiss (1973), a seminal

author on loneliness, posited two types of loneliness, namely, social loneliness, where there is an absence of social integration, and emotional loneliness, where there is an absence of a trustworthy person with whom to form an attachment. All of the mentioned authors have studied loneliness in older persons, with some stressing the importance of developing programmes to prevent, or counteract, loneliness (Jongenelis et al., 2004; Luanaigh and Lawlor, 2008).

In older persons, relocation to a residential facility may be viewed as a preventative measure, or even as a solution to loneliness (de Jong Gierveld, 1998). But since such relocation can – and often does - involve the loss of the person's home and/or separation from close family, especially a spouse (Drageset et al., 2011), the outcome in practice could be removal from those with the potential to offer social connectedness and support (Lombard and Kruger, 2009; Ottmann et al., 2006), resulting – contrary to the original intention and expectation – in loneliness, depression, psychosocial stress and social disconnectedness (Cornwell & Waite, 2009; Ottmann et al., 2006). Drageset and colleagues (2011) found that 56% of the residents ( $n=227$ ) in the 30 Norwegian residential facilities investigated said they felt lonely. These figures are slightly higher than those found by Jongenelis and colleagues (2004). Hence, contrary to the suggestion by Hawkley and Cacioppo (2010) in their discussion of a loneliness regulatory loop, that loneliness acts as a spur to social connection, it could well be that the loneliness accompanying an older person's relocation to a residential facility will end up having the opposite to a motivational effect, with the actual outcome being a sense of hopelessness (Perlman & Peplau, 1981).

Cornwell and Waite (2009) found in their study that personal perceptions of loneliness are gender-differentiated, women's mental health being more strongly linked to loneliness than men's. This ties in with Golden and colleagues' 2009 Dublin study of community-dwelling persons over 65 years ( $n=1299$ ) with a median age of 73 years, where it was found that women showed an increased vulnerability to loneliness as, owing to their greater longevity, they were exposed to an increased risk of widowhood and advanced old age. (There was a significant difference

between women and men with regard to widowhood/widowerhood:  $p < .001$ .) To add to the complexity of understanding loneliness and its connection with gender, the above findings are in contrast to other reports in which males (in some studies non-married males) were cited as having the highest frequency of loneliness (Andersson, 1990 cited in Luanaigh & Lawlor, 2008; Drageset et al., 2011).

Just as the variable of gender brings to light conflicting findings among studies, so too does the variable of age. In some studies age is not considered to have a definite relationship with loneliness, but rather is seen as an accompanying risk factor (Golden et al., 2009). Jongenelis et al. (2003) found a negative association between age and depression for the older old residents in the Amsterdam Groningen Elderly Depression study. Other authors, however, maintain that persons over 75 years are at greater risk of emotional loneliness as the likelihood of widowhood/widowerhood increases concomitantly with a decrease in the opportunities available to the older old for contracting new relationships (Luanaigh & Lawlor, 2008). While the condition of loneliness can be alleviated for some older persons through the development of networks of social relationships (de Jong Gierveld, 1998), this usually applies to the younger old (55 – 75 years) where opportunities exist for replacement relationships (van Groenou, Hoogendijk & Tilburg, 2013), as they seldom do in the case of the older old (Luanaigh & Lawlor, 2008; van Groenou et al., 2013).

This complexity of loneliness is further underlined by de Jong Gierveld and colleagues (2006). These researchers found that loneliness is only a potential outcome in a context where the quantity of relationships is small, with socially isolated people not necessarily being lonely. This finding gains support from Cornwell and Waite (2009), who viewed social disconnectedness and perceived isolation as two distinct phenomena, such that despite older persons' social networks decreasing in size and amount of contact, there can yet be age-related modifications to expectations leading to relationship satisfaction. These authors identified a weak correlation ( $r = .25$ ,  $p < .001$ ) between perceived disconnectedness and perceived isolation (in contrast to a "strong relationship between perceived isolation and mental health":  $p = .059$ ), showing that network size had small relevance to perceived

isolation (Cornwell & Waite, 2009, p.40). The evidence found by Cornwell and Waite (2009), supported their hypothesis that “perceived isolation may mediate the relationship between social disconnectedness and health” (p.10).

The subjective dimension of loneliness is magnified by subjects’ tendency to make social comparisons in the absence of interaction and relationship standards, which are evaluative measures for the frequency and vigour of relationships (de Jong Gierveld et al., 2006). This situation is highlighted in Golden and colleagues’ study (2009) where 32% of the respondents ( $n=1299$ ) were socially connected and yet claimed to feel lonely. Drageset and colleagues (2011) examined for the association between loneliness and social support in Bergen nursing home residents who were without cognitive impairment and identified the significance ( $p=.03$ ) of attachment to mental wellbeing.

The literature underlines the contribution of a diversity of interlocking social networks towards lowering the risk of loneliness and satisfying specific social needs (de Jong Gierveld, 1998; de Jong Gierveld et al., 2006; Drageset et al., 2011). The members of the different networks can vary. They can be family where the parent-child bond is central, with adult children offering companionship; or the key relationship can be with a partner, a situation that ordinarily exercises an influence on the size and composition of the social network (de Jong Gierveld et al., 2006). Alternatively, the most fruitful possibilities could lie in non-kin relationships with, for example, friends or companions who can act as confidants (de Jong Gierveld et al., 2006; Drageset et al., 2011). In older persons, marriage appears to act as a buffer against loneliness, and the loss of a partner is a prominent cause of emotional loneliness, especially in the older age groups (de Jong Gierveld, 1998; de Jong Gierveld et al., 2006; Drageset et al., 2011; Golden et al., 2009; Lunaigh & Lawlor, 2008). Importantly supplementing affective ties is involvement in volunteer organisations; this significantly facilitates older persons’ integration into the broader society, builds social networks and thus social capital and, in so far, serves as a shield against loneliness (Cornwell, Laumann, & Schumm, 2008; de Jong Gierveld, 1998; de Jong Gierveld et al., 2006; Keating, Swindle, Foster, 2004; Musick & Wilson, 2003). As the

determinants that cause loneliness are the reverse of those that build social capital, it follows that the denser older persons' social networks are, the greater will be their access to those emotional resources which contribute to their feeling valued (Keating et al., 2004). Naturally, the personal contribution the older individual makes to his/her social integration is also of major importance; this is inclusive of personal social skills and personal characteristics such as a sense of self-efficacy and the particular expectations the older person brings to a relationship (de Jong Gierveld, 1998; de Jong Gierveld et al., 2006) - expectations that may become more demanding with advancing age (de Jong Gierveld et al., 2006).

Loneliness has been linked to depression which is of significantly greater concern in residents of residential facilities compared to those living in the community, prevalence being up to three times higher in the former than in the latter (Blazer, 2003; Jongenelis et al., 2004). Jongenelis and colleagues (2004) quantitative study based on the Amsterdam Groningen Elderly Depression study that involved residents ( $n=350$ ) from 14 residential facilities in North West Holland, showed that 46.25% of the residents presented some form of depression when measured on the Geriatric Depression Scale. In measuring loneliness, Jongenelis et al. (2004) used the 11 item de Jong Gierveld Loneliness Scale which demonstrated a link with depression by bivariate analysis and suggested that lonely persons be screened for depression. Other studies have produced similar findings, showing that where loneliness was severe so was the risk of depression (Golden et al., 2009; Luanaigh & Lawlor, 2008). To complicate the picture, however, it appears that older persons who exhibit depressive features do not necessarily have a co-occurrence of loneliness; and while the direction of causality as between loneliness and depression is by no means clear (Luanaigh & Lawlor, 2008), it would seem that the connection between them is somehow affected by the older person's subjective appraisal of the accessibility of social support (Golden et al., 2009; Luanaigh & Lawlor, 2008).

All things considered, the key to mental wellbeing appears to reside in the ability to counter the development of a sense of isolation (Cornwell & Waite, 2009). Where a person's perception of their isolation is low, the possibility of their being mentally well

is high, even under conditions of social disconnectedness (Cornwell & Waite, 2009). It is accommodative coping of this kind that feeds the flame of hope and allows the older person to feel in control of the inevitable changes and challenges that ageing brings in its wake (Blazer, 2002).

#### **2.4.1 Measurements of loneliness**

Before moving on to an analysis of mental wellbeing, some remarks about the measurement of loneliness are in order. Subjective reporting, varying from responses to single item questions to more detailed questionnaires, used to measure for loneliness. To prevent under-reporting, overt references to loneliness are omitted from the measuring instruments and to enhance accuracy a self-report questionnaire affords the respondent a further opportunity to be honest in self-disclosure, thereby enabling the results from the scale to offer the highest possible means (de Jong Gierveld, 2006). These objectives are met in both the eleven and six item de Jong Gierveld scales. The six item scale was developed after the eleven item scale, but the correlations between the two scales is “very high, between .93 and .95” (Luanaigh & Lawlor, 2008, p.1215). Further to this the de Jong Gierveld scales differentiate between emotional (3 items) and social loneliness (3 items), a feature whose value is not confined to gauging the prevalence of loneliness but also bears on the important issue of the advisability and nature of possible future interventions with regard to older persons. The availability in the scale of its two subscales allows for a choice in use as either a “one or a two-dimensional measure” (de Jong Gierveld, 2006, p.487). The de Jong Gierveld scales have the added advantage, noted above, of omitting direct reference to the words “lonely” and “loneliness”, thereby minimizing the likelihood of respondents avoiding the response that appears stigmatized. This is of particular relevance for more accurate reporting in males where a greater gender bias towards acknowledging loneliness is thought to prevail (Luanaigh & Lawlor, 2008).

Another frequently used scale is that of the UCLA (University of California, Los Angeles). It consists of twenty items, some positively worded (i.e. pointing in a non-lonely direction), others pointing the opposite way (de Jong Gierveld et al., 2006). It has been translated into many languages and is reportedly understandable by the less educated (de Jong Gierveld et al., 2006). Various studies involving older persons have used it as a measuring tool and it has a high internal consistency with Cronbach  $\alpha = 0.92$  and a test reliability after 12 months of  $r = 0.73$ ; it does not, however, differentiate between social and emotional loneliness (Luanaigh & Lawlor, 2008; Masi, Chen, Hawkey, & Cacioppo, 2011; Tsai et al., 2010).

These tools offer important psychometrics enabling accurate measurement of a condition that has the potential to cripple mental health outcomes. For the purposes of this study, there was a benefit to choosing a tool capable not only of measuring the prevalence of loneliness, but also of distinguishing between types of loneliness, thereby furnishing insights that could be of value later on in the event of an intervention being deemed advisable (Luanaigh & Lawlor, 2008). (Though not relevant to this study, it has been stated that the de Jong Gierveld Loneliness questionnaire when used as a guide for intervention, reports significantly smaller effect sizes than the UCLA scale [Masi et al., 2011]).

## **2.5 MENTAL WELLBEING AND RELATED POSITIVE INDICATORS**

Programmes to prevent or alleviate loneliness and depression have mental wellbeing as their focus and goal. Mental wellbeing and quality of life are routinely viewed as closely connected, in older persons no less than in others (Nygqvist et al., 2012). A mental health promotion focus would checklist the positive indicators for mental wellbeing, descriptions of which by different researchers reveal a high degree of common ground (Gallagher & Lopez, 2009; Nyqvist et al., 2012; Theurer & Wister, 2009). The key indicators are: control or mastery over life's issues, finding pleasure in life's daily activities, recognition of alternative sources of contentment, staying hopeful and aiming for congruence between achievements and goals that have been



set within the limits of ageing (Bisschop, Kriegsman, Beekman, & Deeg, 2004; Blazer, 2002). The attainment of these goals might involve compromises on the part of the older person (Blazer, 2002), an important consideration since a key to being mentally healthy is the ability to adjust expectations (Cornwell & Waite, 2009). Taking the broad view, and in order to develop more effective strategies of intervention, Wright (2000) conceptualized mental wellbeing in terms of three overarching domains: the relational domain can be seen as pertaining to the social needs of the older person, the personal domain as focusing on eudaimonic and hedonic well-being, and the collective domain as encompassing the social determinants of health (Gallagher & Lopez, 2009; Goswami et al., 2010; Ottmann et al., 2006). Narrowing his focus, Wright (2000) identified as positive markers of mental wellbeing the following: self-efficacy, life satisfaction and trust, with hope and optimism being their outcome. Biddle (2012) measured the relationship between social capital and mental wellbeing in the indigenous population of Australia ( $n=7823$ ) and linked high levels of trust and self-efficacy with happiness.

### **2.5.1 Self-efficacy**

Hopefulness, regarded as a significant contributor towards mental wellbeing (Blazer, 2002), is linked to the older person's belief that they are endowed with self-efficacy. As a concept, self-efficacy was initially described by Bandura and later expanded on by other authors (Blazer, 2002). It involves the individual's personal belief that goals set can be successfully attained, and that in pursuit of this objective s/he has the authority and ability to deal not only with everyday challenges but also with unforeseen and novel ones, provided the latter are understandable, manageable and meaningful (Bisschop et al., 2004; Blazer, 2002; Drageset et al., 2008). Men are credited with greater levels of self-efficacy than women (Biddle, 2012). Gender factors aside, in the same way that the older person's 'situatedness' can boost or decrease social capital, so too, in order to boost self-efficacy, older persons need to have a sense that their actions and input matter, and that they have it within their power to influence the direction of their lives within the context – often an

institutional one – in which they live (Keating et al., 2004). Pertinent in this connection is Biddle's finding (2012) that those who get to have a say in matters affecting the community or the family have greater levels of mental wellbeing. This draws attention to the necessity for the staff and organizational structures of residential facilities to create the kinds of space within which residents' self-efficacy and thus their mental wellbeing can be fostered (Drageset et al., 2009).

As a general principle, passivity in relationships does not facilitate their active shaping and runs counter to the cultivation of self-efficacy (Keating et al., 2004), at the heart of which lies the power of *agency*. While an adaptive and agential engagement with the human and/or institutional environment fosters mental wellbeing, this can be temporarily set back after a major life event such as relocation or the loss of a partner (Drageset et al., 2008). It bears noting that the reaffirmation of the older person's sense of worth as a counterweight to the setback appears to carry greater value when it comes from non-kin persons (Drageset et al., 2009).

What happens when self-efficacy is in short supply? To find out Cohen-Mansfield and Parpura-Gil (2007) ran a quantitative study involving lower-income residents ( $n=161$ ) of five independent-living buildings in Maryland. They found that a lack of self-efficacy was the most relevant predictor of loneliness, followed by financial constraints and insufficient opportunities for social contact (Cohen-Mansfield & Parpura-Gill, 2007). What this suggests is that self-efficacy needs to be bolstered and enhanced if interventions for social connectedness and mental wellbeing are to pay off.

### **2.5.2 Trust**

Trust (interpersonal or institutional) can be seen as both an outcome and a determinant of social engagement (Franke, 2005). Viewed as a determinant in the development of social capital, trust contributes to mental wellbeing (Franke, 2006). Other perspectives see trust rather as a return on social capital (Biddle, 2012), or,

indeed, as an investment in social capital inasmuch as it is an investment in relationships and a resource conferring relational security within social networks (Australian Bureau of Statistics [ABS], 2004). Putnam (1993) viewed trust as an indicator of social capital. Just as trust fosters strong relationships between individuals and promotes the cohesion of groups, so its opposite, distrust, in undoing relationships contributes to human isolation and in eroding social capital undermines group cohesion. From this it follows that the level of trust within a group will be reflected in the level of group cohesion (ABS, 2004). Proceeding to a higher level of generality, the ABS defines trust as follows: “*confidence in the reliability of a person or a system. It is based on the expectation that people or organisations will act in ways that are expected or promised, and will take into account the interest of others*” (p.26). Accordingly, structures of expectation and obligation furnish the foundation upon which is built cooperation, trust and reciprocity in social networks (ABS, 2004). Trust is strengthened, moreover, by the frequency of social connections and interactions and is to that extent cumulative (Putnam, 1993).

The ABS (2004) identifies three types of trust, namely, generalised, informal and institutional trust. Generalised trust is that shown by people in day to day activities and is the form of trust that sustains participation in the diverse arenas of social life (ABS, 2004). Informal trust is that shown by the individual towards those in his/her social network and is measured in terms of the closeness of relationships (ABS, 2004). The third form of trust is institutional trust and refers to the level of trust and confidence that institutions in the areas of security, healthcare, finance, and the law, among others, command (ABS, 2004). Biddle (2012) identified a gender difference in trust, with men exhibiting higher levels of trust generally and in relation to hospitals, while women are more inclined to trust their doctors.

### **2.5.3 Reciprocity**

Closely linked to each other, trust and reciprocity are described as both network dynamics and qualities of networks, and together they create the conditions for

social engagement and group cohesion (ABS, 2004; Franke, 2005). Higher levels of trust and reciprocity in the network structures, offer a greater possibility of mutual engagement among its members (Franke, 2006).

Yogi Berra humorously summarised reciprocity in this line: *"If you don't go to someone's funeral, they won't come to yours"* (cited in Putnam, 2000). Reciprocity of the 'everyday' kind may involve somebody doing something for another, not necessarily expecting that specific person to reciprocate that specific act, but in the expectation nonetheless that the act will somehow be reciprocated, possibly by someone else, in the future (ABS, 2004; Putnam, 2000). It goes without saying that a high level of reciprocity in a community results in high levels of mutual bonding and mutual caring among its members (ABS, 2004). And these positive features make for societies that work efficiently; where they are in short supply, as they are in societies characterized by mistrust and weak cooperation, societal efficiency too will be in short supply (Putnam, 2000).

Bonding capital, with reciprocity as its foundation, is typical of homogenous groups, and it is within such groups where bonding capital is strong that the same holds true for social support (Putnam, 2000). Bonding capital can also assist in the integration of newcomers into a community, but where the newcomer is also an 'outsider' – for example, a member of an ethnic minority relative to that community – the networks of mutual bonding can function to hinder integration (PRI, 2005). PRI (2005) has outlined a few other situations in which bonding networks could act as a deterrent to integration, or even admission, into a community: if the newcomer is seen as disadvantaged, or if s/he was previously involved in a problematic relationship with a community member, or owing to the 'historical context', or to cultural differences. Bonding networks tend to be more elastic and accommodating in the case of children and men, the better educated, those involved with volunteering, and those with a spouse or partner (PRI, 2005).

Volunteerism and involvement in community groups has reciprocity as a core value (Bouchard, Roy, & van Kemenade, 2006). The analysis of data from the 2003

Canadian General Social Survey ( $n=24951$ ) disclosed a positive relationship between volunteerism and wellbeing (Bouchard et al., 2006); and volunteering is perceived as able to build bridges between strangers ('bridging capital') (ABS, 2004). Volunteering, in particular under the aegis of religious organizations, is an effective means of access, and integration, into communities (Cornwell et al., 2008; Musick & Wilson, 2003). Using data from the National Social Life, Health and Ageing Project conducted by the University of Chicago, which involved older persons aged 57-85 years ( $n=3322$ ), Cornwell and colleagues (2008) found that volunteering was vital for healthy ageing, as it facilitates access to social resources, which in turn decreases the likelihood of loneliness and depression. It is worthy of note that analysis of data from Canada's "2003 General Social Survey Cycle 17 on Social Engagement" revealed that organizational links are strongly correlated with mental health for senior men (van Kemenade, Roy, & Bouchard, 2006). Those most likely to be involved in frequent volunteering are the older old, women, the tertiary educated, the childless, and the previously married (Cornwell et al., 2008). The motivation to volunteer may increase as a result of bereavement, but this event brings with it the complications of a reduction in network size and the possibility of reduced opportunities to enter a new group (Cornwell et al., 2008).

#### **2.5.4 Measurement of mental wellbeing**

As this study has a mental wellbeing focus, it was important that a measuring tool aligned with this focus be selected. The World Health Organization [WHO] (five) Wellbeing Index is a measure for psychological wellbeing and not just depression (Bech, Olsen, Kjoller, & Rasmussen, 2003). The five questions in the WHO(five) Wellbeing Index (WHO-5) are positively formulated but at the same time the tool is able to measure for the characterizing symptoms of depression, which has a high prevalence in the elderly but often goes undetected (Bonsignore, Barkow, Jessen, & Heun, 2001). The questions bearing upon signs of depression relate to mood, energy levels and interests. The WHO-5 has high reliability and ROC analysis rates external validity as high when measured in persons older than 50 years ( $n=367$ )

(Bonsignore et al., 2001). (It is to be noted, however, that depression is not screened for in the present study.)

A variety of studies measure health related quality of life (HRQOL), bringing mental wellbeing into the picture as one element among others (whereas this study prioritizes mental wellbeing). The 36 item SF-36 scale has frequently been used to measure HRQOL, inclusive of studies involving older persons (Drageset et al., 2008; Drageset et al., 2009). It measures for physical functioning, general health, social functioning and vitality, mental health, bodily pain, and role limitation related to physical and emotional problems (Drageset et al., 2008). The greater numbers of items are however related to the physical realm and there is some doubt expressed over its face-value validity (Anderesen et al., 1999 as cited in Drageset et al., 2009).

The measurement of mental wellbeing is a valuable form of evaluation, offering insight into the impact of an individual's social capital on his/her mental health. In this sense, social capital can be seen as an “explanatory variable” (Franke, 2005, p.6) relative to mental wellbeing.

## **2.6 SOCIAL CAPITAL**

Putnam (2000) stated that the term ‘social capital’ is “to some extent merely new language for a very old debate in American intellectual circles” (p. 24), and acknowledged an educationalist, Hanifan, as being the first to use the term. Putnam defined social capital as: “connections among individuals – social networks and the norms of reciprocity and trustworthiness that arise from them” (p.19). He went on to endorse Hanifan’s belief that a person on his/her own is helpless socially, before proceeding to discuss how lives are made productive through social ties (Putnam, 2000).

Social capital has an individual as well as a group aspect, but in this study the focus is on individual social capital. The reciprocal links the individual forms in building social capital benefit his/her interests socially for they lead to companionship within a context of mutual help and obligation and, therefore, in case of need, to a helping hand here or a receptive ear to confide in there (Putnam, 2000). One may say that socially (and also financially) the best situation for an individual to be in is to be well-connected in a well-connected community (Putnam, 2000). Social capital offers a return on the individual's investment in the form of the social connections – the networks of relational ties - of which it is made up (Biddle, 2012). That explains why PRI (2005) refers to social ties as “forms of instrumental investment” (p.9), which enable cooperation, on the back of which stocks are built up that can be accessed in times of need (PRI, 2005). All this said, it has to be realized that social capital is not a fixed asset; it can be squandered (Franke, 2005).

Stocks of social capital can be built up through civic and social involvement (Franke, 2005), and this facilitates the reinforcement of values and norms such as trust and reciprocity (Franke, 2005). A multiplier effect is built into this process: the greater the development of trust and reciprocity, the more satisfying and fruitful will be the relationships making up the web of social connectedness; and so it carries on, with the multiplier raising the process to the next level (Franke, 2005).

When it comes to older persons, Keating and colleagues (2004) have noted difficulties regarding the development of social capital. Examining the role of social capital in aging well among Canadians, the authors found that because emphasis was placed on the caring aspect of the relationship with the older person, the potential existed for the latter to conceive expectations beyond the capacity of the caring party (usually close kin) (Keating et al., 2004). This places strain on the previously positive aspect of the relationship and possibly reduces bonding capital (Keating et al., 2004); this ties in with Biddle's (2012) finding that the provision of support to the elderly is associated with a higher probability of disappointment and sadness. Given this scenario, technologically assisted communication has the potential to mitigate the effects of unreasonable expectations on the part of the

elderly – or even to mitigate the expectations themselves – by providing increased access to alternative resources ('bridging capital') and thereby increasing the diversity and size of the older person's social network (Keating et al., 2004).

### **2.6.1 Social networks**

Characterizing features of social networks are network size and network density. Network size refers to the number of people with relational ties while network density refers to the degree (relative strength or weakness) of interconnectedness of the network's members (Franke, 2005).

To begin with network size in relation to older persons: Van Kemenade et al. (2006) point out that social networks are apt to shrink in size as members age. This can be attributed to life transitions, for example retirement, relocation to a residential facility, widowhood/widowerhood, and declining health (Veninga, 2006). As ageing erodes the older person's independence, a concomitant shrinkage in network size (implying the depletion of social capital stocks and beneficial networks) can lead to intensified feelings of insecurity and vulnerability, rendering the older person more susceptible to health changes (Franke, 2005; Veninga, 2006). Van Kemenade and colleagues (2006) examined data gathered in the Canadian "2003 General Social Survey Cycle 17 on Social Engagement" that involved persons over 65 years ( $n=44486$ ). They found that a positive link existed between network size, in combination with the strength of the relational ties within the network, and older people's – in particular, older women's – health (van Kemenade et al., 2006).

Analysing the social capital of older persons ( $n=1322$ ) in rural Canada, Keating and colleagues (2004) found that social networks generally varied in size from 5 to 13 people, with a median of 10 persons, whereas the actual support network's median was three persons. Though women had larger social networks on average than men (Keating et al., 2004), this relative advantage was cancelled out by their greater long-lividness, resulting in their becoming more socially isolated than men in the long run



(Veninga, 2006). While acknowledging the likelihood of social isolation increasing with age, Veninga (2006) argues that active social connectedness constitutes an effective counterweight, holding out the possibility of mental wellbeing and an ability to cope with life's transitions continuing even into advanced elderliness. The Longitudinal Aging Study Amsterdam (LASA) over a period of 16 years, from 1995 ( $n=3107$ ) to 2009 ( $n=985$ ), studied changes in older persons' social networks and found that the older of older persons (above 75 years) experienced a loss of one relationship every three years (van Groenou et al., 2013). To a degree, however, these losses are compensated for by gains among the younger old, some of whom replace lost partners/spouses by contracting new relationships, while at the same time numbers in the networks they belong to tend to remain fairly stable, at any rate for a while (van Groenou et al., 2013).

Differences in educational level appear to have a bearing on network structure: community-dwelling older persons with better education tended to forge links with younger persons and neighbours, while those with less education tended to rely more on family support (Keating et al., 2004). Complicating the picture, however, is Drageset and colleagues' (2008) 14 months' quantitative study involving cognitively unimpaired older persons ( $n=227$ ) in 30 Norwegian residential facilities. These researchers found that those with lower education exhibited higher social functioning.

While network size and network structure are clearly relevant to the formation of social capital, more relevant still is the factor of network density, that is, the relative strength or weakness of the relational ties within the social network. Strong ties within the network are characterized by frequent contact among many of its members, and the higher the frequency of contact, the greater the contribution to social capital (Franke, 2005). Qualifying this postulate, however, is Carstensen's point (1992) that older persons may change their objectives in relationships, preferring to focus on a single meaningful one rather than on frequency of contact across a range of acquaintances. In such a scenario, social capital will be accumulated effectually even in the absence of frequent contact (Carstensen 1992).

The homogeneity of the parties involved in relational ties within a social network is critical to the strength of those ties and hence to the formation of bonding capital which, Franke (2005) shows accumulates to better effect in a more homogeneous setting. Lending support to Franke, Biddle (2012) found that where persons with markedly different cultural characteristics shared a friendship network, a negative association with wellbeing was registered.

### **2.6.2 Social support**

Social support involves access to relationships with those who are significant. This description makes clear how closely social support is bound up with social connectedness, itself defined as the “short term emotional experience of belonging and relatedness, based on satisfaction with one’s social situation” (Visser et al., 2010). Refining this definition, Rettie (2003) points out that the emotional satisfaction associated with social connectedness is not necessarily dependent upon the actual physical presence of another. It is as much a matter of the *perception* that the companionship of that other is available when needed or desired. The same holds true for social support: as important as the support itself, is the *perception* of its availability. Hence Goswami et al. (2010) contend that older persons have two primary social needs - to feel socially connected and to have a perception of social support. The satisfaction of these primary needs is key to older persons’ mental wellbeing; conversely, their non-satisfaction, resulting from social disconnectedness and perceived isolation, is linked to poor mental health, inclusive of depression and cognitive decline (Cornwell & Waite, 2009; Goswami et al., 2010). Earlier in this literature review, hope, trust, reciprocity, and self-efficacy were identified as major building blocks of mental wellbeing in the elderly; it is clear that to this list must be added social connectedness and social support, thereby underlining the importance of promoting mental wellbeing through social contact (Gallagher & Lopez, 2009; Nyqvist et al., 2012; Ottmann et al., 2006; Theurer & Wister, 2009).

The current literature discusses the significance of family and friends as a support resource for older persons (Drageset et al., 2009; Keating et al., 2004). It appears that for those living in residential facilities the foremost source of social support is contact with family, in particular children (Nyqvist et al., 2012; Tsai, H-H. et al., 2010). Naturally, this does not gainsay the value of friends, and it has been shown that frequent contact with friends has a beneficial effect on mental health (Smith et al., 2002 as cited in Keating et al., 2004). Support networks prove their worth most visibly when older persons suffer bereavement or relocation, offsetting to a degree the dejection and emotional loneliness these life transitions bring in their wake (Cohen-Mansfield & Parpura-Gill, 2007). As regards the measurement of social support in relation to mental wellbeing, one may cite Drageset and colleagues' (2009) Norwegian cross sectional study of cognitively intact residents ( $n=227$ ) with an average age of 85.4 years. Using the SF-36 Health Survey questionnaire, this study found that the social support subscale of attachment scored the highest with Cronbach's alpha of 0.85, thus demonstrating a positive relationship to mental wellbeing. Other studies have used the three-item OSLO-3 Social Support Scale in whole or in part to measure for social support (Nosikov & Gudex, (Eds), 2003). (This scale, whose items also measure indirectly for reciprocity, is referred to again in chapter three.)

Analysing the sources of social support, Wright (2000) has drawn a useful distinction between social support as family support and social support as companionship. This is a difference that has a bearing on mental wellbeing. As family support, social support has a help-seeking motivation usually directed to family members (Wright, 2000). In contrast, the motivation for companionship is usually a desire for positive interpersonal rewards, enjoyment and an anticipated increase in self-esteem; typically, companionship is sought outside the family circle (Wright, 2000). While upholding the above distinction, Wright (2000) has acknowledged that social support as family support and social support as companionship are not mutually exclusive.

## **2.7 TECHNOLOGICALLY ASSISTED COMMUNICATION**

Social capital consists of two types of capital, bonding capital and bridging capital. Bonding capital has been discussed at some length in this review of the literature, while bridging capital was cursorily mentioned in the discussion of volunteerism. More inclusive and more heterogeneous than bonding capital with its focus on homogeneity, bridging capital is built in the process of bridging divides – of age, social stratum, occupation, geography and technological proficiency (Keating et al., 2004; Putnam, 2000). In a word, bridging capital, such as technologically assisted communication, links people to external social capital assets (Keating et al., 2004; Putnam, 2000).

In this context, Franke (2005) discussed the value of bridging capital for both individuals and policy makers in facilitating access to resources that possibly are not physically or immediately to hand, thus forging relational ties by alternative means (PRI, 2005). As far as older persons are concerned, discussion of the use of bridging capital has been minimal (Keating et al., 2004). This conclusion is supported by Patel et al. (2007) who point out that such evidence as exists concerning the usefulness of technologically assisted communication for the elderly relates to high-income countries; developing countries have been left out of the picture. This is an omission which cries out for rectification since, technologically assisted communication is a form of social intervention that does not call upon the high-level professional skills of mental-health-care practitioners (Tomlinson, Grimsrud, Stein, Williams, & Myer, 2009).

What ensues is a digest of a number of studies that have examined various facets of technologically assisted communication in relation to older persons. These have predominantly focused on internet usage; studies involving instant messaging could not be found. Rettie (2003) has suggested that a mere exchange of greetings (as distinct from an exchange of information) via text messaging might suffice in some cases to keep alive a sense of social connectedness. Using the Revised Social Provisions Scale, Drageset (2004) concluded that telephonic contact with family and

friends was associated with low levels of social and emotional loneliness among elderly Norwegian residents ( $n=113$ ) in 13 residential facilities. As for video chat, its visual dimension was of benefit to respondents inasmuch as it offered them access to the non-verbal aspects of communication that telephonic contact is unable to provide. In summary, access to the telephone or the cellphone or communication via the internet can facilitate social connectedness and, in so far, can contribute to mental wellbeing.

The investigation by Keating et al. (2004) into the value derived by older persons from “surfing the internet”, e-mailing and using chat rooms appears to back up Drageset’s findings. Such activities offer not only opportunities for individual gain, but also possibilities for engagement with all members of the family, including those geographically distant, as tasks are shared and reciprocity is increased (Keating et al., 2004). The computer is an unrivalled tool for developing new relationships or strengthening existing ones (Fokkema & Knipscheer, 2007). Nahm, Resnick & Mills (2003) carried out a three month online survey involving computer-mediated social networks. The mean age of the respondents was 67.8 years. 64% ( $n = 511$ ) were females who had used the internet and/or e-mail for an average of 4.23 years. The results suggested the advisability of developing online community social networks as these offered support (Nahm et al., 2003). At the same time it bears mentioning that Nahm and colleagues’ (2003) investigation turned up no significant relationship between computer-mediated social networks and mental wellbeing, whereas face to face social support was positively linked to mental wellbeing (Nahm et al., 2003).

On the other hand, Fokkema and Knipscheer (2007) carried out an experimental study ( $n=15$ ) using Internet with very lonely, older persons, using the 11 item de Jong Gierveld Loneliness Scale. Over a two year period emotional loneliness was alleviated in both the control and experimental groups. While the change in the control group was not significant, in the experimental group it was significant (Fokkema and Knipscheer 2007). In the experimental group at the start of the study the average loneliness score was 8.1 ( $sd = 2.4$ ), but after two years there was a significant reduction ( $p=.05$ ) to 6.7 and this was sustained at three years ( $t=2.8$ ,

$p=.018$ ) (Fokkema & Knipscheer, 2007). No change, however, was noted for those who had recently suffered a negative life event (Fokkema & Knipscheer, 2007). Both of the above studies are weakened by limitations relating either to the duration of the study or to the sample size. Similarly, the question arises as to whether the recorded difference in mental wellbeing was attributable to the computer contact or to the presence of the trainer; finally, one has to ask whether non-lonely older people who derive social satisfaction from other sources really need to access the internet (Dickinson & Gregor, 2006).

The various studies outlined above need to be seen in conjunction with the Technology Acceptance Model (TAM). Consequently, where researchers have difficulty in winning the cooperation of their elderly respondents, their findings may be suspect. This is what happened in the case of a Taiwanese quasi-experimental study which over a three month period examined the utility of videoconferencing as a social support tool. The investigation was to have involved 215 residents in 14 residential facilities (Tsai, H-H. et.al, 2010). However, the researchers had difficulty persuading people to participate: a 71.4% ( $n=154$ ) rejection rate was registered (Tsai, H-H. et al., 2010). The reason most frequently given (40%) by those family members unwilling to participate was the inability to cope with unfamiliar technology for, given their age bracket of 50–60 years, they claimed to be just beginning to familiarize themselves with technology assisted communication. Despite these drawbacks, the study showed, on the basis of a much smaller sample, that depression decreased after three months and that loneliness was alleviated, in some cases from as early as a week after the inception of the study (Tsai, H-H. et al., 2010). It remains unclear, however, whether the outcome had more to do with the auditory or with the visual dimensions of the videoconferencing tool.

