1996

The Role of Social Support Networks in the Independent Functioning of Elderly Persons

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A Thesis Submitted in Partial Fulfilment of the

Requirements for the Award of Bachelor of Arts (Psychology) Honours

Faculty of Health and Human Sciences, Edith Cowan University

Date of Submission: 31.10.96

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Abstract

There is conclusive evidence which highlights the importance of physical and mental health in the ability of elderly persons to function within society, and elderly persons who require services to maintain their independence, are assumed to have lower levels of functioning than persons who do not apply for, or require assistance. Individuals, however, are rarely totally independent, as most people are involved in social networks, where the reciprocal exchange of money, emotional support, goods and services are exchanged with friends family and neighbours. This study, examined the role of social support networks in the independent functioning of the elderly, in relation to an integrated model of independence and interdependence (controlling for age, physical health, mental health and gender). Participants consisted of 104 elderly persons 65 years of age and over, drawn from one of the following situations; those who have applied for home and community care services, but have not yet received them (Marginalised); and those who have not received or applied for any home and community care services (Assimilated). A comparison of the two groups, found that persons in the marginalised group were significantly different to the assimilated group on levels of social support. These findings indicate that the frequency and intensity of contact with network members, plays an important role in maintaining functioning in elderly persons. Results provide preliminary support for the integrated model of the relationship of independence to interdependence. It is concluded that formal services should therefore, direct their services towards the establishment and maintenance of informal networks to alleviate the demand for formal support.

Declaration

I certify that this thesis does not incorporate, without acknowledgment, any material previously submitted for a degree or diploma in any institution of higher education and that, to the best of my knowledge and belief, it does not contain any material previously published or written by another person except where due reference is made in the text.

Signature:

Date: 19.2.97

Acknowledgments

I would like to acknowledge appreciation to my supervisor, Dr Mark Groves, for his never-ending suggestions, support and assistance, and for his encouragement and enthusiasm throughout the year. I would also like to thank Dr Gill Lewin, Shirley Glasgow and Paula Scarapello, from Silver Chain Nursing Association, and staff at Legacy, for their valuable time and assistance; Sheree Scott for her assistance with photocopying; my mum for all her help; and my husband Ken, for his understanding, support and patience. Also thanks to Kellie Lewis for helping maintain my sanity.

Contents Page No.

List of Tables

List of Figures

The Role of Social Support Networks in the Independent Functioning of Elderly Persons

For some time we have observed Western societies go through what has been termed the demographic transition (Brotman, 1976; OECD, 1988; Shanas et al., 1968). Previously, the parents and siblings of today's elderly persons frequently died in middle adulthood from a variety of causes including tuberculosis, childhood fever, infectious diseases, and the results of poor housing or industrial working conditions (Havighurst, 1978; Mott & Riggs, 1994). These causes of death have now been eradicated or substantially reduced resulting in an increase of elderly persons in the population.

The increases of elderly in the population, however, is far from being hailed an accomplishment of which society can be justly proud, more commonly it is perceived as a social problem (Linder-Pelz, 1991). With increased life expectancy there is an associated risk of chronic illness which results in large numbers of elderly persons who are no longer able to function without some degree of assistance (Malonebeach & Zarit, 1991; Plouffe & Jomphe-Hill, 1996). The process of individual ageing has therefore, come to be represented in such negative terms that with few exceptions, old age tends to be identified with incapacity (Brotman, 1976; Comfort, 1990; Steele & Crow, 1972).

With such negative views and stigmatisation of elderly in the population, a great deal of emphasis has been placed on maintaining and rehabilitating independence in old age. Many researchers, however, have argued that everyone is dependent to some degree and that we all need help and support through life, although the amount

of support may vary across life's course. Rather than focus on independence as the primary alternative to dependence in the elderly, it would perhaps be more constructive to focus on a third possibility, that of interdependence. Interdependence consists of elderly persons participation within unique interpersonal networks (White & Groves, in press). These networks and the support they provide are an integral component of elderly persons lives (Ortmeier, 1993).

The importance of social support networks and the support they provide in elderly persons ability to function, is the primary focus of this study. The review of the literature will encompass an analysis of dependence, myths and age stereotypes, independence, interdependence, social support and suggest an integrated model of independence, interdependence and the role of social support.

Dependence

There has been little universal agreement as to a definition of dependence, however, Booth (cited in White & Groves, in press) states it is multifactorial, with many types and dimensions to the concept. According to Ford (1984), dependency is defined as the necessity to seek the assistance of some of the services our society provides. From a similar perspective, Gurland (1980, cited in Lowy, 1989), defines 'dependence' as the need for personal intervention of another in order to maintain living arrangements and sustain life. He further states that the major determination of dependence is the inability to carry out certain tasks or to fulfil instrumental roles required for existing in the community.

Measures of dependency have also been found to concentrate on physical or mental dependency, viewing the development of dependence in old age as mainly the result of biological decline and illness (Wahl, 1991). According to Ford (1984), the

two most significant developments that reduce the ability of old people to cope independently are disorders of locomotion and of intellectual functioning:

> "Certainly the circumstances in which you live, and the amount of money and the number of friends you have, may all be less than ideal. But even if you are lonely, poor and live in an unfashionable house, you can still be proud and independent, if your mind is clear and your limbs intact" (Ford, 1984, p.30).

Physical and mental decline, however do not produce dependence on their own. As the individual ages, they also inherit a number of social handicaps which include the loss of supporting relatives and friends (Steele & Crow, 1972; Eleazer, et al., 1996).

Heuval (1976, cited in White & Groves, in press), attempts to integrate the different conceptualisation's by identifying dependency as an interactive process that can be conceived three ways. Firstly, by referring to a practical or physical helplessness where individuals require attention or care by others. Secondly, by referring to a situation of powerlessness in social relationships (that is dependence on a non-reciprocal role, relying on others without being able to give in return), and finally, referring to a psychological need or learned disposition to be looked after, controlled or nurtured. This definition, however, tends to play down the emotional, structural political and economic dependency which can interact with physical dependency and make demands on services, families and private and charitable provisions (Wenger, 1986; Havighurst, 1978). According to White and Groves (in press), Western society is so focused towards people obtaining much of their self-esteem from their work and income, that when compared to working aged people, it has been easy to stereotype elderly people as less important.

Myths and Age Stereotypes

Negative images therefore, abound in our society, perceiving the elderly as redundant, dependent, decrepit and inferior (Comfort, 1990). These images of dependency in old age (seeing them as nothing but a problem), are held by the general community and often supported by media images (Linder-Pelz, 1991). According to the general public, older people don't contribute as much to their immediate communities, to society, or even to their families (Linder-Pelz, 1991). The elderly are equated with stigmatisation and powerlessness, and youth with growth and development (White & Groves, in press). Attitudes and stereotypes comparing the actions of younger to older people, therefore, provide cultural prescriptions which influence the self-perceptions of elderly people and their appropriate role behaviour (Arber & Evandrou, 1993).

Over the last two centuries, it can also be seen that Western societies don't have a tradition of valuing older people (Linder-Pelz, 1991). The aged person has been viewed as an example of decline, with no counterbalancing societal reverence for his/her judgement, wisdom, maturity and spiritual fullness (Linder-Pelz, 1991). They are seen as a minority group in society and a disadvantaged one at that (Linder-Pelz, 1991).

"...older people as having problems, as persons who need health care, as persons who need financial assistance, as persons who need special housing and as persons many of whom are widowed, unmarried and socially isolated." (Shanas, et al., 1968, p.2).

A stereotype which has prevailed, depicts all old people as belonging to a largely homogenous group who are indigent, sick and unable to manage their own affairs (Andrews & Carr, 1990; Engle, 1990; Linder-Pelz, 1991; Novak, 1985). Contrary to this stereotype, Whitehead (1978), states that each individual is unique with phenomenal variation. The older adult, a unique individual in a group of diverse individuals (Engle, 1990; Kendig, 1990). The aged must therefore, be viewed in the context of the general society, not as some sort of isolated social problem or deviant group.

Older adults have therefore been viewed, as a homogeneous group, in comparison with younger persons, problematic and in physical and mental decline. Considering these negative stereotypes, it is surprising that in researching the gerontological literature, many other myths also abound in our society.

According to Linder-Pelz (1991), old people are also seen as recipients, not givers of care, and have fewer kin available for support than did earlier generations of older people. Studies have revealed, however, that elderly persons provide a substantial amount of care to partners, and support to friends and kin (Groger, 1994; Nelson, 1993). Also distance is compensated for by easier travel and phone contact (Linder-Pelz, 1991). Secondly, the escalating costs of health care are also seen as a result of the aging of the population (Linder-Pelz, 1991). Undoubtedly, the number of older people is increasing and changes do take place in the body as a person ages, however, the amount of illness, according to many researchers is often exaggerated (Linder-Pelz, 1991; Novak, 1985; Shanas, et al., 1968).

Shanas, et al., (1968) states that assumptions frequently made in regard to elderly persons in the population, see them as being in poor health, physically isolated

from their families and living in poverty. Powell (1992), also found old age associated with 'inevitable decrepitude'. The risks of frailty and illness in old age are of course, undeniable, but there is nevertheless a form of self-fulfilling prophecy in community expectations that those frailties will become handicaps. Old age is also frequently associated with senility and feeblemindedness (Novak, 1985). Older people do suffer from mental distress, perhaps more than the population as a whole, yet recent research has shown that mental ability can actually improve with age (Brotman, 1976; Steele & Crow, 1972). In spite of some declines in mental activity, most normal people in old age do not appear to be mentally confused, and they manage the routine affairs of everyday life without evidence of intellectual deficit. (Novak, 1985).

The media of course, reflect community attitudes toward ageing and also play their part in sustaining myths (Estes, 1986; Linder-Pelz, 1991; Powell, 1992). Many writers take a narrow view of the health of older people, writing mostly in terms of medical conditions and how to live with them. Older people are portrayed as dependent on welfare handouts, live in nursing homes, alone and lonely, reinforcing the idea that old age is mostly about ill health (Linder-Pelz, 1991; Novak, 1985). Only a small number of older people, however, live in nursing homes with over 90% of elderly persons in Australia reside within the community with less than 10% in nursing homes, hostels or retirement villages (Ford, 1984; Groves, Wilson & Edwards, 1993). Most older people go about their daily lives with little or no dependence on the health care system (Novak, 1985).

If messages are not negative then they are rather condescending, older people labelled as 'oldies' and older women as 'little old ladies' (Linder-Pelz, 1991). The press loves to malign the 'little old ladies' characterising them as alone, frail, infirm,

and impoverished (Engle, 1990). According to Powell (1992), many of the images we get from the media can be placed into three broad categories. Firstly, categorising older people in a state of dependence, poverty and frailty; secondly, there are those at the other end of the spectrum who become freaks because of their achievements in old age; and finally, there are those which label people according to their age or to the expected characteristics of old age, rather than the realities of their lives (Powell, 1992).

