

A Study of Older Adults: Observation of Ranges of Life Satisfaction and Functioning

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Levels of daily functioning and life satisfaction in older people are investigated in this study. Surveys and interviews included 425 people aged 65+ and comparisons were made between three age groups (ages 65-74, 75-84, 85+) on levels of activity, independence and social support; satisfaction with levels of independence, activity and social support and overall life satisfaction. Results indicated that those aged 85+ had significantly lower levels of activity and independence than those in the two younger age groups. Differences were found in 8 of 12 domains of independence and in outdoor work and mobility activities. The oldest age group was also found to be significantly less satisfied with their levels of independence and activity than were the younger age groups. No significant differences were found between the groups in overall life satisfaction. Levels of activity and independence, satisfaction with social support and satisfaction with independence were found to make unique contributions to the prediction of variance in overall life satisfaction. Findings are important in understanding what to expect of ourselves and others as we age, which daily activities are likely to be most difficult for older people and what factors are predictors of overall life satisfaction.

New Zealand is experiencing a growth in its population of older people (Statistics New Zealand, 2010). As life expectancy is extended, knowledge about what we can expect as we age must be informed by research. Understanding typical levels of activity and independence and how these factors affect life satisfaction for those aged 65+ can be very useful to us, as an ageing society, and to those who provide support and services to those experiencing life changes, impairments, loss and transitions associated with ageing. Tools for assessing daily function for older people may become increasingly important in research, psychology and rehabilitation. In this study, validated, widely used assessment measures have been utilised with an older, New Zealand population and other measures have been developed specifically for this study.

Daily function is often assessed in terms of problem identification and determinations of whether an individual can or can not perform an activity, rather than in identifying one's function along a continuum or within a range of typical functioning, mostly because normative ranges of daily functioning have not been documented for many populations. Although, with experience, we develop ideas of norms and ranges of functioning for groups such as children and specific disability groups, seldom do we have the experience to inform our understanding of normative functioning for those aged 65+. Our society is ageing and we are remaining active and independent much longer than ever before. This will have profound implications for societies regarding policies, social services, social security and quality of life. Although much research has been conducted in relation to deficits in daily functioning for older people, data regarding typical

ageing and functioning is sparse.

In 1985 research was conducted that demonstrated activity levels remained high among older people until about age 79 (Guralnik, 1985). In 1987 researchers found older age groups more restricted in independence (Luker & Perkins, 1987). Later, researchers linked life satisfaction with independence (Davis, Lovie-Kitchin, & Thompson, 1995). And Goudy and Goudeau (1981) established links between life satisfaction, activity and friendship ties. This New Zealand study seeks to determine levels of functioning (activity and independence) in older people and then tie many of the elements from the studies above, to identify the relationships between functioning and life satisfaction in this population.

The specific aims of this research are to find if reported levels of activity and independence vary across three age groups of older people (Age group 1: 65-74, age group 2: 75-84 and age group 3: 85+); to explore levels of satisfaction with activity, satisfaction with independence, satisfaction with social support and overall life satisfaction across the three age groups; and to determine what contributes to overall life satisfaction for older people in this study.

We used data from a survey of older people to determine if those who were in the older age groups were less active, independent and satisfied with life than were those in the younger age groups. We also assessed the degree to which age, impairments, activity and

independence, gender and social support predict levels of life satisfaction for this population.

Methods

This study was approved by the Massey University Human Ethics Committee, and conducted in accordance with the tenets of the Declaration of Helsinki. A survey was sent to 800 randomly selected registered voters who were aged 65+ at the time of the survey and who lived in private dwellings (not nursing or care homes or lodges) in the Manawatu region of the North Island. The original study was conducted with a comparison group of vision impaired participants (see Good, La Grow, & Alpass, 2008). Reported here are the results of those 425 participants who reported no significant impairment of vision.