Using focus groups composed of older persons ( $n=30$ ), Heinz and colleagues (2013) had a far better take-up rate than the Taiwanese researchers. Their goal was to ascertain the participants' perceptions and present use of technology assisted communication. Despite some reservations, all the participants expressed an eagerness to learn about technology (Heinz et al., 2013). Their principal motivation

for adopting it had, however, less to do with its perceived utility as a passport to social connectedness than with its perceived utility as a means for preserving their independence (Heinz et al., 2013).

In older persons, a device falling under the head of technology assisted communication will not be adopted without first being accepted (van Biljon & Renaud, 2009). Being accepted involves perceptions regarding the device's utility and ease of operation. And perceived ease of operation where the elderly are concerned has to take into account physical limitations such as visual, hearing and dexterity deficits (van Biljon & Renaud, 2009). It therefore serves no purpose to encumber older people with cast-off cellphones or computers that disregard these limitations (van Biljon & Renaud, 2009).

While there are differences of opinion among researchers about how much technologically assisted communication can contribute to the formation of social capital, there appears to be general agreement that it can contribute something; that as a form of bridging capital it fosters links between and among social and support networks, giving older people access to resources they would not otherwise be able to tap and helping them for a while longer to retain their independence, the loss of which is often mourned (Keating et al., 2004).

## **2.8 CONCLUSION**

That there is a link between depression, loneliness and impaired mental wellbeing is clear, and it is also clear that this coalescence of ills will have a damaging effect in the long term on life expectancy (Luanaigh & Lawlor, 2008). Hence, with an eye on the 2030 National Development Plan's target of increased life expectancy (RSA, 2011), it becomes relevant to be proactive in pushing for the implementation of mental health initiatives that will foster older people's mental wellbeing, and to the extent that technologically assisted communication can contribute to this end. This is

provided older people are ready to take it on board. It becomes relevant to give serious consideration to its introduction as a significant tool for building social capital among the elderly (Luanaigh & Lawlor, 2008).



## **CHAPTER 3: AIMS AND OBJECTIVES OF THE STUDY**

### **3.1 AIM OF THE STUDY**

The aim of the study was to describe the individual social capital and mental wellbeing of older persons living in a residential facility in Durban, KwaZulu-Natal, and the readiness of staff and residents for the projected introduction of technologically assisted communication (TAC). The findings of the study are intended to facilitate planning for and implementation of, future interventions using technologically assisted communication for the purpose of improving social contact and mental wellbeing

### **3.2 RESEARCH OBJECTIVES, QUESTIONS AND HYPOTHESES**

The research objectives are threefold; to facilitate coherence and readability. The applicable research questions are presented after each objective. Hypotheses are presented last.

#### **3.2.1 Research objective one**

To describe the level of individual social capital and mental wellbeing in older persons residing in a residential facility.

#### **Research Questions**

- a. What is the extent of mental wellbeing, depression and loneliness in the residents?

- b. What is the structure of the residents' social networks as it relates to frequency of contact, closeness, trust and contact type?
- c. What is the level of the residents' social connectedness as reflected in social participation, in and outside the residential facility? Key markers here include self-efficacy, trust and access to social support.
- d. To what extent is the residents' social capital associated with mental wellbeing?

### **3.2.2 Research objective two**

To evaluate the readiness for technologically assisted communication of older persons residing in a residential facility.

Research questions

- a. What access do residents currently have to technologically assisted communication?
- b. What is the residents' level of interest in technologically assisted communication and their perceptions regarding its usefulness and ease of use (preparedness) towards technologically assisted communication for contact with family and/or friends?
- c. To what extent are demographic variables associated with the technological readiness of the residents?

### **3.2.3 Research objective three**

To evaluate the readiness for technologically assisted communication of direct-care staff working with older persons residing in a residential facility.

## Research questions

- a. What access do staff currently have to technologically assisted communication?
- b. What are the staffs' perceptions regarding technologically assisted communications' usefulness and ease of use (preparedness)?
- c. What is the staffs' level of interest in using technologically assisted communication to assist residents to make contact with family and/or friends?

### 3.2.4 Hypothesis

*Ho:* Level of social capital has no association with level of mental wellbeing for people with possible depression and without (confounding)

*Ho:* There is no association between the demographics, Perceived Ease of Use, Perceived Usefulness of technology and attitudes and willingness to use technologically assisted communication in residents.

## 3.3 OPERATIONAL DEFINITIONS OF TERMS

The following terms have been operationalized for this study (Table 1: Definition of Terms)

**Table 1: Definition of Terms**

Term	Definition
Depression	Major Depressive Disorder is defined as: "the presence of at least five listed symptoms, one of them being either depressed mood or loss of interest or pleasure, during a continuous two week period, with a change in previous functioning" (Sadock & Sadock, 2007, p.527).  <i>Operational definition:</i> Scoring <13 on WHO-5 Wellbeing Index or a Kessler-6 score of ≥12.

Term	Definition
Direct care staff	<i>Operational definition:</i> Staff directly employed by the residential facility or through an agency, who have direct contact with the residents, either in the form of administrative support activities or in healthcare provision activities.
Healthcare provider	<i>Operational definition:</i> Persons employed to provide for the healthcare needs of the residents, inclusive of care givers and persons registered or enrolled with the South African Nursing Council.
Individual social capital	<p>Social capital is defined as: "The networks of social relations that may provide individuals and groups with access to resources and supports" (Franke, 2006, p.7).</p> <p><i>Operational definition:</i> The contribution of individual and group dynamics to the development of social networks (network structure, dynamics and social connectedness) that may assist a person to gain access to resources and social support(measured using Oslo-3 Social Support Scale).</p>
Loneliness	<p>Loneliness is defined as: "the unpleasant experience that occurs when a person's network of social relations is deficient in some important way, either quantitatively or qualitatively" (Perlman &amp; Peplau, 1981, p. 31).</p> <p><i>Operational definition</i> The use of 6-item Loneliness Scale developed by de Jong Gierveld and Tilburg (2006) to score not lonely (score 6); lonely (score 7-11) and intensely lonely (score 12). Loneliness is further measured on two subscales of emotional and social loneliness (<a href="http://home.fsw.vu.nl/tg.van.tilburg/manual_loneliness_scale_1999.htm">http://home.fsw.vu.nl/tg.van.tilburg/manual_loneliness_scale_1999.htm</a>).</p>
Mental wellbeing	<p>Mental wellbeing is defined as: "A positive state of mind and body, feeling safe and able to cope, with a sense of connection with people, communities and the wider environment" (No health without mental health, WHO, 2011).</p> <p><i>Operational definition:</i> The use of the WHO-5 Wellbeing Index where 13 is cut off score and <math>\geq 13</math> is the score for mental wellbeing (WHO, 1998).</p>
Network dynamics	<p>Network dynamics are defined as: " how networks are actually used or mobilised to access and create resources" (Policy Research Initiative [PRI], 2005, p.7)</p> <p><i>Operational definition:</i> Network dynamics are measured by the perceived closeness of the respondents to those in their network structure (ranges from not very close to extremely close), and by the level of trust (likelihood to confide in those in the social network).</p>
Network structure	<p>Network structure is defined as "A structure that refers to size, frequency of interaction, density and openness, power relationships and transience/mobility" (Australian Bureau of Statistics [ABS], 2010, p.7).</p> <p><i>Operational definition:</i> The network structure encompasses the density of the social network (number of persons in the social network), the frequency of contact of the respondent with network members (ranging from less than annually to daily) and the type of contact (direct or non-direct contact).</p>
Older person	An older person is defined as a person older than 60 years (RSA, 2008).
Residential facility	A residential facility is defined as: "A building or other structure used primarily for the purposes of providing accommodation and of providing a 24-hour service to older persons "(RSA, 2006, p.6).

Term	Definition
	<i>Operational definition:</i> The Residential facility will be referred to as such; it will also interchangeably be referred to as 'residence' and 'research site', and the older persons residing therein will be referred to as residents.
Relative	<p>A relative is defined as: "One related by kinship, common origin, or marriage." <a href="http://www.freeonlinedictionary.com">www.freeonlinedictionary</a></p> <p><i>Operational definition:</i> A person directly related to the respondent through marriage or blood. 'Relative' and 'family' are used interchangeably.</p>
Self-efficacy	<p>Self-efficacy is defined as: "Personal judgments of how well behavior can be implemented in situations that contain novel, unpredictable or stressful elements as well as ordinary situations" (Bisschop, Kriegsman, Beekman, &amp; Deeg, 2004, p.725)</p> <p><i>Operational definition:</i> The person believes that s/he can be relied on to respond efficaciously to challenges, whether of a personal or inter-personal nature, or in some way connected with the residential facility.</p>
Social connectedness	<p>Social connectedness is defined as: "Relationships people have with others and the benefits these relationships can bring to the individual as well as to society" (New Zealand social connectedness, p.1).</p> <p><i>Operational definition:</i> The quality (measured in terms of closeness and trust) of social attachments as these relate to access to social, religious and emotional support as well as health care services.</p>
Social network	<p>A social network is defined as: "A network characterised by its structural properties such as the network size, density, strength of ties, homogeneity (Scott 1991 as cited in Goswami et al., 2010, p.3), and [by] its functional characteristics such as social connectedness, social support, social influence and social comparison (Berkman &amp; Glass, 2000 as cited in Goswami et al., 2010, p.3).</p> <p><i>Operational definition</i> Social networks are made up of the respondents' network structure and its dynamics.</p>
Social support	<p>Social support is defined as: "Social relationships that provide (or can potentially provide) material and interpersonal resources that are of value to the recipient, such as counseling, access to information and services, sharing of tasks and responsibilities, and skill acquisition" (Thompson, 1995, p.43, as cited in Thompson, Flood, &amp; Goodvin, 2006, p.2).</p> <p><i>Operational definition:</i> Social support is measured by the number of persons available to a person in times of need, the quality and appropriateness of the support offered, and the perceived ease of obtaining practical help as measured by the Oslo-3 Social Support scale.</p>
Technologically assisted communication	<p>The literature distinguishes between technologically assisted communication and computer-mediated communication. The latter includes, for example, voice chat and social networking sites such as facebook®, which allow for the exchange not only of text but also audio, visual, and/or graphical information (Xie, 2008, p.730).</p> <p><i>Operational definition:</i> Any form of communication that is technologically assisted – for example, by devices such as the cellphone or the computer.</p>

Term	Definition
Trust	<p>Trust is defined as: "Confidence in the reliability of a person or a system. It is based on the expectation that people or organizations will act in ways that are expected or promised, and will take into account the interest of others" (Australian Bureau of Statistics, 2004, p.6).</p> <p><i>Operational definition:</i> The level of confidence people exhibit interpersonally, and also in relation to institutions of healthcare and those who provide for security in their environment.</p>

## 3.4 CONCEPTUAL FRAMEWORK

### 3.4.1 Introduction

Two models have been combined to create the conceptual framework used in this study. They are the Policy Research Initiative (PRI) framework for the analysis of social capital (Franke, 2006) and the Technology Acceptance Model (Davis, 1989). They are discussed individually to begin with, followed by a consideration of how, in their combined form, they are applied in this study.

### 3.4.2 Policy Research Initiative (PRI) framework

In 2003, the Policy Research Initiative in Canada developed the PRI framework to describe how the network approach can be used by both the government and the public sectors to understand, and enhance social capital, with particular regard to the promotion of health (Franke, 2006). The PRI framework was refined by Franke in 2006 in her discussion of the nature of social capital and its importance in health research and policy. As refined in 2006, social capital is inscribed within a broader political, legal and socio-economic framework that influences it (Franke, 2006). Further, the framework posits a structure that clarifies the sources of social capital (individual and group determinants) as well as the positioning of social networks relative to the ability to access resources. The framework, illustrated in figure 1 (Canadian PRI framework for the analysis of social capital) below, has five

components which together contribute to improved mental health and social outcomes.

These five components are briefly described. The first, “individual and group determinants” (Franke, 2006, p.6), refers, at the individual level, to such factors as gender, age, trust or physical health and, at the group level, to factors such as cultural presuppositions and belief systems that play a role in determining social connectedness (Franke, 2006). The component termed “social networks” refers to social bonds that are seen as an investment and provide a means to access the third component, “resources and support” (Franke, 2006, p.8). These might be tangible resources such as economic support, or non-tangible ones such as companionship or encouragement (Franke, 2006). The size and density (among other factors) of the network structure, and its dynamics, including trust, have a bearing on the network’s relevance (Franke, 2006). The fourth component, “specific context”, which can be social, political or cultural context, relates to the effect on social and health behaviours (Franke, 2006, p.9). The fifth and last component, “complementary resources” (Franke, 2006, p.7), refers to resources, such as finance, located outside the social network, but which contribute importantly to social and health outcomes.

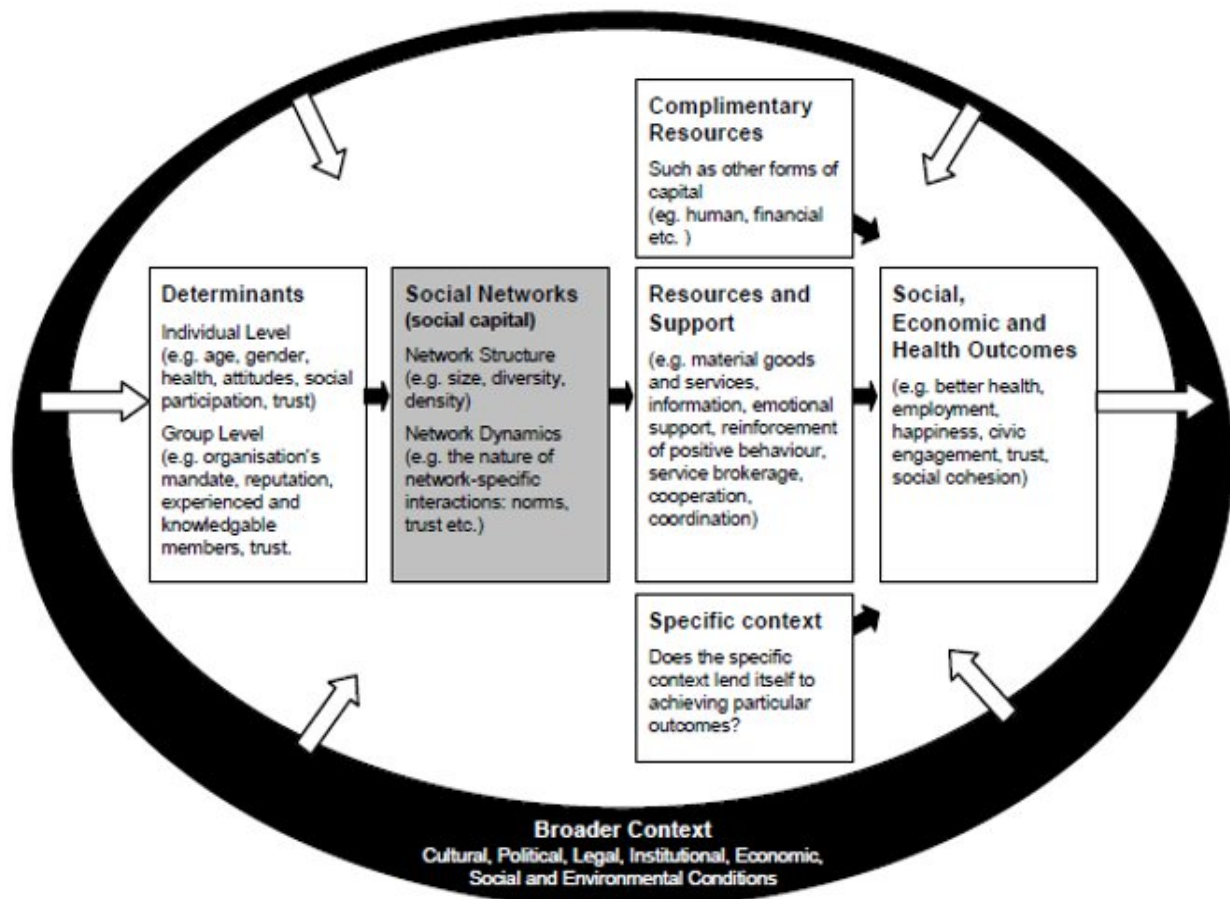


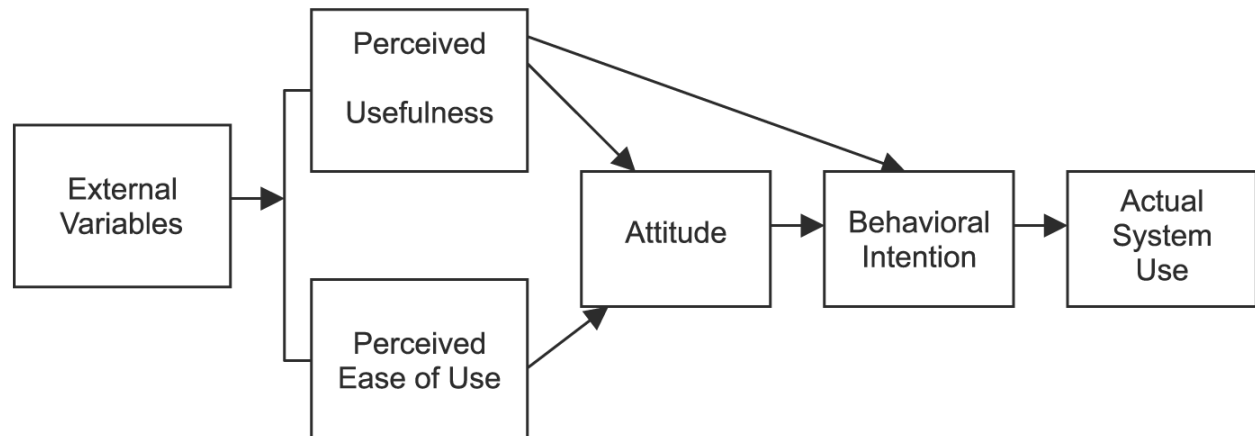
Figure 1: PRI framework for the analysis of social capital

### 3.4.3 Technology Acceptance Model (TAM)

The Technology Acceptance Model is a model which can be used to assess how ready people are to use technology (Figure 2, Technology Acceptance Model). Davis (1989) conceptualized and tested the original Technology Acceptance Model which was based on the theory of reasoned action evolving successively through the stages of subjective perception, attitude, behavioural intention, and actual use. The Technology Acceptance Model hypothesizes that the primary determinant of a subject's willingness to take technology 'on board' is his/her perception of how useful and how easy to use the device in question is likely to be (Davis, 1989). Perception shapes attitude which in turn will shape the subject's behavioural intention vis-à-vis the use of technology in the future and, ultimately, the actual extent of future technology use (Davis, 1989; Lu, Yu, Liu, Yao, 2003). Perceived usefulness and



perceived ease of use are, for their part, influenced by external variables, cultural and demographic variables being two important ones.



**Figure 2: Technology Acceptance Model (Lu et al., 2003, p.207)**

#### **3.4.4 Application of models within this study**

For the purposes of this study the PRI framework (Franke, 2006) will be used as the basis of the enquiry with the original Technology Acceptance Model (Davis, 1989) inserted to expand the complementary resources component. The architecture of the combined model is illustrated in Figure 3 (Framework for the study) which shows the variables of interest for this study. As it focuses on mental wellbeing, physical health aspects, it will be noticed, are absent from the model.

The combined model serves to focus the enquiry on the older person's social network, that is, their individual social capital viewed in relation to the network structure and network dynamics. The strengths - or weaknesses - of the social networks will in turn influence what kinds of resources and forms of support require to be accessed, and this will be influenced by the context of the residential facility. Similarly, individual and group determinants such as demographics, self-efficacy, trust, and social participation will determine aspects of the social networks such as size and density. For the purposes of this study the concept of complementary

resources is understood to refer to the technological readiness of the residents as well as of the staff who have direct contact with them.

The Technology Acceptance Model is used to assess the external variables impinging on the two groups and to evaluate their respective perceptions regarding the usefulness and ease of operation of the devices falling under the head of technologically assisted communication. The model also allows for the two groups' attitudes towards this form of communication to be canvassed; likewise, their intention to use it - meaning, in the case of the direct-care staff, their willingness to help residents use it (Davis, 1989). The external variables include the demographics of the residents (age, gender, race, home language, marital status and education), which in older persons can be a factor of considerable importance, influencing other elements of the model (Renaud & v. Biljon, 2008) with a possible bearing on the question of access to the devices. The broader context influencing all of these considerations relates to the individual socio-economic circumstances, beyond the walls of the residential facility, of each of its residents.

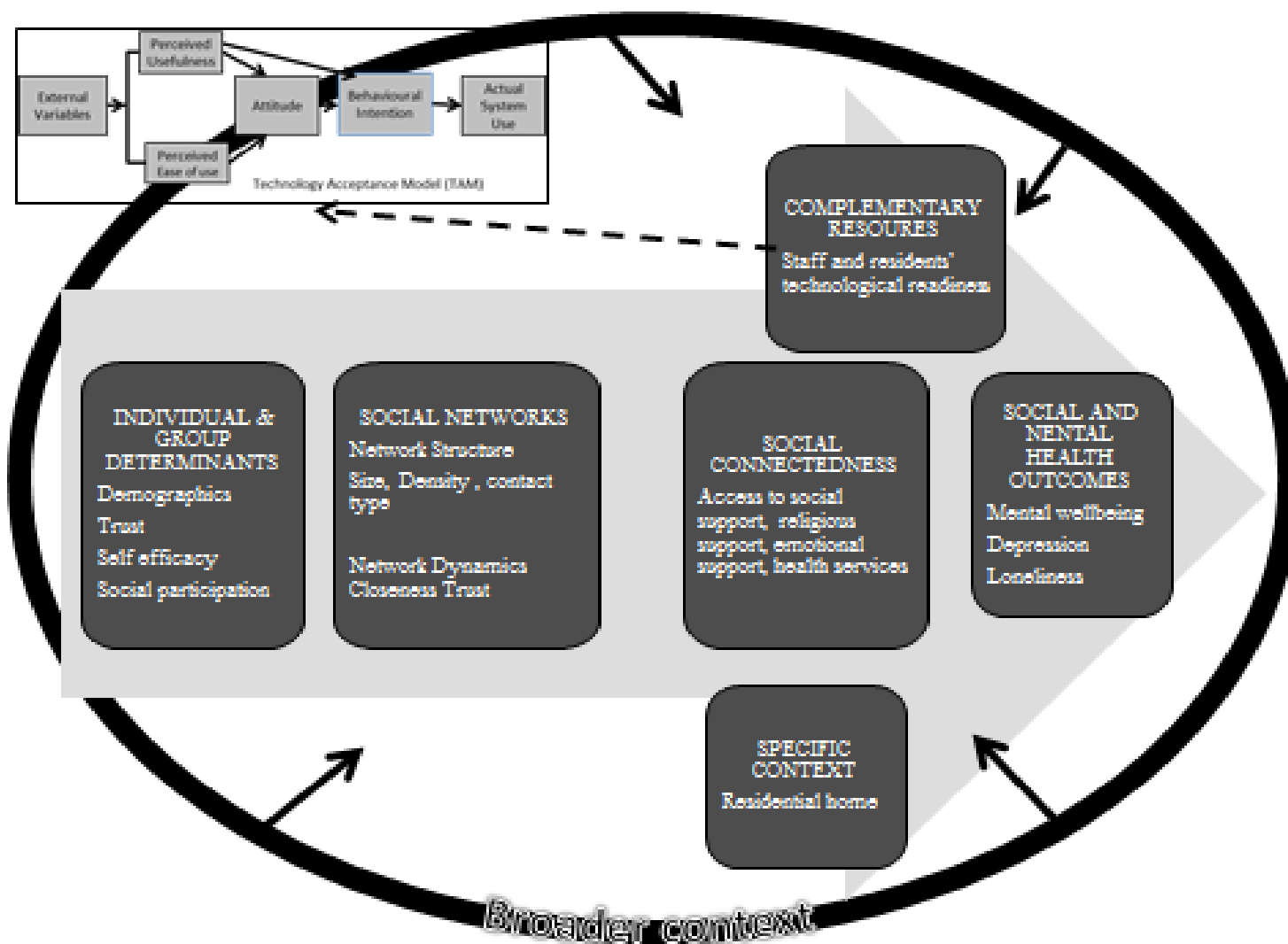


Figure 3: Framework for the study

### **3.5 SUMMARY OF THE CHAPTER**

This chapter has served to set the stage for the remainder of the enquiry, with the research objectives and their related research questions, the hypotheses and the operational definitions having now been spelled out, and the framework that will be used to structure the enquiry having been outlined. It is thus possible to proceed to the next phase of the investigation, probing the link between social capital and mental well-being of the residents. In addition, the stage is set for an evaluation of how ready the residents in the residential facility in question are for the possible introduction of technologically assisted communication. The same evaluation has to be conducted with respect to the residential staff involved with direct care to the residents (healthcare providers and support).

## **CHAPTER 4:      METHODOLOGY**

### **4.1 INTRODUCTION**

This chapter describes the survey methodology. The research design, the pilot study, sampling technique, research instruments, data collection techniques and cleaning of the data will be described (Terre Blanche, Durrheim, & Painter, 2006).

### **4.2 PARADIGM AND RESEARCH DESIGN**

A positivist paradigm with its assumption of determinism underpinned this study. The ontology is that phenomena are believed not to be arbitrary, but to have antecedent causes which can be measured (Polit & Beck, 2010). This paradigm has allowed for methodology to generate data to provide an empirical understanding of technological readiness, social capital, inclusive of social support, its manifestations, namely the effects on mental wellbeing, loneliness and depression. The epistemology is that of the researcher being objective (Polit & Beck, 2010), which was attained through the use of two structured questionnaires. The methodology followed a deductive process whereby the researcher formulated hypotheses, followed by a structured, controlled approach that involved the collection of empirical data to prove or refute the hypotheses (Polit & Beck, 2010).

The research design was a non-experimental quantitative two-part descriptive survey using self-administered questionnaires for residents and staff in a residential facility for older persons in Durban, KwaZulu-Natal, South Africa (Polit & Beck, 2010). The variables of interest in the residents were the demographic variables (referred in the framework to as individual and group determinants) and the variables of social capital (social networks, social connectedness and social support), plus the variables linked to mental health outcomes (loneliness, psychological distress and mental

wellbeing). In addition, two short additional surveys were conducted to determine the technological readiness of both the residents and the staff involved in direct care.

### **4.3 RESEARCH SETTING**

The study was conducted at one of the residential facilities administered by a non-profit organization (NPO) for the older persons in Durban, South Africa. The organization was established in 1958 and offers essential services to older persons in this geographical area. Its goal is to help older persons remain independent for as long as possible, with such services as meals on wheels ([www.tafta.org.za/index.asp](http://www.tafta.org.za/index.asp)). It has accommodation facilities for residents aged 60 years and above. Accommodation ranges from frail care to independent living in flats for which residents can purchase life rights ([www.tafta.org.za/index.asp](http://www.tafta.org.za/index.asp)). It caters for all racial groups (multi-racial from 1994) and for older persons from all socio-economic classes - from those whose only income is a state pension to those who have private pensions or investment funds ([www.tafta.org.za/index.asp](http://www.tafta.org.za/index.asp)). It is thus suggested to represent a cross-section of the local older person population.

The residential facility used in this study was purposively selected by management from their 15 homes, based on their consideration to implement technologically assisted communication, as well as having a computer with ADSL connectivity in a designated room.

At the time of the survey the following features were offered by the facility. Accommodation in this setting for the 103 residents (needing assistance and independent living) included single or shared accommodation with access to three cooked meals per day. The facility is fenced with electric gates and cameras of the gates that are monitored day and night. There is a security guard at the gate during the day. Common facilities include a garden or a lounge to entertain visitors. It is on the bus route and within convenient access to numerous places of worship, entertainment, recreation (including parks and the beach), shopping centers and medical/health facilities. Within the facility various activities such as board games,

bible study, and gardening are organized. The facility also provides opportunities for residents to access outside activities and facilities. The surrounding community is involved in cultural, sporting or voluntary activities that could be accessed by the residents.

The facility has been allocated a district surgeon by the Department of Health, who visits once a month. He attends to those with no medical insurance, as those with medical insurance are attended to by a private medical doctor who visits the facility once a week, charging them consultation rates as opposed to call-out rates. The organization has allocated from its social agency department a social worker who visits the facility once a week. When prospective residents apply for residency the social worker visits the older person in his/her home, carrying out an assessment and remains assigned to that person for up to six months post admission. Social workers can be accessed from the central office at any time through the facility manager or the nurse manager. Further issues of concern are discussed at the weekly care team meeting (Personal communication facility Nursing Services Manager, Oct 2013).

#### **4.4 POPULATION AND TARGET POPULATION**

There were two population groups that were of relevance in this study. The first group were residents of the residential facility (Table 2: Demographic variables of residents as at 25 September 2013 [ $N=103$ ]); the second were the staff (healthcare providers and administrative support) who had direct contact with the older persons in the residential facility (Table 3: Residential facility's staffing structures [ $N=67$ ]).

##### **4.4.1 Resident Population**

At the time of the survey there were 103 residents residing in the facility (Table 2: Demographic variables of residents as at 25 September 2013 [ $N=103$ ]). The

population (range 61 to 94 years) was predominantly comprised of older old persons, with a mean age of 78.1 years with the mean age for males (29) as 76.5 years, while 78.8 years for the females (74). Consequently and in keeping with current literature there was a re-categorization of the residents into the younger old, 60 – 75 years (43, 41.7%) and the older old, 75 -100 years, (60, 58.3%) (Luppa et al., 2012). South Africa's current life expectancy of 60 years is exceeded in the facility (RSA, 2011) and in light of the expectations; this age distribution is predicted to undergo further change (Lombard & Kruger, 2009; Wang et al., 2013).

**Table 2: Demographic variables of residents as at 25 September 2013 (N=103)**

<b>Demographics</b>	<b>N (%)</b>
Age	
Young old (60 – 75 years)	40, 38.8%
Older Old (75 – 100 years)	63, 61.2%
Gender	
Females	74, 71.8%
Males	29, 28.1%
Ethnic group	
White	80, 77.7%
Indian	20, 19.4%
Coloured	2, 1.9%
Black	1, 0.9%
Group frailty	
Group1	77, 74.7%
Group 2	26, 25.3%
Language	
English	92, 89.3%
Afrikaans	8, 7.8%
French	2, 1.9%
Zulu	1, 0.9%
Marital Status	
Never married	10, 9.7%
Married	4, 3.9%
Widowed	63, 61.2%
Divorced	26, 25.2%

The majority (74; 71%) of the residents were females, with the majority of this group (44; 59.4%) being the older old. There were a total of 29 males with the majority of males (16; 55%) in the category of 60-75 years. Widowhood was seen in the majority of the females (47, 63.5%) with the majority of the widows (43, 71.7%) being over 75 years. The widowed females represented almost half of the residential facility's population (45.6%).



The White population group was dominant in numbers (80, 77.7 %), which was not reflective of the general South African population where this population group form a minority group (Census, 2011). However the residential facility has seen a change in the residency by different population groups, as when the researcher obtained the first establishment list three months prior to data collection there were no residents from the “black” population group; however and at the time of the data collection there was one black resident. There were two Coloured persons. In relation to the 20 Indians (19.4%), seven were males, five of whom were older old males, being divorced, single or widowed, whereas the 12 female Indians were solely widowed or single. Eight of the 19 (42.1%) Indians were older old females. The primary home language spoken by the residents was English (92; 89.3%), followed by Afrikaans (8; 7.7%).

The Dependency Questionnaire (DQ 98: Assessment for admission to homes for frail persons/support needs for older persons), is a nationally used assessment tool, designed by the South African Department of Social Development to assess for the level of dependency (Parliamentary Monitoring Group, 1998). It allows for the categorisation of the older persons into three groups. Group one (1) persons are capable of living independently while Group two (2) persons require some assistance, but are not totally dependent on nursing care as are Group three (3) persons. In this setting the majority of the males (23; 79.3%) were classified as Group 1. The majority (20; 76.9%) of Group 2 classification of frailty was comprised of females.

#### **4.4.2 Staff Population**

The residential facility’s staffing structure included those who provided direct and indirect care to the residents. Direct care involved administrative support, provided by two persons, and healthcare provision. Healthcare was provided by an occupational therapist assistant, various categories of nurses enrolled or registered with the South African Nursing Council, and care givers (Table 3: Residential facility’s staffing structures [N=67]). From this point when referring to this group of

persons, specifically it will be as “healthcare providers”. The healthcare providers worked day or night duty. One registered nurse post was vacant and hence not included in the staff totals. Indirect care involved catering, cleaning, gardening, maintenance and security. A full breakdown can be seen in Table 3: Residential facility’s staffing structures ( $N=67$ ).

The staffing population at the time of the survey consisted of a total of 67 staff, of which 47 were eligible to participate in the technological readiness survey (Table 3: Residential facility’s staffing structures ( $N=67$ )).

**Table 3: Residential facility’s staffing structures ( $N=67$ )**

<b>Demographics</b>	<b>Employed by residential facility (<math>n=5</math>)</b>	<b>Contracted by residential facility (<math>n=62</math>)</b>	<b>Percentage of total staff</b>
Registered Nurses	1(day duty) vacant post	2 (2 day)	2.9%
Enrolled Nurses	0	4 (2 day + 2 night)	5.9%
Enrolled Nursing Assistants	0	4 (2 day + 2 night)	5.9%
Care givers	0	34 (22 day + 12 night)	50.7%
Administrative staff (support)	2 (day duty)	0	2.9%
Occupational therapist assistant	1 (day duty)	0	1.4%
Other (catering + cleaners, gardener, maintenance, security)	2 (day duty - catering )	18 (day duty) (8 caterers 5 cleaners 1 gardener 3 maintenance 1 security)	29.8%
<b>TOTAL STAFF = 67 (68 – 1 vacant post).</b>	<b>5 (3 eligible)</b>	<b>62 (44 eligible)</b>	<b>70.1% eligible</b>

#### **4.5 SAMPLE AND SAMPLING PROCEDURE**

The study consisted of two populations in the residential facility, namely the residents ( $N=103$ ) and the staff ( $N=67$ ). Consequently there were two samples, namely the residents who met their specific inclusion criteria and the staff who met the specific staff inclusion criteria.

#### **4.5.1 Sample one: Residents (older persons)**

The total number of residents within this organisation in residential complexes across Durban was 1450 (Staff establishment list, 25 June 2013). A two-step purposive sampling was used.

*Step 1*, which involved the selection of the residential facility, was achieved by the residence's management. Selection of the research setting was based on the large number of residents, specifically residents who had less independent living and were suggested to be subject to greater levels of social isolation. Further this facility had a computer in a designated room with ADSL connectivity.

*Step 2* included the older persons residing in the residential facility. There was no sampling and the total residents ( $N=103$ ) who met the inclusion criteria were invited to participate.

##### *Inclusion criteria:*

- Resident in the residential facility
- 60 years or older
- Cognitively intact (as assessed by the care team, comprised of social worker, occupational therapist and nursing services manager of the residential setting)
- Agreement to participate
- Available during the data collection period.

Table 2: provides information related to the residents who were eligible to participate in the study.

#### **4.5.2 Sample two: Residence Staff**

All of the direct care staff population for the facility (minus the two who participated in the pilot study ( $N=45$ ), being either permanent employees or contract agency staff were invited to participate.