White and Groves (in press), state that the stereotype of old age as a period of dependence can be understood on two levels. Firstly, at the level of the elderly individual themselves, their attitudes, perceptions, and behaviours concerning their own position as elderly persons in the community [a result of which has seen many elders now accepting societies negative image of old age, a self-fulfilling prophecy (Brotman, 1976)]. Secondly, at a societal systems level, where the society or community system has incorporated into its structure, the stereotype that the elderly are a target population requiring systematised provision of assistance because of their physical frailty and disability (Corin, cited in White & Groves, in press). These stereotypes, result in programmes targeting the elderly which offer too little flexibility and choice to those they are designed to serve (Shanas et al., 1968).

Advanced age, especially very advanced age, does carry with it increased vulnerability and risks of impairment due to physical and mental illness (Andrews & Carr, 1990), however, it does not mean that this happens to every individual. The majority of elderly people remain fairly independent, financially, physically and socially (Wenger, 1984).

Independence

With such negative view towards ageing and the stigma of dependence, it is not surprising that a consistent finding in the gerontology literature is that independence is important to the older individual. Elderly persons try and maintain independence, and environments that foster independence have been found to have beneficial effects on the health and well-being of elderly people (Bowsher, 1994; Wahl, 1991).

What has become clear when reviewing the gerontological literature is that independence has many definitions (White & Groves, in press). Whilst there is a lack of consensus on exactly how to define independence, it is evident that independence is a multidimensional concept which summarises and encompasses a wide range of individual attributes and situation specific factors (White & Groves, in press). According to Groves, Edwards, White and Strong (1996), independence has appeared under the headings of "control", "autonomy", "self-determinism", "dependency", "competence" and "congruence".

In a study by Sixsmith (1986) on the meaning and experience of home in later life, a recurrent theme found was the significance of independence for most older people. For many people, aging represented a threat to their independence in the much wider sense of losing control over how they wished to live their lives (Sixsmith, 1986). According to Sixsmith (1986), elderly persons perceptions of independence has three dimensions. Firstly, being able to look after one's self, that is, not being dependent on others for domestic, physical or personal care (physical independence). Secondly, the capacity for self-direction, being free to choose what to do, free from interference and free from being told what to do (autonomy). Finally, not being under

an obligation to anyone, and not having to rely on charity, signifying that independence is not threatened if support is based on reciprocity (Sixsmith, 1986). Independence, portrayed as the elderly person living alone and able to function without help or are able to 'pay' either in money or some form of reciprocal arrangement for any help needed (Clark, 1987).

Lowy (1989), further states that to maintain independence first and foremost there must be freedom from economic and financial insecurity, which means sufficient clothing, food, and shelter, freedom from worries about where the next dollar is coming from, to maintain one's body and to hold body and soul together, existing as a human being in a highly volatile, economically, politically and socially insecure world. O'Bryant (1991), however, states that in societies that emphasise independence, there are additional pre-requisites besides financial means before one is considered an 'independent person'. For older persons, Atchley (cited in O'Bryant, 1991), listed maintaining one's own household, mobility, mental self-sufficiency and at least a moderate level of health as the necessary prerequisites for independence. He observed that an individual must attain a socially defined threshold of self-sufficiency in order to be accepted as a full-fledged, independent adult.

If these definitions are to be accepted, however, Bould, Sanborn and Reif (cited in White & Groves, in press), suggest that only a small minority of elderly persons would achieve independence, as an autonomous independent lifestyle is not often possible, even for the vigorous elderly person who is in good health.

Society's emphasis on independence apparently does little to enhance the lives of older persons and may be counter productive in some ways (O'Bryant, 1991). The fiercely independent elder who lives alone and never asks for help is likely to become

socially isolated (O'Bryant, 1991). The overemphasis, particularly in our culture on being independent will only lead to disillusionment and frustration and to an emotional and mental disequilibrium, as all of us are dependent on one another in many spheres of life at any age, at any time and at any place (Lowy, 1989).

Fisk (1986), proposed a more progressive definition of independence, describing it as a state of self determinism whereby the individual, with or without assistance from others and regardless of disability is able to dictate the path that his or her life should take. A study by White and Groves (in press), highlighted the importance of elderly persons being able to control their day to day life. In particular, findings revealed that the amount of control over the nature and type of assistance received, and the opportunity to mediate and negotiate how that assistance was delivered, with the possibility to reciprocate, were important factors in respondents perceptions of independence. For the individual elderly person then, control, mediation, reciprocation and autonomy, are key concepts of an independent lifestyle (White & Groves, in press; Arber & Evandrou, 1993).

Individuals, however, are rarely totally dependent or independent, but are dependent in certain aspects and not in others (Arber & Evandrou, 1993). Most people are involved on a day to day basis in social networks, where the reciprocal exchange of money, emotional support, goods and services occurs with kin, friends, and neighbours (White & Groves, in press). To allow oneself to rely upon the support of others, however, is frequently difficult to achieve, particularly in a culture which extols independence, mastery, activity, and doing as strengths and perceives reliance upon others (people, services, institutions, bureaucracies), as weaknesses (Lowy, 1989). Definitions used in the assessment of independence and the development of

programmes aimed at promoting independence, should therefore be expanded to include the elderly persons participation within unique interpersonal networks (White & Groves, in press). Dependence and independence should not be seen as dichotomies but as part of a spectrum which involves interdependence (Arber & Evandrou, 1993).

Interdependence

In an ideal society, older persons and their support systems would work toward a viable exchange of services so that interdependency would become the most valued lifestyle (O'Bryant, 1991). In reviewing the various definitions of independence and interdependence, White and Groves (in press) found that what the respondents in their studies were often describing and referring to, was a lifestyle involving interdependence, as opposed to independence. These findings therefore suggest, that what many elderly persons identify as an independent lifestyle may in fact reflect interdependence. (White & Groves, in press).

Interdependence means that help is not a one-way street, but rather, older people support each other, and so do the different generations within families (Linder-Pelz, 1991). Interdependence emphasises the reciprocity of interrelationships and encompasses the giving and receiving of assistance and resources, of complex interactions involving individual (economic, socio-familial, personal and physical) and community resources (White & Groves, in press). It reinforces the reciprocity of the interrelationships between elderly individuals and other community members where assistance and help (in some form) is traded back and forth. The key component is the ability of the elderly individual to control and participate in a network of providing and/or receiving help and assistance (White & Groves, in press).

Powell (1992), states that successful ageing entails a recognition of individuals interdependence on each other, not a grudging recognition that sees interdependence as a form of weakness or personal deficiency, but one that accepts people's reliance on each other as to some degree enriching nourishing and life-affirming for all concerned. The support provided through these unique interpersonal networks, therefore, is an integral component of a persons daily life.

Social Support

Social support, social networks and social exchange play a significant role in the lives of elderly individuals (Nelson, 1993; Stolar, MacEntee & Hill, 1993), with the benefits of social support being well documented. Benefits include the ability of support to provide positive effects on physical and mental health (Dean, Matt & Wood, 1992; Deeg, van Zonneveld, van der Maas & Habbema, 1989; Matt & Dean, 1993), and reduce the adverse effects of potential stressors (Chipperfield & Havens, 1991; Heller, Thompson, Vlachos-Weber, Steffen & Trueba, 1991; Nelson, 1993).

A study by Fleming, Baum, Gisriel and Gatchel (1982), found that interpersonal relationships play a significant role in determining the impact of stress in settings ranging from the battlefield to the delivery room. The encouragement, opinion validation, and reassurance that people get from friends and family influence their response to stress and somehow make them more resistant to its effects (Fleming et al., 1982). "Under periods of stress or life change, people manage better when they can derive support from social relationships" (Fleming et al., 1982, p.14). Moreover, social networks trigger a buffering response to stressors in their ability to reduce symptoms and to promote need (Cohen, Teresi & Holmes, 1985).

Research has also indicated that people who have weak social networks and who lack social support are at risk for poor physical and emotional health (Stolar, et al., 1993; Deimling & Poulshock, 1985). A study by Thompson and Heller (1990), found "..deficiencies in social support are linked to poor physical and psychological health and increased mortality risk for the population at large, as well as for the elderly" (p.535).

Larson (cited in Wilson, Calsyn & Orlofsky, 1994) found that the amount of social interaction experienced by older adults is moderately correlated with morale. Supportive relationships are also associated with lower illness rates, faster recovery rates, and higher levels of health care behaviour (Nelson, 1993).

Although some investigators report that assistance from significant others tend to buffer or offset the deleterious effects of stress, other researchers have been unable to observe similar effects (Krause & Borawski-Clark, 1994). Rather, they suggest that perceived support serves to facilitate coping rather than to protect people from stress (Armer, 1993; Krause & Borawski-Clark, 1994; Ortmeier, 1993; Picot, 1995). Supportive social relationships helping elderly people to cope effectively with an almost unlimited range of problems and difficulties (Krause & Borawski-Clark, 1994).

The components or facets of support that are most health protective, however, have not been clearly identified (Thompson & Heller, 1990). The study of social relationships and psychological well-being among the elderly has generally followed one of two paths. In one line of research the focus is on the intensity of social involvement, most commonly frequency and type of contact, while in another

the focus is more on the qualitative aspects of social relations, such as perceived social support and appraisals of intimacy (Silverstein & Bengston, 1994).

Support networks have been described from the literature as serving perhaps four principle functions; as a stress-buffering mechanism for carers; as a mechanism for providing practical and emotional support; as a screening and referral agent to formal agencies; and as a context in which attitudes, values and norms can be transmitted to individuals (Grant, 1993). In measuring these networks, researchers have generally selected one or two variables such as 'intimacy', 'frequency of contact', or 'number of friends' as overall indicators of social networks (Cohen, et al., 1985). Grant (1993), and Procidano and Heller (1983), identify the function of a relationship within a network as the most important item of information about it, as it indicates something of the goods and services exchanged and the intensity of their interactions.

Some studies have found that quantitative measures of network embeddedness (eg. network size and composition, frequency of interactions etc.) are predictive of later depression and mortality (Thompson & Heller, 1990). It has also been suggested that such variables as number of social relationships, composition of the social network, patterns of interconnectedness among network members, and accessibility of network members, influence the flow of social resources to the individual, and thereby affect the adequacy of the social support received (Cutrona, 1986).

Although the frequency of interaction of elderly persons with various network members is of interest, it remains important to describe further the quality and content of the social interactions in ways that reveal the provision of specific types of social support (Dean, et al., 1992).

One way of viewing the protective function of social relationships has been in terms of the emotional support that people derive from others (Fleming et al., 1982; Procidano & Heller, 1983). The psychological benefits of support depend in part on whether the supportive behaviour is perceived as an appropriate response to a given need (Silverstein & Bengston, 1994), where perceptions of social support from friends, family and/or neighbours have been found to be predictive of later well-being in elderly persons (Thompson & Heller, 1990). This view suggests that it is not the amount of social contact per se that is protective, but the appraisal and interpretation of that contact (Thompson & Heller, 1990). Perceived social support, therefore informs us of the emotional and material support that has been exchanged (Silverstein & Bengston, 1994), and has consistently been linked both concurrently and prospectively to positive mental and physical health outcomes (Cutrona, 1986).