The survey included questions related to age, gender, marital status, ethnicity, income, level of education, occupation, size of the community in which they lived, and number of impairments. It also included the following measures: (1) an Independence Inventory, in which the participants ranked their independence in 12 domains of daily living (such as recreation, communication, and home management) (Good, 2005). (2) The Frenchay Activities Index (FAI) (Holbrook & Skilbeck, 1983) which measures the frequency of activities such as using transport, reading, walking, shopping, housework, etc. Note that the FAI was adapted with minor changes which included the addition of "using the telephone", "reading mail" and "using a typewriter or computer". "Outings" and "car rides" were separated for this study as were "driving" and "using public transport" and "household maintenance" and "car maintenance". These minor alterations were made as this study's original focus was to target older people with and without impaired vision. (3) the Social Support Questionnaire (SSQ) (Sarason, Sarason, Shearin, & Pierce, 1987) was also used, which assesses network size and perceived social support, and (4) the Satisfaction with Life Scale (SWLS) (Diener, Emmons, Larsen, & Griffin, 1985) in which the participants agreed or disagreed with statements such as "The conditions of

my life are excellent". Participants were also asked to list three factors which contributed to and detracted from their Quality of Life (QOL). The participants were sent the survey and also offered telephone and face-to-face assistance upon request. Surveys were returned in a postage-paid envelope. Surveys took approximately 30 minutes to complete or 40 minutes if completed with assistance. Eighteen participants requested a visit to assist with completing the survey. With a total of 425 usable surveys, this was a 53% response rate.

Results

DEMOGRAPHIC CHARACTERISTICS OF THE PARTICIPANTS

As a group, the participants closely reflected the older population of New Zealand, in general, and of the Manawatu region, in particular, in terms of the distribution of age, ethnicity, marital status, educational level, previous occupation, income, health impairments and living situations (Health Funding Authority, 1998; MidCentral District Health Board, 2004; Statistics New Zealand, 2004) (see Table 1).

The mean age of participants was 74 ($SD = 6.49$); just over half of the participants were women and the majority of participants were European. Most reported that they were married and living with their spouse. The most commonly reported size of community was urban (population > 30, 000), and just over 60% of the participants identified that they had achieved at least school certificate passes. The most common occupation or former occupation was homemaker and the median annual income was \$14,000. These demographic statistics match census details closely, indicating a good representative sample of the region (Statistics New Zealand, 2001).

In comparing demographic data between the three age groups, the only significant differences, when assessed by standard error of proportions ($p < .05$), were that those in the older two groups were significantly more likely, to be living alone, to be widowed and to have been a homemaker at the age of retirement. Note that the confidence interval calculation used to

find the significance in a difference of proportions was derived from Moore & McCabe (1999).

$$2 \times \sqrt{0.5 \times 0.5 / N_1 + 0.5 \times 0.5 / N_2}$$

This formula provides a conservative test for the significance in the difference of two proportions at $p = .05$. Using this formula, a difference of 10.4% is significant in comparing proportions of age group 1 ($n = 242$) to age group 2 ($n = 150$); a difference of 18.5% is significant in comparing the proportions of age group 1 and age group 3 ($n = 33$). And a difference of 19.2% is significant in comparing proportions of those in age groups 2 and 3.

Of the 425 participants, 93% reported having impairments or health conditions and 68% reported having multiple impairments or health conditions. There was a high prevalence of arthritis (39%), high blood pressure (35%), hearing impairment (32%), impaired vision (not significant enough to be registered with the Royal New Zealand Foundation of the Blind) (26%), and heart disease (23%). A one-way between groups analysis of variance (ANOVA) was conducted to explore the impact of age on number of impairments. There was a statistically significant difference at the $p < .05$ level in number of impairments for the three age groups [$F(2, 401) = 6.0, p = .003$]. Post hoc comparisons using the Tukey's honestly significant differences test for equal variances (Pallant, 2001) indicated that the mean number of impairments for Group 1 ($M = 2.2, SD = 1.53$) was significantly lower than Group 2 ($M = 2.7, SD = 1.7$) and Group 3 ($M = 3.1, SD = 1.7$). Groups 2 and 3 did not differ significantly from each other.

ACTIVITY, INDEPENDENCE AND SATISFACTION

One-way between groups analyses of variance (ANOVA) were conducted to explore the impact of age on the frequency of activity, on independence and on life satisfaction.

Activity

Using an adapted Frenchay Activities Index (FAI), which measured and summarised the weekly frequency of 21 activities of daily living (ADL), significant differences in frequency of activity were found between the

Table 1. Demographic characteristics participants (N = 425)