*Inclusion criteria:*

- Direct contact with residents
- Agreement to participate
- On day or night duty during the data collection period.

### **4.6 RESEARCH INSTRUMENTS**

Two self-report questionnaires were developed; one for the participating residents (Appendix 1: Resident questionnaire) and a second questionnaire for the direct care staff (Appendix 2: Staff questionnaire). Neither of these questionnaires needed translation as all the staff and residents were proficient in English.

The resident's questionnaire, which was comprised of eight (8) sections, provided the structure to obtain information from the older persons about the independent demographic variables and the variables of social capital (social networks, social connectedness and social support) and the outcome variables for health outcomes (loneliness, psychological distress and mental wellbeing). It also included a section on the readiness of the residents to use technologically assisted communication. It is relevant to highlight that the respondents were not screened for caseness of depression, but the information about respondents possibly presenting with features of depression was used to control for confounders by using a validated depression tool the Kessler 6. Depression is recognized as a potential social and mental health care outcome as reflected in the framework used in the study.

The staff questionnaire was comprised of demographics and questions to obtain information about the staffs' technological readiness to use technologically assisted

communication. This information allows for a future examination of the opportunity for mental health promotion of residents in the selected residential facility as well as other residences. Each questionnaire is described with regards to its validity and reliability, while the psychometric properties of the mental wellbeing and social connectedness scales are presented (Table 4: Psychometric properties of mental wellbeing and social connectedness scales).

#### **4.6.1 Scales used in residents' questionnaire**

There were four well validated scales to test for social support, loneliness, psychosocial distress (depression screen) and mental well-being. The self-administered brief scales are briefly discussed below and as per Table 4 (Psychometric properties of mental wellbeing and social connectedness scales) which presents in detail their psychometric properties.

The Oslo-3 Social Support Scale is a three item scale that can be used in totality or in part to measure social support (Boen, 2012). The total score can be grouped into three categories that range from poor to strong (Boen, 2012). It is a scale recognized in the EUROHIS in an attempt to standardize the measurement of health (Nosikov & Gudex, (Eds), 2003).

In 1985, de Jong Gierveld and Kamphuis designed the original 11-item Loneliness Scale that was modified by de Jong Gierveld and Tilburg (2006). They designed the 6-item Loneliness Scale with an overall loneliness score and a test for current emotional and social loneliness in two subscales (de Jong Gierveld & Tilburg, 2006). The scores range from “not lonely to intensely lonely” (de Jong Gierveld & Tilburg, 2006). De Jong Gierveld and Tilburg have carried out numerous studies involving older persons. The Inanda Nkoma Kwamashu (INK) study which was carried out in Durban South Africa adapted this scale for their study.

The Kessler-6, six item scale is a subset of the Kessler-10, designed by Kessler and colleagues and measures for non-specific current (last 28 days) psychological

distress and possible depression at a cut off score of less than ten after a summation of the scores (Andersen, Grimsrud, Myer, Williams, Stein, & Seedat, 2011; Kessler et al., 2010). The Kessler-6 (K-6) has been used in various epidemiological studies such as in Canada, Australia and South Africa (South African Stress and Health Survey) and is said to have good power to discriminate for psychiatric disorders (Anderesen et al., 2011). However despite its recognized psychometric properties, following the South African Stress and Health Survey ( $n=4351$ ), there was critique that the Kessler-6 is not an effective tool for use in South Africa, due to its low ability to discriminate in the Black population (.71) (Anderesen et al., 2011). Despite the Black population group being the largest in South Africa this critique was not considered relevant in this study, given the low representation of Black residents in the residential facility.

Finally the WHO (five) Wellbeing Index (WHO-5) is a five item scale which assess for emotional wellbeing over 14 days, with a cut off score of less than 13. It encompasses the three primary items of depression, namely mood, energy and interests, as positive constructs. In a Danish study the WHO-5 was compared ( $n=9542$ ) against the psychometrics of the Short Form-36 (SF-36) questionnaire which has a mental health subscale (Bech, et al., 2003). The unidimensionality of the WHO-5 was recognised, as well as that positive well-being is more easily measured (Bech et al., 2003). Further to these points that encouraged the inclusion of the WHO-5 in this study was the short time required for its completion and that the scale has been tested for internal and external validity on older persons (Bech et al., 2003; Bonsignore et al., 2001).

Social capital was measured in part using questions used in the Australian Bureau of Statistics Indigenous Questionnaire (with permission)(See Appendix 4:Permission to use questions in questionnaire used in the Australian Bureau Statistics Survey). The indigenous questionnaire was used in a study examining for Australian social capital ( $n=7823$ ) (Biddle, 2012) and adapted for the residential context. The questions related to four facets of a group or individual's network, namely: "quality, structure, transaction and type" (Biddle, 2012, p.298) and reflect the constructs in the Canadian Policy Research Initiative model used as a framework for this study.

In addition the questionnaire includes a component with the constructs found in the Technology Acceptance Model (Davis, 1989), which served as a guide for the technology readiness questions.

**Table 4: Psychometric properties of mental wellbeing and social connectedness scales**

<b>Tool</b>	<b>Description</b>	<b>Validity</b>	<b>Reliability</b>	<b>Use in SA setting</b>
WHO (five) Well - Being Index (www.who-5.org)	<ul style="list-style-type: none"> <li>Assessment emotional wellbeing over 14 days</li> <li>five items using a 6 point likert scale (range from 0-5)</li> <li>measuring: <ul style="list-style-type: none"> <li>positive constructs of positive mood, vitality and interest in things</li> <li>Screen for depression</li> </ul> </li> <li>self-administered</li> <li>Cut off Score &lt;13 = poor wellbeing, an indication for testing for depression</li> <li>Administration: brief – 2 minutes to complete (Mc Dowell, 2009, p.76; www.who-5.org)</li> </ul>	<p><b>Concurrent validity:</b>  CESD: .4 - .67  HAD: .76  PHQ: .73 (Mc Dowell, 2009, p.76)</p> <p><b>Criterion validity:</b>  • DIA-X Depression (<math>S_e</math> .83 &amp; <math>S_p</math> .7)  • CIDI-depression (<math>S_e</math>: .93 &amp; <math>S_p</math> .64%)  • DSM-IV Major Depressive Disorder (<math>S_e</math>: .86 - .95 &amp; <math>S_p</math>: .73 - .83 (Mc Dowell, 2009, p.76)</p>	IC = .82 - .95	No evidence of South African or African studies.
6-item Loneliness Scale (De Jong Gierveld & van Tilburg, 2006)	<ul style="list-style-type: none"> <li>Assess current loneliness</li> <li>6 items scored Yes (1) or No (0) (de Jong Gierveld &amp; van Tilburg, 2011)</li> <li>Scale range:  0 – 6 =not lonely  7-11= lonely  12= intensely lonely</li> <li>Can be used in interview format or face-to-face. (de Jong Gierveld &amp; van Tilburg, 2011)</li> </ul>	<p><b>Concurrent validity</b>  UCLA-loneliness scale showed strong correlation (de Jong Gierveld &amp; van Tilburg, 2011)</p>	IC=.7 - .76 (de Jong Gierveld & van Tilburg, 2006, p.590)	The INK survey of older peoples health in Durban used the 6 item short scale version (Personal Communication)
Kessler 6 (Andersen et al., 2011, p. 222)	<ul style="list-style-type: none"> <li>Assess psychological stress over 4 previous weeks</li> <li>6 items using 5 point likert scale</li> <li>Measures <ul style="list-style-type: none"> <li>Psychological distress</li> <li>Depression</li> </ul> </li> <li>Classify risk from low to very high.</li> <li>Cut off score of &lt; 10 = possible depression (Andersen et al., 2011, p.</li> </ul>	<p><b>Concurrent validity</b>  • GHQ:  .78 Japan,  .87 Brazil,  .92– .97in other countries (Kessler et al., 2010, p.7) (Andersen et al., 2011, p.216)</p> <p><b>Criterion validity</b>  • K10 depression and anxiety</p>	IC = .48 for 12-month disorder K10; .84 for any 12 month disorder for K10 (SASH). (Andersen et al., 2011, p. 221)	South African Stress and Health Study (SASH) (Andersen et al., 2011)



Tool	Description	Validity	Reliability	Use in SA setting
	222) (Kessler et al., 2010, p.7)	Dutch : .85; Moroccan: .88; Turkish: .80 • Common mental disorders in GP practice: Australia: .88; • North America: .85 • South Africa; Depression : .77 (S <sub>e</sub> :70%; S <sub>p</sub> :62%); GAD: .78; PTSD .77 (Andersen et al, 2011, p.216).		
Oslo-3 Social Support scale (Nosikov & Gudex, (Eds), 2003, p.50)	<ul style="list-style-type: none"> <li>Measures Social Support</li> <li>Brief 3 question scale rates using Measures for social support: quantity, of support, concern shown by others ability to access practical help</li> <li>Cut off:                3-8 = poor support                9-11 = moderate support;                12-14 = strong support                (Boen, 2012, p.263)             </li> </ul>	<b>Concurrent validity</b> <ul style="list-style-type: none"> <li>Item-by-item with HSCL-10 shows dealing with different constructs:                number of friends to count on, -.264                concern from others, -.271                practical help, -.182                (Boen, 2012, p.263)             </li> </ul>	Reliability not reported	No evidence in South African studies but used in studies with older persons (Dalgard et al., 2006).

Key: CESD =Center for Epidemiologic Studies Depression scale, CIDI = Composite International Diagnostic Interview ; GAD = generalized anxiety disorder; GHQ = General Health Questionnaire ; GP = general practitioner; HAD: Hospital Anxiety and Depression scale ; HCL-10 = Hopkins Symptom Checklist-10 (IC = Internal Consistency ; K6= Kessler 6; K10= Kessler-10; PHQ = Patient Health Questionnaire; PTSD = post-traumatic stress disorder; SASH = South African Stress and Health Study; SCID = Structured Clinical Interview for DSM IV; S<sub>e</sub> = Sensitivity; S<sub>p</sub> = Specificity; UCLA = University California Los Angeles

#### **4.6.2 Validity and reliability of the questionnaires**

*Reliability:* Reliability consists of three concepts, inter-rater reliability, test-retest reliability and internal consistency (IC). No test-retest reliability for the entire questionnaire was done as it was not feasible to do in the time period.

*Inter-rater reliability* was maintained by classroom training of the research assistants in the survey concepts and procedures to ensure standardization of the approach. The researcher conducted all of the orientation sessions. All the scales in the resident questionnaires have well established reliability (Table 4: Psychometric properties of mental wellbeing and social connectedness scales).

The questionnaire and the scales were subjected to reliability analysis using Chronbach's alpha for internal consistency of these tools in the South African population. The result of the Chronbach's alpha was .827, .862, .574, .545 and .644 for the WHO-5, the K-6, the overall Loneliness scale and the Emotional and Social Loneliness subscales respectively, which showed relative to good internal consistency.

A pilot study was conducted prior to the start of the survey. The purpose was to test the feasibility and the functioning of the questionnaire. The pilot study was conducted in the targeted residential facility as the questionnaire was comprised of four (4) well validated tools and significant changes were not expected. A meeting was held prior to the start of the study with key staff members from the residence – the Divisional Manager of the residences, the Senior Nursing Services Manager, the occupational therapist and the manager of the targeted residential facility. These persons agreed to approach residents they had selected to participate in the pilot study. The choice of residents was based on their subjective assessment of residents' possible ability to complete the questionnaire, with emphasis on their possible ease of completion, ranging from 'easily' to 'with difficulty'. The staff members chosen were a healthcare provider team leader on duty on the day of data collection, and the occupational

therapist assistant who had a working relationship with the residents and was to be a research assistant.

The survey respondents were exposed to the same process as the pilot study respondents, being an orientation session, time to ask questions and an opportunity to consent to participation, followed by participation. The researcher met concurrently with the staff and resident respondents selected for the pilot study. Despite consideration having been given to possible differing abilities in ease of completion of the questionnaire, no apparent difference was evident. All three respondents required the researcher to be available to answer questions, finishing at different times which was due to the amount of reminiscing that the questions triggered and the depth of conversation that followed. The amount of reminiscing appeared greater in the females as opposed to the male. The questionnaires were completed in 40 minutes, which was within the anticipated time of 30 – 45 minutes. The staff completed their questionnaires in 15 minutes which was less time than the anticipated 20 minutes. As changes were made to the questionnaire, despite not many, these persons were excluded from the total number of respondents.

The changes to the staff and residents' questionnaires were few. The changes made to the staff and the residents' questionnaires were based on their ability to understand the questions. These are laid out in Appendix 3 (Changes to questionnaires following pilot study). Both groups were unsure of the type of cellphone they owned, hence given that the primary aim of this question was to identify their readiness to access the internet through a smart phone the question was simplified to: *"Does your cellphone allow internet access?"* This allowed for the gathering of the required data. In both questionnaires there was difficulty by both groups of respondents to understand the requirements of rank ordering the technologically assisted communication. This was simplified into two choices, namely that of *"most appeal"* and that of *"least appeal"*. Both groups felt that similar responses were required from the questions, *"How easy is it for you to use each of the communication devices listed below?"* and *"How competent do you feel using each of the communication devices listed below?"* Consequently "ease of use" was kept and competence deleted. There were two minor changes that pertained to the

residents' questionnaire alone. These were firstly, due to the ages of the residents. The term "*great grandchildren*" was added alongside grandchildren when enquiring about the social networks and about social connectedness. Secondly, questions 3.1.b: "*Have you been involved in cultural groups outside the residence in the last three months?*" and 3.1.c: "*Have you been involved in social or community activities outside the residence in the last three months?*" were merged into one question: "*Have you been involved in cultural, social or community groups outside the residence in the last 3 months?*". This was due to pilot study respondents' difficulty in differentiating between social, community and cultural activities. Thirdly, discussion ensued in relation to the logistics of landline use and it was decided to omit this as an option in questions relating to technological readiness, as logistics was not being tested but it was kept to identify information about respondents' access to communication.

*Validity:* Face validity was achieved to the extent of agreement of the research supervisor with items included in the questionnaire, as well as through review by experts. Firstly there was review by research specialists and mental health nurse specialists upon verbal presentation of the proposal to the University of KwaZulu-Natal, School of Nursing. Initially the researcher planned to acquire further approval of the questionnaire by a psychiatrist with expertise in gerontology, however at the time of requiring this approval the psychiatrist was not available and a nurse expert was approached, who reviewed the questionnaire (See Appendix 5: Face validity). The feedback from these experts was used to make changes to the residents' questionnaire. The nurse specialist was concerned about the older persons' decreased ability to understand the technological language. This was addressed through demonstrations in the orientation sessions (Polit & Beck, 2006).

*Content validity:* Content validity was achieved for both questionnaires in terms of the conceptual framework, the objectives and the literature (Table 5: Content validity of the residents' questionnaire and Table 6: Content validity of the staff questionnaire).

**Table 5: Content validity of the residents' questionnaire**

Research Objective	Framework for the study	Research Question number	Resident's questionnaire number	Research studies
1. To describe the level of individual social capital and mental wellbeing in older persons residing in a residential facility.	Social and mental health outcomes	1.6.1.1 1.6.1.2 1.6.1.3 1.6.1.4	1;4;5;6	Cornwell & Waite, 2009; de Jong Gierveld, 1998; de Jong Gierveld et al., 2006; Golden et al., 2009; Luanaigh & Lawlor, 2008
	Social networks: network structure	1.6.1.2 1.6.1.3	2;3	Cornwell et al., 2008; PRI, 2005; Keating et al., 2004; van Groenou et al., 2012; Wright, 2000
	Social connectedness	1.6.1.3	3	Cornwell et al., 2008; Cornwell & Waite, 2009; Drageset, 2004; PRI, 2005; Wright, 2000.
	Individual and group determinants	1.6.1.1 1.6.1.3 1.6.1.4	1;3;4; 5; 6	de Jong Gierveld, 1998; Drageset et al., 2011; Golden et al., 2009; Keating et al., 2004; Luanaigh & Lawlor, 2008
2.To evaluate the technological readiness in terms of technologically assisted communication in older persons residing in a residential facility	External variables	1.6.2.1 1.6.2.3	1; 7.1	Chung et al., 2010; Davis, 1989; Nahm et al., 2003; van Biljon & Renaud, 2009
	Perceived ease of use	1.6.2.2 1.6.2.3	1; 7.2.1	Chung et al., 2010; Davis, 1989; van Biljon & Renaud, 2009
	Perceived usefulness	1.6.2.2 1.6.2.3	1; 7.2.3	Chung et al., 2010; Davis, 1989; Nahm, et al., 2003; van Biljon & Renaud, 2009
	Attitude	1.6.2.3	1; 7.3; 7.5	Davis, 1989; van Biljon & Renaud, 2009
	Behavioural intention	1.6.2.3	7.4 (b,c,d)	Davis, 1989; van Biljon & Renaud, 2009

**Table 6: Content validity of the staff questionnaire**

Research Objective	Framework for the study	Research Question number	Staff questionnaire number	Research studies
3. To evaluate the technological readiness in terms of technologically assisted communication in staff (nursing and support) working with older persons residing in a residential facility	External variables	1.6.3.1	2.1	Chung et al., 2010; Davis, 1989; Nahm et al., 2003
	Perceived ease of use	1.6.3.2	2.2.2	Davis, 1989; King & He, 2006; Venkatesh et al., 2003
	Perceived usefulness	1.6.3.2	2.2.1	Davis, 1989; King & He, 2006; Venkatesh et al., 2003
	Attitude	1.6.3.3	2.3; 2.5	Davis, 1989; Venkatesh et al., 2003
	Behavioural intention	1.6.3.3	2.4(b,c,d)	Davis, 1989; van Biljon & Renaud, 2009; Venkatesh et al., 2003

## 4.7 DATA COLLECTION PROCEDURE

### 4.7.1 Preparation for data collection

Initially the Chief Operating Officer of the organization in principle provided permission for the study (Appendix 12: Gatekeeper permission: Residential facility letter of permission pending UKZN ethical clearance). This allowed for the researcher to meet with the Nursing Services Manager, Administration Manager, Divisional Manager and occupational therapist to discuss the proposed study and access information for planning. Upon receipt from the University of KwaZulu-Natal of ethical clearance and a protocol reference number HSS/0863/013M (Appendix 14:UKZN HSS Ethical Approval), written approval for the survey was sought from the Board of Directors of the organization and the Senior Nursing Services Manager, (See Appendix 6: Request for approval by residential organization Board of Directors; Appendix 7: Letter of request to Senior Nursing Services Manager of Residential Facilities) These requests contained the following: the research proposal, the information and consent sheets, inclusive of the time required to conduct the survey, the ethical clearance number provided by UKZN HSS Ethics committee (HSS/0863/013M), and the contact details of the researcher, the

researcher's supervisor and the ethics committee contact person. The availability of contact numbers and names afforded the above persons an opportunity to make contact to such parties for any concerns relating to the research process (Polit & Beck, 2010). The Nursing Services Manager initially provided verbal permission and this was followed up with written permission together with written approval from the chairperson of the organization and the Divisional Manager (See Appendix 13 Approval letters: Chairperson, Divisional Manager and Senior Nursing Services Manager).

A meeting was held with the Nursing Services Manager, Divisional Manager, occupational therapist and administration manager to discuss the logistics for data collection, inclusive of the pilot study such that all eligible residents and staff could be involved. Recognition was given to the potential for emotional discomfort both during the introduction to the study, as potential respondents reflected and possibly realized their limited social connectedness, as well as emotional discomfort being experienced whilst completing the questionnaire. Suggestions were made at this meeting to rather have counselling done by the social worker in place of the doctor as originally planned and that management agreed to notify the facility's social worker. The occupational therapist also made available the occupational therapy assistant to schedule the residents for the orientation session and to be an assistant in the gathering of the data. It was decided to gather staff data over two days and in a time span to accommodate day and night shifts as well as change of shifts. The Nursing Services Manager offered to notify all staff of the survey and requested their attendance at the orientation sessions. A decision was made for the gathering of the residents' data over a morning and an afternoon session each day, over three (3) days with consideration of the facility's activities.

In preparation for data collection from the residents the researcher designed posters and displayed these in prominent places three days prior to the commencement of the survey (See Appendix16: Invitational poster). On the day prior to the start of the survey all residents were addressed verbally in two sessions in the dining room about the survey, inviting them to attend the orientation sessions. In addition each resident was given a short written invitation to participate.

In recognition of the findings from the pilot study and the strong possibility of the residents needing the availability of assistance, in addition to the two (2) planned assistants, a further two (2) research assistants were trained. These persons, in the researcher's opinion related well to older persons. They received training working through the questionnaire and possible queries, as well as the signs of emotional discomfort. Added to this preparation, prior to data collection the questionnaire was printed in font size 14 for easy reading and the headings denoting the constructs were removed. A power point presentation was prepared outlining the purpose of the study, the process of the data gathering, inclusive of ethical issues and examples of technologically assisted communication as reflected in the questionnaires. The same power point presentation was for use for the residents' and the staff sessions.

#### **4.7.2 Data collection from residents**

The residents booked to attend an orientation session of their preference to a maximum of 12 residents per session. The orientation sessions were run in both the morning and the afternoon over a three day period. The session was conducted sensitively by the researcher, with the research assistants present, and included the survey's purpose and process, inclusive of power point presentation and a live demonstration of a video chat call, the sending and receiving of an e-mail, social media example, as well as accessing the internet. The sessions started with tea and cake and varied in duration from 20 to 30 minutes depending on questions, followed by more tea and cake and an opportunity to ask further questions and opt into or out of the survey. The residents focussed their questions on digital technology as opposed to those linked to social capital and mental health outcomes. Smaller groups of residents were targeted to allow for an opportunity for them to ask questions, facilitate informed participation, clarify misunderstandings and identify and manage emotional discomfort which could possibly arise as a result of reflection on the orientation content. All residents were given the information sheet (See Appendix 8: Information sheet: Resident) and an opportunity one on one after the presentation to ask any questions and if willing to sign consent for participation, as well as consent for referral for counselling should the need arise (See Appendix10: Informed



consent and confidentiality agreement for residents). Residents were notified that they could withdraw at any point. The voluntary nature of participation was stressed. Eight (8) residents declined to participate. Not all residents furnished reasons, but for those who did, the reasons were mainly around their lack of interest in technologically assisted communication and one (1) person said he had no family, hence saw no value in participating.

Each assistant had two (2) respondents to assist as and when requested by the respondent, in the completion of the questionnaire. The request for assistance varied from none to fully dependant on questions being read to them and explained. The researcher is an advanced psychiatric nurse who was alert to evidence of emotional discomfort. She provided supportive counseling to four (4) respondents who experienced emotional distress. Three (3) respondents were referred for further counselling to the facility's social worker. This was at no cost to the resident. The availability of contact names and numbers, of the researcher, her supervisor and UKZN research office, afforded the respondents an opportunity to make contact with such parties for any concerns relating to the research process. One respondent called the researcher asking: "Have you passed?"

The questionnaire took on average of 35-45 minutes to complete. The duration depended on the degree of reminiscence that was triggered. Cake and tea was also provided on completion of the questionnaires and in this time there was an opportunity for the researcher to talk with respondents and identify discomfort; however few respondents stayed to converse. Nine (9) respondents used the time post completion to access assistance with cellphone or computer queries. Each respondent was given a thank you note for attending the orientation session and participating in the survey. Respondents were told that they would be invited to a feedback session within three (3) months. An e-mail has been sent to those involved in the planning, to discuss the feedback plans and a meeting has been set up for 05 February 2013 (See Appendix 15: Invitation to set up feedback sessions).

The initial planned data collection period yielded 56 completed questionnaires from the 64 residents who attended the orientation sessions. This was not statistically

significant and residents who were not in the orientation sessions were invited to attend another session. Management gave the researcher permission to return for a further day of data collection, where 19 questionnaires were completed.

#### **4.7.3 Data collection from residential facility's direct care staff**

In order to access the shift rotations, data was collected from the staff on two separate days and nights. The facility appointed team leaders for each shift to assist in staff release. Prior to the start of the survey the Nursing Services Manager requested all 44 healthcare providers to attend the orientation sessions. All healthcare providers except the registered nurses attended, using work demands as the reason for absence. The orientation and data collection occurred in two groups in the morning and two groups in the night. The Tuesday shift participated more readily than the Thursday shift with all healthcare providers (23) except for the registered nurse attending the orientation and all except for the registered nurse completing the questionnaire. On the Thursday all the healthcare providers except for the registered nurse attended the orientation, but only six (6) day staff and four (4) night staff completed the questionnaire. Their verbal reasons related to concern that such activities could increase their workload.

Staff were exposed to an orientation session, explaining that the purpose was to establish their technological readiness and they were shown the same power point presentation, inclusive of demonstrations, as the residents. All staff were given the information sheet (See Appendix 9: Information sheet: Staff) and an opportunity was provided after the presentation for them to ask any questions and, if willing, an opportunity to sign consent for participation (See Appendix 11: Informed consent and confidentiality agreement for staff). The completion of the self-administered staff questionnaire (see Appendix 2: Staff questionnaire) was done in privacy. It took between 15 – 20 minutes to complete. The researcher was present throughout to answer queries that arose. On completion, questionnaires were posted by the responding staff into a provided sealed box. Respondents were told that they would be invited to a feedback session within three (3) months. Cake and tea were

available to the staff as potential respondents and as respondents, to compensate for any inconvenience. Each respondent was given a thank you note for attending the orientation session and participating in the survey.

#### **4.8 ETHICAL CONSIDERATIONS AND DATA MANAGEMENT**

The philosophical principles, guiding ethical research were adhered to and the benchmarks of ethical research in a developing country with vulnerable persons were given recognition (Burns & Grove, 2009; Emmanuel, Wendler, Killen, & Grady, 2004). Both the researcher and research supervisor had completed the UKZN Research Ethics on line course (Appendix 17: Certificate of UKZN Research Policy V Research Ethics on line course completed by M. A. Jarvis)

In keeping with the principles of collaborative partnership and social value, the management of the residential facility identified the need for a mental health promotion intervention of video chat (Skype™) where after further discussion with the researcher, research supervisor and residence management it was decided that a survey would offer the greatest benefit to the residents. Initial permission was granted by the CEO of the residential facility on 11 March 2013 and in keeping with the principle of independent review, followed up with written permission pending University of KwaZulu-Natal ethical clearance and the provision of an ethical clearance number (HSS/0863/013M) (Emmanuel et al., 2004 (See Appendix 12: Gatekeeper permission: Residential facility letter of permission pending UKZN ethical clearance). Once this clearance was obtained the residence management was notified in writing with a request for permission to conduct the survey, followed up with written approval from the various consenting parties (See Appendix:6: Request for approval by residential organization Board of Directors; Appendix 7: Letter of request to Senior Nursing Services Manager of Residential Facilities; Appendix 13: Approval letters: Chairperson, Divisional Manager and Senior Nursing Services Manager) and provided written permission to conduct the survey.

In relation to these principles of collaborative partnership and social value, the feedback sessions to the residents and staff (direct care staff) will be informal tea and cake sessions that will allow for discussion. The researcher's plan – to be confirmed at meeting on 05 February 2014 - is to have sessions on two different days as identified by the core persons as mentioned earlier, to ensure that all have had an opportunity to attend. The session will focus on the key findings, with a positive underpinning, encouraging discussion. This will honour the line that appeared at the bottom of the questionnaire and in the information sheet and all letters that notified the respondents and management that there would be feedback sessions to respondents three months after data collection. Further in relation to the above principles, the researcher will provide a report post survey to the Board of Directors and Nursing Services Manager with recommendations that could facilitate health promotion in relation to social capital, mental wellbeing and technological readiness of residents and technological readiness of staff involved in direct care. The respondents in the discussion will be notified of the report and that they can access this report. In the event of a publication from this study a copy of it will be sent to the residential facility.

The survey provided for through its design the ethical requirements of scientific validity where data generated was reliable and valid and able to be interpreted offering information towards mental health promotion of the residents and further afield (Emmanuel et al., 2004).

Various activities minimized the risk to the respondents (Emmanuel et al., 2004). Recognition with regard to residents and staff's right to full disclosure was through the provision of information sheets and informed consents that were signed prior to data collection (Appendix 8 : Information sheet: Resident; Appendix 9: Information sheet: Staff; Appendix 10: Informed Consent and Confidentiality Agreement for residents; Appendix 11: Informed Consent and Confidentiality Agreement for staff). The researcher recognized the possible small risk to the potential respondents being reminded of their social isolation and this causing potential emotional discomfort. It was possible that emotional distress could occur firstly, at the invitation and orientation to participate in the study where residents could realize that the study

focused on how connected they are socially. Secondly, this reminder was during the actual participation where again residents were potentially faced with the realization of their lack of social connectivity. In both instances this risk was managed through the availability of the researcher who is a skilled psychiatric nurse and handled the data collection sensitively and where signs of emotional discomfort were identified, with respondents' permission referral was offered, to the social worker linked to the residential facility. The researcher facilitated this referral of three respondents. There were no costs for respondents or potential respondents. Further to this principle of favorable risk-benefit ratio, coupled with the principle of autonomy the respondents' consent provided for the opportunity to agree to or decline referral to counseling (Emmanuel et al., 2004).

The respondents' right to autonomy and self-determination were recognized through the provision of a verbal explanation of the survey's risks /benefits, the information sheet and a power point presentation with demonstrations on technologically assisted communication as well as a chance to ask questions (Burns & Grove, 2009). To avoid coercion they were able to sign consent independently (Burns & Grove, 2009). They were given the choice to participate or to decline, following the orientation to the survey, inclusive of an explanation of the survey and again prior to the start of data collection as well as at any point prior to the posting of the questionnaire. The questionnaire had ensured anonymity in that no names were recorded and on completion it was posted into a sealed box. Respondents were made aware that once the completed questionnaire had been posted, it could not be withdrawn. The respondents' right to additional information was recognized by the provision of the researcher, supervisor and UKZN HSS research office's contact numbers.

Storing of the raw data was on the researcher's lap top that was secured with a personal password that could only be accessed by the researcher. The researcher and research supervisor had access to data entered into SPSS version 21, by the researcher. Once data was entered into SPSS version 21 the completed questionnaires were scanned to a single disc and will be stored in the confidential custody of the research supervisor's office for duration of fifteen years according to

UKZN research policy. Hard copies of completed questionnaires were destroyed by fire.

The research reports or any publication that may arise from this study will reflect anonymity. In line with transparency, respondents have access to this study through University of KwaZulu-Natal School of Nursing and Public Health.

The researcher adhered to the principle of scientific honesty and acknowledged all sources of other researchers' research or academic writing. In addition to this the researcher obtained written permission from Fiona Shalley, Director of Special Social Surveys HSC, Northern Territory Regional Office, Australian Bureau of Statistics for the use of the Indigenous questionnaire (Appendix 18: Permission to use questions in questions used in the Australian Bureau Statistics Survey). The 6 item Loneliness scale, Oslo-3 Social Support scale, WHO (five) Wellbeing Index and Kessler-6 are publically available scales, where recognition is required. Dr. Sandra Franke, Manager, Horizontal Policy and Planning, Government of Canada, as a form of courtesy was asked permission, which she provided, for use of the Policy Research Initiative Model (See Appendix 4: Permission to use PRI model). The above emphasizes that the data was collected in a credible manner.

Following completion of this research study and in keeping with the UKZN Plagiarism Policy the researcher submitted the study to Turnitin. The return report showed an acceptable 6% Similarity Index (See Appendix 20: Turnitin report).

#### **4.9 DATA ANALYSIS**

A code book was used to code the questionnaires and data for both the residents' questionnaire and the staff questionnaire was entered into the programme for statistical analysis - IBM SPSS Statistics (SPSS) version 21 and it was cleaned. Thirty five staff questionnaires and 75 residents' questionnaires were analysed. Two questionnaires were used to gather the required data from the staff and the residents. The framework for this study served as a guideline for the approach to the data analysis (Franke, 2006).

#### 4.9.1 Data analysis of residents' questionnaire

*Demographics:* The sample was described with respect to response rate, and demographics using descriptive statistics (frequencies for categorical variables and appropriate measures of central tendency i.e. mean ( $m$ ) and standard deviation ( $sd$ ) for numerical variables such as age and subscales total scores). The demographic variables (age, gender, race, home language, level of education, and length of stay in the residence) served the purpose of describing the sample. The number of living children, grand / great children and relatives were used to describe the network structure of the respondents. Information was calculated about the distribution of the scores.

For ease of reporting and based on the respondents' responses data was recoded into different variables. The data for age was recoded into two groups (younger: old-60-75 years; older old: 75+ years). The data for time staying in the residential facility was recoded into three categories, namely: "0-1 year", "2-5 years" and "5+years". No married couples participated and no respondents cohabited, while only three respondents were separated from their spouses and recoded into data for the divorced persons. Hence marital status was recoded into the categories of "never married", "divorced" and "widowed". The response resulted in only the racial classification of "White" and "Indian" being reported. There were no isiZulu speaking respondents. Highest education level retained its four (4) categories.

*Mental Wellbeing:* Total scores were calculated for the dependent outcome variables for mental wellbeing. Cut off scores specific to the Kessler-6, WHO-5 and the 6-item Loneliness Scale were used based on the recommendations from the literature. A further variable for mental wellbeing was created where any negative response was recoded into a negative category. (Table 4: Psychometric properties of mental wellbeing and social connectedness scales). The 6-item Loneliness scale included two subscales, namely emotional and social loneliness. Social Loneliness scores were reverse scored for consistency. Bivariate correlations using Spearman's Rho

and Cohen's interpretation were also carried out to test the strength and direction of the relationship of the well validated outcome scales (Pallant, 2010).

Data was tested for normality and where relevant nonparametric tests of Mann-Whitney U test (*U*), Kruskal-Wallis Independent Samples test (*K*) and Chi-square or Fisher exact tests were used to test associations between the continuous and categorical variables (Pallant, 2010). Significance was set at  $p < .05$ .

*Social capital:* The framework identified individual and group determinants to be inclusive of demographics, trust, self-efficacy and social participation (Franke, 2006). Trust and self-efficacy are discussed under network dynamics. Measures of central tendency were calculated for network size, volume, closeness, trust, self-efficacy and confidence in network.

Social networks were further described according to network structure, network density and network dynamics. Network structure included information on numbers of living children, great / grandchildren and living relatives and type of contact with these persons which allowed for a description of the sample. Information about the density of the respondents' networks (frequency of contact) was recoded. The options "not applicable" and "never" remained, but "less than once a year", "once a year" and "once a quarter" were recoded to "seldom", "once a month" and "every two weeks" were recoded into "often" and "once a week" to "daily" was recoded to "very often". Confidence indexes were calculated for the frequency of contact, closeness and likelihood to confide in the network.