Network Decline and the Transition to Formal Support

The content of relationships within networks usually has its genesis in the accident of blood ties with the degrees of obligation and responsibility that this can bring, and in the social opportunities, constraints, and decision-making processes that surround wider relationships with friends, neighbours and other communities of interest (Chipperfield & Havens, 1991; Dean, et al., 1992; Grant, 1993). Advancing age, however, is accompanied by a loss of these important social support systems due to death of spouse or siblings (Bowling, Farquhar, Grundy & Formby, 1993; NIH Consensus Statement, cited in Armer, 1993; Stoller & Pugliesi, 1991), retirement or relocation of residence (Baltes, Neumann & Zank, 1994; Matt & Dean 1993; Wenger, 1987), and declines in health (Chipperfield & Havens, 1991; Grant, 1993; Mott & Riggs, 1992).

These losses of close friends and/or family can be a devastating negative event with significant health consequences, related to low affect and arousal, poor cognition and social skills, and neurophysiological effects (Raatikainen, 1991). In addition, there are major losses in role functions (such as employee, spouse and active partner), reducing both the amount and variety of interactions that occur with others (Raatikainen, 1991). Berry and Kim (1988), defined these changes at the individual level, as psychological acculturation, where changes in an individual (eg. declining health, inability to cope with daily activities, etc.), accompany group-level acculturation (retirement or relocation, death, etc.).

Considering these losses, however, Stoller and Pugliesi (1991) in a study on effectiveness of informal helping networks, found that networks did not recruit new members. Greater strains are therefore, placed on the current informal network resources, often exceeding the threshold of support these individuals can provide (Stoller & Pugliesi, 1991). This reduction in support, according to Healy (1990), sees the elderly individual having to rely on community and health services to provide home support. Marginalisation, is accompanied by a great deal of collective and individual confusion and anxiety, often leading to a dependence on society to alleviate these conditions (Berry & Kim, 1988).

When informal resources are exhausted, these findings suggest that elderly persons turn to formal help as a last resort (Stoller & Pugliesi, 1991). Whilst changes in sources of support surely do occur over time and while many types of transitions are feasible, the fact that elders utilise informal sources of support before turning to formal sources implies that the shift from informal to formal sources may be the most common type of transition (Chipperfield & Havens, 1991). This shift toward formal

support, according to Chipperfield and Havens (1991), can occur in two ways; via 'replacement' (ie. the total replacement of informal sources by formal sources) and via 'supplementation' (ie. the addition of formal sources along with informal sources). Once the formal services are in use, it has been found that there is a return to feelings of well being among the elderly. The period between applying for formal services and receiving these services, however, sees the elderly person with diminished social support, reducing the help available for daily physical activities (Chipperfield & Havens, 1991; Johnston, 1995).

An Integrated Model of Independence and Interdependence and the Role of Social Support

From reviewing the independence-dependence, interdependence and social support literature, and their importance to the elderly individual's ability to function, it can be seen how losses of one sort or another can have detrimental effects on the elderly persons ability to function and their position in society. These changes often lead to the individual having to adapt to new situations, using a variety of strategies, the most common one being the transition to formal support (Stoller & Pugliesi, 1991). The process of adaptation or transition has also been observed in other populations which are undergoing change (Berry & Kim, 1988).

Berry and Kim (1988) viewed four varieties of adaptation with psychological acculturation (assimilation, integration, separation and marginalisation), where;

1) assimilation, is defined as the merging of groups and moving into the larger society;

2) integration, referred to as maintaining cultural integrity, as well as moving to become an integral part of a larger societal framework;

3) separation, where there is a self-imposed withdrawal from the larger society (eg. the maintenance of one's traditional way of life is outside full participation in the larger society due to a desire on the part of the individual to lead an independent existence); and

4) marginalisation, which is characterised by having lost essential features of one's culture, but not having replaced them by entering the larger society.

These processes outlined by Berry and Kim (1988), can also be used to describe the functioning of elderly persons living within the community, in relation to the concepts of independence (represented by physical and mental functioning) and interdependence (highlighted by the role of social support). Figure 1 presents a conceptual model of the relationship between independence and interdependence, based upon the current literature.

From the model, it can be seen that individuals who have experienced a loss of some sort (either in relation to their independence, interdependence, or both), are marginalised, which according to Berry and Kim (1988), suspends the individual in a highly stressful crisis. To alleviate this crisis, the individual then takes the necessary steps to move to a preferred state of functioning. The possible transitions involving either an increase in physical and mental health (separation), an increase in support from either informal or formal sources (assimilation), or a combination of both (integration). Where situations of physical and mental independence are beyond the control of the individual, the most natural transition would therefore result in assimilation, where support from either informal or formal networks assists the individual's ability to cope in society.

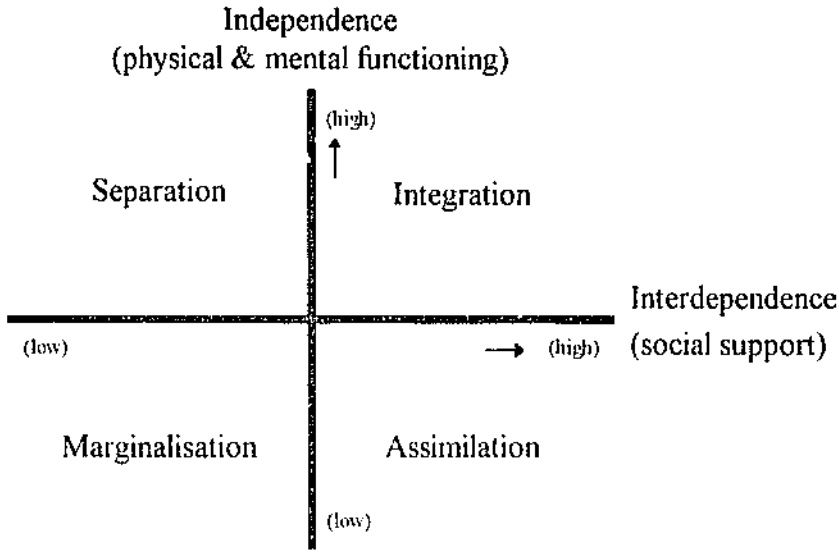

Figure 1. An integrated Model of Independence and Interdependence

These support networks are deemed important aspects of maintaining functioning in the elderly, where marginalisation is to be avoided.

The purpose of this study, therefore, is to investigate the relationship between social support networks and functioning of elderly persons. Based on the current literature, it is hypothesised that elderly persons who have applied for home and community care services and have not yet received them, will differ significantly from those who have not received or applied for home and community care services, and that these differences will best be explained by facets of social support (behaviours, cognitions and emotions).

Method

Participants

The sample consisted of 117 elderly persons 65 years of age and over, residing in North Western Tasmania and Metropolitan Perth, Western Australia (35 males, 82 females). The subjects ages ranged from 65 to 90 with a mean age of 73.99 years (SD = 5.85). Participants were from one of two groups; those who have applied for home and community care services but have not yet received them (Marginalised), and those who have not received or applied for any home and community care (HACC) services (Assimilated).

After receiving questionnaires, participants from the marginalised group were matched as closely as possible with participants from the assimilated group on the physical health status and cognitive status subscales, and by their age and gender. This resulted in 104 participants meeting the criteria and being selected for the study (52 Marginalised, 52 Assimilated). The Marginalised groups' ages ranged from 65 to 86 with a mean age of 74.23 (SD = 5.70), (20 males, 32 females). The age range for the Assimilated group was 65 to 90 with a mean age of 73.79 (SD = 5.83), (13 males, 39 females). Independent t-tests (Appendix A) revealed that there were no significant differences between the groups on any of the control variables (see Table 1).

Instrumentation

The ISAI

The preliminary form of the IOWA Self-Assessment Inventory (ISAI) includes six scales with a total of 120 items. It is a multidimensional self-report measure of functional independence designed for use with the elderly. It assesses the individual's perceptions of themselves on six domains; economic resources, social

Table 1

Comparisons between Marginalised and Assimilated groups (Control variables)

Variable	Marginalised (n=52)		Assimilated (n=52)		*t*	Sig.
	Mean	SD	Mean	SD		
Age	74.23	5.70	73.79	5.83	.40	ns
Gender	.62	.49	.75	.44	-1.48	ns
Physical Health	59.44	8.77	61.37	8.17	-1.16	ns
Cognitive Status	62.62	8.23	64.83	8.61	-1.34	ns

resources, Activities of Daily Living (ADL), mental health status, physical health status and cognitive status. For the purpose of this study, the cognitive status and physical health subscales were selected (Appendix B). High scores on the physical health status subscale measure, suggest the individual is in excellent health, takes few prescribed medicines and seldom sees a doctor. Those with low scores indicate they have physical illness or disabilities, have more health problems than others and their ability to carry on activities of daily living has declined over the years (Morris & Buckwalter, 1988). The cognitive status scale measures memory and functioning. Individuals who score high on this scale, perceive themselves as intellectually intact, have a continued ability to learn and possess good long and short term memories and orientations. Individuals who have a low score on this scale tend to forget appointments, suffer low attention span and often have memory deficits. Each subscale consists of 20 items scored using a four-point 'forced choice' scale, where 1 = True, 2 = More often true than not, 3 = More often false than not, and 4 = False. The numbers 1 to 4 are printed beside all statements with subjects responding to each

statement by circling the number that best applies to them. Both scales are shown as having acceptable reliabilities, Cronbach's alpha values of .80 and .79 respectively (Morris & Buckwalter, 1988). Exploratory and confirmatory factor analyses have been reported which support the model.

To evaluate independent functioning and social support, a short form of the Queensland University Independence Profile was developed (Groves, et al., 1996). The QUIP is a 136-item, self-report measure of independent functioning of elderly persons living in the community and emphasises the multidimensional nature of independence and the inter-relatedness of its components (Groves, et al., 1993). Based on these requirements, the following definition guided the development of the QUIP:

> "The individuals affective, behavioural, and cognitive evaluations of the self, their social environment, their residence, and their residential context will represent the attainment of outcomes indicative of an independent person" (Groves, et al., 1996, p.6)

The structure outlined in Figure 2 is a visual representation of the definition of interdependence. Using this definition of independence, the QUIP consists of 12 subscales which measures independent functioning across four levels of environmental contexts (Local Area, Residence, People You Know, and Yourself). Items within these four contexts cover behavioural, cognitive and emotional functioning.

The entire instrument is presented in multiple choice format with subjects responding to each question or statement by ticking a box corresponding to the answer which best applies to them. The majority of items utilised a four-choice response code such as "rarely or never", "sometimes", "quite often", and "always".

For the remaining items, the subjects merely ticked "yes", or "no". In addition to the four-choice and two choice items, there was one five-choice item and three checklist items which incorporated three or four "yes" or "no" questions on related topics. Questions concerning demographic information were included on the final page. The entire instrument was presented in large print.