	<i>n</i>	%
Age (years)		
65-74	242	56.9
75-84	150	35.3
85+	33	7.8
Gender		
Male	194	45.6
Female	231	54.4
Ethnicity		
New Zealander of European descent	383	91.0
New Zealander of Maori descent	15	3.6
New Zealander of Pacific Island descent	0	0
Other (includes European, Asian, Pacific Island, Indian, Australian & N. American)	23	5.5
Missing data	4	0.9
Size of community		
Main urban area	152	35.8
Secondary urban area	99	23.3
Minor urban area	96	22.6
Rural centre	28	6.6
Rural area	50	11.8
Current Living Situation		
Alone	139	32.7
With spouse/partner	256	60.2
With children	9	2.1
With spouse/partner & children	10	2.4
With other family members	7	1.6
With non-family	4	0.9
Other	0	0
Marital Status		
Married	274	64.5
Not-married	35	8.2
Widowed	115	27.1
Missing data	1	.2
Occupation/Former Occupation		
Homemakers	100	24.5
Legislators, administrators, managers	14	3.4
Professionals	72	17.6
Associate professionals, technicians	16	3.9
Clerks	49	12.0
Service and sales workers	28	6.9
Agriculture and fishery workers	38	9.3
Trades workers	54	13.2
Plant and machine operators, assemblers	20	4.9
Elementary occupations	17	4.2
Missing data	17	4.0
Educational Qualification		
No school qualification	155	37.4
School certificate passes	83	20.0
Matriculation/University Entrance+	26	6.3
Trade apprenticeship, professional certificate or diploma	86	20.8
Government exams for public service	17	4.1
University degree, diploma or certificate	47	11.4
Missing data	11	2.6

youngest and oldest groups. A one-way between group ANOVA and Tukey's HSD post hoc analysis produced the following results: [$F(2,415) = 5.45, p = .005$] (Group 1 $M = 3.1, SD = .67$; Group 2 $M = 2.9, SD = .71$; Group 3 $M = 2.7, SD = .93$). (1 = never; 2 = less than one day per week; 3 = one to three days per week; 4 = four to six days per week; 5 = every day of the week).

In order to examine differences in frequency of activity within ADL domains, the Frenchay Activities Index items were divided into three major domains of life activity: domestic chores, leisure/work, and outdoor/mobility (Holbrook & Skilbeck, 1983). The domestic category consisted of preparing main meals, washing up dishes, washing clothes, light housework and heavy housework. The work/leisure category consisted of social outings, actively pursuing a hobby, talking on the telephone, reading books, reading mail, using a typewriter or computer and paid or volunteer work. The outdoor/mobility subscale consisted of local shopping, walking outside, driving, using public transport, outings, car rides, gardening, household maintenance and car maintenance.

A one-way between-group ANOVA was conducted to explore the impact of age on frequency levels of activity in each of the three domains of daily activity. In the domain of domestic activities, there was not a statistically significant difference between the three age groups [$F(2, 415) = .223, p = .800$]. There was, however, a significant difference found between the age groups in the work/leisure domain [$F(2, 415) = 3.73, p = .025$] (Group 1 $M = 3.27, SD = .752$; Group 2 $M = 3.14, SD = .809$; Group 3 $M = 2.86, SD = .710$). Post hoc comparisons indicated that frequency of activity in work/leisure was significantly lower for the oldest group in comparison to the youngest group. Significant differences were also found in the outdoor/mobility domain [$F(2, 415) = 9.89, p = .000$]. The youngest group was significantly more active than the older age groups (Group 1 $M = 2.86, SD = .710$; Group 2 $M = 2.60, SD = .791$; Group 3 $M = 2.33, SD = .941$).

Activities across the age groups were further examined using the standard error of proportion differences ($p = .05$) in

those who performed activities "never" or "one day per week". Significant differences between the age groups were in the areas of: driving, using a computer or typewriter, home maintenance, heavy housework, walking outside, gardening, social outings, reading books, car rides, paid or volunteer work and running errands, where the proportion of younger participants performing these activities less frequently was smaller than the proportion of older participants.

For 10 of the 21 items there were no significant differences in the proportion of those who performed activities "never" or "one day per week" (See Table 2).

Independence

A one-way between groups ANOVA was conducted to explore the impact of age on independence as measured by the Independence Inventory (Good, 2005). There was a statistically significant difference ($p < .05$) in independence scores for the three age groups [$F(2, 422) = 13.7, p = .000$] (3 = performs activities without assistance; 2 = performs activities with some assistance; 1 = performs activities with lots of assistance; 0 = does not perform activities, has another person perform activities for them or the question does not apply). Post hoc comparisons using the Tamahane's T2 test (because variances were not equal) (Pallant, 2001) indicated that the mean score for the youngest age group (M

Table 2. proportions of participants who reported that they performed activities never or less than one day per week by age cohort (as measured by the Frenchay Activities Index)