Network dynamics was described using the information obtained about the closeness of the network members to the respondents, ability to confide in the network, trust and self-efficacy. Closeness was recoded, with the choice of "not very close" and "somewhat close" remaining, but "very close" and "extremely close" were recoded into "close." Confidence was identified from the respondents' likelihood to confide in members of their network, where "not likely" remained as a category, but "somewhat likely" and "very likely" were recoded into the category of "likely". Trust was examined for the items relating to institutional and interpersonal trust and



recoded “great deal” and “quite a lot of confidence” into “high trust”, “moderate amount of confidence” into “moderate trust” and “not very much or no confidence” into “low trust”. Trust total was calculated out of 25 with a score of five to the response representing highest trust and one to the lowest trust for each of the five items (ABS, 2004). Each of the items of self-efficacy was examined individually for association after they had been recoded from “strongly agree” and “agree” to “agree”, “neither agree nor disagree” to neutral and “disagree and strongly disagree”

Social connectedness data was from questions about social participation. Questions that required information about the respondents’ involvement in activities in and outside the residential facility were scored as “yes”/“no” responses, while “contact with others” was on a likert scale of “0-4”, where “every day” scored the highest. These items were recoded: “every day” and “few times a week” became very often, ““few times a month and once a month” became often and “not in the last month” recoded into seldom (ABS, 2004). The Oslo-3 measured for social support as a sum of the three scores and used as a continuous variable and each of the individual items as categorical variables (Boen, 2012; Nosikov & Gudex, (Eds), 2003).

**Table 7: Calculation Scale scores and subscale scores linked to social capital**

Scale and related subscale scores aligned with Canadian Policy Research Institute model as adapted for this study.	Q#	Scoring	Score interpretation	Maximum Score
<b>Social Connectedness (Support)</b>				
OSLO-3 Social Support Scale	3.2	Scale 1-4 and scale 1-5	3-8 = poor support 9-11 = moderate support; 2-14 = strong support	14
<b>Social and Mental Health Outcomes</b>				
6-Item Loneliness Scale	4	Yes / No	Yes =2; No =1 • Not Lonely =1-6 • Lonely = 7-11 • Intensely lonely = 12	12
Subscale Emotional Loneliness	4(a,e,f)	Yes/No	Yes =2; No =1 • Not Lonely =1-3 • Lonely = 4-5 • Intensely lonely = 6	6
Subscale Social Loneliness	4(b,c,d)	Yes/No	Yes =2; No =1 • Not Lonely =1-3 • Lonely = 4-5 • Intensely lonely = 6	6

Kessler 6	5(a,b,c,d,e,f)	Scale 1-5	1= None of the time 5= All of the time • Well = 6-11 • Mild to moderate psychological distress = 12-19 • Severe psychological distress = 20-30	30
WHO-5 Wellbeing Index	6(a,b,c,d,e)	Scale 0-5	0=At no time 5=All of the time • Raw score <13 is mentally not well • or if answered 0/1 to any of 5 items = Poor sense of wellbeing • Mental Wellbeing = 13-25	25

*Technological Readiness:* The Technological Acceptance Model identified external variables as demographic variables (Renaud & van Biljon, 2008) and two calculated key scores to assess readiness, namely a Perceived Ease of Use score (PEU) and a Perceived Usefulness Score (PU).

*Current access* to technologically assisted communication was described with frequencies and percentages of residents with landlines, cellphones and computers and each of the select activities. Descriptive statistics of duration of use which was recoded into that of “don’t use”, “less than six months”, “six months to a year” and “greater than a year”. Frequency of use was recoded into “don’t use”, “seldom use” (less than once a year to once a quarter, “often use” (once a month and once a fortnight), “very often use” (once a week to daily).

*Technological readiness scores* were calculated for each of the independent variables (PEU, PU, attitudes towards technology and behavioural intention to use technology). The derivation of these scores is presented below (Table 8: Calculation subscale scores for technological readiness). Positive and negative categories for each of the independent variables were calculated.

**Table 8: Calculation subscale scores for technological readiness**

Sub-scale	Subscale label aligned with Technology Acceptance Model	Q#	Scoring	Score interpretation	Score
1	Perceived Ease of Use	7.2.1	Scale 0-4	0= Don't use 4= Very easy to use	64
a	Perceived Ease of Use cellphone	7.2.1 (a-j)	Scale 0-4	0 = Don't use 4= Very easy to use	40
1b	Perceived Ease of Use computer	7.2.1 (k-p)	Scale 0-4	0 = Don't use 4= Very easy to use	24
2	Perceived Usefulness	7.2.3	Scale 0-4	0= Don't use 4 = Very useful	64
2a	Perceived Usefulness cellphone	7.2.3 (a-j)	Scale 0-4	0= Don't use 4 = Very useful	40
2b	Perceived Usefulness computer	7.2.1(k-p)	Scale 0-4	0= Don't use 4 = Very useful	24
3	Attitude	7.3+7.5	Yes / No	Yes = 1 ; No = 0	7
4	Behavioural intention	7.4 (b,c,d)	Yes / No	Yes =1; No =0	3

*Appeal* was analysed, using descriptive statistics as it related to greatest and least appeal of the provided options of software for technologically assisted communication.

Data was tested for normality and where relevant nonparametric tests of Mann-Whitney U test (*U*), Kruskal-Wallis Independent Samples test (*K*) and Chi-square or Fisher exact tests were used to test associations between the continuous and categorical variables, specifically age groups of younger old and older old (Pallant, 2010). Significance was set at  $p < .05$ .

#### **4.9.2 Data analysis of staff questionnaire**

The data in relation to the staff involved in direct care in the residential facility served to answer the questions generated from research objective three as they relate to the evaluation of the staffs' technological readiness in terms of technologically assisted communication. The Technology Acceptance Model (TAM) served as a framework for the presentation of data. Data relates to the staffs' current access to technologically assisted communication, their perceptions regarding its usefulness

and ease of use as well as their level of interest in using this form of communication to assist residents to make contact with family or friends.

The Technology Acceptance Model identified external variables as demographic variables and two calculated key scores to assess readiness, namely a Perceived Ease of Use score (PEU) and a Perceived Usefulness Score (PU) (Renaud & van Biljon, 2008).

The demographic variables (age, gender, race, home language, level of education, occupational category and time working in the facility) was described using frequencies and percentages to describing the sample. The data for age was recoded into four groups: “0 – 29 years”, “30 – 39 years”, “40 – 49 years” and “50-65 years”. Race was not reported on, due to the small size of the non-Black groups which would not hold statistical significance. Similarly home language was not reported on as the large majority (28; 80%) of respondents were isiZulu speaking. The data for highest education level was recoded into three groups: “less than grade 12”, “grade 12” and “tertiary diploma or degree”.

*Current access* to technologically assisted communication was described with frequencies and percentages of staff with landlines, cellphones and computers and each of the select activities.

*Technological readiness scores* were calculated for each of the independent variables (PEU, PU, attitudes towards technology and behavioural intention to use technology). Data was reported according to these categories with their calculated scores. It was intended to test the associations between the independent variables and the behavioral intention of the staff to use technologically assisted communication (dependent variable). Nonparametric statistics for the independent groups were to be used, however this was not tested as all the respondents were using technologically assisted communication and thus “behavioural intention” was not applicable. Associations between demographic variables and the subscale scores were not considered valuable as they were not criteria for employment or for

staff's training in the use of technologically driven devices that assist in communication.

The creation of subscales was as per the residents questionnaire, except for subscale four (Behavioural intention) as all respondents were already using technologically assisted communication. The scoring of the subscales was as per the section above on residents' technological readiness.

Lastly descriptive statistics were calculated in relation to a future intervention and the staffs' preparedness to be trained in the use of technologically assisted communication. A scale of 0-3 was used, with "0" being "no interest" and "3" being "very interested".

#### **4.10 SUMMARY OF THE CHAPTER**

The chapter presented the positivists paradigm which influenced the research design and methodology. A detailed description of the research instruments outlining issues of reliability and validity was provided. Further, a detailed description of the data collection process, inclusive of the researchers contact with the residential facility and the pilot study was provided. The data collection process that hinged on ethical considerations was discussed. This was followed by the data analysis discussion which served as a lead to chapter five, which provides the results following the analysis of both the residents' and the staff questionnaires.

## **CHAPTER 5: RESULTS**

### **5.1 INTRODUCTION**

The purpose of the study was to describe the social connectedness and mental wellbeing in the older persons residing in the selected residential facility. In addition data were collected on methods of connecting with significant others and friends to identify possible ways to develop interventions to increase social connectedness in the future. The results are presented in two parts, a section on the social connectedness and mental wellbeing of the residents and a section on the technological readiness of the staff and residents.

### **5.2 DEMOGRAPHICS**

#### **5.2.1 Demographic profile of residents**

One hundred and three (103) residents, excluding the frail care residents, met the inclusion criteria and were eligible to participate in the study. Three residents participated in the pilot study and these residents were excluded from the main study. Seventy five (75) residents completed the survey, resulting in an overall response rate of 75.0%.

The 75 respondents were representative of the residential facility's population in all the demographic characteristics (See Table 9: Demographics of the respondents [ $n=75$ ] and population [ $N=103$ ]).

**Table 9: Demographics of the respondents (n= 75) and population (N=103)**

Demographic variable	Residential facility population (N=103) N (%)	Respondents (n=75) n(%)	Statistic	p-value
<b>Gender</b>	Male 28(27.2%) Female 75(72.8%)	Male 17(22.7%) Female 58(77.3%)	$\chi^2=0.5$	$p=.493$
<b>Age</b>	78.2 <i>sd</i> 8.2	78.2 <i>sd</i> 8.2	$T=0.0$	$p=.987$
<b>Age group</b>	Younger old 44(41.9%) Older old 61(58.1%)	Young old 31(41.3%) Older old 44(58.7%)	$\chi^2 = 0.0$	$p=.941$
<b>Language group</b>	English 90(87.4%) Afrikaans 8(7.8%) Zulu 1(1.0%) Other 4(3.9%)	English 68(90.7%) Afrikaans 3(4.0%) Zulu 0(0.0%) Other 4(5.3%)	$\chi^2 = 1.9$	$p = .625$
<b>Ethnic group</b>	White: 80(77.7%) Indian: 20(19.4%) Coloured: 2(1.9%) Black: 1(1.0%)	White 58(77.3%) Indian 17(22.7%) Coloured 0(0.0%) Black 0(0.0%)	$\chi^2 = 2.0$	$p = .648$
<b>Marital Status</b>	Never married 13(12.6%) Married: 3(2.9%) Widowed: 62(60.2%) Divorced: 25(24.3 %)	Never married 11(14.7%) Married 0(0.0%) Widowed 45(60.0%) Divorced 19(25.4%)	$\chi^2 = 2.8$	$p = .631$

Differences in gender, race and marital status were tested using Chi-square tests (or Fisher Exact Tests where appropriate) and independent samples T-tests for age. Significance was set as  $p<.05$ .

### 5.2.2 Demographic profile of the sample (respondents)

The respondents' ages ranged from 61 to 94 years (average age 78.2, *sd* 8.8 years), with the older old residents being the larger group of respondents (44, 58.7%). Of the 75 respondents, the majority were females (58, 77.3%) with an average age of 78.8 years (*sd* 8.4, range 62-94 years). The average age of the males was 76.3 years (*sd* 9.9, range 61-91 years). The ethnic groups predominantly represented in the respondents were White (57, 76.0%) followed by nearly the total group of Indians (18, 24.0 %). The majority of White respondents were in the older old group (33, 75.0%) as were the Indian respondents (11, 25.0%). More than half (45, 60.0%), reported being widowed, with the largest number being in the older age group (31, 70.5%) ( $p=.007$ ), which can be explained by the higher rate of widowhood in older persons. None of the married persons participated in the survey. (See Table 9: Demographics of the respondents [residents]).

All respondents were proficient in English. Of the 75 respondents, 68 (90.7%) respondents indicated that English was their home language, with five (5) respondents of the remaining seven being from the older old age group. The largest group (25, 33.3%) in both the younger and the older old represented were respondents who have completed a standard eight, ("Junior Certificate"). In both of the age groups the greatest duration of stay in the facility was in the category of two to five years (34, 45.3%). The mean duration of stay was 2.9 years *sd* 2.8 (range 1month – 13 years), mode 2 years. (See Table 10: Demographics of the respondents [residents]).

**Table 10: Demographics of the respondents (residents)**

Demographic variable of interest	Total respondents (n=75)	Younger old (60-75yrs) (n=31)	Older old (75+yrs) (n=44)	Statistics	p value
Age (mean, <i>sd</i> )	78.2(sd8.8)	69.3 (sd4.3)	84.5 (sd4.6)	$T=14.6$	$p<.001^*$
Years in residence (mean, <i>sd</i> )	3.0(sd2.8)	2.5 (sd2.8)	3.3(sd2.8)	$T= 1.2$	$p= .249$
Gender (n, %)					
Females	58(77.3%)	23(74.2%)	35(79.5%)	$\chi^2=0.3$	$p=.586$
Male	17(22.7%)	8(25.8%)	9(20.5%)		
Home Language (n, %)					
English	68(90.7%)	29(93.5%)	39(88.6%)	$\chi^2= 0.6$	$p=.842$
Other	7(9.3%)	2(6.5%)	5(11.4%)		
Marital Status (n, %)					
Widowed	45(60.0%)	14(45.2%)	31(70.5%)	$\chi^2 = 11.7$	$p = .007^*$
Divorced	19(25.3%)	14(45.2%)	5(11.4%)		
Never married	11(14.7%)	3(9.7%)	8(18.2%)		
Race group					
White	57(76.0%)	24(77.4%)	33(75.0%)	$\chi^2 =0.3$	$p=.565$
Indian	18(24.0%)	7(22.6%)	11(25.0%)		
Highest education level					
Std.8 (Junior Certificate)	25(33.3%)	10(32.2%)	15(34.1%)	$\chi^2 =0.2$	$p = 1.000$
Std. 10 (matric)	21(28.0%)	9(29.0%)	12(27.3%)		
Tertiary diploma / degree	18(24.0%)	7(22.6%)	11(25.0%)		
Primary	11(14.7%)	5(16.1%)	6(13.6%)		

Differences in gender, home language, marital status and race were tested using Chi-square tests (or Fisher Exact Tests where appropriate) and independent samples T-tests for age and time residing in residence. Significance was set as  $p<.05$ .

### 5.3 PSYCHOSOCIAL STATUS

Psychosocial status of the residents was measured using three constructs, namely: wellbeing as measured by the WHO (five) Wellbeing Index (WHO-5); psychosocial distress (depression and anxiety) measured by the Kessler-6 (K6); and emotional and social loneliness using the 6 item de Jong Gierveldt Loneliness scale (referred to as the Loneliness Scale). All scales, showed moderate to good internal consistency



with Cronbach  $\alpha$ 's of .827, .862, .574, .545 and .644 for the WHO-5, the K6, the overall Loneliness scale and the Emotional and Social Loneliness subscales respectively.

### 5.3.1 Mental wellbeing

The average score for mental wellbeing was 17.5 (*sd* 5.9) out of a possible 25, with scores ranging from 2 to 25. Using the categorisation of poor sense of wellbeing (<13) and sense of wellbeing (>13), 62 (82.7%) of the respondents reported a relative sense of wellbeing and 13 (17.3%) a poor sense of wellbeing. There were no significant differences between the younger old (60 – 75 years) and the older old (75+ years), gender, marital status, race or education level for mental well-being. However, when considering the recommendation by the Psychiatric Research Unit in Hillerød, a WHO Collaborating Centre for Mental Health to classify any negative response, a response of “*at no time*” (0) or “*some of the time*” (1), nearly half of the respondents (37, 49.3%) reported a poor sense of wellbeing (<http://www.cure4you.dk>).

Examining the frequencies of the individual statements of mental wellbeing, the most positive statement was that in the two weeks prior to data collection, 63 (84.0%) of the respondents “felt calm and relaxed”. The lowest frequency was for the statement “felt active and vigorous” with 50 (66.7%) agreeing with this statement, which is congruent with the ageing process and may not be an indication of mental wellbeing. Removing this last item from the analysis reveals that 45 (60%) are mentally well. Seven (9%) of the respondents who did not feel active and vigorous were in the younger old group and 15 (20%) in the older old age group. (See Table 11: WHO-5 measured over the last 2 weeks).

**Table 11: WHO-5 measured over last 2 weeks.**

WHO-5 Item	<i>“More than half of the time to all of the time”</i> Frequency (%)	<i>“Some of the time to at no time”</i> Frequency (%)
Felt calm and relaxed	63(84.0%)	12(16.0%)
Felt cheerful and in good spirits	61(81.3%)	13(17.3%)
Daily life filled with interest	58(74.7%)	17(22.7%)
Woke up feeling fresh & rested	56(74.7%)	14(18.7%)
Felt active & vigorous	50(66.7%)	22(29.3%)

### 5.3.2 Psychosocial distress

The average score for psychosocial distress was 10.0 (*sd* 4.9) out of a possible 30, with scores ranging from 6 to 28. There were significant differences between males and females ( $U=2.5$ ,  $p=.014$ ), with average scores being 11.9 (*sd* 5.8) for males and 9.4 (*sd* 4.5) for females. There were no significant differences between the younger old and the older, race, and level of education or marital status for psychosocial distress.

Of the 75 residents, 56 (74.7%) of the respondents reported no psychosocial distress (scores between 6 and 11), while 14 (18.7%) reported mild to moderate psychosocial distress (indicative of a mild to moderate mental health disorder), and five respondents reported experiencing severe psychosocial distress (indicative of a severe mental disorder).

The most common psychosocial distress reported by the respondents were *“being restless and fidgety”* and *“feeling so sad that nothing could cheer them up”*, with 21 (28.0%) reported feeling this “some to all of the time”. The least common feeling was that of hopelessness with only 9 (12%) who experienced this feeling (See Table 12: Psychosocial distress measured over the last 4 week).

**Table 12: Psychosocial distress measured over the last 4 week**

Item	<i>“Some to all of the time”</i> Frequency n(%)	<i>“A little to none of the time”</i> Frequency n(%)
Restless or fidgety	21(28.0%)	54(72.0%)
So sad nothing could cheer you up	21(28.0%)	54(72.0%)
That everything was an effort	16(21.3%)	59(78.7%)
Nervous	14(18.7%)	61(81.3%)
Feeling worthless	11(14.7%)	64(85.3%)
Feeling hopeless	9(12.0%)	66(88.0%)

There was consistency between the K6 and the WHO-5 with a medium negative bivariate correlation between WHO-5 and K6 ( $r = -.488$ ,  $p < .001$ ), with 27.6% of the variation in wellbeing score being explained by lack of psychosocial distress and indicating that with an increase in psychological distress there is a medium decrease in mental wellbeing.

### 5.3.3 Loneliness

Overall loneliness as well as emotional and social loneliness was measured. The average score for loneliness was 7.7 ( $sd$  1.5) out of a total score of 12. The respondents reported no significant differences in social loneliness than emotional loneliness with scores of 3.8 ( $sd$  0.9) and 3.9 ( $sd$  1.0) out of a total score of 6 respectively. There were no significant differences in these scores between, the younger and older old, gender, marital status or education level.

Classifying the responses, only 21 (28.0%) respondents were not lonely, with 53 (70.7%) lonely and one respondent intensely lonely. Looking at the individual items measuring loneliness, only a few respondents reported “experiencing a sense of emptiness” (16, 21.3%) or “feeling rejected” (19, 25.3%), but respondents did report that they “miss having people around” (34, 45.3%). (Table 13: Loneliness scale items).

**Table 13: Loneliness scale items**

Emotional or Social Loneliness Subscale	Item	Frequency n(%)
Emotional	I experience a general sense of emptiness	16(21.3%)
Emotional	I often feel rejected	19(25.3%)
Emotional	I miss having people around me	34(45.3%)
Social	There are NOT many people I can trust completely	31(41.3%)
Social	There are NOT plenty people can rely on when problem	17(22.7%)
Social	There are NOT enough people I feel close to	9(12.0%)

Of the 75 respondents, 39 (52.0%) respondents were not socially lonely, 33 (44.0%) were socially lonely and 3 (4.0%) were intensely socially lonely. Of the 36 (48%) who met criteria for socially lonely, 31 (41.3%), indicated they had lower levels of trust in comparison to the not-lonely (17.2 *sd* 4.1 vs 19.3 *sd* 2.8). In terms of emotional loneliness, again a similar number (34, 45.3%) were not emotionally lonely and 32 (42.7%) were lonely and 9 (12.0%) were intensely lonely. The 9 residents who were intensely emotionally lonely were all single.

There were significant differences in emotional loneliness scores between the respondents experiencing different levels of psychosocial distress. The 19 residents that may possibly have a mental disorder such as depression on the K6, had significantly higher emotional loneliness scores compared to respondents not reporting any significant level of psychosocial distress shows high statistical significance (4.7 vs 3.6,  $U=3.7$   $p<.001$ ). Similarly, another factor affecting emotional loneliness was the time staying in the residence with those residing for less than a year experiencing the greatest levels of emotional loneliness (4.4 *sd* 1.2) compared to those staying in the facility for five years or more (3.6 *sd* 0.9) ( $K=6.5$ ,  $p=.038$ ). There were significant differences in scores for race for emotional loneliness with those identified as Indian reporting higher emotional lonely scores (4.4 *sd* 0.8) compared to the White respondents (3.8 *sd* 1.1) ( $K= 2.7$ ,  $p=.007$ ).

There were significant difference in overall loneliness levels of those respondents who had a poor sense of mental wellbeing, as measured by reporting any negative symptom (8.7 *sd* 1.8) and those who did not (7.5 *sd* 1.3) ( $U=2.3$ ,  $p=.020$ ). This was

largely driven by the emotional loneliness with scores of 4.7 (*sd* 1.3) and 3.8 (*sd* 0.9) respectively ( $U=2.3$ ,  $p=.021$ ). The same pattern was seen in emotional and overall loneliness with significant differences across respondents with no mental disorder as per the K6 (3.6 *sd* 0.8 and 7.4 *sd* 1.3) and those respondents with some disorder (4.4 *sd* 1.1 and 8.5 *sd* 1.6) ( $K=16.2$ ,  $p<.001$ ).

There was also a medium positive correlation between K6 and loneliness ( $r=.492$ ,  $p<.001$ ), with medium levels of increased loneliness associated with medium levels of increased psychological distress, and 24.2% of the variation in psychological distress score being explained by the presence of loneliness. This correlation again was driven by a positive correlation between K6 and emotional loneliness ( $r=.533$ ,  $p<.001$ ), with high levels of increased emotional loneliness associated with high increases of psychological distress and 28.4% of the variation in psychological distress score being explained by the presence of loneliness.

## **5.4 SOCIAL CAPITAL**

It is believed that social capital or social connectedness is linked to the mental wellbeing of older persons. It is not a single item, but a multidimensional concept comprised of numerous indicators. Social connectedness in this study addresses social capital from four broad attributes of networks, namely network qualities, network structure, network transactions and network types (ABS, 2004; Franke, 2006).

### **5.4.1 Network structure – size and density**

Network structure examines the network density and the type of contact the respondents have with those in their social network.

Network structure is measured by the number of relatives in the network, the density of the networks and the type of contact the respondents engage in with the members of their social network. Network structure indicates the possibility of the respondent to access resources, especially when consideration is given to the implementation of a health promotion programme.

Seventeen (22.7%) of the respondents had no children, with the majority of childless respondents 12 (27.3%) being in the older old group. Twenty eight (28, 37.3%) had either one (1) or two (2) children, 26 (34.7%) had three (3) or more children. The average number of living children in the younger old was 2.0 and 1.9 in the older old age group. Similarly the greatest number of living great or grandchildren (17, 38.6%) was found in the older old group, however there were a greater number of respondents without great or grandchildren (24, 32.0%). The range was from zero to 23 great/grandchildren. Thirteen of the respondents (17.3%) reported to have had no living relatives, with the numbers evenly distributed between the younger and the older old. The average number of living grand / great-grandchildren for the younger old was 3.0 and 3.7 for the older old. The average number of living relatives was greater in the older old group (8) as compared to the younger old (4). See Table 14: Social network size for statistics on social network size.

**Table 14: Social Network Size**

<b>Social networks</b>	<b>Total number of relatives (mean, sd)</b>
Living children ( <i>n</i> =71) (missing <i>n</i> =4)	1.9 ( <i>sd</i> 1.5)
Living grand/great-grandchildren ( <i>n</i> =71) (missing <i>n</i> =4)	3.4 ( <i>sd</i> 4.2)
Living relatives ( <i>n</i> =72) (missing <i>n</i> =3)	6.6 ( <i>sd</i> 10.4)

No married couple participated in the survey and, 56 (74.7%) were either single or widowed; however the network was comprised of five spouses, the smallest part of the respondents' networks was community group (36, 48.0%).

Social network size was measured by the number of people in a respondent's core discussion network and primary group members in the network as measured by the

number of children / great/grandchildren / relatives the respondents identified. The average number of people listed in respondents' core discussion networks ranged from 0 to 9, with a mean of 5.9 members (*sd* 1.6). The average number of primary group members in the social network ranged from 0 to 5, with a mean of 2.4 (*sd* 0.9) (Table 15: Key social networks indicators).

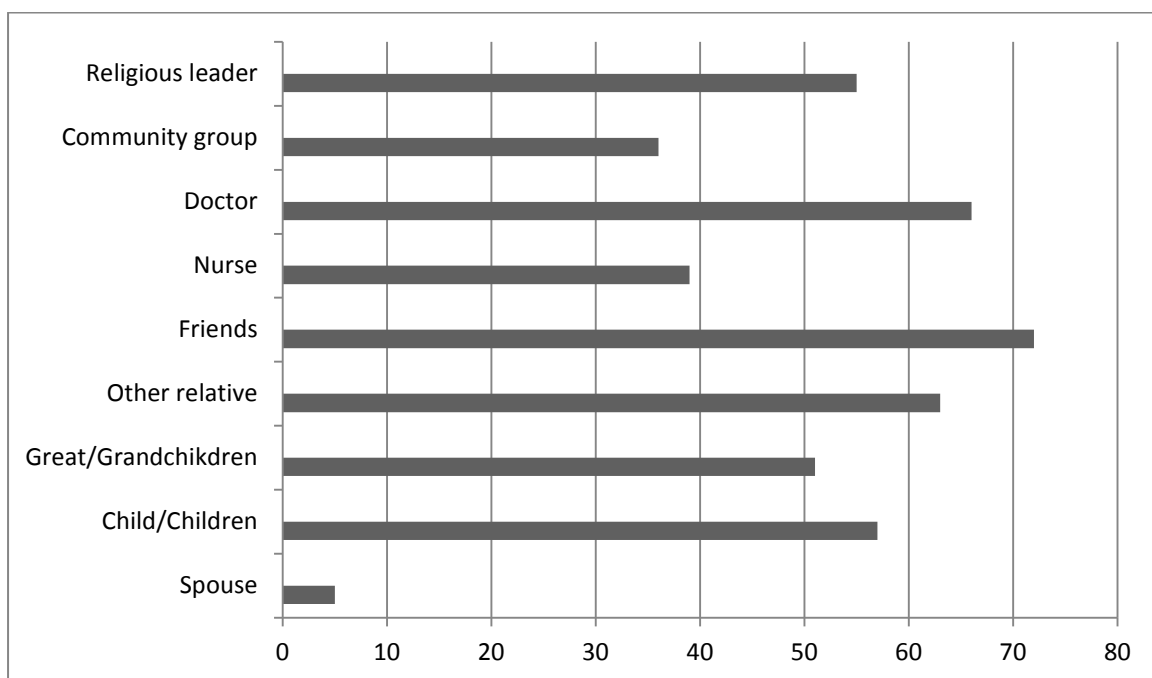
There were significant differences in primary network size between males (2.7 *sd* 0.8) and females (2.1 *sd* 1.1) ( $U=2.0$ ,  $p=.048$ ) which may possibly be linked to the greater longevity of females. Similarly, there were significant differences in network size which was driven by the primary network with the widowed group reporting the highest network average (6.4 *sd* 1.5), followed by the divorced (6.0 *sd* 1.7) and the smallest average network size was those who had never married (4.4 *sd* 1.4) ( $K=12.9$ ,  $p=.002$ ).

**Table 15: Key social networks indicators**

Item	Details of Item	Average <i>sd</i>
Network size	Number of people listed in respondent's core discussion network Range: 0 to 9	5.9 <i>sd</i> 1.6
Volume of contact with network member	Respondents were asked how often they contact each alter. Eight possible responses range from "less than once a year" to "every day." Responses were transformed to estimates of number of days of contact per year with each alter (e.g., "every day" = 365). Thereafter the estimates were added across alters to get overall contact volume. Range: 1 to 1,877.	419.8 <i>sd</i> 340.5
Closeness to others	Average response to: "How close do you feel is your relationship with [name]?" Responses range from "not very close" (= 1) to "extremely close" (= 4).	1.56 <i>sd</i> 0.6
Primary group members in network	Number of people listed in the network who is spouse, partner, or (step-) children. Range: 0 to 5.	2.4 <i>sd</i> 0.9
Neighbourly socializing	Frequent contact with friend and neighbours	2.3 <i>sd</i> 1.3
OSLO-3	OSLO1: Count on people that could be relied on. Range: "None" (=1) to "6 or more" (=4)	2.6 <i>sd</i> 0.8
	OSLO2: Amount of concern shown to. Range: "No concern & interest" (=1) to "A lot of concern & interest" (=5).	4.2 <i>sd</i> 1.0
	OSLO3: Easily can get practical help from others. Range: "Very difficult" (=1) to "very easy" (=5)	3.9 <i>sd</i> 1.1
	Total Social support	10.8 <i>sd</i> 2.2

The network density of each of the respondents was measured by their frequency of contact with those in their interpersonal network (relatives and friends) and those in their institutional network (healthcare professionals, community group and religious leader). This analysis showed the amount of interconnectedness exercised by the respondents in time intervals from annually to daily in the past 12 months. The average volume of contact reported by the respondents was contact on 420 days (*sd* 340.5) in a given year (Table 16: Key social networks indicators).

The frequency of contact of respondent's with individual people in their network is reflected in Figure 4(Network frequency of contact). Friends (71, 94.7%) were the most frequently occurring contact for the network members, followed by doctor (66, 88.0%).



**Figure 4: Network frequency of contact**

The network member/s that the respondents contacted frequently (once a week to daily) was the respondents' spouse (4, 80.0%), community group (25, 69.4%) followed by children (33, 57.9%). The religious leader was more frequently contacted by the older old persons (21, 38.2%) as compared to the younger old (13, 23.6%). The healthcare providers (doctors and nurses) were the least frequently contacted,



with only five respondents, four of them older old persons, making contact between daily to once a week with their doctors.

Volume of contact had a significant association with loneliness, with 145 days less contact with people who were rated as socially lonely compared to those who were not socially lonely ( $U=2.8$ ,  $p=.005$ ).

## 5.4.2 Network dynamics

Network dynamics were measured by the respondents' closeness, inclusive of their comfort in confiding with selected members within their network and the ability to confide in another person, the values of trust, self-efficacy, social connectedness and social support (Table 16: Network density and dynamics).

**Table 16: Network density and dynamics**

Type of network	Network Density		Network Dynamics			
	No. % of 75	Freq. contact (weekly - daily)	Closeness		Confide in	
			No. % of 75	Very close – Extremely close to	No. % of 75	Somewhat – very likely to confide in
	<i>n</i> (%)	<i>m</i> (95% CI)	<i>n</i> (%)	<i>m</i> (95% CI)	<i>n</i> (%)	<i>m</i> (95% CI)
Spouse / partner	5 (6.7%)	7.2 (5.6-8.8)	5 (100%)	2.8 (2.2-3.4)	5 (100%)	1.6(.49 – 2.7)
Child/children	57(76.0%)	5.5(4.9-6.1)	57(76.0%)	2.1(1.9-2.5)	57(76.0%)	1.5(-4.9-7.9)
Great/grandchildren	51(68.0%)	4.0(3.4-4.6)	51(68.0%)	1.7(1.5-2.2)	48(64.0%)	0.5(-5.9-6.9)
Other relatives	63(84.0%)	4.4(3.3-5.0)	60(80.0%)	1.6(1.1-1.8)	60(80.0%)	1.1(.8-1.5)
Friends	72(96.0%)	5.6(4.6-6.3)	71(94.7%)	1.9(1.4-2.5)	69(92.0%)	1.1(0.8-1.4)
Nurse	39(52.0%)	3.0 (1.6-3.8)	36(48.0%)	0.7(.3-1.2)	39(52.0%)	0.5(0.3-0.8)
Doctor	66(88.0%)	3.0(2.6-3.9)	64(85.3%)	0.9(.4-1.4)	60(80.0%)	0.9(0.6-1.2)
Community group	36(48.0%)	5.7(5.0-6.4)	35(46.7%)	1.6(1.0-2.1)	33(44.0%)	0.9(0.5-1.1)
Religious leader	55(73.0%)	4.9 (4.6-6.0)	56(74.7%)	1.8(1.4-2.2)	50(66.7%)	0.9(0.9-1.5)

Comparisons between networks used 95% confidence intervals (CI).

*Closeness:* The closest relationship reported was with a spouse (2.8, 95% CI 2.2-3.4), with all five respondents feeling “very” or “extremely close” to them, followed by their children (2.1, 95% CI 1.9-2.5) with 44 (77.2%) respondents reporting that they felt “very close” to “extremely close” to their children (Table 16: Network density and dynamics). The lowest level of closeness was by the 36 respondents who had a nurse in their network, only six (16.7%) felt close towards the nurses.

An important indicator of closeness is the ability to confide in a network member. All five respondents indicated that they would confide in their spouse and 57 (76%) reported that they were likely to confide in their children (see Table 16: Network density and dynamics). The community group was a network group amongst the most frequently contacted, where 48 (64.0%) were involved in activities outside of the residential facility. However the levels of closeness (18, 51.4%) and willingness to confide (19, 57.6%) in them were much lower. Despite only 21 (37.5%) feeling close to their religious leader 30 (60%) were likely to confide in him/her. The willingness to confide in nurses (15, 38.5%) was higher than level of closeness, but was the lowest out of all network groups and is linked to the low trust scores.

*Trust:* The ability to confide in a network member which is linked to the value of trust, a significant social capital asset. The average score for trust, was relatively high, with respondents scoring an average score 18.3 (*sd* 3.6) out of a possible 25, (range 9 to 25). The highest trust was reported towards doctors (55, 74.7%) with a slight increase in their likelihood to confide in doctors (36, 60%). The lowest trust was reported for nurses (31, 41.3%), with lower levels in the likelihood to confide in nurses (31, 41.3%) (See Table 17: Trust levels). There was no significant difference noted in the expressions of trust and any of the demographic variables (younger old and older old, gender, race, home language, marital status, education level).

There were significant difference in trust scores for those who were not lonely (19.3, *sd* 2.8), lonely (17.6, *sd* 3.9) and intensely lonely (13.3, *sd* 3.8), ( $K=7.1$ ,  $p=.029$ ). This may indicate that when trust decreases, levels of social loneliness may increase. Similarly, there were significant differences in mental wellbeing between respondents

who trusted people (19.7 *sd* 4.7) and those who did not (15.6 *sd* 6.2) ( $U=3.1$ ,  $p=.002$ ).