	AFFECT	BEHAVIOUR	COGNITION
LOCAL AREA	area-affect	local-behaviour	local-cognition
RESIDENCE	residence-affect	residence-behaviour	residence-cognition
SOCIAL	social-affect	social-behaviour	social-cognition
SELF	self-affect	self-behaviour	self-cognition

Figure 2. The structure of the definition of independence

The Quip has demonstrated significant reliability using Cronbach's (1951) alpha for each subscale. Alpha coefficients for each subscale ranged from 0.3631 for residence behaviour to 0.8749 for social affect (Groves, et al., 1996). The residence behaviour subscale was noted as having a small standard deviation, indicating that it was not discriminating between subjects to the same extent as the other subscales (Groves, et al., 1996). According to Groves, et al., (1996), this could also indicate that the person environment fit is adequate, indicating that independent elderly persons adapt their environment to their behaviour. An alpha coefficient of 0.8920 was obtained for the overall instrument with respect to the twelve subscales, with all subscales loading substantially on the total score (>.3).

Construct validity was demonstrated employing Guttman-Lingoes Smallest Space Analysis (Groves, et al., 1993). Consistent with the definition of independence, the two dimensional space indicated a distinction between the four levels of environment. This space was partitioned into the four regions consisting of the individual, local area, social and residence. The respective behavioural, cognitive and emotional levels of functioning were located within each level of environment with the self central in the evaluation (Groves, et al., 1993). According to Groves, et al., (1993), these results establish the independent contribution of the urban location, the residence and the social networks to the cognitive, emotional and behavioural functioning of independent elderly people.

Due to the number of questions and the time it takes to complete the QUIP, it was decided to develop a 'short form' which will be referred to as the InterDP. The reliability and validity of the InterDP is based on data collected by Groves, et al (1996).

The InterDP

In designing the InterDP, it was decided that the number of items for each subscale be reduced. The reduced item pool resulted in items which were generated to equalise the length of the different subscales. The revised sub-scales were structured such that the maximum score on each affect, behaviour and cognition subscale was 12. This score could be achieved by summating four items with 4 response categories, or by a mixture of items with different numbers of response categories. The revisions resulted in the current assessment instrument which contained 48 items across the following four domains:

1) Local area, which measures the extent to which the qualities of the residential location may either reinforce or erode an elderly individual's sense of mastery and autonomy (Groves, et al., 1996). Represented with items such as "How often do you go out in your local area during good weather?".
2) Residence, which measures the important role that the physical environment plays on the maintenance of independent functioning in the elderly. Typified by items such as "I can entertain guests in an adequate manner at my residence.".
3) People you know, measuring the quality and nature of an individual's relationship with others, for example, "How often do you exchange assistance, favours, skills or goods with a friend or relative?"; and
4) Individual or self, measuring the extent to which elderly individuals carry out basic self-care tasks and perceive their health, with items such as "I am able to carry out my daily activities without having to make adjustments for my health." (Appendix C).

The entire instrument was presented in multiple-choice format with subjects responding to each question or statement by ticking a box corresponding to the answer which best applied to them. 43 items utilised a four-choice response code, such as 'rarely', 'sometimes', 'quite often', and 'always'. For five items, the subjects merely ticked 'yes' or 'no'. Questions concerning demographic information were included on the final page, with the entire instrument presented in large print.

Reliability of the InterDP

To establish the internal consistency of each scale, item analyses were performed on the fourteen subscales, using Cronbach's alpha (Appendix D). The alpha coefficients and the mean and standard deviation for each subscale are presented in Table 2. Subjects with missing values on any of the subscale items were excluded from that particular analysis. The alpha coefficients obtained for the subscales were found to have acceptable reliabilities, with Cronbach's alpha values ranging from .58 for Residence Behaviour to .85 for Social Affect. To ensure that items measure the same construct while avoiding item redundancy, Boyle (1991) proposed that the optimal range of internal consistency is 0.3 to 0.7. The results of the present item analysis revealed acceptable levels of internal consistency for four of the fourteen subscales: Area Cognition, Area Affect, Residence Behaviour and Residence Cognition. Alpha coefficients for the remaining subscales were higher than 0.7, which indicated that there may be some degree of item redundancy within these subscales. A further item analysis assessed all the relationship of each sub-scale to the total score. An alpha coefficient of .84 was obtained for the overall instrument with respect to the twelve subscales. All subscales loaded substantially on the total score (>.3).

Procedure

Elderly persons 65 years of age and over were invited to voluntarily participate in this study. The Marginalised group (those who have applied for HACC but have not yet received them) were contacted through staff at Silver Chain Nursing Association. All participants meeting the above criteria, were sent a covering letter from staff at Silver Chain Nursing Association with a consent form enclosed. Once

consent was received, participants received through the mail, a covering letter, a letter informing participants of the study and their obligations, the IOWA Self Assessment Inventory subscales (Physical health and Cognitive status), the InterDP questionnaire and a reply paid return address envelope. Due to a poor response rate from the above procedure, a covering letter from Silver Chain Nursing Association, a letter informing participants of the study and a consent form, the ISAI subscales, the InterDP questionnaire and a reply paid return address envelope were sent out at the same time to applicants meeting the above criteria .

Table 2

Mean, Standard Deviations, and Reliability of InterDP Subscales.

Subscales	Mean	SD	Alpha	n
Area-behaviour	13.42	1.91	.72	353
Area-cognition	12.93	2.45	.69	340
Area-affect	13.27	2.21	.66	341
Residence-behaviour	15.25	1.73	.58	354
Residence-cognition	15.34	1.32	.61	345
Residence-affect	14.58	1.94	.80	351
Social-behaviour	11.58	2.79	.76	341
Social-cognition	12.88	2.35	.72	345
Social-affect	14.54	2.25	.85	344
Individual-behaviour	12.58	2.47	.81	340
Individual-cognition	14.41	1.95	.76	341
Individual-affect	12.97	2.32	.79	343
Total	163.37	15.84	.84	286

The Assimilated group (those who have not applied for any community care services) were contacted by staff at Legacy, local bowling clubs, friends and family. Letters informing participants of the study and their obligations, and questionnaires [subscales of the ISAI, InterDP and two additional questions - Have you applied for any home and community care services? (eg. meals on wheels, domestic help, etc.) and; Do you receive any home and community care service?)], were left with participants to complete in their own time, and collected approximately two weeks later. With exception to the additional two questions for the Assimilated group, all participants received the same remaining questionnaires and information. All responses were anonymous as there was no need to include any information that could identify participants.

Results

Reliability of the modified instrument

Item analyses were performed on all twelve modified subscales, using Cronbach's (1951) alpha, in order to re-evaluate their internal consistency (Appendix E). Only participants who were matched on the control variables (age, gender, physical health and cognitive status) were used in the analysis, and subjects with missing values on any of the items within a subscale were not included in that analysis. The alpha coefficients, mean, standard deviations and subject numbers for each subscale are presented in Table 3.

The alpha coefficients obtained for the modified subscales ranged from .52 for Residence Cognition to .80 for Residence Affect. The revised item analysis revealed that five of the twelve subscales were associated with alpha levels within the optimal

range proposed by Boyle (1991), Area Behaviour, Area Cognition, Residence Behaviour, Residence Cognition, and Social Affect. Alpha coefficients on the remaining scales were again higher than 0.7, indicating that item redundancy within these scales may be present.

Table 3

Mean, Standard Deviation and Reliability of InterDP Subscales.

Subscales	Mean	SD	Alpha	n
Area-behaviour	10.00	1.83	.56	104
Area-cognition	9.07	2.49	.69	104
Area-affect	8.91	2.48	.73	104
Residence-behaviour	11.58	1.04	.69	104
Residence-cognition	11.32	1.24	.52	104
Residence-affect	10.89	1.65	.80	104
Social-behaviour	7.91	2.66	.70	104
Social-cognition	8.87	2.41	.79	104
Social-affect	11.08	1.39	.65	104
Individual-behaviour	9.16	2.43	.75	104
Individual-cognition	10.33	1.85	.72	104
Individual-affect	8.88	2.10	.73	104
Total	117.90	13.46	.79	104

Examination of the internal consistency of the overall instrument with respect to the twelve modified subscales revealed that the alpha coefficient had decreased slightly, from $\alpha = 0.84$ to $\alpha = 0.79$. Residence behaviour (.08) was the only subscale

that did not load substantially on the total score, with the remaining subscales loading well (>.3).

Validity of the modified instrument

Construct validity of the modified instrument was measured using Multidimensional Scaling (MDS) (Appendix E). MDS is a statistical tool which can be used to understand the systematic pattern in similarity data. As can be seen in Figure 3, MDS was employed to map the distances between subscales of the modified questionnaire, into a spatial representation. In interpreting the MDS spatial representation, it is the correspondence between the definitional structure and the structure described in the space which is emphasised, rather than the values of co-ordinates per se. The structure of relationships among sub-scales is interpreted from this map by considering the configuration of the points. Similarity between a pair of subscales is represented by points that are close together, and dissimilarities between subscales is represented by points that are far apart

The two dimensional space indicated a distinction between the four levels of environment. This space can be partitioned into the four regions consisting of the individual, social, residence and local area, with the individual as central in the evaluation. The respective behavioural, cognitive and emotional levels of functioning were located within each level of environment. These results establish the independent contribution of the residence, the local area and the social support to the cognitive, emotional and behavioural functioning of independent elderly people. In a study on the relationship between the urban environment and the independence of elderly persons, Groves, et al., (1993) used multidimensional scaling to validate the QUIP.

The method employed here and the pattern of results, are similar to those reported by Groves, et al., (1993).

To detect violations in MDS, the transformation scatterplot, shown in Figure 4, was analysed. Transformation plots should generally be smooth, suggesting a continuous nondegenerate transformation. Figure 4 shows a series of horizontal steps, which suggest a discontinuous, possibly degenerative transformation. These 'step functions' indicate we should be suspicious of possible interpretations.

Group differences

Table 4 presents the mean scores of the Marginalised and Assimilated group participants on the predictor variables in the study. The Assimilated group, scored higher than the Marginalised group on all of the predictor variables, although the subscales Area behaviour and Residence behaviour did not attain statistical significance. Overall there was a significant difference between the groups on the total of the 12 subscales, indicating the Marginalised group has lower levels of independence than the Assimilated group. These results are consistent with the literature, where the time between replacing or supplementing informal systems with formal systems leads to a decline in levels of independence and well-being (Chipperfield & Havens, 1991; Johnston, 1995)

Profile of InterDP subscale scores

A profile of the average subscale scores (expressed as a percentage of the possible subscale total) obtained by both the Assimilated and the Marginalised groups was generated, as shown in Figure 5. It was possible to identify the relationship between behavioural, cognitive and affective functioning within each of the represented contexts. The profile revealed that average levels of behavioural,

cognitive and affective functioning were lower in the Marginalised groups, Social, Local, Residential and Individual contexts. Significant differences between the scores for the two groups within these contexts appeared on the cognitive and affective measures. Other significant differences were found for behaviour on the Social and Individual contexts, however, the behaviour measures showed similar scores on both the resident and local area (or environmental) contexts.

Table 4

Comparisons between Marginalised and Assimilated groups (Predictor variables).

		Marginalised (n=52)		Assimilated (n=52)		*t*	Sig.
		Mean	SD	Mean	SD		
Local Area	Area Behaviour	9.71	1.82	10.29	1.82	-1.62	ns
	Area Cognition	7.90	2.55	10.23	1.80	-5.37	.000*
	Area Affect	7.90	2.48	9.92	2.05	-4.53	.000*
Residence	Res. Behaviour	11.42	1.21	11.56	1.00	-.62	ns
	Res. Cognition	10.98	1.49	11.65	0.81	-2.86	.005*
	Res. Affect	10.27	1.79	11.52	1.23	-4.14	.000*
Social Support	Social Behaviour	6.63	2.51	9.19	2.17	-5.56	.000*
	Social Cognition	7.67	2.36	10.06	1.82	-5.77	.000*
	Social Affect	10.52	1.54	11.63	0.95	-4.44	.000*
Individual	Ind. Behaviour	8.35	2.54	9.98	2.02	-3.63	.000*
	Ind. Cognition	9.58	1.98	11.08	1.34	-4.52	.000*
	Ind. Affect	8.00	2.11	9.75	1.69	-4.66	.000*
Total		108.94	11.65	126.87	8.17	-9.08	.000*

* = two-tailed t-test

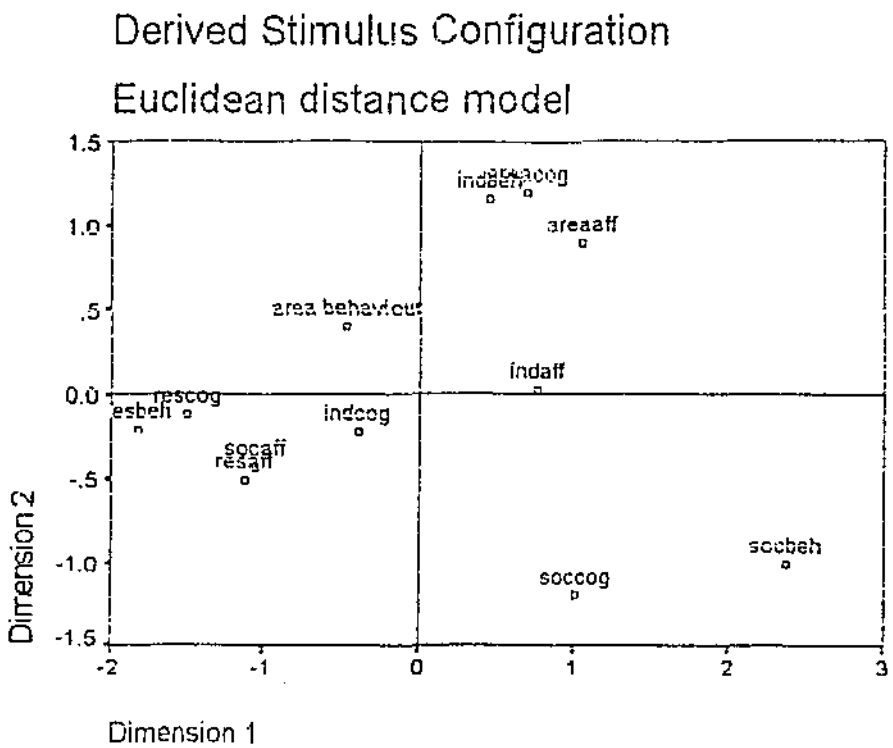

Figure 3. Derived Stimulus Configuration

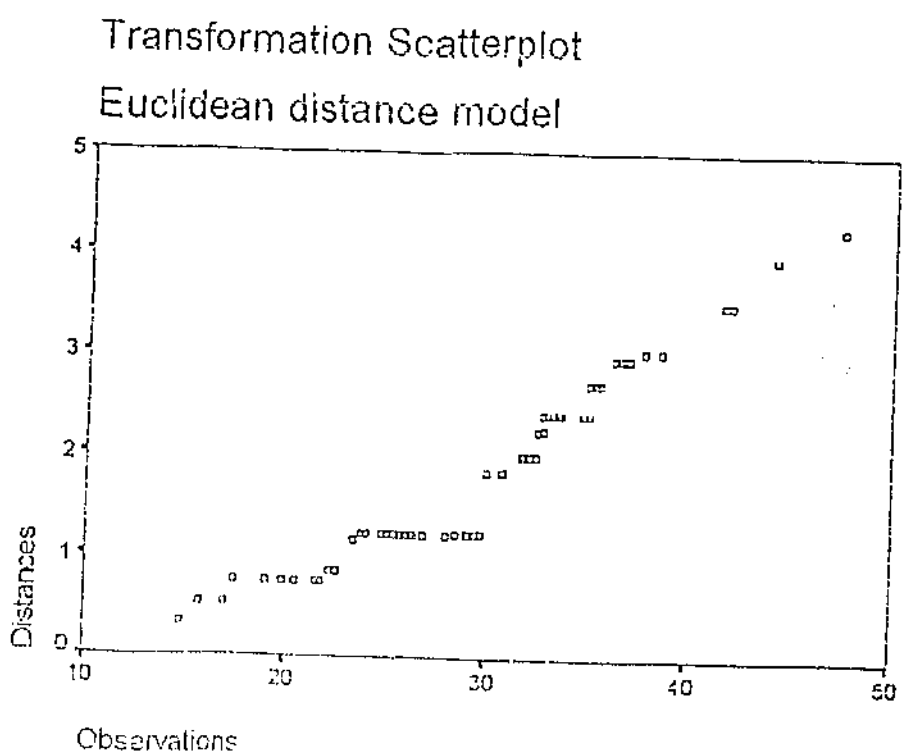

Figure 4. Transformation Scatterplot

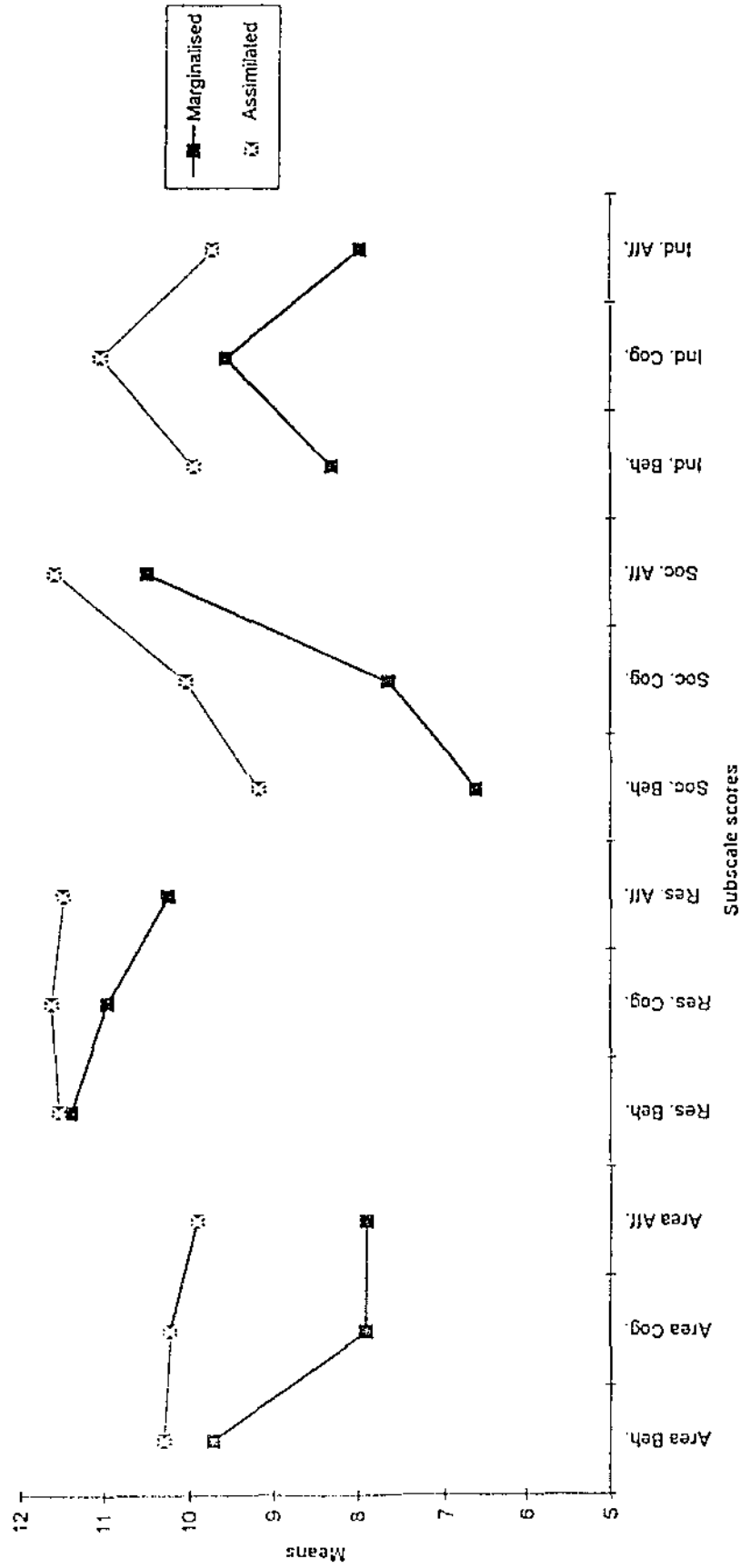

Figure 5. Profile of the average InterDP subscale scores

Discriminant Function Analysis

The ability of the InterDP to discriminate between elderly persons in the Marginalised group and Assimilated group was then examined using Discriminant Function Analysis (Appendix F). Discriminant Function Analysis is a statistical technique used to predict group membership (Marginalised, Assimilated), on the basis of a set of predictor variables (control variables and InterDP scores). Prior to analysis, the data was examined for missing items, the presence of outliers, and violations of normality.

With regard to normality a standard Z-score for skewness and kurtosis was calculated, the range of values used as acceptable were -3 and 3 (Tabachnick & Fidell, 1989). Examination revealed that the scores were within the normal range and no transformations were required. In the case of missing data, the selected questionnaires were examined and no cases were found. Using Mahalanobis distance tests, no multivariate outliers were found. The assumption of homogeneity of variance-covariance matrices was violated, as indicated by the significant value for Box's M (M = 202.28, approx. F (136, 32128.6) = 1.24132, $p < 0.05$). Tabachnick and Fidell (1989), report that Box's M is a sensitive test of this assumption. Furthermore, they proposed that Discriminant Function Analysis can be considered robust to such violations if sample sizes are large and equal.

The InterDP scale scores were found to discriminate significantly between elderly persons in the Marginalised group and elderly persons in the Assimilated group (Wilks lambda = 0.44, chi-squared = 76.65, df = 16, p = 0.0000). In order to determine the relative importance of each of the subscales to this separation, the associated structure coefficients, Univariate F statistics and squared semi-partial

correlations were examined (see Table 5). Using the InterDP, it was possible to predict 82.7% membership of the Marginalised group and 94.2% membership of the Assimilated group. Overall, a significant proportion of cases could be correctly classified using the twelve subscales of the InterDP (chi-squared = 61.54, df = 1, p <.001). Figure 6 reveals the large degree of separation afforded by the discriminant function.