**Table 17: Trust levels**

Trust Item	Frequency ( <i>Trusted a lot / mostly trusted</i> ) n (%)	Frequency ( <i>Trusted sometimes</i> ) n (%)	Frequency ( <i>Mostly cannot be trusted/ Can't trust at all</i> ) n (%)
Towards my doctor I feel	56(74.7%)	31(41.3%)	6(8.0%)
Towards security in my surrounds I feel	53(70.7%)	19(25.3%)	3(4.0 %)
Towards hospitals I feel	43(57.3%)	14(18.7%)	18(24.0%)
Generally people	34(45.3%)	31(41.3%)	10(13.3%)
Towards nurses I feel	31(41.3%)	29(38.7%)	15(20.0%)

*Social Support:* Social support was measured using the Oslo-3 Social Scale with three questions that measured for primary support, concern shown to the respondent as well as the ease to access practical help. The average score for Social Support was 10.8 (*sd* 2.2, range 3-14) out of 14. There were no significant differences in social support across the categories of age groups, gender, race, home language, marital status and educational status. When social support was categorised as per Boem (2012), 10 (13.3%) respondents experienced poor support, 33 (44.0%) respondents' experienced moderate support and 32 (42, 7%) experienced strong support.

In examining the individual items, primary support of a count of six or more was by 12 (16.0%), three to five members available for 24 (32.0%), and one to two members for the majority (39, 49.3%), while two felt they had no-one to rely on. These small support networks had no association with their level of mental wellbeing. Despite the small support networks the experience of concern by others was high with the majority (37, 49.3%) reporting "*lot of concern*", six (8.0%) "*little to no concern and interest*". The ability to access practical help was seen as "easy to very easy" by 52 (69%) and difficult by 8 (10.7%) and associated with mental wellbeing. There was a significant difference between those presenting as mentally well (4.3 *sd* 1.1) and those with a poor sense of mental wellbeing (3.7 *sd* 1.0) in their

ease to access practical help ( $U=3.0$ ,  $p=.003$ ). Similarly total support was associated with mental wellbeing. (Table 18: Social support and mental wellbeing).

**Table 18: Social support and mental wellbeing**

OSLO-3 Social Support Scale	Mentally well (WHO-5)	Mentally Unwell (WHO-5)	Average Score	Test	p-value
Total OSLO-3 score per three categories /14	11.3 sd 2.5	10.2 sd 1.9	10.8 sd 2.2	$U= 2.8$	$p< .006^*$
OSLO1: primary support /4	2.8 sd 0.8	2.5 sd 0.8	2.6 sd 0.8,	$U= 1.5$	$p=.129$
OSLO2: concern from others /5	4.3 sd 0.9	4.1 sd 1.1	4.2 sd 1.0	$U= 1.1$	$p=.274$
OSLO3: ease to access practical help's /5	4.3 sd 1.1	3.7 sd 1.0	4.0 sd 2.2	$U= 3.0$	$p=.003^*$

Differences in Mental Wellbeing (measured using any negative category) were tested using non-parametric Mann Whitney U test.; \*p-value of significance set at  $<.05$

*Social Connectedness*: Social connectedness describes the connectedness to resources and is reflected in the contact with network members, institutions, such as healthcare, organisations or family that can be the source of resources that need to be accessed.

Primary network group and non-kin network groups' access to resources was examined. Less than half of the respondents (36, 48.0%) responded that they accessed a community group, with 25 (33.3%) respondents having contact with them at least once a week, and of these 17(68.0%) were from the older old group. The main type of contact (30, 88.2%) with the community group was face-to face. In the data collection some residents interpreted religious leader to be the leader in the abstract form, further the questionnaire did not ask if the resident had to access the religious leader through them leaving the residential facility or whether the religious leader came to the facility.

In the primary network it was only with spouses (4, 66.7%) that face-to-face contact was the favoured type of contact, with technologically assisted forms of contact for all other family members. Overall technologically assisted forms of communication were the methods of choice to contact children and great/grandchildren (23, 30.7% and 23, 30.7%); however a statistically significant difference was evident in how the

younger old and the older old contacted them ( $U=-3.8$ ,  $p<.001$  and  $U=-3.4$ ,  $p=.001$ ). The younger old (17, 54.8%) chose to use technologically assisted communication, in particular cellphones as the method of choice to contact, their children while the older old (14, 31.8%) chose the landline. To contact their great/grandchildren the older old (10, 22.7%) preferred to use the landline, and the younger old (15, 48.4%) preferred technologically assisted communication, in particular the cellphone.

Seventy two (96.0%) residents indicated the presence of a friend, while three residents were without a friend. The questionnaire did not ask if the residents had to access their friends through leaving the residential facility or whether the friends came to visit or if friends were fellow residents. This would have been of interest for an intervention. There was a significant statistical difference ( $p=.011$ ) between the younger old and the older old and how they contacted friends. In the younger old the favoured method was technologically assisted communication (13, 41.9%), while face-to-face contact (21, 47.7%) was the method chosen by older old persons. Apart from friends, all other non-kin network members were contacted through face-to-face contact.

Face-to-face contact with family / friends occurred from once a week to daily for 41 (54.7%) respondents, 22 (29.3%) few times to once a month and 12 (16%) had not had contact in the last month with family/friends. Apart from face-to-face contact, 36 (48.0%) had contact once a week to daily, 30 (40.0%) few times to once a month, while 9 (12%) had not had contact with family or friends in the past month. There was no statistical difference in loneliness when there was no face-to-face contact, however there was a significant difference in the social loneliness of those who had face-to-face contact with family/friends very often (3.5 *sd* .7), often (3.9 *sd* .9) and seldom (4.3 *sd* 1.1) ( $K=7.0$ ,  $p=.030$ ). This underlines the value of face-to-face contact (Table 19: Associations between WHO-5 and Social connectedness and Network Dynamics).

Twenty seven (36.0%) respondents reported involvement in cultural or community groups, which is lower than the reported contact with a community group. The figure reflecting involvement in activities inside the facility was nearly double (51, 68.0%). It

is of note that there was no link shown between involvement in activities inside the residence and mental wellbeing. Yet there was a significant difference in the mental wellbeing of respondents who were involved in activities outside of the residence (18.8 *sd* 4.6) and those who were not (16.1 *sd* 6.2) ( $U = 2.7, p = .008$ ).

*Self-efficacy.* Self-efficacy underpins social and network dynamics. The average score for self-efficacy of the respondents was 7.0 (*sd* 1.7) out of a possible 10 (range 2 to 10). Self-efficacy was measured by the ability to have a say with family/friends on important issues (50, 66.7%) and the ability to have a say in the residence (37, 49.3%). There was no statistical difference in the demographic variables (age groups, gender, race, home language, and marital status or education level) and self-efficacy and specifically the ability to have a say with family or friends in important matters. However, there were significant differences in the mental wellbeing (WHO-5 score) between those who felt that they had a say in the residence (19.2 *sd* 5.4), did not have a say (16.1 *sd*, 5.3) and those who were not sure (15.1 *sd*, 6.9) that they have a say in matters of importance in the residence ( $K = 13.6, p = .008$ ).

#### **5.4.3 Associations between social capital and mental wellbeing**

To test the hypothesis whether there were associations between social capital and mental wellbeing; associations were tested for summary social network metrics and mental wellbeing using the classification where any negative rating of a wellbeing item was classified as mentally unwell as opposed to mentally well. No significant differences in these variables were found for people with possible mental disorders on K6 ( $n = 5$ ) and analysis was conducted with them included.

There were significant associations between mental wellbeing and social capital for networks size, specifically for primary network size, confidence in primary network and closeness with network (see Table 19: Association between network structure and mental wellbeing). The level of closeness in the network members appears to be associated with a significant difference in mental wellbeing of the primary network of

children and grandchildren, with a closeness decreasing from 2.9 (*sd* 1.3) to 1.7 (*sd* 1.6) ( $U=3.2$ ,  $p=.002$ ) and from 2.4 (*sd* 1.4) to 1.4 (*sd* 1.5) ( $U=3.0$ ,  $p=.004$ ) respectively.

**Table 19: Associations between network structure and mental wellbeing**

Item	Mentally well (WHO-5)	Mentally unwell (WHO-5)	Mann-Whitney Test ( $U$ )	$p$ -value
Network size	6.3 <i>sd</i> 1.4	5.5 <i>sd</i> 1.7	$U= 2.1$	$p=.039$
Primary network size	2.8 <i>sd</i> 0.8	1.9 <i>sd</i> 1.0	$U= 3.8$	$p= <.001^*$
Network volume	459.6 <i>sd</i> 342	348.1 <i>sd</i> 328.2	$U=1.9$	$p=.059$
Confiding in primary network	2.9 <i>sd</i> 1.5	1.9 <i>sd</i> 1.8	$U=2.5$	$p=.013^*$
Average closeness to primary network members	1.9 <i>sd</i> 0.8	1.2 <i>sd</i> 0.9	$U=3.2$	$p= <.002^*$

Differences in Mental Wellbeing (measured using any negative category) were tested using non-parametric Mann Whitney U test. \* $p$ -value of significance set at  $<.05$

Network volume was approaching significance but did not quite reach it (See Table 19: Association between network structure and mental wellbeing), though there were significant differences for volume of contact with children and grandchildren and mental wellbeing with volumes of contact in mentally well respondents being significantly higher (97.0 *sd* 126.6 vs 55.1 *sd* 103.0,  $U=2.6$ ,  $p=.010$  and 31.1 *sd* 83.4 vs 14.9 *sd* 30.8,  $U=3.0$ ,  $p=.003$  respectively).

Being mentally well was associated with higher ratings of confidence in confiding with primary network (2.9 vs 1.9.  $U=2.4$ ,  $p=.013$ ) with ratings of 2.3 (*sd* 1.1) vs 1.5 (*sd* 1.3) ( $U=2.6$ ,  $p=.011$ ) for children and ratings of 1.5 (*sd* 1.1) to 0.9 (*sd* 1.1) ( $U=2.2$ ,  $p=.030$ ) respectively. An interesting finding is the increased level of confidence to confide in a doctor in people with good mental wellbeing with ratings of confidence of 1.9(*sd* 1.1) versus 1.3(*sd* 0.9) when mentally well as opposed to unwell ( $U=2.3$ ,  $p=.024$ ). Details of the individual network members are provided in Table 20: Associations between any negative category of mental wellbeing (WHO-5) and frequency of contact, closeness and confidante in individual members of social networks.

**Table 20: Associations between any negative category of mental wellbeing (WHO-5) and frequency of contact, closeness and confidante in individual members of social networks**

Network member	Frequency of Contact				Closeness to network				Likelihood for Confidante			
	Well being	Not well	Test (U)	p-value	Well being	Not well	Test (U)	p-value	Well being	Not well	Test (U)	p-value
Spouse	24.0 sd 85.4	9.9 sd 60.0	1.3	.186	0.39 sd 1.2	0.1 sd 0.7	1.3	.182	0.3 sd 0.8	0.1 sd 0.5	1.3	.182
Child	97.0 sd 126.6	55.1 sd 103.0	2.6	.010*	2.9 sd 1.3	1.7 sd 1.6	3.2	.002*	2.3 sd 1.1	1.5 sd 1.3	2.6	.011*
Grandchild	31.1 sd 83.4	14.9 sd 30.8	3.0	.003*	2.4 sd 1.4	1.4 sd 1.5	2.9	.004*	1.5 sd 1.1	0.9 sd 1.1	2.2	.030*
Other relative	60.6 sd 112.0	35.7 sd 67.5	0.8	.420	2.2 sd 1.4	1.9 sd 1.3	1.3	.179	1.5 sd 1.0	1.8 sd 1.2	1.0	.306
Friend	127.9 sd 151.3	114.1 sd 134	0.1	.944	2.5 sd 1.1	2.4 sd 1.1	0.3	.74	2.0 sd 1.0	1.9 sd 0.9	0.6	.556
Nurse	27.4 sd 85.2	31.4 sd 88.6	0.4	.714	0.9 sd 1.1	0.7 sd 0.9	0.7	.495	0.8 sd 0.9	0.8 sd 0.9	0.2	.877
Doctor	7.0 sd 11.6	16.9 sd 60.0	0.2	.857	1.5 sd 1.1	1.6 sd 1.0	0.5	.594	1.3 sd 0.9	1.9 sd 1.1	2.3	.024*
Community group	74.8 sd 124.2	28.8 sd 68.5	1.3	.208	1.3 sd 1.5	1.0 sd 1.3	0.9	.342	0.8 sd 1.1	0.8 sd 1.1	0.1	.925
Religious leader	33.8 sd 47.7	41.4 sd 68.5	1.1	.266	1.6 sd 1.3	1.7 sd 1.2	0.3	.802	1.1 sd 1.0	1.5 sd 1.2	1.3	.197

Differences in Mental Wellbeing (measured using any negative category) were tested using non-parametric Mann Whitney U test.; \*p-value of significance set at <.05. Mental wellbeing is reflected as "wellbeing" and poor sense of mental wellbeing is reflected as "not well".

In determining the level of contribution of each of these social capital variables to mental wellbeing, a logistic regression was conducted with the significant independent variables of primary network size, network volume, confiding in primary network, closeness and total social support inserted into a logistic regression model with mental health wellbeing defined as no negative ratings.

The full model containing all predictors was statistically significant,  $\chi^2 (5, N=75) = 35.7, p < .001$ , indicating that the model was able to distinguish between respondents who reported and did not report negative symptoms in terms of mental wellbeing. The model as a whole explained between 36.9% (Cox and Snell R square) and 50.5% (Nagelkerke R squared) of the variance in mental well-being reporting, and correctly classified 80% of cases.

Three of the independent variables made a unique statistically significant contribution to the model (primary network size [OR 0.2,  $p = .004$ ], social support to get practical help [OR=0.5,  $p = .026$ ], and participation in activities outside the



residence [ $OR=8.9$ ,  $p=.013$ ]). To have a confidante in the primary network approached significance ( $OR=1.9$ ,  $p=.094$ ) but may be confounded with primary network size.

The strongest predictor for reporting no negative symptom was the ability to participate in activities outside the residence recording an odds ratio ( $OR$ ) of 9. This indicated that respondents who participated in activities outside the residence were over nine times more likely to report no negative ratings for wellbeing, controlling for all other factors in the model. Having social support with practical help and having primary networks available were protective factors.

## **5.5 TECHNOLOGICAL READINESS**

Two surveys on technological readiness were conducted; one with the staff and one with the residents with the purpose of identifying opportunities for a mental health promotion intervention driven by technologically assisted communication.

### **5.5.1 Technological readiness of residents**

All 75 respondents completed the technological readiness component of the questionnaire. The Technology Acceptance Model (Davis, 1989) is used to report the technological readiness of the respondents in terms of technologically assisted communication. Respondents' current access to technologically assisted communication, their perceptions regarding its usefulness and ease of use as well as their level of interest in using technologically assisted communication will be discussed.

#### **5.5.1.1 Current access and use of technologically assisted communication**

Seventy four (74, 98.7%) of the respondents had access to a device that allowed for them to have a communication link out of the residential facility. This was either in the form of a landline in their room (39, 52.0%) and/or access to a landline (17, 22.7%) and/or cellphones through ownership or access (60, 80.0%) and/or computers with connectivity (4, 5.3%).

*Landlines:* Despite the landline not being a digital form of communication, the access to it was relevant as it provided for an opportunity for respondents' connectedness. There was a near equal percentage of respondents who did (39, 52.0%) and did not have (36, 48.0%) a landline in their room. Out of those who did not have a landline, 12 (41.4%) said they did not have access to a landline in the facility, and 31 (41.3%) respondents without a landline had a cellphone, while 25 (33.4%) respondents had both a landline and a cellphone. Four respondents had neither a cellphone nor a landline, of whom one had access to a landline in the residential facility and three had access to cellphones. This resulted in one older old respondent with no access to devices to assist with communication links, who also presented as being socially lonely in the psychosocial assessment.

*Cellphones:* Fifty seven (57, 76.0%) respondents owned a cellphone and 60 (80.0%) respondents reported using a cellphone. Of the respondents reporting to use a cellphone, three did not own a cellphone, but used someone else's phone, and out of these three, two also did not have a landline. There was greater cellphone ownership in the younger old, where 25 of the 31 (80.6%) owned a cellphone, while the amount in the older old was 32 of the 44 (72.7%). This was not statistically significant ( $U=.785, p=.432$ ). The most frequent method of funding for their cellphones was through the prepaid option (42, 73.7%), while with the landline it was through contract (24, 61.5%). Eighteen (31.6%) of the cellphones had internet access, seven having access for phones belonging to the younger old and eleven of the eighteen in the older old, indicating possibly that these smart phones were not selected by them.

As 60 (80.0%) respondents reported that they either owned a cellphone or had access to a cellphone, it was identified that this number of persons (60) were using technologically assisted communication and that 15 (20.0%), were not using it. All of the respondents (60) who were using technologically assisted communication used the cellphone to receive or make calls, with two thirds (make calls, 68.0%; receive calls, 66.7%) having carried these activities out for over a year.

In examining the respondents' frequency of use, frequent use was considered to be once a week or more often. The cellphone was mostly used to receive calls (46, 76.7%), more especially with the older old (25, 73.5%). However when examining the contact type most frequently used by the respondents to members of their social networks there were statistically significant differences between the younger old and the older old in the contacting of their children and great/grandchildren, which have been discussed earlier in this chapter. Sending text messages was overall the fourth most frequently used option (36.7%), but had low usage in the older old (6, 17.6%) despite more of the older old having used text messaging for over a year. The cellphone options least frequently used in both age groups was the receiving or sending of text messages and only one respondent used social media. The older old respondents did not use the cellphone to play games.

*Computers:* In examining the other means available to access the internet apart from the cellphone, computer ownership was low with only six (6) of the 75 respondents (8.0%), owning computers, with one of these respondents (younger old female) not using her computer. All but one were females and four (4) of whom were both divorced and in the younger old age group. They owned either a desktop (3) or a laptop (3). Four (4) had internet access, with connectivity, which for three (3) respondents was via mobile partner (3G) and all paid the internet access through a contract. The analysis was based on the five (5) respondents who used the computer. The frequency of use was predominantly with internet searches, receiving and sending e-mails and social media (4, 80.0%), with less frequent use for playing games and video chat (3, 60.0%). The access to the internet, receiving and sending of e-mails had been used by all five respondents for over a year. The activities that

were more recent (less than 1 year) in computer usage amongst the respondents, both younger and older old were social media, playing games and video chat.

There were significant associations between usage and age groups, marital status, time staying in the facility and education level for total scores for cellphones, but not for computer usage. The majority of the differences lay around the sending and receiving of text messages, indicating that the younger old, divorced persons, the more highly educated, and those in their first year of staying in the residence held the cellphone as relevant in their lives.

*Age groups:* There were notable differences between the younger old and the older old in the frequency of cellphone usage. This was found in the frequency to make calls (2.2 *sd* 1.2 and 1.8 *sd* 1.2) ( $U=-2.0$ ,  $p=.042$ ), send text messages (1.7 *sd* 1.4 and 0.75 *sd* 1.1) ( $U=-3.1$ ,  $p=.002$ ), receive text messages (1.9 *sd* 1.4 and 1.0 *sd* 1.3) ( $U=-3.2$ ,  $p=.001$ ) and the sending of instant messages (0.45 *sd* 1.1 and 0.07 *sd* 0.5) ( $U=-2.2$ ,  $p=.001$ ). The differences in the frequency of use of text messaging maybe linked to the significant differences found in their duration of use of sending text messages (2.1 *sd* 1.9 and 1.1 *sd* 1.7) ( $U=-2.5$ ,  $p=.011$ ) and receiving text messages (2.3 *sd* 1.9 and 1.5 *sd* 1.8) ( $U=-2.2$ ,  $p=.029$ ) in the younger old and older old respectively. Similarly, the only other significant difference was in duration of using cellphones between the age groups being in playing games (younger old vs older old: 0.39 *sd* 1.1 and 0.0 *sd* 0.0;  $U=-2.4$ ,  $p=.015$ ).

*Marital status.* There were significant differences in the marital groups between the duration of sending text messages ( $K=9.6$ ,  $p=.002$ ) and the frequency of sending text messages ( $K=9.1$ ,  $p=.003$ ). The divorced persons (2.2 *sd* 1.8 and 4.6 *sd* 3.5) had been sending text messages for the longest period, and most often followed by those widowed (1.4 *sd* 1.8 and 2.2 *sd* 3.0) and lastly by those who had never married (0.36 *sd* 1.2 and 0.73 *sd* 2.4) who had been sending text messages for the shortest period and the least often.

*Educational level:* A noteworthy difference existed in education levels with regards to the duration of using the cellphone for receiving ( $K=11.7$ ,  $p=.008$ ) text messages as

well as the frequency of sending ( $K=8.5$ ,  $p=.036$ ) and receiving these ( $K=12.2$ ,  $p=.006$ ). Those with primary education only ( $0.27$  *sd*  $0.9$ ) had been receiving text messages for the shortest in a scale up to those with tertiary education ( $2.5$  *sd*  $1.8$ ) receiving text messaging for the longest. Educational level was associated with the frequency of sending and receiving text messages, where those with primary education ( $0.7$  *sd*  $1.8$  and  $0.18$  *sd*  $0.6$ ) used these two functions the least frequently, while in a step up the most educated used it the most frequently ( $4.7$  *sd*  $3.5$ ).

*Time staying in the facility;* Lastly it is questioned as to the value as a diversion or link to those outside the facility as there was a significant association between the frequency of receiving text messages ( $K=6.9$ ,  $p=.032$ ) and playing games on the cellphone ( $K=6.2$ ,  $p=.046$ ) and the time staying in the facility. The first year of residing in the setting showed the highest frequency of receiving text messages ( $4.5$  *sd*  $3.4$ ), declining over the years, with less frequency in the stay period of 2-5 years ( $2.9$  *sd*  $3.4$ ) and the least frequency over five years ( $1.5$  *sd*  $2.8$ ). There as the most frequent use of the phone for games in the first year ( $0.4$  *sd*  $1.3$ ) and no use thereafter ( $0.0$  *sd*  $0.0$ ).

#### **5.5.1.2 Perceived Ease and Usefulness of Use**

Respondents were asked to rate their perceptions of how easy and how useful the technologically assisted communication were to conduct a range of activities. It appears that should a device be perceived as easy to use it is linked to its perceived usefulness in the aged as age was associated with both the Perceived Ease of Use (PEU) scores and the Perceived Usefulness (PU) score of both the total scores and the cellphone scores.

*Perceived Ease of Use:* The PEU score out of 64 was  $11.0$  *sd*  $9.3$  (*median*  $9.0$ , range  $0$  to  $42$ ), with significant differences between the younger old and older as  $13.6$  *sd*  $10.4$  (*median*  $12.0$ , range  $0$  to  $40$ ) and  $9.1$  *sd*  $8.1$  (*median*  $8.0$ , range  $0$  to  $42$ ) ( $U=-2.1$ ,  $p=.036$ ). The cellphone PEU score (excluding computers) out of 40 was  $9.7$  *sd*  $7.3$  (*median*  $9.0$ , range  $0$  to  $36$ ) and the computer PEU score (excluding

cellphones from overall PEU score) out of 24 was 1.3 *sd* 4.4 (*median* 0.0, range 0 to 24) ( $U=-2.1$ ,  $p=.040$ ). Despite the statistically significant differences between both age groups the scores for each group were low (See Table 21: Perceived Ease of Use of cellphones in younger old and older old).

**Table 21: Perceived Ease of Use of cellphones in younger old and older old**

Cellphone activity	Total Perceiving as easy <i>n</i> (%)	Younger old (60-75yrs) ( <i>n</i> =26) <i>n</i> (%)	Older old (75+yrs) ( <i>n</i> =34) <i>n</i> (%)	Mann-Whitney U test ( <i>U</i> )	<i>p</i> -value
Receive calls	58(96.7%)	25(96.2%)	33(97.1%)	$U=-0.3$	$p=.799$
Make calls	52(86.7%)	23(88.5%)	29(85.3%)	$U=-0.5$	$p=.636$
Receive SMS	37(61.7%)	19(73.1%)	18(52.9%)	$U=-2.3$	$p=.019^*$
Send SMS	30(50.0%)	18(69.2%)	12(35.3%)	$U=-2.8$	$p=.005^*$
Instant messaging (e.g. BBM®/ or WhatsApp)	5(8.3%)	4(15.4%)	1(2.9%)	$U=1.0$	$p=.337$
Playing games	4(6.7%)	4(15.4%)	0(0%)	$U=-2.4$	$p=.015^*$
Internet	3(5.0%)	1(3.8%)	2(5.9%)	$U=-0.3$	$p=.800$
Social media (e.g. facebook®.)	2(3.3%)	1(3.8%)	1(2.9%)	$U=-0.3$	$p=.787$
Video chat (e.g. Skype™)	2(3.3%)	1(3.8%)	1(2.9%)	$U=-0.3$	$p=.787$
Receive or send an e mail	1(1.7%)	1(3.8%)	0(0%)	$U=-0.3$	$p=.787$

Differences between the younger old and the older old's perceived ease of use of the cellphone were tested using non-parametric Mann-Whitney U test.; \**p*-value of significance set at  $<.05$

The perceived ease of use of the cellphone had as its highest rated activity for the receiving of calls (58, 96.7%), This was followed by the making of calls (52, 86.7%). While the use of the cellphone for emails was considered to be the most difficult (See Table 21; Perceived Ease of Use of cellphones in younger old and older old)

*Perceived Usefulness:* The PU score out of 64 was 10.9 *sd* 9.8 (*median* 8.0, range 0 to 45.0) with significant differences between the age groups of younger old and older as 14.1 *sd* 10.8 (*median* 13.0, range 0 to 40) and 8.6 *sd* 8.5 (*median* 8.0, range 0 to 45), respectively ( $U=-2.7$ ,  $p=.007$ ). The cellphone PU out of 40 was 5.2 *sd* 3.8 (*median* 8.0, range 0 to 40.0) with a statistically significant difference ( $U=-2.6$ ,  $p=.009$ ) and the computer PU out of 24 was 1.3 *sd* 4.8 (*median* 0 .0, range 0 to 24) with no statistical difference in age groups. Similarly as identified in the Perceived Ease of use, the Perceived Usefulness of the computer and cellphones was low (See Table 22: Perceived usefulness of cellphones in younger old and older old).

**Cellphones:** Nearly all respondents (58, 96.7%) reported that receiving calls was easy, while making calls was perceived as slightly more difficult (52, 86.7%). This value for making cellphone calls was influenced by the older old respondents' perceptions of ease of use. In the sending of text messages, examining perceptions of ease of use, revealed a marked difference in rating the activity as easy to use between the younger old 18 (69.2%) and the older old 12 (35.3%). The most difficult activities on the cellphone were perceived as the receiving and sending of e-mails (See Table 22: Perceived Usefulness of cellphones in younger old and older old).

Referring to the perceived usefulness of the cellphone, the highest rated activity amongst the total respondents for usefulness was for receiving of calls (53, 88.3%). (See Table 16: Perceived Usefulness of cellphones in younger old and older old). Again the higher ratings of usefulness were again seen in the younger old (19, 73.1%) than the older old (19, 55.9%). This was followed by the making of cellphone calls (49, 81.7%), amongst all cellphone users. The perceived usefulness of the sending of text messages was again lower in the older old (6, 17.6%) than the younger old (16, 61.5%).

**Table 22: Perceived Usefulness of cellphones in younger old and older old**

Cellphone activity	Total using cellphone ( <i>n</i> =60) <i>n</i> (%)	Younger old (60-75yrs) ( <i>n</i> =26) <i>n</i> (%)	Older old (75+yrs) ( <i>n</i> =34) <i>n</i> (%)	Mann-Whitney U test ( <i>U</i> )	<i>p</i> -value
Receive calls	53(88.3%)	19(73.1%)	19(55.9%)	<i>U</i> = -1.6	<i>p</i> = .115
Make calls	49(81.7%)	19(73.1%)	18(52.9%)	<i>U</i> = -1.7	<i>p</i> = .061
Receive SMS	34(56.7%)	17(65.4%)	9(26.5%)	<i>U</i> = -2.7	<i>p</i> = .007*
Send SMS	28(46.7%)	16(61.5%)	6(17.6%)	<i>U</i> = -3.2	<i>p</i> = .001*
Instant messaging (e.g. BBM® / or WhatsApp)	6(10.0%)	3(11.5%)	1(2.9%)	<i>U</i> =-1.7	<i>p</i> = .066
Internet	3(5.0%)	1(3.8%)	1(2.9%)	<i>U</i> =-0.3	<i>p</i> = .788
Social media (e.g. facebook®)	2(3.3%)	1(3.8%)	0.0	<i>U</i> =-0.3	<i>p</i> = .787
Playing games	1(1.6%)	1(3.8%)	0.0	<i>U</i> =-2.4	<i>p</i> = .015*
Receive or send an e mail	1(1.6%)	1(3.8%)	0.0	<i>U</i> = -0.3	<i>p</i> = .787
Video chat (e.g. Skype™)	0.0	0.0	0.0	<i>U</i> = -0.3	<i>p</i> = .802

Differences between the younger old and the older old's perceived ease of use of the cellphone were tested using non-parametric Mann-Whitney U test.; \**p*-value of significance set at <.05

*Computers:* In reporting on using the computer, receiving and sending e-mails was perceived by all respondents who used the computer as easy to use. Playing games was not found to be useful or easy and video chat was perceived as the least useful (2, 33.3%).

The PEU score was significantly different in respondents with different marital status with the highest PEU in those who were divorced (15.8 *sd* 10.8), followed by those widowed (9.8 *sd* 8.6) and lastly by those who never married (7.3 *sd* 6.5) ( $K=6.5$ ,  $p=.039$ ). This significant difference was also evident in cellphone usage. The “divorced respondents for total PEU (16.5 *sd* 11.4) as well as cellphone PEU (7.1 *sd* 3.6) respectively. ( $K=7.7$ ,  $p=.021$ )

The association between PEU and PU increased with level of education. The educational level of the respondents was associated with both their PEU and their PU scores ( $K=7.3$ ,  $p=.026$ ) and for the cellphone PEU ( $K=7.0$ ,  $p=.029$ ) ( $K=7.0$ ,  $p=.029$ ). The PEU on the whole and for the cellphone was found to be graded with the least PEU being in those with primary education (4.6 *sd* 4.7 and 4.6 *sd* 4.7), followed by Standard eight (10.4 *sd* 10.2), Std. 10 (12.6 *sd* 9.5) and the highest in those with tertiary education (13.7 *sd* 8.6 and 11.7 *sd* 7.1). A similar grading from lowest to highest education was found in the total PU, and Perceived Usefulness of the cellphone with the primary educated older persons finding it least useful (4.4 *sd* 4.8 and 2.4 *sd* 2.5), standard eight (10.2 *sd* 10.7), standard 10 (13.2 *sd* 11.0) and tertiary educated finding it most useful (6.0 *sd* 3.7).

PEU and PU decreased with length of time staying in the facility. There had an effect on PEU total scores, and the cellphone scores ( $K=7.1$ ,  $p=.029$  and  $K=7.0$ ,  $p=.031$ ) and PU scores ( $K=7.3$ ,  $p=.026$  and  $K=7.0$ ,  $p=.029$ ) PEU totals (13.3 *sd* 9.0 and 6.7 *sd* 7.3) PEU cellphone (11.3 *sd* 6.1 and 5.8 *sd* 5.4) and PU totals (13.7 *sd* 9.8 and 6.5 *sd* 7.3) and PU cellphone (6.2 *sd* 3.0 and 3.2 *sd* 3.0) are shown respectively for the first year of residing at the facility and for residing five plus years. This association was similar to the finding that emotional loneliness was highest in the first year of residing in the facility. Face-to-face communication was thus shown to have a possible significant buffer against loneliness. It can be questioned as to



whether the cellphone meets the needs of decreasing emotional loneliness as a minimal number of residents do not use it to video chat and hence it is not of visual value to its user.

There is no association between the demographics, Perceived Ease of Use, Perceived Usefulness of technology and attitudes and willingness to use technologically assisted communication in residents

### **5.5.1.3 Attitudes towards using technology**

Attitudes are comprised of both responses that reflect respondents' current personal attitudes towards technologically assisted communication and its possible influence on their contact with family and/or friends. Not all respondents (15, 20.0%) were using technologically assisted communication, thus their intention to use it was examined.

The actual use of the cellphone was by 60 respondents and five were using computers. The Behavioural Intention to use technologically assisted communication was calculated for those not using it out of a possible 3, and revealed a low score of  $1.1 \text{ } sd \text{ } 1.5$  ( $mean \text{ } 0.0$ , range 0 – 3).

Even though there were significant differences in text messages being both perceived as less useful and more difficult to use by the older old respondents, the overall average attitude score out of seven (7), was  $4.3 \text{ } sd \text{ } 2.7$  ( $median \text{ } 71.4$ , range 0 to 7). With no significant differences for the age groups of younger old and older as  $4.5 \text{ } sd \text{ } 2.8$  ( $median \text{ } 6.0$ , range 0 to 7) and  $4.2 \text{ } sd \text{ } 2.6$  ( $median \text{ } 4.5$ , range 0 to 7), ( $U=0.8$ ,  $p=.446$  and  $U=-1.1$ ,  $p=.255$ ) respectively. This shows a good attitude for learning.

#### **5.5.1.4 Appeal to use for future health promotion**

In examining the various technology and programs available to provide connectedness video chat offered the greatest overall appeal (29, 38.7%) as well as greatest appeal to the younger old (16, 51.6%), however e-mail offered greatest appeal to the older old (19, 43.2%). It is of interest that the older old chose electronic mail to have greatest appeal, yet letters as a “contact type” with their social network had a low frequency of use (2, 4.5%). Only one (1) older old respondent chose social media as appealing, while it was not selected by any of the younger old (See Table 23: Greatest and least appeal of Apps [n=75]).

The applications (Apps) that offered the overall least appeal was social media (34, 45.3%), with this level of least appeal being revealed in both the younger old (13, 41.9%) and the older old (21, 47.7%) (See Table 23: Greatest and least appeal of Apps [n=75]). The choices of least and greatest appeal to the Apps offering technologically assisted communication show cross reference to each other.

**Table 23: Greatest and least appeal of Apps (n=75)**

<b>Apps</b>	<b>Greatest appeal n (%)</b>	<b>Least appeal n (%)</b>
Video chat (e.g.Skype™ )	29(38.7%)	5(6.7%)
E-mail	23(30.7%)	8(10.7%)
Short Message Service (SMS)	19(25.3%)	5(6.7%)
Instant messaging (e.g. BBM® / or WhatsApp)	3(4.0%)	23(30.7%)
Social media (e.g. facebook®)	1(1.3%)	34(45.3%)

#### **5.5.2 Staff technological readiness**

The staff survey was one of the two surveys conducted to identify the readiness of the staff for a technologically driven mental health promotion intervention. The results for the staff are presented below, using the Technology Acceptance Model (Davis, 1989), in the same format as presented for the residents.

The residential facility staff who were eligible to participate in the survey were those who provided direct contact with the residents in the categories of nursing care providers and administrative support ( $N=47$ ). Three of the staff members were employed by the facility itself, with the remainder being accessed through one employment agency. Two staff members were engaged in the pilot study (occupational therapist assistant and a caregiver), and one registered nurse post was vacant, which reduced the number of eligible staff to 45.

Thirty five (35) staff (2 administration and 33 nursing care) out of the 45 staff completed the survey on technological readiness, with an overall response rate of 77.8%. Due to work demands, no registered nurses completed the questionnaire. Of the 35 staff, 33 provided nursing care, 20 were day duty staff (57.1%) and 13 (37.1%) were night staff. Both (2) support staff completed the survey.