The structure coefficients indicated that nine subscales loaded substantially (>0.3) on the significant discriminant function. These subscales were Area Affect, Area Cognition, Individual Affect, Individual Behaviour, Individual Cognition, Social Affect, Social Behaviour, Social Cognition, and Resident Affect.

Univariate F values were evaluated using an adjusted alpha level (Tabachnick & Fidell, 1989). After adjustment for all sixteen predictors, nine subscales made a significant contribution to the separation of the groups (using α (adjusted) = .003125) (see Table 5).

The squared semi-partial correlations indicated that Social Behaviour, Area Cognition and Area Affect, accounted for the majority of the between-group variability.

Table 5

Indicators of relative importance of Control and Predictor variables in discriminant function analysis between Marginalised Group and Assimilated Group.

Predictor Variable	Structure Coefficient	Univariate F	p=	Squared Semipartial Correlation
Age	-0.03	.15	.6965	1.0%
Gender	0.13	2.18	.1430	0.1%
Physical Health	0.10	1.34	.2500	1.0%
Cognitive Status	0.12	1.79	.1837	0.3%
Area Affect	0.40	20.55	.0000	0.0%
Area Behaviour	0.14	2.62	.1088	0.0%
Area Cognition	0.47	28.85	.0000	6.1%**
Individual Affect	0.41	21.73	.0000	0.0%
Individual Behaviour	0.32	13.20	.0004	1.8%
Individual Cognition	0.40	20.41	.0000	0.0%
Social Affect	0.39	19.75	.0000	0.7%
Social Behaviour	0.49	30.97	.0000	3.5% *
Social Cognition	0.51	33.34	.0000	1.6%
Residence Affect	0.37	17.18	.0001	3.3% *
Residence Behaviour	0.05	0.38	.5735	0.6%
Residence Cognition	0.25	8.19	.0051	0.7%

*p< 05. **p<.01

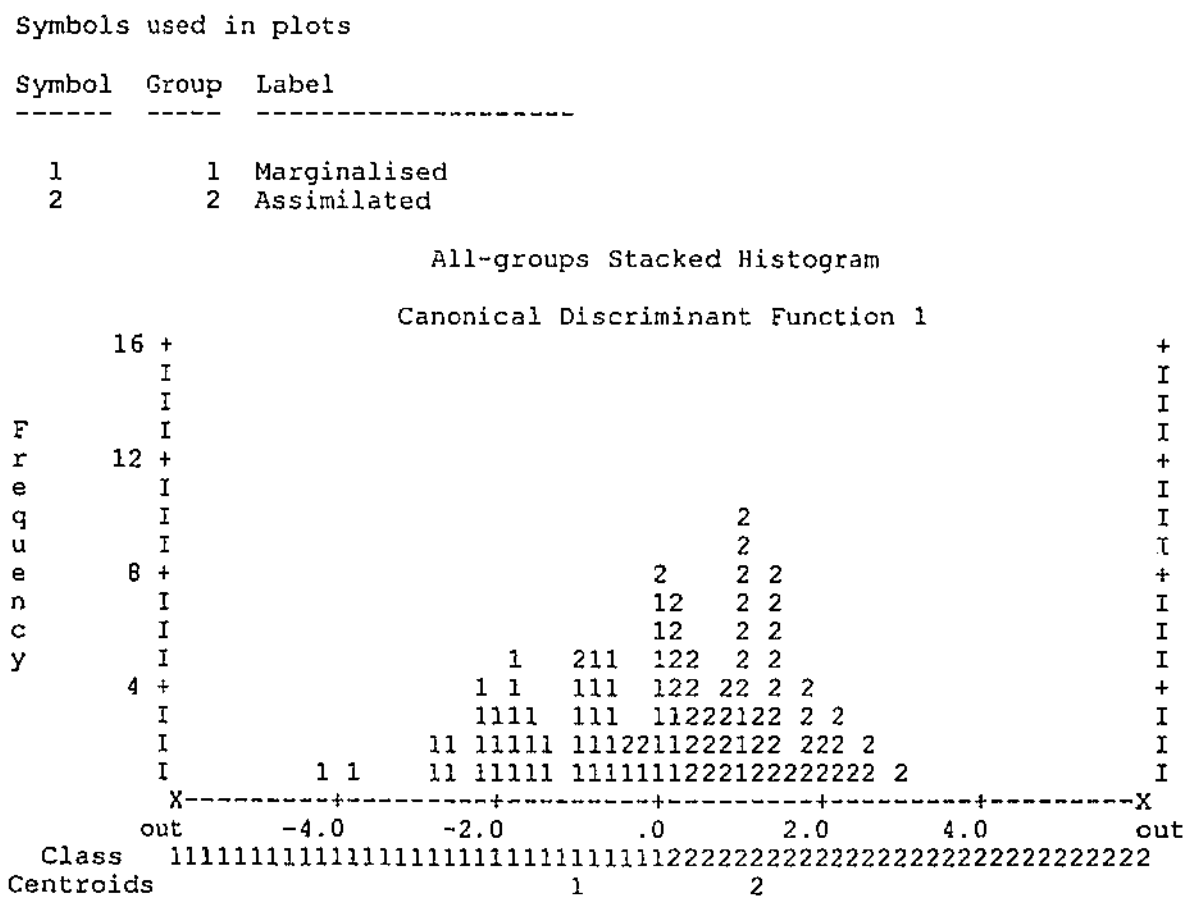

Figure 6. All-groups stacked histogram displaying the separation of groups by the discriminant function, based on InterDP subscales. (1 = marginalised group, centroid 1 = -1.11169, 2 = assimilated group, centroid 2 = 1.11169)

Hierarchical Regression

To determine the importance of social support on independent functioning in elderly people, hierarchical regression analyses were conducted (Appendix G). The analyses reported in Table 6 and Table 7 use a regression logic to examine whether relationships involving social support are mediated by the other predictor variables. This logic involves measuring the amount of variance in a criterion variable that is accounted for by social support, and then re-estimating the variance accounted for by social support after the local area, residence and individual variables have been entered into the equation. A comparison of the two estimates allows for the calculation of the percentage reduction in variance explained by social support when the other predictor variables are taken into account

Using SPSS for Windows, all the regression analyses used group membership as the dependent variable, and entered the control variables, age, gender, physical health and mental health on the first step. The first hierarchical regression then entered the predictor variables (social support, local area, residence and individual subscales) as the independent variables Results of evaluation of assumptions were satisfactory with no outliers or cases with missing data found The multiple correlation ($\underline{R}$), the squared multiple correlation ($\underline{R}^2$), the adjusted R square, and the R square change, after each step in the model, for all analyses are shown in Table 6. Table 8 shows the correlations between the variables, the unstandardised regression coefficients (B) and intercept, and the standardised regression coefficients (β).

R was not significantly different from zero at the end of step one, however at the end of step two and three it was statistically significant. After step 3, with all IVs in the equation, $\underline{R} = .747$, $F(16,87) = 6.85$, $p<0.001$. The analysis indicated that

55.8% of the variance in the DV was shared by this combination of variables. Results indicated that when entered at step 1, the control variables (age, gender, mental health and physical health), accounted for only 4.7% of the variance and was not significant $\underline{R} = .218$, $F(4,99) = 1.23$, $p>0.05$. When entered at step two, results indicated that the social support variables accounted for 32% of the variance and for 12.4% of the variance when entered after the Local area, Residence and Individual variables. When Local Area, Residence and Individual variables were partialed, the social support related variance in group membership was reduced by 61.25% (32-12.4/32). The absolute reduction in variance was statistically significant (chi-square = 8.65, df = 1, $p< 01$), suggesting that the local area, residence and individual variables, are also important predictors of independence in the elderly. The other predictor variables accounted for significant unique variance in group membership (34%) when social support was partialed. This indicated that the linkage between these variables and independence in the elderly is not as a result of overlap of variance with social support.

The next regression analyses look at the behaviour, affect and cognition variables as separate from each other (see Table 7). The regression analysis using the behaviour variables was significant when all IVs were entered into the equation, $\underline{R} = .597$, $F(8,95)= 6.58$, $p<0.001$. The analysis indicated that 35.6% of the variance in the DV was shared by this combination of variables. When entered at step two, results register that social behaviour accounts for 20.2% of the variance in independent functioning and for 19% of the variance after the residence, area and individual behaviour variables have been entered. When these variables were partialed, the social behaviour related variance in group membership was only attenuated by 5.9%. The

absolute reduction in variance was not significant (chi-square = 0.03673, df = 1, p>.05), suggesting a substantial positive relationship to independent functioning.

Table 6

Hierarchical Regression Results for the InterDP subscales (IV = group membership).

Variable-Forced entry	R	R^2	Adjusted R^2	R^2 change
1. Age, Gender, Physical health, Cognitive status	.218	.047	.009	.047
2. Social behaviour, Social cognition, Social affect	.606	.367	.321	.320*
3. Area behaviour, Area cognition, Area affect, Residence behaviour, Residence cognition, Residence affect, Individual behaviour, Individual cognition, Individual affect	.747	.558	.476	.190*
1. Age, Gender, Physical health, Cognitive status	.218	.047	.009	.047
2. Area behaviour, Area cognition, Area affect, Residence behaviour, Residence cognition, Residence affect, Individual behaviour, Individual cognition, Individual affect	.659	.434	.352	.386*
3. Social behaviour, Social cognition, Social affect	.747	.558	.476	.124*

*p<.001

The regression analysis for the cognition variables, indicates that social cognition accounts for 21.8% of the variance in independent functioning when entered first and for only 9.9% after the remaining cognition variables have been entered. Again the absolute reduction in variance explained was significant, (chi-squared = 4.903, df = 1, $p < .05$).

The regression analysis, using the affect variables, found that social affect accounted for 14% of the variance in independent functioning when entered first, and for only 3.3% of the variance when entered after the residence, area and individual affect variables. The absolute reduction in variance was significant (chi-square = 6.61734, df = 1, $p < .01$) thus, there was a 76.4% reduction in the variance explained by social affect when the remaining affect variables were taken into account.

The first regression analysis found, when entered into the equation at the same time, that although the social support variables accounted for some unique variance in independent functioning, this was significantly attenuated when the other variables were entered into the equation. However, when the analyses were conducted using the behavioural, cognition and affect variables separately, only social behaviour emerged as a significant predictor of independent functioning. This result suggests that this variable is important in discriminating between the two groups when age, gender, physical health and cognitive status are controlled.

Table 7

Hierarchical Regression Results for the Behavioural, Cognition and Affect subscales.