All 35 respondents were female, with their ages ranging from 26 to 64 years (average age 40 *sd* 11.4 years). About one third of the staff (11, 31.4%) was between 30 – 39 year olds, followed by those in the 50-65 years group (10, 28.6%). The majority (32, 91.4%) of the respondents were Black with, the large majority (28, 80.0%) of respondents speaking isiZulu as a home language. Over half of the respondents (19, 54.3%), reported that they completed Grade 12, while ten (10, 28.6%) completed less than Grade 12 and six (6, 17.1%) were in possession of a tertiary degree or diploma. Six (6, 18%) of those who provided nursing care were registered with the South African Nursing Council, as either an enrolled nurse (3, 9%) or an enrolled nursing assistant (3, 9%) with the remainder being care givers. Most of the staff (20, 57.1%) had worked in the facility for less than the average time of four years and 6 months, *sd* 4 years (range 4 months to 13.5 years). One staff member did not disclose the duration of working in the facility.

To evaluate the technological readiness of the respondents in terms of technologically assisted communication in staff, the Technology Acceptance Model (Davis, 1989) was used as a framework to report on respondents' current access to technologically assisted communication, their perceptions regarding its usefulness

and ease of use as well as their level of interest in using technologically assisted communication.

#### ***5.5.2.1 Current access and use of technologically assisted communication***

All 35 respondents reported that they owned a cellphone. Despite everyone owning a cellphone, the ability to access the internet via their cellphones was only available for just over half of the respondents (19, 54.3%). Most of the respondents (33, 94.3%) used prepaid as the funding option for their cellphone, and only two (2) respondents reporting that they had a cellphone contract.

Due to the fact that all 35 respondents reported that they owned a cellphone, all respondents reported that they used technologically assisted communication. In examining the activities cellphones were used for, all 35 respondents used it to make and receive calls, reporting more than one (1) year of use for these activities. All 35 also used it to receive text messages, though one person reported not using it for sending text messages. The most infrequently used features on the cellphone were to receive or send an email (4, 11.4%) and only two (2) respondents had used the video chat; both features had been used by these respondents for over a year.

In examining the other means available to access the internet, computer ownership was low with only two (2) respondents owning a computer, one (1) a desk top and (1) a lap top. Both respondents paid for internet on a contract basis, but internet connectivity was through 3G for one respondent and ADSL for the other respondent. In examining the activities for which the computer was used, despite the users being small in number, differences and similarities were identified. A similarity was that that both respondents had used the computer to access the internet for over a year and both used it to receive and send e-mails, however a difference lay in their duration of use for receiving and sending e-mails. The one respondent used all the options, except video chat, with the access to social media being often. No-one used video chat.

#### **5.5.2.2 Perceived Ease and Usefulness of use**

Respondents were asked to rate how easy and how useful the technologically assisted communication (cellphone and computer) were to conduct a range of activities.

Cellphones: In reporting on using the cellphone, 35 (100%) reported that making and receiving cellphone calls, and receiving text messages were the easiest. This was followed by 33 (94.3%) experiencing the cellphone as easy for sending text messages. The ease of use of the cellphone for playing games (22, 62.9%) was rated high. Despite only four (4) respondents using the cellphone to receive or send e-mails and only two (2) respondents using the cellphone to video chat they both experienced it as easy to use, however, possibility due to their low usage they were rated as the most difficult to use.

In reporting on using the cellphone, 35 (100%) reported that making and receiving cellphone calls as well as receiving text messages were the most useful. This was followed by the use of the cellphone to send a text message (31, 88.6%). The perceived usefulness of the cellphone to play games (16, 45.7%) was rated high, but not as high as its ease of use. Social media and receiving and sending e-mails were rated low in usefulness, with the cellphone for video chat, being the least useful and only of use to one (1) respondent.

Computers: In reporting on using the computer, receiving and sending e-mails and accessing the internet was perceived by both respondents as the easiest to use. No-one used the computer to video chat Only one (1) respondent found the computer easy to use for social media e.g. facebook®, and this was the same respondent who found it easy to use for playing games, despite playing games not being perceived as useful.

In reporting the use of the computer, both respondents reported that the most useful was the receiving of e-mails and internet access. No-one found the playing of games

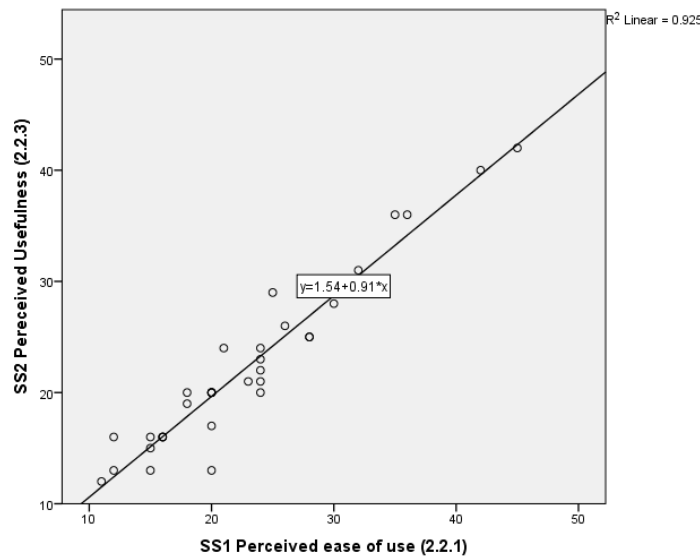
to be useful, which contrasts to this activity in cell phone usage. In relation to usefulness no-one used it for video chat.

### **5.5.2.3 Overall ease of use and usefulness**

The overall average Perceived Ease of Use (PEU) score out of 64 was 22.9 *sd* 7.9 (*mean* 21; range 11 to 45). The overall average Perceived Ease of Use (PEU) score calculated for cellphones only (excluding computers from overall PEU score) out of a score of 40 was 22.2 *sd* 7.1 (*mean* 20.0; range 11 to 38). The overall average Perceived Ease of Use (PEU) score calculated for computers only (excluding cellphones from overall PEU score) out of a score of 24 was 0.7 *sd* 3.1 (*mean* 0.0, range 0 to 16).

The overall average Perceived Usefulness (PU) score out of 64 was 22.4 *sd* 7.7 (*mean* 20.0; range 12 to 42). The overall average Perceived Usefulness (PU) score for cellphones out of 40 was 21.7 *sd* 6.8 (*mean* 20.0; range 12 to 36). The overall average Perceived Usefulness (PU) score for computer usage out of 24 was 0.7 *sd* 2.5 (*mean* 0.0; range 0 to 11).

High correlation ( $r=.962$   $p<.001$ ) ( $y=1.54 +0.91$ ) and 92.5% of the variation in usefulness is explained by Ease of Use. Ease of Use can be used to predict Perceived Ease of Usefulness of technologically assisted communication (See Figure 5: Strong Association between PEU and PU in direct care staff).



**Figure 5: Strong Association between PEU and PU in direct care staff.**

#### ***5.5.2.4 Attitudes towards using technology***

Attitudes are comprised of both responses that reflect respondents' current personal attitudes towards technologically assisted communication and its possible influence on their contact with family and/or friends. Further attitudes were examined through their willingness to being trained in the use of these devices.

All the respondents showed some level of interest in being trained in the use of technologically assisted communication, with none of them saying they had "no interest". The large majority (33, 94.2%) showed levels of interest varying from "very interested" to "interest" in being trained. The greatest number (20, 57.1%) responded that they were very interested in being trained, while only 2 (5.7%) showed "a little interest". The overall average Attitude score out of seven (7) was 6.3 *sd* 1.0 (*mean* 7.0; range 3 to 7).

#### ***5.5.2.5 Possible use for future interventions***

In examining the various software programs available to provide connectedness instant messaging offered the greatest appeal to the staff (e.g. WhatsApp / BBM®)

(15, 42.9%), followed by video chat (Skype™) (11, 31.4%) and then short message service (SMS) (9, 25.7%). Social media and e-mail were not selected with regards to greatest appeal. Linking to the failure of the respondents to select social media as appealing, the software program that offered the least appeal was social media (e.g. facebook®) (10, 28.6%). This was followed by video chat (e.g. Skype™) (9, 25.7%) and then e-mail (8, 22.9%). (See Table 24: Appeal of technologically assisted communication [*n*=35]).

**Table 24: Appeal of technologically assisted communication (*n*=35)**

Activity	Greatest appeal <i>n</i> (%)	Least appeal <i>n</i> (%)
Instant messaging e.g. BBM® / or WhatsApp	15(42.9%)	3 (8.6%)
Video chat (Skype™)	11 (31.4%)	9 (25.7%)
Short Message Service (SMS)	9 (25.7%)	5 (14.3%)
Social media e.g. facebook®,	Not selected	10 (28.6%)
E-mail	Not selected	8 (22, 9%)

## 5.6 SUMMARY OF THE CHAPTER

This chapter has provided in detail the results of the two surveys as guided by the framework for the study. It has served to highlight the key findings that will be discussed further in the next chapter. These are that the residents' level of mental wellbeing is high when measured on the WHO-5 for total score (confirmed by the Kessler-6), but lower when considering any negative category. Paradoxically results show a high level of loneliness. Social capital involved results for network dynamics, structures and social connectedness which can be summarised as moderate levels. The use of technology to assist communication was low amongst the residents, as reflected in their low perceived usefulness and ease of use thereof, however their attitudes were high. The results for the direct care staff show a positive attitude, with a strong association between their PEU and PU for technologically assisted communication. This leads into the further discussion in the following chapter.



## **CHAPTER 6: DISCUSSION**

### **6.1 INTRODUCTION**

This chapter discusses the findings of the enquiry into respondents' social capital and mental wellbeing and their readiness for a technologically driven mental health intervention. The bulk of the discussion will bear upon the level of the residents' individual social capital and mental wellbeing: after a consideration in general terms of these aspects, their key building-blocks (network structures and dynamics, and social connectedness). Thereafter, the question of the residents' readiness for technologically assisted communication (TAC) will be addressed; this brings into the picture the residents' current access, perceptions of the ease of use and usefulness of this form of communication, and thus their degree of interest, and attitudes. A further consideration is whether, and to what degree, demographic variables influence the residents' readiness for, technologically-assisted communication. The chapter concludes with a brief look at the possibility of the direct care staff functioning as bridging capital for the promotion, by means of TAC, of the residents' mental health.

### **6.2 SOCIAL CAPITAL AND MENTAL WELLBEING**

Seventy five persons (of a total of 103 residents) participated in the survey. The respondents' group reflected the overall profile of the residents in consisting mainly of widowed, English-speaking white females falling into the older old (75+ years) age band. A major reason for the predominance of white residents is that the nuclear family structures that typically contain them have been adversely affected by high levels of emigration (Stats SA, 2010). The majority of respondents had left school without completing matric and had been living for a period of two to five years in the residential facility which caters for persons older than 60 and is administered by a non-profit-making organisation ([www.tafta.org.za/index.asp](http://www.tafta.org.za/index.asp)).

Older people are particularly vulnerable to loneliness as a consequence of major life transitions, which in the case of the respondents in this study also involved relocation, thereby placing a strain on their stocks of social capital (Franke, 2005; Franke, 2006; Keating et al., 2004). The Cohen-Mansfield and Parpura-Gill study (2007) involving 161 residents showed that loneliness was the greatest predictor of depression ( $\beta=-0.25$ ) and Golden et al. (2009) identified a dose-response relationship between depression and loneliness. So seeking to build/rebuild individual social capital as a counter to loneliness and depression must be a key goal of any endeavour aiming to replenish older persons' capital stocks of mental wellbeing; and in this endeavour a social network approach has much to recommend it. Accordingly, in attempting to determine the individual social capital of the respondents in its bearing upon their mental wellbeing, this study examined their individual social networks, as reflected in the critical indices of social relations, network structures and network dynamics.

### **6.2.1 Mental wellbeing**

The respondents' states of mental wellbeing and psychosocial distress were measured using three well validated and reliable instruments: the WHO-5 for mental wellbeing, the Kessler-6 for psychosocial distress, and for loneliness the 6-item de Jong Gierveld Loneliness scale. All three instruments showed good reliability in this residential setting and there was a medium-strength correlation with the WHO-5 and the Kessler-6 with consistent scoring across the two instruments.

Overall, the respondents reported high levels of wellness, with 74% - 82.7% reporting a sense of wellbeing or a lack of psychosocial distress. Men showed higher levels of psychological distress than women ( $p=.014$ ), perhaps because relocation to a residential facility has more severe financial, physical and instrumental implications for men than for women – worsened in the face of their higher levels of self-efficacy (Biddle, 2012), thus eroding men's sense of independence and self-efficacy more drastically than women's, and so leading to higher levels of psychological distress (Drageset et al., 2011). This is a possibility that merits further investigation.

Of particular interest was the finding that the generally high levels of subjective mental wellbeing reported by the respondents paradoxically went hand in hand with fairly high levels of reported loneliness: more than half of the respondents (54.7%) reported being emotionally lonely and just under half (48.0%) declared that they were socially lonely. The level of emotional loneliness in nine respondents was of an intense nature. The percentage of respondents with overall loneliness (72%) was higher than in other comparable studies, where the rates ranged from 25% - 54% (Drageset et al., 2011; Golden et al., 2009).

In addition, no association was found between age, marital status (never married and widowed) and loneliness, and this too is not in accordance with other comparable studies (Drageset, 2004; Drageset et al., 2011; Golden et al., 2009). Also of particular interest in this study was the significant association ( $p=.007$ ) between emotional loneliness and being of Indian descent (persons of Indian descent accounted for 19.4% of the sample). While this is certainly an area that requires further investigation, it is worth floating a hypothesis to account for this exceptionally high level of emotional loneliness that can also be generically applied to other residents. Luanaigh and Lawlor (2008) state that the development of new contacts can act as a buffer against the feelings of loneliness that so often follow in the wake of an older person's relocation to a residential facility; but their submission has to be appraised against the backdrop of the Canadian PRI's emphasis (2005) on the significance of homogeneity in the formation of bonding capital. Now, in the residential facility where the enquiry was conducted, homogeneity could well have been equated with age, being without a partner, being English speaking and being "white". On that basis, persons of Indian descent could have encountered exclusion on the part of the dominant racial group in the residence, the "whites". Alternatively the strong bonding capital in the light of South Africa's historical context might have discouraged integration (PRI, 2005). Whether such exclusion would have been motivated more by racial factors or more by the Indian residents' cultural dissimilarities from the majority remains undetermined - and should be enquired into.

The ABS (2004) has found cultural differences to be significant barriers to social acceptance. In his investigation of social capital in the indigenous people of

Australia, Biddle (2012) concluded that the highest level of subjective wellbeing is associated with diversity in a person's social network; that is, the presence within it of some people from minority groups. And here it is worth noting that the ABS's definition (2004) of acceptance of diversity includes the values of respect, understanding and appreciation. Further studies need to be run to establish whether diversity has been embraced in this facility in Durban. (Emotional loneliness is further discussed later in this chapter.)

Another concern, brought to light by the Kessler-6, was that five respondents were identified as having a recognized mental disorder. There has been some criticism of the use of the Kessler-6 in the South African context where it is claimed to show a moderate discriminatory bias against the Black population group (Andersen et al., 2011). Accordingly, Andersen and colleagues (2011) suggested that this tool is better suited to the Australian and Canadian studies where its reliability has not been questioned. However given that the demographic profile of the Durban residence differs little from those overseas, the Kessler-6 proved in the event to have high reliability (Cronbach  $\alpha$ =.862).

It is recommended by the Psychiatric Research Unit in Hillerød, a WHO Collaborating Centre for Mental Health, that any WHO-5 item in the negative category suggests a need for further screening (<http://www.cure4you.dk>). Using this scoring, nearly half of the residents reported at least one negative item that may raise doubts about their mental wellbeing. Considering that most of the negative reporting was linked to respondents' not always feeling active and vigorous, and considering further that these responses originated with the older old where the connection between ageing and physical deterioration is most marked (Bisschop et al., 2004), the high level of reporting becomes understandable. It should be noted that this finding of poor sense of mental wellbeing is slightly higher than that of the Jongenelis and colleagues' (2011) study involving residents (333) from 14 nursing homes in the North West Netherlands (where 42.2% of the residents exhibited some form of depression), but is lower than other reports based on the Kessler-6 and the standard form of WHO-5 scoring. It is suggested nonetheless that more attention be

paid to exercise programmes for the residents of the Durban facility and that further studies monitor the link between their exercise levels and their mental wellbeing.

If one excludes from the data analysis residents' complaints about low energy levels, the picture that emerges is a firmly positive one: overall mood scored well (84%), so did feeling cheerful and in good spirits (81.3%) and being interested in activities (74.7%). Significantly, there was a reported high sense of hope (88%); thus, despite the number of widows/widowers (45, 60%) in the sample, with the attendant possibility of grief overshadowing more optimistic feelings (Bergin & Waite, 2005), hope remained – and remained strong. These findings are significant for the building and preservation of the respondents' social capital as hopefulness is a shield against psychological distress (Omer and Rosenbaum, 1997). And it may be that the high level of reported hopefulness, operating as a counterweight to loneliness, accounts for the paradox, noted above, of generally high levels of reported mental wellness going hand in hand with rather high levels of reported loneliness. Further, the high level of hopefulness may also account for the absence of a link between demographic association and a sense of general mental wellbeing; this is a finding that mirrors those of Jongenelis and colleagues (2004) save for their finding of a negative association between older old age and depression in 350 Nursing Home patients.

### **6.2.2 Social Connectedness**

Network structures and dynamics, inclusive of closeness, trust and self-efficacy, were examined in terms of their contribution to the individual's social capital. In serving this objective, these various elements operate in an interlocking manner, dramatizing the point that social capital is built by a process of composite, not unitary, causality (Franke, 2005).

### **6.2.2.1 Network size and volume**

Widows/widowers and divorced persons had primary social networks of similar size (mean, 2.6; *sd* 0.7, and mean, 2.6; *sd* 0.9), while those who had never married had the smallest primary networks (mean, 0.82). With regard to overall network size, a slight difference between widows/widowers (mean, 6.4; *sd* 1.4), and divorced persons (mean, 5.8; *sd* 1.5) came to light; again, the never-married had the smallest social networks overall (mean, 4.4; *sd* 1.4). Gender was found to play a role: males had smaller networks than females. But no differences in network size were registered in respect of the different age bands, and this runs counter to studies showing that a person's social network tends to shrink in size as s/he ages since the opportunities for network replacement become fewer (van Groenou et al., 2013). Or do they? The results from this study give meaning to van Groenou et al. (2013)'s discussion of the tendency to focus on the losses associated with ageing and failure to recognize the gains that may occur through rekindling of old friendships or the inauguration of new ones. On the basis of their 16-year Longitudinal Ageing Study Amsterdam, van Groenou and colleagues (2013) noted that while some shrinkage of the personal networks of the elderly is inevitable, the networks tended on the whole to remain relatively stable unless cognitive or mental health problems supervene. This highlights the importance of managing older persons' loneliness and psychological distress in the residential context, with an eye to keeping the shrinkage of their personal networks down to the minimum.

Contrary to van Groenou and colleagues (2013) saying that network size would diminish with mental health problems, there is no link in this study between network size and the respondents' mental wellbeing. Understanding of this finding is further linked to the insight provided by Cornwell and Waite (2009) in that social disconnectedness and loneliness can be seen as independent of each other and that the perceptual nature of loneliness lies in the interpretation of the apparent disconnectedness. Cornwell and Waite (2009) also point out that older persons are capable of adjusting their expectations in the face of life's transitions, thereby mitigating some of the more damaging effects on their mental wellbeing of their objectively increasing loneliness. On the other hand, as these authors indicate, the

onset of mental ill-health might itself undermine their ability to adjust. The lesson here for the residential facility, given the negative correlations between total loneliness and emotional loneliness, and mental wellbeing, is to be proactive in the promotion of mental wellbeing so as to stave off for as long as possible the onset of mental ill-health.

The literature reveals differences of opinion regarding the relative importance of different network members, the focus of the divergence being the relative importance of spouse, adult children and friends (Drageset et al., 2011; Nyqvist et al., 2012; Tsai, H-H. et al., 2010). Drageset et al. (2011) take the view that what is critical is not the “who” of the relationship, but the emotional quality of the attachment; hence, the more satisfying its emotional quality, the less acute will the perceptions of loneliness be. Notwithstanding the position taken by Drageset et al. (2011) the present study found that most respondents’ *primary* networks (spouse/partner and/or children) had a significant bearing upon their mental wellbeing (so the ‘who’ *does* matter). As regards size, there was an average of 1.9 children per respondent, and while this figure does not suggest the densest of networks, even so most of the respondents viewed the members of the primary network as the persons they felt closest to and would be most willing to confide in.

Next in importance after family were friends with whom, in fact, frequency of contact was in general maintained at a higher level than with family. Most respondents reported feeling close (or very close) to their friends and having a high degree of confidence in them. The preferred means of keeping up contact with friends was in the younger old through face-to-face encounters and in the older old by telephone. Friends can function as both bridging and bonding capital: in the former capacity, they connect residents with networks – and thus with cultural and social opportunities – subsisting beyond the walls of the residential facility; in the latter capacity they are persons befriended within the residence (Franke, 2005). This resource of friends towards accumulating social capital can be further increased through the development of measures to decrease the high levels of social loneliness friends, like family, serve to lessen residents’ vulnerability to loneliness as they can serve as both bonding capital and bridging forms (de Jong Gierveld et al.,

2005; Franke, 200a). Drageset et al. (2004) showed that contact with friends made a difference ( $p=.028$ ): the greater the frequency of contact with them, the lower the level of social loneliness experienced by the resident. Friendship can act as both bridging, linking the older person to new networks and bonding capital within the residence. In order for friendship to yield its full benefits to the best advantage of all the parties in the relationship, it has to rest on a foundation of mutual confidence and mutual trust (Franke, 200a). This holds relevance to linking with community, cultural social activities outside of the residence as well as creating diverse networks that lessen the vulnerability to loneliness (de Jong Gierveld et al., 2005). There was a difference ( $p=.028$ ) shown in that the greater the frequency of contact with friends the less the level of social loneliness which was confirmed by Drageset (2004) and Franke (2005). This study showed that especially with friends this could be hindered by a lack of trust.

#### **6.2.2.2 Network Dynamics**

In understanding network dynamics it is important to look at issues of trust, people to confide in, people to feel close to, a sense of self-efficacy and social support.

The greatest level of closeness existed within the respondents' primary social network (i.e. partner/spouse, children, great/grandchildren, in some cases great/grandchildren). This finding is not unexpected and not unexpectedly goes hand in hand with the finding that respondents' children are most likely to be confided in and noted by other authors (Nygqvist et al., 2012; Tsai, H-H. et al., 2010). Friends are more likely to be confided in than relatives not within the immediate family circle. It is perhaps surprising that while the residential community achieves high scores in relation to frequency of contact (5.0-6.4), it achieves low ones with respect to feelings of closeness (CI, 1.0-2.1) and the selection of confidants (CI, 0.5-1.1). The levels of closeness are lowest for the health-care providers (nurses CI, 0.3-1.2; doctors CI, 0.4-1.4), with an equally low likelihood of residents turning to them as confidants (nurses CI, 0.3-0.8; doctors CI, 0.6-1.2), which is probably linked with their current health status.



Interpersonal and institutional trust (whose effect is to reduce transaction costs: ABS, 2004) is a highly significant value in the accumulation of social capital. The average trust score was high, with no significant differences noted in the expressions of trust relative to any of the demographic variables. This finding is not in accord with the Finnish study by Nummela, Sulander, Rahkonen, Karisto, & Uutela (2008): they found that levels of trust were influenced by age and gender. With regard to the provision of healthcare, an interesting disparity was identified between reported trust and Confidences Indexes; three quarters of the respondents (74.7%) declared that they trusted doctors, far fewer (41.3%) that they trusted nurses. Responses linked to general trust in people were low: in the subscale Social Loneliness, 41.3% of the respondents indicated that there were not many people they felt they could trust completely, and as for trusting people in a general way, only 45.3% stated that they would do so.

The respondents achieved high totals in self-efficacy, regardless of the demographic variables of age, gender, marital status, race, home language and educational level. This indicated that generally they felt it was seen as fit and proper that they should have input into important matters involving family, friends and the residential facility. The high overall score was, however, significantly ( $p=.005$ ) influenced by a substantially higher sense of self-efficacy in matters relating to respondents' families and friends (66.7%), as compared to matters relating to the residential facility (49.3%). Biddle (2012) and Keating et al. (2004) in separate studies noted that passivity was counterproductive and that having a say in family matters had a positive effect on mental wellbeing. Further, the results from this residence are in line with those obtained by Drageset and colleagues in their 2009 study involving residents ( $n=227$ ) from 30 residential facilities in Norway. These authors showed that where reassurance of self-worth was offered, vitality was positively affected ( $p=.001$ ) as well as the need to satisfy their assistance providing role. On the basis of their findings, Drageset et al. (2009) suggested that nursing staff give residents the opportunity to make a contribution to decisions relating to daily activities in the facility, thereby boosting their sense of having a degree of control over their lifestyle. For its part, the Durban facility makes use of a suggestion book, but results suggest that greater involvement on the part of residents is called for.

There is also a call for sensitivity and sound judgement in any scheme to enhance residents' contribution to decisions affecting the facility, given the low frequency of contact and low trust levels subsisting between nurses and residents. The potential gains would appear to justify the risks for, as Tseng and Wang (2001) have shown, a positive connection exists – positive in particular for the process of trust building - between support from nurses and quality of life among residents. So one possible way of enhancing the residents' quality of life and increasing trust levels between them and the nursing staff would be to increase the frequency of contact between the two groups, the more so as the nurses are the group with whom residents make contact least often. Pettigrew and Tropp (2006) in their discussion of contact theory suggest that where contact occurs often, there is the possibility of generating affective ties, and this could be a route, where bridging capital can increase residents' sense of self-efficacy.

Though this study did not reveal a link between a diminished sense of self-efficacy and loneliness, it found that involvement in activities the residence organised acted as a counter to loneliness for nearly half (45.3%) of the respondents. Nonetheless, 65% of them reported that they missed having people around them (this was the most frequently-cited item on the Loneliness Scale), and this could be related to their sense of self-efficacy. A diminished sense of self-efficacy has been spotlighted as one of the most important predictors of loneliness and affects social skills, particularly those involved in initiating and maintaining relationships (Cohen-Mansfield & Parpura-Gill, 2007). For that reason it is important that there be opportunities for forging new social contacts (Cohen-Mansfield & Parpura-Gill, 2007).

It is in this connection, among others, that activities outside the residence have a significant role to play. Recognizing the limitations brought on by ageing, such as reduced mobility and finances, Cohen-Mansfield and Parpura-Gill (2007) counsel that social activities be offered within the facility; at the same time, however, they point to a significant augmentation in the mental wellbeing of those who participated in activities outside of the residence (Cohen-Mansfield & Parpura-Gill, 2007). Lending support to this finding, Fressman and Lester (2000) concluded that forging friendships outside the residence proved useful as a counter to emotional loneliness. So the fact that 68% of the respondents in the present study were found to

participate in activities within the residence while only 36% were involved in activities outside it, points to a need for remedial action. The ability of the residents to access outside resources was not hampered by security concerns for nearly three quarters (70%) reported feeling confident about their security in its surrounds. In the context of outside activities, the option of volunteering assumes particular significance as it offers residents the opportunity to engage in a satisfying pursuit while at the same time enlarging their social network and giving a boost to their sense of self-efficacy, thereby promoting mental wellbeing (Cornwell et al., 2008; Musick & Wilson, 2003). Religious volunteering has been found to be a more effective defence against depression than secular volunteering (Musick & Wilson, 2003). In the present study, nearly three quarters (73%) of the respondents reported that their social network included a religious figure, and 60% reported that they felt they were able to confide in this person. As the entire discussion of mental wellbeing has revolved around social capital it is fitting to affirm that encouraging volunteerism among the facility's residents is a sound investment with the potential to return worthwhile dividends.

Overall the residents reported good levels of social support (43% reported strong support and 44% moderate support); only 13% of the respondents reported poor support. The total OSLO-3 score revealed no link with demographic variables. Drageset and colleagues (2011) in concluding their study maintained that loneliness is associated with a low level of support from family and friends, as distinct from low frequency of contact with them. This study did not concur with that conclusion, finding instead that *both* frequency of contact *and* level of support are relevant, with a strong significant finding of increased face-to-face contact resulting in lower reported levels of social loneliness ( $p=.030$ ).

As far as emotional loneliness is concerned, Luanaigh and Lawlor (2008) stated that it mainly results from the absence of a dependable attachment person; this ties in with the findings of Drageset et al. in their 2011 study. The present study showed a statistically significant association between perceptions of social support (as measured on the OSLO-3) and not having many people to rely on ( $p=.001$ ), this nexus being most visible in the case of the respondents of Indian descent ( $p=.006$ ). The picture as a whole is however complicated by respondents generally having no

more than two people they can count on when they have a problem, which is slightly lower than the median of three identified by Keating and colleagues (2004). Nonetheless the small number of 'dependable attachment persons' can be offset by a high level of trust in them.

### **6.3 TECHNOLOGICAL READINESS OF THE RESIDENTS**

Technologically assisted communication offers the opportunity to increase the social network size, frequency of contact with it and feeling closeness to its members. While the present study found no link between respondents' mental wellbeing (including feelings of loneliness and/or psychological distress) and the overall size of their social networks or their levels of closeness to its members, it is submitted that in order to maintain this situation, technology has a useful role to play as a means of relationship replacement, as well as for enhancing support networks and adding value to initiatives to promote mental health. The size of the *primary* network is however linked to mental wellbeing, and while technologically assisted communication may make no difference to its size, it could still be expected to make a positive difference to the extent that it would serve to increase residents' *closeness* to members of the primary group by offering increased opportunities for confiding in them.

While the younger old preferred to use Technologically Assisted Communication to contact their children and great/grandchildren, this study found that communication via landline is favoured amongst the older old. Fifty-two per cent of respondents own telephones. Drageset et al. (2004) linked frequent landline use to low levels of emotional loneliness. With the non-kin group, contact was primarily face-to-face; here TAC can play a useful role in facilitating contact in between face-to-face encounters. Provided frequency of contact held steady, no statistical difference to mental wellbeing was registered, whatever the mode of contact, whether face-to-face or something else; but when residents failed to engage in face-to-face with family or friends for more than a month, a decrease in mental wellbeing was noted. This underscores the value of face-to-face contact and is counter to Rettie (2003) who

states that the perception of the person's availability can provide as much satisfaction as their physical presence.

### **6.3.1 Access to and perceptions of technologically assisted communication**

Ninety eight percent of the respondents had access to some device enabling them to communicate with parties outside the facility. At the time of the study 80% had access to a cellphone, the majority of whom used the prepaid route to buy data bundles/airtime. For extended periods of use the prepaid option is more restrictive, and that is a limitation that must be borne in mind if a mental health promotion programme involving training is to be implemented. Eighteen percent of the cellphones had internet access, but this function was not widely used; highest use in this group was for instant messaging (8%). These findings are in line with those of Lee (2007) who notes that cellphone features are not used to their full capacity by older persons.

All respondents used their cellphones to make and receive calls, but among the older old predominantly for receiving them. The receiving of calls is considered to be the easiest use of the cellphone as well as its most advantageous function. A statistical difference was found between the younger old and the older old with regard to the reception and sending of text messages, the older old perceiving this activity to be both more difficult and less useful. There is also a statistical difference between the younger old and the older old with regard to the playing of games on the cellphone, an activity from which the latter abstain. These findings are confirmed by van Biljon and Renaud (2009) in their discussion of cellphone features from which older persons tend to recoil. Marital status was found to impact on perceptions of the usefulness, as well as the actual use, of the cellphone: the divorced found the device most useful, the never married least useful, and this is reflected in a higher frequency of cellphone contact with their social networks among the divorced than among the never married. It is probable that this fact is itself a reflection of a difference in size as between the two groups' respective social networks. The array

of functions offered by smartphones, including video chat and the sending of e-mails, was perceived by respondents as at once more difficult and less useful.

Despite increases in computer ownership in South Africa (Stats SA, 2012), only 5.3% of respondents own computers; this fact would need to be borne in mind in planning for a TAC intervention. Computers are mostly used to access the internet and to receive and send e-mails, both functions being perceived as easy and useful. Within the last year other functions of the computer have been explored, such as linking to social media, playing games and video chatting,

The overall scores for Perceived Ease of Use and Perceived Usefulness of Technologically Assisted Communication were very low (10.9 *sd* 9.3 and 10.9 *sd* 9.8). It is of interest to note that the Perceived Ease of Use and perceived Usefulness of the cellphone decreases in relation to the longer residing in the facility and is highest in the first year when emotional loneliness is at its highest. It is suggestive that as the emotional loneliness decrease and social integration increases that the cellphone has less value. This is also of note in the younger old in using the cellphone to play games in the first year of residence. Despite the primary use in devices in this study to be central to cellphones, Fokkema and Knipscheer (2007) in their Dutch study (n=15) that the computer was often used to pass the time, which links with early residency, loneliness and the use of gaming on the cellphone. It should be noted, however, with regard to cellphones, that the questionnaire did not enquire into how respondents acquired them. The possibility exists, therefore, that an undetermined number of respondents had surplus cellphones palmed off on them by family or friends (van Biljon & Renaud, 2009); if so, they would have missed the important appropriation phase which involves a process of decision making about the device's perceived usefulness and ease of use (van Biljon & Renaud, 2009), resulting in a negative skewing of the recorded overall scores. It is for this reason that van Biljon and Renaud (2009) suggest that actual observation of an older person's use of a cellphone is preferable to a self-report questionnaire, the data-gathering method employed in this study.

### **6.3.2 Attitudes and Behavioural Intention**

The behavioural intention of those not already using some form of Technologically Assisted Communication (cellphones and computer) was low. This is something that needs to be borne in mind when planning for an intervention. Overall, however, there was evidence of a receptive attitude towards Technologically Assisted Communication, as reflected in respondents' Attitude scores (4.3 *sd* 2.7). Video chat offered the greatest appeal to the younger old, while e-mailing was most appealing to the older old. Linking in to social media had the least appeal. It should be noted, however, that these several possibilities were demonstrated to the facility's residents on a computer, not a cellphone, so it must be presumed that the 'verdicts' they returned on the self-report questionnaire hold good for computer functionality and cannot be extrapolated to cellphone use.

## **6.4 TECHNOLOGICAL READINESS OF DIRECT CARE STAFF**

The canvass of the direct-care staff's readiness for a technologically-driven mental health promotion programme produced positive results.

The majority of the 35 direct-care staff (average age 40) who participated in the survey was isiZulu speaking, Black females employed as caregivers. All 35 respondents owned a cellphone, with 54% having internet access. Two owned computers, one of which was a laptop. Computer usage was low and staff would need training to render them computer-literate.

The direct-care staff resembles the residents in using their cellphones mainly to receive and make calls as well as to receive and send text messages, but on the latter count – sending text messages – they are much more adept than the residents. Almost two-thirds of them play games on their cellphones, and this level of dexterity could be used as a platform for teaching them further technological skills, to be transferred to the residents, in particular the older old persons as the younger old have a greater perceived ease of use and usefulness of the cellphone.