Variable-Forced entry	R	R^2	Adjusted R^2	sr^2
Behaviour				
1 Age, Gender, Physical health, Cognitive status	.218	.047	.009	.047
2 Social behaviour	.500	.250	.211	.202 ***
3 Area behaviour, Residence behaviour, Individual behaviour	.597	.356	.302	.107**
1 Age, Gender, Physical health, Cognitive status	.218	.047	.009	.047
2 Area behaviour, Residence behaviour, Individual behaviour	.408	.166	.106	.119**
3 Social behaviour	.597	.356	.302	.190 ***
Cognition				
1 Age, Gender, Physical health, Cognitive status	.218	.047	.009	.047
2 Social cognition	.515	.265	.228	.218***
3 Area cognition, Residence cognition, Individual cognition	.672	.452	.405	.186***
1 Age, Gender, Physical health, Cognitive status	.218	.047	.009	.047
2 Area cognition, Residence cognition, Individual cognition	.593	.352	.305	.305***
3 Social cognition	.672	.452	.405	.099***
Affect				
1 Age, Gender, Physical health, Cognitive status	.218	.047	.009	.047
2 Social affect	.433	.187	.146	.140***
3 Area affect, Residence affect, Individual affect	.619	.383	.331	.196***
1 Age, Gender, Physical health, Cognitive status	.218	.047	.009	.047
2 Area affect, Residence affect, Individual affect	.591	.349	.302	.302***
3 Social affect	.619	.383	.331	.033*

Note. N = 104 for all regressions.

*p<.05, **p<.01, ***p<.001

Table 8

Intercorrelations Among the InterDP variables

Variables	Group (DV)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	B	ß
1.Age	-.04																-8.3E-03	-.10
2.Gender	.15	-.00															6.1E-02	.06
3.Physical Health	.11	-.18	.01														-8.4E-03	-.14
4.Mental Health	.13	-.02	-.04	.21													-4.4E-03	-.08
5.Social Behaviour	.48	.15	.24	.09	.31												5.2E-02	.27
6.Social Cognition	.50	.10	.24	.02	.32	.61											3.7E-02	.18
7.Social Affect	.40	-.07	.05	.04	.31	.27	.44										4.0E-02	.11
8.Area Behaviour	.16	-.17	-.22	.32	.38	.22	-.04	.09									-3.2E03	-.01
9.Area Cognition	.47	.02	-.12	.21	.05	.20	.12	.18	.25								6.7E-02	.33
10.Area Affect	.41	.05	-.05	.05	-.07	.18	.17	.33	.06	.60							-7.6E-03	-.04
11.Res. Behaviour	.06	-.04	.14	.27	-.08	-.12	-.08	-.07	.09	.08	.05						4.5E-02	.10
12.Res. Cognition	.27	.05	.16	.10	.22	.21	.22	.21	.12	.31	.27	.25					-5.4E02	-.13
13.Res. Affect	.38	.17	.14	-.04	.15	.22	.31	.26	.03	.19	.28	.13	.50				6.0E-02	.20
14.Ind. Behaviour	.34	-.18	-.03	.56	.14	.10	.12	.26	.37	.29	.31	.07	.19	-.01			5.0E-02	.24
15.Ind. Cognition	.41	-.00	.11	.30	.41	.34	.49	.36	.33	.23	.30	.09	.25	.32	.49		-1.0E-02	-.04
16.Ind. Affect	.42	-.03	.06	.47	.24	.33	.36	.21	.46	.29	.26	.19	.30	.21	.73	.60	1.7E-03	.01

Discussion

The current study explored the hypothesis that elderly persons who apply for home and community support services to maintain their independence in the community, will differ significantly from those who have not received or Applied for these services, and that these differences will best be explained by facets of social support (behaviours, cognitions and emotions). From the results obtained in this study, it can be seen that elderly persons who apply for formal support services have significantly lower informal social networks. It is argued that these individuals who rate themselves as more dependent when compared to elderly individuals who have a more interdependent lifestyle, approach formal organisations in order to maintain their community based lifestyle. This is hypothesised within the integrated model of independence and interdependence, where individuals who are marginalised will require formal services.

All measures of social support, including the frequency of interactions (social behaviour), the perceptions of support (social cognition), and appraisals of intimacy (social affect), were positively related to group differences once age, gender, physical health and cognitive status were controlled.

Further analyses conducted in relation to the behavioural, cognitive and affective domains, found that the social behaviour variable is a significant unique contributing factor, accounting for 20.2% of the variance of group membership.

These results support previous research which found that social support networks (ie. frequency of contact with informal network members) increases the ability of the elderly individuals to cope effectively with a variety of problems and difficulties (Cutrona, 1986; Thompson & Heller, 1990). When an individual is in a

situation of marginalisation, an increase in social support networks, would enable them to shift to a situation of assimilation. Previous studies have also supported this finding, where once social support has been replaced or supplemented by formal support, there is a return to higher levels of perceived independent functioning by the elderly person (Chipperfield & Havens, 1991; Johnston, 1995). Johnston (1995), however, found that this functioning was still at a level lower than those who are not required to utilise formal services.

In relation to the integrated model of independence and interdependence, results highlight the elderly persons who are applying for community services as currently being marginalised, as essential features of either their independent and/or interdependent functioning have been lost and not yet replaced. What cannot be determined, based on the data collected, is how members of the Marginalised group, came to be marginalised. Individuals may have experienced losses in their social support networks (assimilation), a decrease in levels of either their physical and/or mental health (separation), or a combination of both (integration). What can be said, however, is that the reduction or loss from any of these processes, has led to these elderly individuals approaching formal organisations in order to replace or supplement the essential features (physical and/or mental health, and/or social support) that were perceived as lost. This would then result in a transition from a situation of marginalisation, to a preferred situation of assimilation.

As participants in this study were matched on age, gender, physical health and cognitive status, and significant differences were found between the two groups on the social variables, it can be seen that the members of the Assimilated group would then fall into the category of assimilation. Differences between the groups, in relation

to this model, can therefore be attributed to differences in levels of social support. That is, it is on the level of interdependence (participation in unique interpersonal networks), where the main differences occur, supporting the important role of social support to maintain adequate functioning of the elderly person in the community.

Reliability and Validity of the InterDP

Reliable measurement of the constructs has been achieved, both within the subscales and within the overall assessment instrument. In comparing the reliability of the InterDP with existing measures, it should be noted that many researchers have reported high alpha levels (>.7) as positive indications of the reliability of the scales (Groves, et al., 1996; Morris & Buckwalter, 1988). Therefore the reliability of the revised version reported here is at least comparable to that of existing measures, such as the QUIP and the ISAI.

While consistency in measurement was desired within each of the subscales, breadth of measurement was sought for the instrument itself. In the present study, a number of methods were employed which investigated the validity of the assessment instrument. The structure of the MDS spatial representation established the independent contributions of residence, local area and social support variables to the behaviour, emotional and cognitive functioning of independent elderly people. These results replicated the findings of Groves, et al., (1993), supporting the validity of the current assessment instrument.

The InterDP demonstrated discriminant validity, as revealed by the significant differences between the two groups on the total InterDP score, and the individual subscales. The only subscales found not to significantly discriminate between the two groups were area behaviour and residence behaviour. This non-significant result is

acceptable as participants were matched on physical health and cognitive status, and all participants resided in private dwellings. These findings therefore, provide substantial evidence of the validity of those subscales and the assessment instrument, since they demonstrated that the InterDP was sensitive to the manipulation of a pertinent experimentation.

Implications of this study

Firstly, the results of this study, identify that once age, gender, physical health and cognitive status have been controlled, social support networks are important aspects of functioning in elderly persons. Organisations involved in the formal care of elderly persons, should therefore, encourage the maintenance and development of informal networks of the individual in need, helping the them expand their social contacts and enter into new social roles. This can be achieved by providing services that strengthen networks through active community groups. This should in turn alleviate demands for formal support and perhaps reduce the financial costs associated with an ageing society. However, when it is not feasible for the elderly in need to rely solely on informal support, formal services should provide direct aid or assistance by either supplementing or replacing (either physically, financially and/or emotionally) these networks and improving on the care provided by them. A balance in the relative role of informal and formal support then, is the ideal toward which most services should be directed.

From the processes identified by Berry and Kim (1988), and the support provided for the integrated model of independence and interdependence, it may be possible to; identify where within the model, elderly individuals are functioning; depending on their status, determine whether or not these individuals are at risk; and

finally determine what services are required to alleviate these risks, providing formal organisations with a system of classification. Identifying where individuals are located in relation to the model, can therefore, aid in the programme planning and evaluation of formal services. Attention can therefore be directed as to where formal services should be increased, maintained, or reduced to avoid duplication, and/or identify where a local informal solution may be preferred.

If governments are to provide services for elderly persons which optimise their ability to function effectively in society, then provision must be made, not only for the physical and mental health needs of these individuals, but also for their social support (both informal and formal) needs.

Limitations of the study

Four limitations of the current study should be addressed in future research:

1) In a cross-sectional, non-experimental design, it is possible to describe relationships among the variables of interest, but difficult to determine causal relationships among the variables.

2) Because of the selection procedures used, and the necessity to match participants from each group on the control variables, results generated are characteristic of the sample used.

3) Due to the nature of the study and the assessment tools used (self-report), results may not be indicative of actuality due to socially desirable responses.

4) Additionally, the reasons for applying for formal services and the types of services applied for, were not identified in this study. Although the vast majority of applications for HACC services are approved, follow up studies are required to see if services were received

Suggestions for further research

To determine support for the four processes of the integrated model, further research needs to focus on a more representative sample of the population, controlling for the type of services applied for. It also needs to be determined, from what segment of the model the individuals came from, to determine whether or not they will use services (eg. if an individual was separated and experienced a decline in health resulting in marginalisation, they may not approach services due to their individualistic nature etc.). A more detailed assessment of the individuals physical and mental health could be made, as this is a central aspect of the model.

Individuals perceptions in relation to their level of functioning also need to be established. The perceptions that individuals have of their experiences and their status in society, often determines whether or not they will take action in order to deal with situations as they arise. For example, if the elderly person does not perceive that they are marginalised, then they will not attempt to change their circumstances. Secondly, if an elderly person is satisfied and accept their current position in society, then again, they will not perceive a need to move from one segment of the model to another. Future research therefore, needs to focus on individuals perceptions of their current situation, whether or not they accept and are satisfied with their current status in society, and finally, if an alternative situation is desired, what is the preferred scenario. Research could also focus on the individuals ability to function in society if they perceive a need for formal services which has been denied.

In order to gain a better understanding of functioning in elderly individuals, it is proposed that a longitudinal study which maps the important life changes of elderly people and their relative position in society (in relation to the Integrated model of

independence and interdependence) be undertaken. A life course perspective highlights the different ways in which elderly people make their transitions into new roles and status's and increases understanding of their associated levels of functioning.

Although the InterDP was found to be a reliable and valid assessment instrument of independent functioning in elderly persons, because of the sample used, which was limited by matching on the control variables, future studies are required, using a representative sample of the elderly population, in a variety of settings (eg. nursing homes, retirement villages, hostels etc.) to further assess the reliability and validity of the instrument.

Summary

The purpose of the present study was to determine the role of social support networks in the independent functioning of elderly persons. The value of determining this role is self evident. If social support networks can aid in the maintenance of independence and interdependence in old age, then dependency on formal services can be minimised, reducing the financial costs associated with this type of care. The present study also shows support for the assessment instrument, the InterDP, and the Integrated model of independence and interdependence. The indicators of reliability and validity of the InterDP were promising. Additionally, the Integrated model, highlights graphically, the different levels of functioning in the elderly and the associated requirements or losses which result in each process. It is envisaged that further validation of this model and of the assessment instrument, will have the advantage of enabling researchers and professional organisations involved in the care

of the elderly, to ascertain whether elderly individuals are at risk, and the appropriate services (either informal or formal), required to alleviate any risks.

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Appendix A

Iowa Self Assessment Inventory

Iowa Self Assessment Inventory

Directions: The statements on the following pages are about things that can affect our lives in one way or another. We are asking you and a number of other mature adults to describe your own situations using these statements. In this way, we hope to understand some of the problems and needs of people living in your community.

Please use the following key in rating each statement:

4 - True

3 - More often true than not

2 - More often false than not

1 - False

Please read each statement carefully and then circle the number corresponding to the answer that *best* applies to you. We realise that some of the statements may not apply directly to you all of the time, but please try to do the best you can. Do not worry about giving exactly the right answer; your answer may simply mean that the statement is true (or false) to some degree.

Please do not omit any statements. Thank you for your help.

		Rating (Circle one number for each statement)			
		true	mostly true	mostly false	false
1.	During the past year I have been to a doctor fewer than 4 times.	4	3	2	1
2.	During the past year I have been so sick I was unable to carry on my usual activities.	4	3	2	1
3.	During the past year I have not been a patient a hospital	4	3	2	1
4.	I need more health care than I am now receiving	4	3	2	1
5.	I fall frequently	4	3	2	1
6.	My eyesight is good	4	3	2	1
7.	My hearing is good	4	3	2	1
8.	I have no physical disabilities or illnesses at this time	4	3	2	1
9.	I take 3 or more medicines each day	4	3	2	1
10.	I take laxatives to avoid constipation	4	3	2	1
11.	I have fewer health problems than most older people I know	4	3	2	1
12.	I need a cane, crutches, walker, or wheelchair to get around	4	3	2	1
13.	My doctor has recommended that I cut down on drinking alcohol	4	3	2	1
14.	I participate in vigorous physical activities	4	3	2	1
15.	My overall health is excellent	4	3	2	1
16.	My health is better than it was 5 years ago	4	3	2	1
17.	I smoke	4	3	2	1
18.	I have a dry cough	4	3	2	1
19.	I have stiffness in some of my joints	4	3	2	1
20.	I have a heart condition that interferes with my activities	4	3	2	1

		Rating (Circle one number for each statement)			
		true	mostly true	mostly false	false
1.	I have trouble remembering the names of people I know.	4	3	2	1
2.	I have more trouble keeping track of my money than I used to	4	3	2	1
3.	I forget appointments	4	3	2	1
4.	Learning new things is harder for me than it used to be	4	3	2	1
5.	I forget where I put things	4	3	2	1
6.	I lose my train of thought in the middle of a conversation	4	3	2	1
7.	My thinking is as good as it ever was	4	3	2	1
8.	I forget to take my medicine when I am supposed to	4	3	2	1
9.	I am not always sure of the date	4	3	2	1
10.	I can do arithmetic as well as ever	4	3	2	1
11.	I feel lost in places I used to know well	4	3	2	1
12.	I have trouble remembering things that happened very recently	4	3	2	1
13.	I remember things that happened 10 or more years ago	4	3	2	1
14.	After watching a movie I don't understand what it was about	4	3	2	1
15.	My mind is just as sharp as ever	4	3	2	1
16.	My mind is sharper than most older people I know	4	3	2	1
17.	I can recall past events when I want to	4	3	2	1
18.	I enjoy activities that stimulate my mind	4	3	2	1
19.	I welcome the opportunities to learn new things	4	3	2	1
20.	I have no trouble remembering things like my address and post code	4	3	2	1

Appendix B

InterDP

The InterDP

Department of Health and Human Services, Edith Cowan University.

PLEASE READ THE FOLLOWING INSTRUCTIONS

This questionnaire asks for your views about the local area and residence in which you live, the people you know, and your general lifestyle. For each of these topics, we would like you to respond to a number of questions and statements, simply by ticking the response which best applies to you. We realise that some of the items may not seem relevant to your situation, but please make sure you answer every item.

Thank you for your participation.

YOUR LOCAL AREA

1 How often do you go out in your local area during good weather?

rarely or never.....
about once a week .....
a few times a week .....
daily or several times a day .....

2 Which of the following statements best describes your ability to manage your own financial matters? (Please tick one box only).

I do not manage my own financial matters.....
I manage my financial matters if I have someone to advise me .....
I manage things by myself, but receive help with more complicated matters.....
I manage all my own financial matters .....

3 Which of the following statements best describes your use of transport? (Please tick one box only).

I cannot travel.....
I can travel on public transport, in taxis or someone else's car if assisted by another person .....
I can travel on public transport without any assistance .....
I can drive a car .....

4 Which of the following statements best describes your use of shopping facilities? (Please tick one box only).

I cannot go shopping .....
I can go shopping if I have someone to assist me.....
I shop for small purchases by myself, but receive a little assistance with other shopping.....
I do all my shopping without any assistance .....

5 I find the shops in this area are conveniently located.

never .....
sometimes .....
quite often .....
always .....

6 I find the local area is well set out.

never .....
sometimes .....
quite often .....
always .....

7 The local area has facilities for the kinds of recreational activities which interest me.

none .....
some .....
most .....
all .....

8 I think my residence is located in a good area.

never .....
sometimes .....
quite often .....
always .....

9 I am satisfied with the recreational facilities provided in my area.

never satisfied .....
sometimes satisfied .....
quite often satisfied .....
always satisfied .....

10 I feel safe and secure in my local area.

never feel safe.....
sometimes feel safe .....
quite often feel safe .....
always feel safe.....

11 I'm satisfied with the changes which have occurred around the local area in recent years.

never satisfied.....
sometimes satisfied.....
quite often satisfied .....
always satisfied.....

12 I feel satisfied with shopping facilities available in my local area.

never .....
sometimes.....
quite often.....
always.....

YOUR RESIDENCE

13 Are there facilities at your residence where YOU can.
(Please answer all 3 questions)

make yourself a hot drink?.....yes no
make yourself a snack? .....yes no
prepare yourself a meal? .....yes no

14 Does your residence include space and facilities for.
(Please answer all 3 questions)

entertaining a visitor in private during the day?yes no
a visitor to stay overnight?.....yes no
a visitor to stay for more than a week? .....yes no

15 Can YOU use the following areas in private without the intrusion of others?
(Please tick either yes of no for each area).

kitchen .....yes
.....no
bedroom.....yes
.....no
bathroom.....yes
.....no

16 I find the facilities in my bathroom make it easy for me to....

wash my hands .....yes . no
bathe/shower.....yes . no
get ready to go out.....yes . no

17 I have enough privacy at my residence.

never .....
sometimes .....
quite often .....
always .....

18 I can entertain guests in an adequate manner at my residence.

never .....
sometimes .....
quite often .....
always .....

19 The access to and from my residence is difficult to manage.

never .....
sometimes .....
quite often .....
always .....

20 The kitchen facilities in my residence make it easy for me to prepare meals.

never .....
sometimes .....
quite often .....
always .....

21 I am satisfied with my residence.

never satisfied .....
sometimes satisfied .....
quite often satisfied .....
always satisfied .....

22 I am satisfied with the kitchen facilities in my residence.

not at all satisfied.....
partly satisfied .....
mostly satisfied.....
completely satisfied.....

23 I am satisfied with the bathroom facilities in my residence.

not at all satisfied.....
partly satisfied .....
mostly satisfied.....
completely satisfied.....

24 I am satisfied with the laundry facilities in my residence.

not at all satisfied.....
partly satisfied .....
mostly satisfied.....
completely satisfied.....

PEOPLE YOU KNOW

25 How often have you contacted friends or relatives over the past month?

rarely or never.....
about once a week .....
a few times a week .....
daily or several times a day.....

26 How often do you give assistance to someone you know?

rarely or never.....
once a month .....
weekly.....
several times a week.....

27 How often do you exchange assistance, favours, skills or goods with a friend or relative.

rarely or never.....
once a month .....
weekly.....
several times a week.....

28 How often do you spend time with others who have the same interests as you?

rarely or never.....
once a month .....
weekly.....
several times a week.....

29 I receive recognition for my achievements from those around me.

never .....
sometimes .....
quite often .....
always .....

30 When someone goes out of their way to help me, I return the favour.

never .....
sometimes .....
quite often .....
always .....

31 Among my group of friends, we do favours for each other.

never .....
sometimes .....
quite often .....
always .....

32 I enjoy doing the little things that make other people's lives more pleasant.

not at all .....
sometimes .....
quite often .....
always .....

33 I feel wanted and loved by my family and friends.

not at all .....
sometimes .....
quite often .....
always .....

34 I feel happy knowing that in an emergency I would have someone to help me.

not at all .....
sometimes .....
quite often .....
always .....

35 I feel satisfied with any assistance I receive because it is provided in a manner which respects my dignity.

never satisfied .....
sometimes satisfied .....
quite often satisfied .....
always satisfied .....

36 I feel secure knowing that I can always get help from people I know.

not at all secure .....
sometimes secure .....
quite often secure .....
always secure .....

YOURSELF

37 Do you ever have any difficulty in.
(Please answer all 3 questions)

showering or washing?.....sometimes never
meal preparation? .....sometimes never
washing and ironing your clothes?.....sometimes never

38 I have been in good health over the past month.

not at all .....
some of the time .....
most of the time.....
all of the time.....

39 I am able to carry out my daily activities without having to make adjustments for my health.

never .....
sometimes.....
quite often.....
always.....

40 I am a relatively fit and health person.

never .....
sometimes.....
quite often.....
always.....

41 I manage the tasks of day-to-day living quite well.

not at all .....
sometimes.....
quite often.....
always.....

42 The things I do are as interesting to me as they ever were.

not at all .....
sometimes .....
quite often .....
always .....

43 I have a positive attitude toward myself.

never .....
sometimes .....
quite often .....
always .....

44 I am as emotionally stable as I used to be.

never .....
sometimes .....
quite often .....
always .....

45 I am happy with my present state of health.

never satisfied .....
sometimes satisfied .....
quite often satisfied .....
always satisfied .....

46 I feel confident enough to do the things I want to do.

never confident .....
sometimes confident .....
quite often confident .....
always confident .....

47 I feel frustrated because I can't always do the things I used to do.

never frustrated.....
sometimes frustrated.....
quite often frustrated .....
always frustrated.....

48 I feel confident in my ability to take care of myself.

never confident.....
sometimes confident.....
quite often confident.....
always confident.....

GENERAL INFORMATION

In which local area (suburb) do you live?.....

For how many years have you lived in this area?.....

In what type of residence do you live?.....

Private house.....
Private flat or unit.....
Retirement village.....
Hostel.....
Nursing home.....
Other? (please describe)_____

How many years old are you? _____

Sex.....male female

Marital status: single.....
married.....
defacto.....
divorced.....
widowed.....

Do you live by yourself?....yes no

If no, with whom do you live? _____

For how many years have you lived at your present address?_____

Any further comments? _____
_____
_____
_____