The direct-care personnel found the additional features incorporated into smartphones, such as instant messaging, internet, social media and video chat less easy to use; they were accordingly perceived as less useful. So this should be the area of focus in any further development of their technological skills. As Perceived Ease of Use has been shown to shape Perceived Usefulness (Davis, 1989), any training programme envisaged would need to be non-intimidatory and would have to make room for the gradual mastery of new skills. The same would hold true for the residents; in addition, as older persons, they would need more time for information processing, and room would have to be made for a period of experimentation (van Biljon & Renaud, 2009.). With regard to a staff-training initiative, however, an encouraging pointer is the positive attitude of nearly all the direct-care staff (94.2%) to being taught new skills – a pointer that suggests the residential facility is ready for a mental health promotion intervention and the more so if the staffs' positive attitude to TAC can be transferred to the residents. A start could be made with video chat, for although the software that appealed to the direct-care personnel differed from that which appealed to the residents, video chat had a high level of appeal to both groups.

A number of factors particularly recommend video chat – at any rate, as a first step. To begin with, it has psychosocial benefits in that it allows for a form of face-to-face interaction, which has been shown to enhance mental wellbeing. The obvious advantage of video chat over phone calls is that it renders visible all those nuances of non-verbal communication that add to the value of human interaction. Further, as a means to richer interpersonal experience, video chat can serve as a more efficient, more satisfying vehicle for making contact with persons or activities beyond the walls of the residence, possibly as a prelude to residents actually participating in the latter, perhaps in a volunteering capacity. Additionally, video chat is relatively easy to operate and, given the well-known apprehension of the elderly in the face of the unfamiliar, combined with their declining dexterity, ease of operation is a decided recommendation (and the presence of icons identifying the link person(s) on the computer/smartphone screen makes operation easier still) (Heinz et al., 2013; Tsai, H-H. et al., 2010; van Biljon & Renaud, 2009). Finally, the facility has available a computer with connectivity and staff who are willing to learn. There are however two



drawbacks that have to be taken into account: the first is the current low frequency of contact and low level of trust subsisting between residents and the direct-care staff who would be their teachers, assuming the willingness of the latter to act in that capacity (and that should by no means be taken for granted). Second, on the level of immediate practicalities, the facility currently has available for communal use only one computer with connectivity (a further five are in private ownership), so the encouragement of video chat under the present conditions would likely lead to bottlenecks, with their attendant frustrations and the risk of loss of interest on the part of the residents.

## **6.5 SUMMARY OF THE CHAPTER**

This chapter has reviewed the results of the present study with reference to the individual social capital of the respondents, considered in terms of its bearing on their mental health, interchangeably referred to as their mental wellbeing. The discussion of social capital was carried out under the heads of its principal components: network structures, network dynamics and social support. Of note was the high levels of loneliness, and when measured by any negative category that there was a moderate level of mental wellbeing. There was strong evidence for the significance of the primary social network, whose members represented closeness and confidants but parallel to this was the highly significant relevance to the residents' mental wellbeing to be involved in activities outside of the residence.

While the Durban facility's residents exhibit a lower level of *readiness* than the direct-care staff in relation to the mooted introduction of technologically assisted communication (TAC), there is a convergence between the two groups on the plane of *receptivity*, at least in so far as the medium of video chat is concerned. It would seem, therefore, that if TAC is to be introduced into the facility, it should begin with video chat - the more so, indeed, considering its potential to create bonding capital in respect of the residents' primary social networks and bridging capital in respect of their links with persons, activities and resources beyond the walls of the residence.

Key findings and recommendations will be set out in the next and concluding chapter of the study.

## **CHAPTER 7: CONCLUSION AND RECOMMENDATIONS**

### **7.1 KEY FINDINGS**

Configuring the organizational framework of this study was a coupling of the Canadian Policy Research Initiative (PRI) framework (Franke, 2006) using a network approach, to measure social capital, with Davis' 1989 Technology Acceptance Model. This coupling resulted in a two-part self-report questionnaire being distributed to residents and direct-care staff of a residential facility for older persons located in the city of Durban, South Africa. Seventy five residents and 35 direct care staff responded. Following analysis, the two-part survey revealed the following:

#### **A. Mental health and social capital**

- Respondents displayed high levels of mental wellbeing on the WHO-5 scale; nonetheless, taking all negative ratings into account, their level of mental wellbeing is better described as moderate. At the same time, the degree of hopefulness reported was consistently high.
- Respondents also consistently displayed low levels of psychosocial distress on the Kessler-6, though males showed greater psychological distress than females, while five respondents screened positively for severe depression on the Kessler-6.
- However, more than half of the respondents reported varying degrees of emotional and social loneliness, with respondents of Indian descent declaring significantly higher levels of emotional loneliness.
- Widowers/widows, who formed the majority of the respondents, had the largest social networks, though males had smaller networks than females. The size of the primary network appeared to influence the mental wellbeing of respondents. Of the various members of the primary network, children were the ones respondents felt closest to and most inclined to confide in. Having someone to confide in was shown to be one of the key facilitators of mental wellbeing.

- Friends were the most frequently occurring members of the respondents' social networks; a high frequency of contact with friends was reflected in lower levels of loneliness. Religious figures, present in nearly three quarters of respondents' social networks, were viewed by a majority of the latter as persons they would be willing to confide in.
- The respondents reported low levels of participation in activities outside the residence. However, those who did participate in such activities exhibited a higher level of mental wellbeing in comparison with those who did not participate. Participation in outside activities is the strongest predictor of mental wellbeing.
- Trust and self-efficacy levels were high. The sense of self-efficacy was higher in decision-making relating to the family circle than in decision-making related to the facility. Trust levels were generally high, and this included respondents' confidence regarding their personal safety and security in the surrounds of the residence. On the other hand, trust in 'people in general' was low, and this was even more markedly the case with respect to nurses
- Although high levels of social support were reported overall, the number of people that could be relied on was small. Face-to-face contact, resulting in lower social loneliness, occurred more often with members of the non-kin network than with the family group. On the other hand, relationships with non-kin individuals were less close than with kin, nor were non-kin persons as likely to be chosen as confidants.

**B. Technological readiness of respondents (older persons and direct care staff)**

- Respondents had high accessibility to cellphones with basic functions, but very limited access to computers.
- Residents found cellphones relatively easy to operate for receiving and making calls and for receiving text messages, but for the older old in particular, the sending of text messages appeared to pose problems.
- Technologically assisted communication was favoured in particular by the younger old and the divorced, while landlines were favoured by the older old.

- Residents evinced moderately favourable attitudes and behavioural intention with respect to technologically assisted communication in general, though not with respect to smartphones, which were perceived as not easy to operate and therefore as not being useful.

With regard to video chat, residents and direct-care staff appeared to be of one mind in viewing it as both useful and easy to use.

## **7.2 RECOMMENDATIONS**

Based on the findings of the study, the following recommendations are offered:

### **7.2.1 Recommendations for consideration by the residential facility**

- Residents should be encouraged to become involved in community activities, especially through volunteering, which have been found to have a beneficial effect on mental wellbeing mainly by boosting the individual's sense of self-efficacy (Blazer, 2002; Keating et al., 2004; van Kemenade et al., 2006; Veninga, 2006). Volunteering initiatives should be accompanied by support and by positive reinforcement of residents' attempts to increase their sense of self-efficacy. It is also an avenue to increase network size and where through reciprocity a resource could be created for the access of practical help, which is a significant contributor to mental wellbeing.
- A participative forum should be initiated where residents can be involved in discussions and decisions bearing upon matters affecting the residence. The sense of agency engendered by this process could be emancipating and empowering (Boog, 2003; Keating et al., 2004) and productive of an increase in residents' sense of self-efficacy.
- Increased frequency of contact/contact time between nursing staff and residents could lead to improved levels of trust between the two groups (Pettigrew & Tropp, 2006).

- That a number of residents were identified by the Kessler-6 as meeting the criteria for depression is cause for concern. It is recommended that annual screening of residents using a short tool such as the Kessler-6 be implemented.
- With an eye to promoting the use of technology, a peer leader should be identified amongst the residents as a resource person, 'mandated' to offer guidance in the advantageous use of the cellphone (Heinz et al., 2013) and the computer.

### **7.2.2 Areas where additional research is recommended**

- Firstly, it is suggested that this study be replicated for older black persons who outnumber all other older persons combined, and whose number is expected to increase as life expectancy in general improves in South Africa in line with targets set by the National Development Plan 2030 (RSA, 2011). It may be anticipated that because so many older black persons, as members of 'skip-generation' families (Stats SA, 2010), have under their care so many younger persons, they will be more susceptible to high levels of psychosocial distress than were the residents who participated in this study (Lombard & Kruger, 2009). Consequently, if a repeat study involving older black persons were to be run, the Kessler-6 might need to be revalidated or replaced, in the light of the criticism this tool incurred following its use in the South African Stress and Health study (Andersen et al., 2011).
- There are opportunities for explorative studies. The first would have as its aim to clarify the reasons for the high level of emotional loneliness reported by the respondents of Indian descent who comprised a fifth of the sample. It is suggested that a narrative format be utilized as this will enable the residents of Indian descent to tell their story about their lived experiences as a racial and cultural minority in a setting where white older people formed a large majority. The information yielded by such an investigation will enable the facility management to better strategize a way forward in the expectation of a more balanced racial mix in the residence in the future (Lombard & Kruger,

2009; Pettigrew & Tropp 2006). Secondly, in the light of the finding that male residents exhibited higher levels of psychological distress than females, there is an opportunity to explore their experiences of moving into an environment that forced upon them a change of roles (diminished decision-making powers, diminished control over their lives) which probably dealt a severe blow to their sense of self-efficacy (Blazer, 2002; Drageset et al., 2011). The information obtained will enable integration processes into the residence to be more sensitively managed for both male newcomers and established male residents.

- Lastly this study has highlighted the relevance of further investigations relating to technologically assisted communication for the elderly. Interventions utilizing this technology should be introduced gradually, one device at a time being proposed to the elderly for their consideration, thus smoothing the path to acceptance (van Biljon & Renaud, 2009). The present study suggests that video chat ought to be introduced first, being the intervention best attuned to both the receptivity levels and the psychosocial needs of the residents. While phasing in this intervention, it will be possible - and necessary – to monitor the effectiveness of the different software options and also, on an individual basis, residents' cognitive-processing capacities and the incidence of computer anxiety (Cody et al., 1999; van Biljon & Renaud, 2009). Any further investigation would seek to identify the best ways of training the direct-care staff in the use of whatever TAC device is mooted for introduction, and also the best ways of imparting their acquired skills to residents, in the knowledge that special difficulties of adaptability and dexterity accompany the learning process among the elderly (van Biljon & Renaud, 2009). Any TAC intervention involving direct-care personnel would need to be closely monitored as studies have shown that it is the quality of contact during the intervention, rather than the intervention as such, that makes the major difference, for good or ill, to mental wellbeing (Tsai, H-H. et al., 2010) which should, accordingly, be measured at regular intervals so as to track the psychological effectiveness of the intervention. The possibility of using tablets should be explored as they offer portability and are adaptable to the increasing limitations that accompany ageing (Tsai et al., 2010). The different research options available (e.g. cross-

sectional study, repeat study), which to a degree will depend upon the type of technology proposed for implementation, are discussed by various authors (Chung et al., 2010; Masi et al., 2011; Shapira et al., 2007; Tsai et al., 2010; White et al., 2002; Wright, 2000)

### **7.3 LIMITATIONS OF THE STUDY**

The first limitation concerns the representativeness of the sample: “whites” account for only 24% of older persons in South Africa (Stats SA, 2010). So although the sample was certainly representative of the 103 residents of the facility, the great majority of whom are “whites”, it clearly was not representative of the population profile of the country as a whole, and this naturally limits the generalizability of the data gathered and the conclusions reached.

A second limitation is the possibility that some respondents – in particular those who needed assistance to fill in the questionnaire – may have been moved by a desire to please the researcher by offering responses thought to be in line with the answer the researcher was imagined to be looking for. This ‘social desirability bias’ may have resulted in an under-reporting of negative judgments (de Jong Gierveld & van Tilburg, 2006; Polit & Beck, 2010).

A further limitation was inconsistencies in reporting. The self-report nature of the questionnaire created an opportunity for inconsistencies (or, at any rate, apparent inconsistencies) to arise in the data relating to frequency of contact with, feelings of closeness to, and ability to confide in, network members; that notwithstanding, the data was captured as submitted by the respondents.

That physical health was not measured has also to be seen as a limitation, although given the already considerable size of the study, measuring as well for general physical health and its influence on mental wellbeing was just not practicable. But future research in this area could include a question on self-rated physical health.



Lastly, the questionnaire contained questions about receiving help, but not about giving it. This could be viewed as a shortcoming for, as Drageset and colleagues showed in their 2009 study, a link exists between mental health and the opportunity to offer help and provide nurturance. This is a conclusion that studies on volunteering back up.

As regards the technological readiness survey, it would have been helpful to ask respondents how they had acquired their cellphones, since if some of them were using palmed-off devices, whereby the process of familiarization was hindered, it could have resulted in perceptions of the cellphone as a less easy device to operate than was actually the case (van Biljon & Renaud, 2009).

## **7.4 CONCLUSION**

A network approach was adopted in the foregoing investigation into individual social capital and its relation to the mental wellbeing of older persons living in a residential facility for the elderly. The investigation showed the older persons and their context to be rich, on the whole, in environmental, structural and human potential which, converted into bonding and bridging capital, can operate, in a self-reinforcing manner, to build individual social capital stocks. The mode of operation is not, however, a matter of single elements working in linear succession, but rather the coordinated, synergetic action of a number of core elements (such as self-efficacy [involvement in decisions], primary network contact, trust, social support, having people to confide in) working together to build mental wellbeing as a shield against negative outcomes such as loneliness and psychological distress. Technologically assisted communication, adapted with forethought and sensitivity to the special requirements of the elderly, is a tool with the potential to expand and enrich their social networks and, in consequence, enhance their mental health.

This study, while addressing the specific needs of residents in a particular facility, nevertheless contains information and findings that are generalizable to other

settings - that could, indeed, guide debate at a national level and that ought to feed into nursing curricula.

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## APPENDICES

## APPENDIX 1: RESIDENT QUESTIONNAIRE

DATE OF DATA COLLECTION \_\_\_\_ / \_\_\_\_ / 2013

RESEARCH ID \_\_\_\_

### QUESTIONNAIRE TO SURVEY SOCIAL CAPITAL, MENTAL WELLBEING AND TECHNOLOGICAL READINESS OF RESIDENTS IN RESIDENTIAL FACILITY FOR OLDER PERSONS

#### INFORMATION SHEET AND CONSENT

*Before you can start there are three (3) questions in relation to the process followed prior to this survey. They require a “yes” or “no” response. Please mark the relevant box with an X. If “no” to any of the questions, please do not proceed further, and notify the researcher.*

a.	Do you have a copy of the information sheet? .....	Yes	No
b.	Did you read the information sheet? .....	Yes	No
c.	Have you signed the informed consent form? .....	Yes	No

*Thank you for your willingness to participate in this survey. There are eight (8) sections that will require you to fill in the relevant box. Please take your time in responding. You will be stepped through each question and are free at any point to ask questions. You may reconsider any response until it is placed in the drop box.*

#### 1. DEMOGRAPHIC

*To start there are questions about your demographics. Please mark the relevant box with an X.*

1.1 Age in years .....	Years				
1.2 Gender .....	Male			Female	
1.3 Ethnic group .....	Black	Indian	Colored	White	
1.4 Home language .....	English	Afrikaans	Zulu	Other (specify)	
1.5 Marital status .....	Married	Divorced	Widowed	Separated	Cohabiting
1.6 Number of living children (adopted / foster / step / own).....	Living children				
1.7 Number of living grandchildren/ great grandchildren.....	Living grandchildren/great grandchildren				
1.8 Apart from children/grandchildren /spouse number of living relatives .....	Living relatives				
1.9 Highest education level passed .....	Primary	Std 8 (JC)	Std 10 (matric)	Tertiary diploma/degree	
1.10 Length of time residing at present residential facility.	_____months _____years				

## 2. SOCIAL NETWORKS

*There are now questions about the people you may have interacted with over the last 12 months i.e. your current social network. If the person in the list is not in your social network, mark the “not applicable” column.*

### 2.1 Volume of contact

How often do you contact each of the persons below? Mark your choice with an X

	Not applicable	Never	Less than once a year	Once a year	Once a quarter	Once a month	Every 2 weeks	Once a week	2 – 6 times a week	Every day
1.Spouse or Partner										
2.Child/children										
3.Grandchild/ren										
4.Other relative/s (specify)										
5.Friend										
6. Nurse										
7. Doctor										
8. Community group										
9. Religious leader										
10.Other (specify)										

### 2.2 Closeness

How close do you feel is your relationship with each of the persons below? Mark your choice with an X.

	Not applicable	Not very close	Somewhat close	Very Close	Extremely close
1.Spouse or Partner					
2.Child/children					
3.Grandchild/ren					
4.Other relative /s (specify)					
5.Friend					
6. Nurse					
7. Doctor					
8. Community group					
9. Religious leader					
10.Other (specify)					



### 2.3 Trust

How likely are you to confide in or make important decisions with each of the persons below? Mark your choice with an X

	Not applicable	Not likely	Somewhat likely	Very likely
1.Spouse or Partner				
2.Child/children				
3.Grandchild/ren				
4.Other relative /s (specify)				
5.Friend				
6. Nurse				
7. Doctor				
8. Community group				
9. Religious leader				
10.Other (specify)				

### 2.4 Contact type

What is the **most common** form of contact you have with each of the persons below? Choose **ONE** option by marking the column with an X.

	Not applicable	Face to face	Telephone (landline)	Cellphone (calls)	Cellphone (sms or instant messaging)	Email	Letters by post	Social media (e.g. Facebook ®)	Video chat (Skype™)
1.Spouse or Partner									
2.Child/children									
3.Grandchild/ren									
4.Other relative/s (specify)									
5.Friend									
6. Nurse									
7. Doctor									
8. Community group									
9. Religious leader									
10.Other (specify)									

### 3. SOCIAL CONNECTEDNESS

*This set of questions relates to social connectedness. Please choose the options in the box next to the question and mark the box with an X.*

#### 3.1. Social participation within and outside the residence

a. Have you been involved in social activities that the residence has organized in the last 3 months? .....					Yes	No
b. Have you been involved in cultural, social or community groups outside the residence in the last 3 months? .....					Yes	No
c. How often have you had face to face contact with family /friend.....	Every day	Few times a week	Few times a month	Once a month	Not in the last month	
d. Apart from face to face contact, how often have you had other contact with family /friends .....	Every day	Few times a week	Few times a month	Once a month	Not in the last month	

#### 3.2. Access to Social support (Oslo-3 social support)

a. How many people are so close to you that you can count on them if you have serious problems? .....		none	1 or 2	3-5	6 or more
b. How much concern do people show in what you are doing? .....	A lot of concern and interest	Some concern and interest	Uncertain	Little concern and interest	No concern and interest
c. How easily can you get practical help from others? ....	Very easy	Easy	Possible	Difficult	Very difficult

#### 3.3. Self-efficacy (Rate your level of agreement with these statements)

a. I am able to have a say with family / friends on important issues .....	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
b. I am able to have a say in the residence on important issues.....	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

#### 3.4. Trust (Choose the most appropriate response for you in relation to each of the phrases)

a. Generally people.....	Can be trusted a lot	Can mostly be trusted	Can be trusted sometimes	Mostly cannot be trusted	Cannot be trusted at all
b. Towards my doctor I feel.....	A great deal of confidence	Quite a lot of confidence	A moderate amount of confidence	Not very much confidence	No confidence at all
c. Towards nurses I feel.....	A great deal of confidence	Quite a lot of confidence	A moderate amount of confidence	Not very much confidence	No confidence at all
d. Towards hospitals I feel.....	A great deal of confidence	Quite a lot of confidence	A moderate amount of confidence	Not very much confidence	No confidence at all
e. Towards security in my surrounds I feel.....	A great deal of confidence	Quite a lot of confidence	A moderate amount of confidence	Not very much confidence	No confidence at all

*That brings to a close that section, now for a few questions on your feelings.*

**4. LONELINESS** *There follows 6 statements that you need to read and for each choose a “yes” or “no” response*

a.	I experience a general sense of emptiness .....	Yes	No
b.	There are plenty of people I can rely on when I have problems .....	Yes	No
c.	There are many people I can trust completely .....	Yes	No
d.	There are enough people I feel close to .....	Yes	No
e.	I miss having people around me .....	Yes	No
f.	I often feel rejected .....	Yes	No

**5.**

**KESSLER 6**

*Please mark*

*with an X in the relevant box for each of the 6 following items.*

*During the past 4 weeks (28 days) how much of the time did you feel*

	All of the time	Most of the time	Some of the time	A little of the time	None of the time
a.	So sad nothing could cheer you up .....				
b.	Nervous .....				
c.	Restless or fidgety .....				
d.	Hopeless .....				
e.	That everything was an effort .....				
f.	Worthless .....				

**6. WHO (FIVE) WELL- BEING INDEX**

*There are five (5) statements. Please indicate for each of the five statements which is the closest to how you have been feeling over the last two weeks.*

*Notice that higher numbers mean better wellbeing. Please place an X in the relevant box.*

	All of the time	Most of the time	More than half of the time	Less than half of the time	Some of the time	At no time
a. I have felt cheerful and in good spirits .....	5	4	3	2	1	0
b. I have felt calm and relaxed .....	5	4	3	2	1	0
c. I have felt active and vigorous .....	5	4	3	2	1	0
d. I woke up feeling fresh and rested .....	5	4	3	2	1	0
e. My daily life has been filled with things that interest me...	5	4	3	2	1	0

## 7. TECHNOLOGICAL READINESS

*We are now finished with the questions on your feelings and physical health. The next set of questions is about the communication devices (technologies) that you might or might not use.*

### 7.1 Access to communication devices

*The first questions are in relation to your access to these communication devices.*

a.	Do you have a landline in your room? .....	Yes	No
b.	If yes to (a), is it prepaid or contract? .....	Prepaid	Contract
c.	If no to (a), do you have access to a landline in the residence? .....	Yes	No
d.	Do you own a cellphone? .....	Yes	No
e.	If yes to (d), does your cellphone allow internet access? .....	Yes	No
f.	If yes to (d) is it prepaid or contract? .....	Prepaid	Contract
g.	If no to (d) to you have access to a cellphone? .....	Yes	No
h.	Do you own a computer? .....	Yes	No
i.	If yes to (h) is it a desktop, a lap top or a tablet? ..... Desktop	Laptop	Tablet
j.	If yes to (h) do you have internet access? .....	Yes	No
k.	If yes to (j) is it prepaid or contract? .....	Prepaid	Contract
l.	If yes to (j), is the connectivity through 3G or ADSL? .....	3G	ADSL

## 7.2 Use of communication devices

*In the above section you mentioned the availability of communication devices. This section deals with your ease of use, competency, duration of use, usefulness of use and frequency of use. Please refer to the choices in the top bar in relation to the statement in the left bar.*

7.2.1 How <b>easy (confident)</b> is it for you to <b>use</b> each of the items listed below? Please mark your choice with an X.	Don't use	Very Difficult	Easy	Very Easy
a. Cellphone to make calls				
b. Cellphone to receive calls				
c. Cellphone to send sms				
d. Cellphone to receive sms				
e. Cellphone for instant messaging (e.g. BBM® or WhatsApp)				
f. Cellphone to video chat (Skype™)				
g. Cellphone to receive or send an e-mail				
h. Cellphone for social media e.g. facebook®				
i. Cellphone for internet				
j. Cellphone for playing games				
k. Computer to receive e-mails				
l. Computer to send e-mails				
m. Computer to video chat (Skype™)				
n. Computer for internet				
o. Computer to play games				
p. Computer for social media e.g. facebook®				

7.2.2 For how long <b>have you been using</b> each of the items listed below i.e. <b>duration of use</b> ? Please mark your choice with an X.	Don't use	Less than 6 months	6 months – 1 year	1 – 2 years	More than 2 years
a. Cellphone to make calls					
b. Cellphone to receive calls					
c. Cellphone to send sms					
d. Cellphone to receive sms					
e. Cellphone for instant messaging (e.g. BBM® or WhatsApp)					
f. Cellphone to video chat (Skype™)					
g. Cellphone to receive or send an e-mail					
h. Cellphone for social media e.g. facebook®					
i. Cellphone for internet					
j. Cellphone for playing games					
k. Computer to receive e-mails					
l. Computer to send e-mails					
m. Computer to video chat (Skype™)					
n. Computer for internet					
o. Computer to play games					
p. Computer for social media e.g. facebook®					

7.2.3 How <b>useful to you</b> are each of the devices listed below for e.g. maintain contact or accessing information?	Don't use	Not useful at all	Somewhat useful	Useful	Very useful
a. Cellphone to make calls					
b. Cellphone to receive calls					
c. Cellphone to send sms					
d. Cellphone to receive sms					
e. Cellphone for instant messaging (e.g. BBM® or WhatsApp)					
f. Cellphone to video chat (Skype™)					
g. Cellphone to receive or send an e-mail					
h. Cellphone for social media e.g. facebook®					
i. Cellphone for internet					
j. Cellphone for playing games					
k. Computer to receive e-mails					
l. Computer to send e-mails					
m. Computer to video chat (Skype™)					
n. Computer for internet					
o. Computer to play games					
p. Computer for social media e.g. facebook®					

7.2.4 How <b>frequently</b> do you <b>use</b> the items listed below? Please mark your choice with an X.	Don't use	Less than	Once a year	Once a	Once a month	Once every 2	Once a week	2 – 6 times a	Every day
a. Cellphone to make calls									
b. Cellphone to receive calls									
c. Cellphone to send sms									
d. Cellphone to receive sms									
e. Cellphone for instant messaging (e.g. BBM® or WhatsApp)									
f. Cellphone to video chat (Skype™)									
g. Cellphone to receive or send an e-mail									
h. Cellphone for social media e.g. facebook®									
i. Cellphone for internet									
j. Cellphone for playing games									
k. Computer to receive e-mails									
l. Computer to send e-mails									
m. Computer to video chat (Skype™)									
n. Computer for internet									
o. Computer to play games									
p. Computer for social media e.g. facebook®									

*This next set of questions has statements about technologically assisted communication (TAC) to which you need to choose “yes” or” no.” Mark the relevant box with an X. Examples of technologically assisted communication are SMS, instant messaging (e.g. BBM®, WhatsApp), email, video chat (Skype™) or social media (e.g. facebook®)*

**7.3 Perceived usefulness of technologically assisted communication (TAC)**

- |    |   |     |    |
|----|---|-----|----|
| a. | Apart from phone calls, I would be able to contact my family /friends using other TAC ..... | Yes | No |
| b. | I could improve my contact with my family/friend/s by me using TAC .....                    | Yes | No |
| c. | I could have greater control over my contact with my family / friend/s by me using TAC..... | Yes | No |

**7.4 Behavioral intention towards technologically assisted communication (TAC)**

- |    |   |     |    |
|----|---|-----|----|
| a. | I am already using technologically assisted communication ..... | Yes | No |
|----|---|-----|----|

**IF YES to (a), please move to 7.5. If no, please answer b, c and d.**

- |    |   |     |    |
|----|---|-----|----|
| b. | I intend to use TAC .....                                   | Yes | No |
| c. | I have confidence that I will be able to use TAC .....      | Yes | No |
| d. | People who are important to me think I should use TAC ..... | Yes | No |

**7.5 Attitude towards technologically assisted communication (TAC)**

- |    |  |     |    |
|----|--|-----|----|
| a. | It is easy for me to learn something new such as using a new cellphone ..... | Yes | No |
| b. | I have a positive attitude towards using TAC .....                           | Yes | No |
| c. | I like the idea of being able to contact my family / friend/s using TAC..... | Yes | No |
| d. | I am happy to use TAC.....   | Yes | No |

**7.6 Rating of technologically assisted communication.**

- a. Which technologically assisted communication generally has the greatest appeal to you (Please mark with a 5 in the box next to your choice)?
- b. Which technologically assisted communication generally has the least appeal to you (Please mark with a 1 in the box next to your choice)?

Technologically assisted communication	Rating
a. E-mail	
b. Instant Messaging ( BBM®/ WhatsApp)	
c. SMS	
d. Social media (e.g. facebook®)	
e. Video chat (Skype™)	

**8. Other comments**

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*That brings the survey to a close. Thank you very much for both your time and your participation. In three months from now you be invite to an informal feedback session to provide you with the results of the study.*



## APPENDIX 2: STAFF QUESTIONNAIRE

DATE OF DATA COLLECTION \_\_\_\_ / \_\_\_\_ / 2013

RESEARCH ID

### QUESTIONNAIRE TO SURVEY TECHNOLOGICAL READINESS OF STAFF IN A RESIDENTIAL FACILITY FOR OLDER PERSONS

#### INFORMATION SHEET AND CONSENT

*Before you can start there are three (3) questions in relation to the process followed prior to this survey. They require a “yes” or “no” response. Please mark the relevant box with an X. If “no” to any of the questions, please do not proceed further, and notify the researcher.*

1. Do you have a copy of the information sheet? .....	Yes	No
2. Did you read the information sheet? .....	Yes	No
3. Have you signed the informed consent form? .....	Yes	No

*Thank you for your willingness to participate. Two sections require you to fill the relevant box. You may reconsider your choices until you post the questionnaire in the sealed box.*

#### 1. DEMOGRAPHIC INFORMATION

*To start there are questions about your demographics. Please mark the relevant box with an X.*

a. Age in years .....			Years			
b. Gender .....	Male		Female			
c. Ethnic group .....	Black	Indian	Coloured	White		
d. Home Language.....	English	Afrikaans	Zulu	Xhosa	Hindi	Other
e. Highest education level passed .....	Std 6-7 / gr. 8-9	Std 8-9 / gr. 10 -11	Std 10 / gr. 12	Tertiary diploma / degree		
f. Present occupation	Registered nurse	Enrolled nurse	Enrolled nursing assistant	Care giver	Administrator	Occupational therapist
g. Length of time working here	_____years_____months					

#### 2. TECHNOLOGICAL READINESS

*This section deals with the devices for technologically assisted communication that you might or might not use.*

##### 2.1 Access to devices for technologically assisted communication.

*The following questions are in relation to your access to these devices. Mark relevant box with an X.*

a. Do you own a cellphone? .....	Yes	No
b. If yes to (a), does it have internet access? .....	Yes	No
c. If yes to (a) is it prepaid or contract? .....	Prepaid	Contract
d. If no to (a) do you have access to a cellphone? .....	Yes	No
e. Do you own a computer? .....	Yes	No
f. If yes to (e) is it a desktop, a lap top or a tablet? ..... Desktop	Laptop	Tablet
g. If yes to (e) do you have internet access? .....	Yes	No
h. If yes to (e) is it prepaid or contract? .....	Prepaid	Contract
i. If yes to (g), is the connectivity through 3G or ADSL? .....	3G	ADSL

## 2.2 Use of communication devices

*In the above section you mentioned the availability of communication devices. This section deals with your ease of use, competency, duration of use, usefulness of use and frequency of use. Please refer to the choices in the top bar in relation to the statement in the left bar.*

2.2.1 How <b>easy (confident)</b> is it for you to <b>use</b> each of the items listed below? Please mark your choice with an X.	Don't use	Very difficult	Difficult	Easy	Very Easy
a. Cellphone to make calls					
b. Cellphone to receive calls					
c. Cellphone to send sms					
d. Cellphone to receive sms					
e. Cellphone for instant messaging (e.g. BBM® or WhatsApp)					
f. Cellphone to video chat (Skype™)					
g. Cellphone to receive or send an e-mail					
h. Cellphone for social media e.g. facebook®					
i. Cellphone for internet					
j. Cellphone for playing games					
k. Computer to receive e-mails					
l. Computer to send e-mails					
m. Computer to video chat (Skype™)					
n. Computer for internet					
o. Computer to play games					
p. Computer for social media e.g. facebook®					

2.2.2 For how long <b>have you been using</b> each of the items listed below i.e. <b>duration of use</b> ? Please mark your choice with an X.	Don't use	Less than 6 months	6 months – 1 year	1 – 2 years	More than 2 years
a. Cellphone to make calls					
b. Cellphone to receive calls					
c. Cellphone to send sms					
d. Cellphone to receive sms					
e. Cellphone for instant messaging (e.g. BBM® or WhatsApp)					
f. Cellphone to video chat (Skype™)					
g. Cellphone to receive or send an e-mail					
h. Cellphone for social media e.g. facebook®					
i. Cellphone for internet					
j. Cellphone for playing games					
k. Computer to receive e-mails					
l. Computer to send e-mails					
m. Computer to video chat (Skype™)					
n. Computer for internet					
o. Computer to play games					
p. Computer for social media e.g. facebook®					

2.2.3 How <b>useful to you</b> are each of the devices listed below for e.g. maintain contact or accessing information?	Don't use	Not useful at all	Somewhat useful	Useful	Very useful
a. Cellphone to make calls					
b. Cellphone to receive calls					
c. Cellphone to send sms					
d. Cellphone to receive sms					
e. Cellphone for instant messaging (e.g. BBM® or WhatsApp)					
f. Cellphone to video chat (Skype™)					
g. Cellphone to receive or send an e-mail					
h. Cellphone for social media e.g. facebook®					
i. Cellphone for internet					
j. Cellphone for playing games					
k. Computer to receive e-mails					
l. Computer to send e-mails					
m. Computer to video chat (Skype™)					
n. Computer for internet					
o. Computer to play games					
p. Computer for social media e.g. facebook®					

2.2.4 How <b>frequently</b> do you <b>use</b> the items listed below? Please mark your choice with an X.	Don't use	Less than once a year	Once a year	Once a quarter	Once a month	Once every 2 weeks	Once a week	2 – 6 times a week	Every day
a. Cellphone to make calls									
b. Cellphone to receive calls									
c. Cellphone to send sms									
d. Cellphone to receive sms									
e. Cellphone for instant messaging (e.g. BBM® or WhatsApp)									
f. Cellphone to video chat (Skype™)									
g. Cellphone to receive or send an e-mail									
h. Cellphone for social media e.g. facebook®									
i. Cellphone for internet									
j. Cellphone for playing games									
k. Computer to receive e-mails									
l. Computer to send e-mails									
m. Computer to video chat (Skype™)									
n. Computer for internet									
o. Computer to play games									
p. Computer for social media e.g. facebook®									

*This next set of questions has statements about technologically assisted communication to which you need to choose “yes” or “no.” Mark the relevant box with an X. Examples of technologically assisted communication are BBM®, WhatsApp, email, SMS, Skype™ or facebook®*

**2.3 Perceived usefulness of technologically assisted communication (TAC)**

- |  |     |    |
|--|-----|----|
| a. Apart from phone calls, I would be able to contact my family /friends using other TAC   | Yes | No |
| b. I could improve my contact with my family/friend/s by me using TAC .....                | Yes | No |
| c. I could have greater control over my contact with my family / friend/s by me using TAC. | Yes | No |

**2.4 Behavioural intention towards technologically assisted communication (TAC)**

- |  |     |    |
|--|-----|----|
| a. I am already using technologically assisted communication ..... | Yes | No |
|--|-----|----|
- IF YES to (a), please move to 7.5. If no, please answer b, c and d.**
- |  |     |    |
|--|-----|----|
| b. I intend to use TAC .....                                   | Yes | No |
| c. I have confidence that I will be able to use TAC .....      | Yes | No |
| d. People who are important to me think I should use TAC ..... | Yes | No |

**2.5 Attitude towards technologically assisted communication (TAC)**

- |   |     |    |
|---|-----|----|
| a. It is easy for me to learn something new such as using a new cellphone ..... | Yes | No |
| b. I have a positive attitude towards using TAC .....                           | Yes | No |
| c. I like the idea of being able to contact my family / friend/s using TAC..... | Yes | No |
| d. I am happy to use TAC.....   | Yes | No |

**2.6 Rating of technologically assisted communication.**

- a. Which technologically assisted communication generally has the greatest appeal to you (Please mark with a 5 in the box next to your choice)?
- b. Which technologically assisted communication generally has the least appeal to you (Please mark with a 1 in the box next to your choice)?

Technologically assisted communication	Rating
a. E-mail	
b. Instant messaging ( BBM®/ WhatsApp)	
c. SMS	
d. Social media (e.g. facebook®)	
e. Video chat (Skype™)	

**2.7 Preparedness to be trained in use of TAC, to offer residents assistance in TAC use**  
**Which best reflects my preparedness to be trained in the use of TAC such that you can assist residents when using TAC. (Mark the box with a “X”)**

a. No interest at all	b. A little interest	c. Interested	d. Very interested
-----------------------	----------------------	---------------	--------------------

**3. Other comments**

*That brings the survey to a close. Thank you very much for both your time and your participation.*

**In three months from now you be invite to an informal feedback session to provide you with the results of the study.**

### APPENDIX 3: CHANGES TO QUESTIONNAIRES FOLLOWING PILOT STUDY

Relevant questionnaire	Item on original questionnaire/s	Revised item	Reason for revision																									
Residents and staff	7.1.e If yes to (d), what type is it?	7.1 e If yes to (d), does your cellphone allow internet access?	Participants unaware of type of phone. primary aim - to identify if it was a smartphone to establish technological readiness for further interventions, so changed to gather required data.																									
	2.2.1 How <b>easy</b> is it for you to <b>use</b> each of the communication devices listed below? Mark your choice with an X. 2.2.2 How <b>competent</b> do you feel using each of the communication devices listed below? Mark your choice with an X	2.2.1 How <b>easy (confident)</b> is it for you to <b>use</b> each of the items listed below? Mark each item with an X.	Participants felt similar responses were required from the questions																									
	2.6 Rating of technologically assisted communication. Please rate the technologically assisted communication that generally has the most appeal to you. Rating is from 1 – 6, with (6) being the option with the most appeal to you and (1) being the option with the least appeal for you to use. <table><tr><td>Technologically assisted communication</td><td>Rating</td></tr><tr><td>a. Chat ( BM®/ WhatsApp)</td><td></td></tr><tr><td>b. E-mail</td><td></td></tr><tr><td>c. Internet</td><td></td></tr><tr><td>d. SMS</td><td></td></tr><tr><td>e. Social media such as facebook®</td><td></td></tr><tr><td>f. Video chat (Skype™)</td><td></td></tr></table>	Technologically assisted communication	Rating	a. Chat ( BM®/ WhatsApp)		b. E-mail		c. Internet		d. SMS		e. Social media such as facebook®		f. Video chat (Skype™)		2.6 Rating a. Which technologically assisted communication generally has the greatest appeal to you (Please mark with a 5 in the box next to your choice)? b. Which technologically assisted communication generally has the least appeal to you (Please mark with a 1 in the box next to your choice)? <table><tr><td>Technologically assisted communication</td><td>Rating</td></tr><tr><td>a. E-mail</td><td></td></tr><tr><td>b. Instant messaging ( e.g. BBM®/ WhatsApp)</td><td></td></tr><tr><td>c. SMS</td><td></td></tr><tr><td>d. Social media (e.g. facebook®)</td><td></td></tr><tr><td>e. Video chat (Skype™)</td><td></td></tr></table>	Technologically assisted communication	Rating	a. E-mail		b. Instant messaging ( e.g. BBM®/ WhatsApp)		c. SMS		d. Social media (e.g. facebook®)		e. Video chat (Skype™)	
Technologically assisted communication	Rating																											
a. Chat ( BM®/ WhatsApp)																												
b. E-mail																												
c. Internet																												
d. SMS																												
e. Social media such as facebook®																												
f. Video chat (Skype™)																												
Technologically assisted communication	Rating																											
a. E-mail																												
b. Instant messaging ( e.g. BBM®/ WhatsApp)																												
c. SMS																												
d. Social media (e.g. facebook®)																												
e. Video chat (Skype™)																												

Residents	1.7 Number of living grandchildren	1.g. Number of living grandchildren /great grandchildren  Changed further and great-grandchildren added for every point where grandchildren was mentioned	Ages of residents required evidence of another generation in the social network
	3.1. b. Have you been involved in cultural groups outside the residence in the last three months? 3.1. c. Have you been involved in social or community activities outside the residence in the last three months?	3.1. b. Have you been involved in cultural, social or community groups outside the residence in the last 3 months?	Difficulty by residents to differentiate between cultural, social and community groups
	a. Landline to receive calls b. Landline to make calls	Omitted	Logistic difficulties as opposed to constructs being measured

## APPENDIX 4: PERMISSION TO USE PRI MODEL

**Mary Ann Jarvis**

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**From:** sandra.franke@hrsdc-rhdcc.gc.ca  
**Sent:** 14 August 2013 08:17 PM  
**To:** Mary Ann Jarvis  
**Cc:** stephane.pare@hc-sc.gc.ca; Jennifer Chipps  
**Subject:** Social Capital Publications  
**Attachments:** 2006-capital-social-capital-eng.pdf; PR\_SC\_SocialPolicy\_200509\_e.pdf; RD\_SC\_Measurement\_200509\_e.pdf

Dear Mrs. Jarvis

I'm very pleased to see that the work we have done at the Policy Research Initiative is relevant for your research. I am even more honored that you may be using it for your thesis at the University of KwaZulu-Natal since I have a special connection to this part of the world: my son currently lives in Sodwana Bay!

I'm attaching three documents you may find useful:

- The Health Policy Research Bulletin, issue no 12 that features my article on "What is social capital and why it's important for health research and policy";
- The PRI publication "Social Capital as a Public Policy Tool. Project Report"; and
- My authored publication "Measurement of Social Capital. Reference Document for Public Policy Research, Development, and Evaluation".

The latter has turned out to be quite an influential piece of research used in many areas (justice, environment, local economic development, regional development, youth, employment, etc.) as it was one of the first attempts to measure the concept.

In the area of health and aging, I have also collaborated on a project with Professor Norah Keating from the University of Alberta, Canada. You might find one of her article quite relevant for your work as well "The Role of Social Capital in Aging Well" [http://www.veterans.gc.ca/pdf/pro\\_research/social-capital-in-aging-well.pdf](http://www.veterans.gc.ca/pdf/pro_research/social-capital-in-aging-well.pdf).

Please don't hesitate to contact me directly if you need further assistance. I wish you the best success for your thesis. I'd love to have get a copy of it once it's completed!

Sandra Franke

Manager, Horizontal Policy and Planning  
Employment Programs and Partnerships  
Employment and Social Development  
Government of Canada  
[sandra.franke@hrsdc-rhdcc.gc.ca](mailto:sandra.franke@hrsdc-rhdcc.gc.ca)  
Telephone 819.953.7473  
Facsimile 819.934.9596

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From: Mary Ann Jarvis <[Jarvism@ukzn.ac.za](mailto:Jarvism@ukzn.ac.za)>  
To: "[bulletininfo@hc-sc.gc.ca](mailto:bulletininfo@hc-sc.gc.ca)" <[bulletininfo@hc-sc.gc.ca](mailto:bulletininfo@hc-sc.gc.ca)>  
Cc: "[chippsi@gmail.com](mailto:chippsi@gmail.com)" <[chippsi@gmail.com](mailto:chippsi@gmail.com)>, Jennifer Chipps <[Chipps@ukzn.ac.za](mailto:Chipps@ukzn.ac.za)>  
Date: 14-08-13 12:07  
Subject: request for information

---

Dear Editor

My name is Mary Ann Jarvis. I am completing my Master's degree in nursing at the university of KwaZulu-Natal, South Africa. At present I am busy with my thesis which is centering around older persons residing

## APPENDIX 5: FACE VALIDITY

**Mary Ann Jarvis**

---

**From:** Jennifer Chipps <chippsj@gmail.com>  
**Sent:** 12 September 2013 01:10 AM  
**To:** Mary Ann Jarvis  
**Subject:** Fwd: face validity request

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

----- Forwarded message -----

**From:** **Jacqueline Bloomfield** <jacqueline.bloomfield@sydney.edu.au>  
**Date:** 12 September 2013 08:03  
**Subject:** RE: face validity request  
**To:** Jennifer Chipps <chippsj@gmail.com>

Dear Mary Ann,

Thank you for your e-mail and for the opportunity to review the two questionnaires that you plan to use in your study.

From a face validity perspective, it is my view that the items contained in both of the questionnaires adequately addresses the key issues that you hope to measure, and therefore, have face validity.

In the first questionnaire a number of items directly address mental well-being, depression and loneliness which relates to the first research objective.

It is also evident that items in the questionnaire satisfactorily address issues pertaining to social networks, social support and social connectivity.

Items related to the second and third research objectives dealing with technological readiness and connectivity and have been identified in the latter sections of the first questionnaire and the staff focusd one. I would be mindful, however, of the jargon and terminology used, as some of this may not be familiar to the research participants. For example, how likely is it that a resident will know what type of connection they have (3G or ADSL). Would they know what BBM is? Some of these questions may benefit from re-phrasing.

Overall, it is my view that the proposed questionnaires have face validity with respect to what they are proposing to measure.

I wish you well with your study,



## **APPENDIX 6: REQUEST FOR APPROVAL BY RESIDENTIAL FACILITY BOARD OF DIRECTORS**

School of Nursing and Public Health  
4th Floor Desmond Clarence Building  
University of Kwa-Zulu natal  
Durban  
4001



13 September 2013

The Board of Directors  
TAFTA  
Durban

Dear Directors

RE: Research Approval for Masters Nursing (UKZN) (Nursing)

My name is Mary Ann Jarvis and I am a registered psychiatric nurse who is completing a Masters degree in Mental Health Nursing at the University of Kwa-Zulu Natal.

I would like to start by thanking the CEO who in principle, on 04 March 2013, agreed to me conducting my research at TAFTA, followed by provisional permission from Tasneem Fareed, pending UKZN ethical clearance as well as the provision of an ethical clearance number. I have pleasure of informing you that ethical clearance has been granted and the protocol reference number is HSS/0863/013M. Attached please find a copy of the proposal. I look forward to your continued support and permission that I may contact the Nursing Services managers to make necessary arrangements for data collection from both the eligible residents as well as the staff who have direct contact with the residents.

Please see attached for further details of the study.

Should you have any concerns or questions regarding my study please do not hesitate to contact myself, my supervisor or the contact person from UKZN ethics committee, as per the details below.

I look forward to receiving your written permission and on completion giving you and the Board of Directors a written report and the participants (residents and staff) feedback in two informal tea and cake sessions.

Regards

Mrs M A Jarvis (student number 871871830)

Cell: 082 8180 274

E-mail: jarvism@ukzn.ac.za

Supervisor:

Dr. J. Chipps (Lecturer)

UKZN School of Nursing and Public Health

4th Floor Desmond Clarence Building

E-mail: chippsj@gmail.com

UKZN Human and Social Science Research Ethics Office

Ms. P. Ximba

031 2603587

**APPENDIX 7: LETTER OF REQUEST TO SENIOR NURSING SERVICES  
MANAGER OF RESIDENTIAL FACILITY**

School of Nursing and Public Health  
4th Floor Desmond Clarence Building  
UKZN  
Durban  
4001



18 September 2013

E. Booysen  
Senior Nursing Services Manager  
TAFTA  
Durban

Dear Elanette

RE Research Approval for Masters Nursing (UKZN)

I thank you and the other members present in our meeting on 10 April at TAFTA on the Ridge for their enthusiasm shown towards my research and the subsequent provision of requested information.

I have subsequently received approval for the study and its procedures from UKZN ethical committee, protocol reference number is HSS/0863/013M, as well as permission from the TAFTA Board of Directors (see attached).

As discussed, the survey will occur in two sections at TAFTA on the Ridge. Initially there will be a pilot study with three eligible volunteering residents and one eligible staff member. The pilot study will follow the same format as the survey. This process is orientation to the survey sessions with residents and staff (nursing and administrative), followed by completion of the self-report questionnaires by the two respective groups. The outcome of the survey will highlight opportunities for mental health promotion in relation to technologically assisted communication. .

As there are logistics involved with regards to the above (best days, venue/s and times, reconfirmation of referral path for those residents experiencing emotional

discomfort), once I have received your permission I would like to have a meeting with yourself, T. Fareed and the other persons that met on 10 April 2013.

I look forward to receiving written approval and a suitable date for us to meet, followed by you and your staffs' continued support for the survey. It will give me great pleasure on completion to provide you and the participants with a written report (with recognition of anonymity) on the outcome of the survey.

I have attached a copy of the proposal for your perusal. Should you have any concerns or questions regarding my study please do not hesitate to contact myself or my supervisor as per the details below.

Regards

Mrs M A Jarvis (student number 871871830)

Cell: 082 8180 274

E-mail: jarvism@ukzn.ac.za

Supervisor:

Dr. J. Chipps (Lecturer)

UKZN School of Nursing and Public Health

4th Floor Desmond Clarence Building

E-mail: chippsj@gmail.com

UKZN Human and Social Science Research Ethics Office

Ms. P. Ximba

031 2603587

## APPENDIX 8: INFORMATION SHEET: RESIDENT

Dear Resident



My name is Mrs Mary Ann Jarvis. I am completing my Master's degree in Nursing at the University of Kwa-Zulu Natal.

I am currently engaged in a research project and focusing on mental health promotion. In order to fully address this topic and a way forward for both you and other residents I would like to invite you to participate voluntarily, in an orientation session to the survey, followed by an opportunity to complete the anonymous self-report questionnaire. Together we will be working towards measures to promote mental health. This survey will take about 30 – 45 minutes to complete and involves selecting options with a tick. It should allow for a deeper understanding of the mental wellbeing needs of residents at TAFTA on the Ridge.

The study and its procedures have been approved by the UKZN ethical committee (protocol reference number: HSS/0863/013M) in essence this assures you of the following:

Neither your name nor the name of the residential facility where you reside will be recorded on any documentation, or any publication that may arise from the research study. This will be inclusive of field notes, questionnaires and the feedback session. Three months after you have completed the questionnaire, you will be invited to an informal feedback session focussing on the key findings of the study. Full consideration will be given in the session to any sensitive issues and anonymity. A summary report extracting the main items will also be sent to the Nursing Manager and Board of Directors, on completion of the study. The questionnaires will remain with the researcher, analysed and scanned to a single disc and stored in the confidential custody of the research supervisor's office for duration of five years according to UKZN research policy. Written copies of completed questionnaires will be destroyed.

As stated earlier your participation is voluntary and you can withdraw at any time prior to dropping the questionnaire into a sealed box on completion. It cannot be withdrawn as it will not be possible to identify which belongs to you.

Should your responses to the questionnaire indicate a need for counselling you will have the opportunity to be contacted and referred accordingly.

There is time for you to consider your participation and ask questions from myself or my supervisor using the contact details below. Should you choose to participate I will make an arrangement for you to sign consent to participate. I will also notify you of the date (within the next two days) and time, as well as where to meet for completion of the questionnaire.

Thanking you

Mrs M. A. Jarvis (Student number 871 871 830)

Cell: 082 8180 274

E-mail; jarvism@ukzn.ac.za

Dr. J. Chipps

UKZN School of Nursing and Public Health

Lecturer

4th Floor Desmond Clarence Building

E-mail:chippsj@gmail.com

UKZN Human and Social Science Research Ethics Office

Ms. P. Ximba

031 2603587

## APPENDIX 9: INFORMATION SHEET: STAFF

Dear Staff member



My name is Mrs Mary Ann Jarvis. I am completing my Master's degree in Nursing at the University of Kwa-Zulu Natal.

I am currently engaged in a research project and focusing on mental health promotion in older person in residential living. In order to fully address this topic and a way forward for the residents, I would like to invite you to participate voluntarily, in an orientation session to the survey, followed by an opportunity to complete the anonymous self-report questionnaire. Together we will be working towards measures to promote resident's mental health. This survey will take about twenty minutes to complete and involves selecting options with a tick. It should allow for a deeper understanding of your technological readiness to assist in a mental health promotion intervention.

The study and its procedures have been approved by the UKZN ethical committee (protocol reference number: HSS/0863/013M), in essence this assures you of the following:

Neither your name nor the name of the residential facility where you work will be recorded on any documentation, or any publication that may arise from the research study. This will be inclusive of field notes, questionnaires and the feedback session. Three months after you have completed the questionnaire, you will be invited to an informal feedback session focussing on the key findings of the study. Full consideration will be given in the session to any sensitive issues and anonymity. A summary report extracting the main items will also be sent to the Nursing Manager and Board of Directors, on completion of the study. The questionnaires will remain with the researcher, analysed and scanned to a single disc and stored in the confidential custody of the research supervisor's office for duration of five years according to UKZN research policy. Written copies of completed questionnaires will be destroyed.

As stated earlier your participation is voluntary and you can withdraw at any time prior to dropping the questionnaire into a sealed box on completion. It cannot be withdrawn as it will not be possible to identify which belongs to you.

There is time for you to consider your participation and ask questions from myself or my supervisor using the contact details below. Should you choose to participate I will make an arrangement for the signing of the consent and notify you of the date (within next two days) and time, as well as where to meet for completion of the questionnaire.

Thanking you

Ms M. A. Jarvis (Student number 871 871 830)

Cell: 082 8180 274

E-mail: jarvism@ukzn.ac.za

Dr. J. Chipps

UKZN School of Nursing and Public Health

Lecturer

4th Floor Desmond Clarence Building

E-mail: chippsj@gmail.com

UKZN Human and Social Science Research Ethics Office

Ms. P. Ximba

031 2603587



## APPENDIX 10: INFORMED CONSENT AND CONFIDENTIALITY AGREEMENT FOR RESIDENTS



I have read the information sheet and:

I understand that I am participating voluntarily.

I understand and agree that all information disclosed is confidential.

I \_\_\_\_\_ voluntarily consent to participate in this study and have been given an opportunity to withdraw at any point. I understand the purpose of the study.

\_\_\_\_\_ / \_\_\_\_ / \_\_\_\_ /  
2013

Participant's signature

I \_\_\_\_\_ understand that should the completion of the questionnaire reveal a need for counselling, I consent / do not consent to being contacted.

\_\_\_\_\_ / \_\_\_\_ / \_\_\_\_ /  
2013

Participant's signature

I have provided the above participant with the information sheet and an opportunity to ask questions to facilitate his /her understanding for informed consent.

I have notified the above participant that should the completion of the questionnaire reveal a need for counselling s/he will be contacted and this will be made available to him/her.

\_\_\_\_\_ / \_\_\_\_ / \_\_\_\_ /  
2013

Researcher's signature

## APPENDIX 11: INFORMED CONSENT AND CONFIDENTIALITY AGREEMENT FOR STAFF

I have read the information sheet and:

I understand that I am participating voluntarily.

I understand and agree that all information disclosed is confidential.

I \_\_\_\_\_ voluntarily consent to participate in this study and have been given an opportunity to withdraw at any point. I understand the purpose of the study.

\_\_\_\_\_ / \_\_\_\_ / \_\_\_\_ / 2013

Participant's signature

I have provided the above participant with the information sheet and an opportunity to ask questions to facilitate his /her understanding for informed consent.

\_\_\_\_\_ / \_\_\_\_ / \_\_\_\_ / 2013

Researcher's signature



## APPENDIX 12: GATEKEEPER PERMISSION: RESIDENTIAL FACILITY LETTER OF PERMISSION PENDING UKZN ETHICAL CLEARANCE

TO WHOM IT MAY CONCERN

23 July 2013

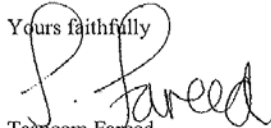
### LETTER OF PERMISSION

TAFTA stands for The Association For The aged and was started more than 50 years ago by the Late Mr John Conradie and his wife Anna. We care for the older people of the greater Durban area. We have sub economic homes as well as middle class homes and then the more affluent homes where Residents purchase Life Rights of the unit.

Mary Ann Jarvis and her team would like to do studies on certain Residents in Tafta on Ridge. This would be to conduct a survey of the social capital and mental wellbeing as well as the technological readiness of the residents and at the similar period a survey of the technological readiness of the staff that have direct contact with residents.

TAFTA herewith grant them permission to do such studies providing that UKZN ethical committee gives them their approval as well as an ethical clearance number.

Yours faithfully



Tasneem Fareed  
Divisional Manage  
Homes & Housing



80 Aliwal Street,  
Durban, 4001

PO Box 2983,  
Durban, 4000

Tel: (031) 3323721  
Fax: (031) 3378787

[www.tafta.org.za](http://www.tafta.org.za)

The Associations  
for the Aged  
Fund Raising Number  
NPO 002093

## APPENDIX 13: Approval letters: TAFTA CEO, Divisional Manager and Senior Nursing Services Manager

16th September 2013

Mrs M A Jarvis  
School of Nursing & Public Health  
4<sup>th</sup> floor, Desmond Clarence Building  
University of Kwa-Zulu Natal  
Durban  
4001

Dear Mrs Jarvis

Re: Research Approval for Masters Nursing (UKZN) (Nursing)

I refer to your letter dated 13<sup>th</sup> September 2013 of which the contents have been noted.

I am pleased to inform you that authorisation to conduct your research has been granted.

I wish you well in your endeavours and look forward to the presentation of the results on completion of this exercise.

Yours faithfully

  
MR R SCORER  
CHAIRMAN – TAFTA



80 Aliwal Street,  
Durban, 4001

PO Box 2983,  
Durban, 4000

Tel: (031) 3323721  
Fax: (031) 3378787

[www.tafta.org.za](http://www.tafta.org.za)

The Associations  
for the Aged  
Fund Raising Number  
NPO 002093

TO WHOM IT MAY CONCERN

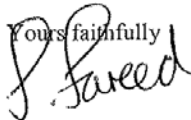
16 September 2013

**LETTER OF PERMISSION**

TAFTA stands for The Association For The aged and was started more than 50 years ago by the Late Mr John Conradie and his wife Anna. We care for the older people of the greater Durban area. We have sub economic homes as well as middle class homes and then the more affluent homes where Residents purchase Life Rights of the unit.

Mary Ann Jarvis and her team would like to do studies on certain Residents in Tafta on Ridge. This would be to conduct a survey of the social capital and mental wellbeing as well as the technological readiness of the residents and at the similar period a survey of the technological readiness of the staff that have direct contact with residents.

TAFTA herewith grant them permission to do such studies.

Yours faithfully  


Tasneem Fareed  
Divisional Manage  
Homes & Housing



80 Aliwal Street,  
Durban, 4001

PO Box 2983,  
Durban, 4000

Tel: (031) 3323721  
Fax: (031) 3378787

[www.tafta.org.za](http://www.tafta.org.za)

The Associations  
for the Aged  
Fund Raising Number

21 September 2013

Ms Mary Anne Jarvis  
College of Health Science  
School of Nursing and Public Health  
UKZN

Re: Research Approval for Masters Nursing UKZN

Dear Mary Anne

Thank you for choosing our facility to conduct your research.

I Ellanette Booyzen, Senior Nursing Services Manager, TAFTA hereby grant my approval for Mary Anne Jarvis to conduct a survey of individual social capital and well being of older persons living in a residential facility in Durban KZN and the readiness of the setting for technology driven health promotion.

I will assist in every aspect necessary to ensure the success of this survey.

Kind regards

Ellanette Booyzen (Registered Nurse and Midwife)  
Senior Nursing Services Manager  
TAFTA



80 Aliwal Street,  
Durban, 4001

PO Box 2983,  
Durban, 4000

Tel: (031) 3323721  
Fax: (031) 3378787

The Association  
for the Aged  
N.P.O. Number  
002-093

## APPENDIX 14: UKZN HSS ETHICAL APPROVAL



12 September 2013

Mrs Mary van Jarvis 871871830  
School of Nursing and Public Health  
Howard College Campus

Protocol reference number: HSS/0863/013M

Project title: A survey of individual social capital and mental well-being of older persons, living in a residential home in Durban KwaZulu-Natal and the readiness of the setting for technology driven health promotion

Dear Mrs Jarvis

Full Approval – Expedited

This letter serves to notify you that your application in connection with the above has now been granted full approval.

Any alterations to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach/Methods must be reviewed and approved through an amendment /modification prior to its implementation. Please quote the above reference number for all queries relating to this study. Please note: Research data should be securely stored in the discipline/department for a period of 5 years.

Best wishes for the successful completion of your research protocol.

Yours faithfully

  
Dr Shesuka Singh (Acting Chair)  
/ps

cc Supervisor: Dr J. Chipps  
cc Academic Leader Research: Professor M Mars  
cc School Administrator: Mrs Caroline Dhenra

Humanities & Social Sciences Research Ethics Committee  
Dr Shesuka Singh (Acting Chair)  
Westville Campus, Govan Mbeki Building  
Postal Address: Private Bag X54001, Durban, 4000, South Africa

Telephone: +27 (0)31 260 3587/8330/4557 Facsimile: +27 (0)31 260 4408 Email: [ethics@ukzn.ac.za](mailto:ethics@ukzn.ac.za) / [senior@ukzn.ac.za](mailto:senior@ukzn.ac.za) / [main@ukzn.ac.za](mailto:main@ukzn.ac.za)  
Website: [www.ukzn.ac.za](http://www.ukzn.ac.za)

Working Campuses:  Edgewood  Howard College  Medical School  Pietermaritzburg  Westville

INSPIRING GREATNESS



## APPENDIX 15: INVITATION TO SET UP FEEDBACK SESSIONS

**Mary Ann Jarvis**

---

**From:** Mary Ann Jarvis  
**Sent:** 09 December 2013 03:59 PM  
**To:** 'Elanette Booysen' (elanetteb@tafta.org.za); torfit@tafta.org.za; torfrail@tafta.org.za; tasneemf@tafta.org.za; dacabs@telkomsa.net  
**Cc:** chippsj@gmail.com  
**Subject:** Social capital & technological readiness survey

Dear All

I am pleased to say that the analysis of the survey has been completed.

I will be forwarding a report to the Board of Directors, plus I would like to meet with yourselves, the residents and the staff over tea to discuss the findings.

I appreciate that this is a busy time of the year with residents possibly visiting family.

To ensure that all gain maximum benefit from the session, would it be preferable to schedule a meeting in the early part of 2014?

I look forward to hearing from you.

Regards  
Marv Ann



## APPENDIX 16: INVITATIONAL POSTER

**YOU ARE INVITED TO TEA & EATS**

**& an orientation session with an opportunity to participate in a survey**

**The objective is to develop a better understanding of your mental wellbeing needs, as a resident of TAFTA on the Ridge.**



**WHERE: TAFTA on the Ridge boardroom**

**WHEN:** Please choose any one of the time slots and put your name on the list with reception.

25.09.13	09.00
	14.00
26.09.13	09.00
	14.00
27.09.13	09.00
	14.00

**Hope to meet with you, share eats with you & receive your valued input.**

**APPENDIX 17: CERTIFICATE OF UKZN RESEARCH POLICY V RESEARCH  
ETHICS ON LINE COURSE COMPLETED BY M A JARVIS.**

	<h1>University of KwaZulu-Natal</h1>		
<p>HEREBY ACKNOWLEDGES THAT</p> <p>Mrs Mary Ann Jarvis</p> <p>HAS COMPLETED A COURSE IN</p> <p>RESEARCH POLICY V: RESEARCH ETHICS</p> <table><tr><td><u>Completed On</u> 3 - 4 - 2011</td><td><u>Valid Until</u> 4 - 2014</td></tr></table>		<u>Completed On</u> 3 - 4 - 2011	<u>Valid Until</u> 4 - 2014
<u>Completed On</u> 3 - 4 - 2011	<u>Valid Until</u> 4 - 2014		
	<p>THE FOLLOWING SUBJECTS WERE COMPLETED IN THIS COURSE</p> <ul style="list-style-type: none"><li>- RESEARCH ETHICS POLICY</li><li>- CODE OF CONDUCT FOR RESEARCH</li></ul>		

## APPENDIX 18: PERMISSION TO USE QUESTIONS IN QUESTIONS USED IN THE AUSTRALIAN BUREAU STATISTICS SURVEY

Sent from my iPad

Begin forwarded message:

**From:** Fiona Shalley <[fiona.shalley@abs.gov.au](mailto:fiona.shalley@abs.gov.au)>

**Date:** 19 June 2013 5:02:24 PM AEST

**To:** Jennifer Chipps <[jennifer.chipps@sydney.edu.au](mailto:jennifer.chipps@sydney.edu.au)>

**Subject:** Re: FW: Use of questions in Social Capital Framework [SEC=UNCLASSIFIED]

Hello Jennifer

So sorry for this late response - I was a on leave (unexpectedly) for much of May and this slipped through.

Your student can use the questions - she will just need to attribute them to us and cite them appropriately.

Thanks for seeking advice.

Sorry again.

**Fiona Shalley**

*Director*

Special Social Surveys HSC | Northern Territory Regional Office | **Australian Bureau of Statistics**

**(P) (08) 8943 2162 (M) 0439 166 177 (F) (02) 6252 8055**

**(E) [fiona.shalley@abs.gov.au](mailto:fiona.shalley@abs.gov.au) (W) [www.abs.gov.au](http://www.abs.gov.au)**

Jennifer Chipps ---11/06/2013 07:52:20 AM---HI Fiona I refer to my email on the 13th of May below

From: Jennifer Chipps <[jennifer.chipps@sydney.edu.au](mailto:jennifer.chipps@sydney.edu.au)>  
To: "[fiona.shalley@abs.gov.au](mailto:fiona.shalley@abs.gov.au)" <[fiona.shalley@abs.gov.au](mailto:fiona.shalley@abs.gov.au)>,  
Date: 11/06/2013 07:52 AM  
Subject: FW: Use of questions in Social Capital Framework

---

HI Fiona

I refer to my email on the 13th of May below

My student is presenting this month - you did say that you thought there should not be an issue re using these questions as Dr Biddle used them as well?

Can we go ahead and present her proposal using the questionnaire wording from your survey?  
Thanks  
Jennifer

---

**From:** Jennifer Chipps  
**Sent:** 13 May 2013 16:38  
**To:** [fiona.shalley@abs.gov.au](mailto:fiona.shalley@abs.gov.au)  
**Subject:** Use of questions in Social Capital Framework

Dear Fiona

I currently have a student doing her Masters in Nursing who is wanting to conduct a survey of social capital and emotional well-being in a group of older people living in residential homes.

On reviewing the literature around social capital scales, the questions used in the ABS survey (as used in the paper by Biddle (2012) Measures of Indigenous social capital and their relationship with well-being) seems most appropriate. I have downloaded the document from your website - Measuring Social Capital An Australian Framework and Indicators 2004 from  
[http://www.ausstats.abs.gov.au/ausstats/free.nsf/0/13C0688F6B98DD45CA256E360077D526/\\$File/13780\\_2004.pdf](http://www.ausstats.abs.gov.au/ausstats/free.nsf/0/13C0688F6B98DD45CA256E360077D526/$File/13780_2004.pdf)

Can you advise me if we need permission to use these questions or use them as the basis for the questions in her survey.

Thank you

Jennifer

Dr Jennifer Chipps  
School of Nursing  
University of Sydney

-----  
Free publications and statistics available on [www.abs.gov.au](http://www.abs.gov.au)

## APPENDIX 19: CONFIRMATION OF EDITING

**Mary Ann Jarvis**

---

**From:** Ann Jarvis <dennis\_jarvis@absamail.co.za>  
**Sent:** 12 December 2013 02:46 PM  
**To:** Mary Ann Jarvis  
**Subject:** Fw: Confirmation: Editor of thesis of Mary Ann Jarvis

Sent via my BlackBerry from Vodacom - let your email find you!

---

**From:** "Ittamar Avin" <biltongdude@yahoo.co.uk>  
**Date:** Thu, 12 Dec 2013 14:24:23 +0200  
**To:** <dennis\_jarvis@absamail.co.za>  
**Subject:** Confirmation: Editor of thesis of Mary Ann Jarvis

### TO WHOM IT MAY CONCERN

My name is Dr Ittamar J Avin, formerly a member of the Department of English at the Howard College campus of the University of KwaZulu-Natal, from which I retired at the end of 2002.

I confirm hereby that I edited the thesis written by Ms Mary Ann Jarvis. My editorial duties commenced on 14/11/2013 and concluded on 11/12/2013.

## APPENDIX 20: TURNIT IN REPORT

### Turnitin Originality Report

A SURVEY OF INDIVIDUAL SOCIAL CAPITAL & MENTAL WELLBEING OF OLDER PERSONS,  
LIVING IN A RESIDENTIAL FACILITY IN DURBAN, KWAZULU-NATAL & THE READINESS OF  
THE SETTING FOR TECHNOLOGY DRIVEN MENTAL HEALTH by Mary Ann Jarvis

From Test - Part 5 (Moodle 23548811) (SON eLearning (Moodle 7331965))

- Processed on 12-Dec-2013 2:41 PM CAT
- ID: 383172018
- Word Count: 45145

### Similarity Index

6%

### Similarity by Source

#### Internet Sources:

4%

#### Publications:

5%

#### Student Papers:

N/A

### sources:

- 1 < 1% match (Internet from 22-May-2009)  
<http://news.uchicago.edu/images/assets/pdf/SocialConnectedness.pdf>
- 2 < 1% match (Internet from 13-May-2010)  
[http://www.ausstats.abs.gov.au/Ausstats/free.nsf/Lookup/13C0688F6B98DD45CA256E360077D526/\\$File/13780\\_2004.pdf](http://www.ausstats.abs.gov.au/Ausstats/free.nsf/Lookup/13C0688F6B98DD45CA256E360077D526/$File/13780_2004.pdf)
- 3 < 1% match (publications)  
Pearl A. Dykstra. "Older adult loneliness: myths and realities", European Journal of Ageing, 04/04/2009
- 4 < 1% match (publications)  
"65th Annual Scientific Meeting "Charting New Frontiers in Aging"", The Gerontologist, 2012.
- 5 < 1% match (Internet from 23-Sep-2010)  
[http://ij.suwa.ac.ir/spring2006/5thij\\_vol3\\_no2\\_2006.pdf](http://ij.suwa.ac.ir/spring2006/5thij_vol3_no2_2006.pdf)
- 6 < 1% match (Internet from 26-Sep-2010)  
<http://allnurses.com/nursing-articles/logistic-regression-384731.html>
- 7 < 1% match (publications)  
Joseph Sharit. "Investigating the Roles of Knowledge and Cognitive Abilities in Older Adult Information Seeking on the Web", ACM Transactions on Computer-Human Interaction, 5/1/2008
- 8 < 1% match (Internet from 24-Sep-2012)  
[http://cepr.unu.edu.au/sites/default/files/page/2011/01/Lecture11Paper\\_1.pdf](http://cepr.unu.edu.au/sites/default/files/page/2011/01/Lecture11Paper_1.pdf)