Activity	Age Group 1 <i>n</i> = 242	Age Group 2 <i>n</i> = 150	Age Group 3 <i>n</i> = 33
Activities with significant differences between all three age groups $p < .05$			
Driving a car	17.4	34.1	80.8
Activities with significant differences between age groups 1 & (2,3) $p < .05$			
Heavy housework	50.2	67.8	77.3
Using a typewriter or computer	62.4	72.7	84
Activities with significant differences between age groups 1 & 3 $p < .05$			
Walking outside for > 15 minutes	20	22.3	40
Gardening	30.8	33.8	50
Household maintenance	65.6	69.5	85.2
Activities with significant differences between age groups (1,2) & 3 $p < .05$			
Paid or volunteer work	66.5	75.2	96
Activities with significant differences between age groups 1& 2 $p < .05$			
Social outings	32.4	47.8	46.2
Car rides	35.6	48	50
Outings/errands	32.4	47.8	46.2
Activities with significant differences between age groups 1&3 $p < .05$			
Reading books	21.5	25	43.3
Activities with no significant differences between age groups $p < .05$			
Light housework	25.5	33.3	40.7
Preparing main meals	26.9	24.7	22.6
Car maintenance	93.6	84.3	95.8
Washing clothes	33.9	29.7	28.6
Washing up dishes	16.1	15	16.7
Talking on the telephone	11.2	15	19.4
Using public transport	92	90.6	88
Reading mail, newspapers, magazines	6.0	12.8	16.1
Local shopping	27.4	30.6	39.3
Actively pursuing a hobby	31.8	37.9	50

= 2.75, $SD = 0.35$) was similar to age group 2 ($M = 2.69$, $SD = 0.36$), but the youngest and middle age groups scored significantly higher than the oldest age group 3 ($M = 2.39$, $SD = 0.49$).

Each of the 12 subscales of the Independence Inventory were analysed to see where independence varied between the three age groups, using standard errors of proportion between those who perform activities independently and those who do not. Four of the subscales showed differences such that the youngest age group was significantly more independent than the oldest age group (personal management, home management, outdoor responsibilities, and community activities). Three of the subscales showed differences such that the youngest age group was significantly more independent than the middle age group (home management, outdoor responsibilities and communication and electronics). Two of the subscales showed differences such that the middle age group was more independent than the oldest age group (home management and community activities). And seven subscales showed no difference between the level of independence between the three age groups (Basic activities of daily living, kitchen management, laundry, individual hobbies, caring for others, active recreation and money handling).

Overall, participants reported a high level of independence. The lowest levels of independence (lots of assistance required or activity performed by someone else) were found in areas of home management and outdoor work by the oldest age group; in the area of outdoor work in the middle age group and the youngest age group reported this level of dependence in none of the subscales.

Further analyses were undertaken to determine whether other aspects of independence differed between the groups. On the whole, participants reported that they paid for gardening and lawn services (32%), received support from a spouse (30%) and had agency paid assistance (11%) and help from a son or daughter (11%) as the top sources of instrumental support. Although there were no significant difference in the number of hours of weekly practical support received from others, including

family, neighbours and friends, there were significant differences between all three age groups in the number of sources from which they received weekly practical support [F , (2, 404) = 17.9, $p = .000$]. Post hoc comparisons using the Tukey's HSD test indicated the number of sources: Group 1 was ($M = .8$, $SD = .85$); Group 2 ($M = 1$, $SD = .94$) and Group 3 ($M = 2$, $SD = 1.0$).

Proportionally, significantly more participants in the older age groups reported receiving practical support from agencies (Group 1, 4%, Group 2, 15%, Group 3, 50%) and from gardening and lawn care services (Group 1, 20%, Group 2, 47%, Group 3, 49%).

In summary, measures of activity and independence show that generally, with age comes a reduction of both activity and independence. But not across all domains: domestic activities and independence related to hobbies, recreation, caring for others and handling money appear to remain stable with age.

Satisfaction

Satisfaction with activity and independence, satisfaction with social support and overall life satisfaction were also measured to see if differences were found across the three age groups.

When asked if they would like their level of activity to be different to what it was currently, responses differed across the age groups. The proportion of those in the oldest age group who preferred a higher level of activity (71.9%) was significantly higher than those in the other two groups (Group 2, 56.9%; Group 1, 45.5%).

A one-way between groups ANOVA was conducted to explore the impact of age on levels of satisfaction with independence as measured by the total satisfaction with independence scale (1 = very dissatisfied, 6 = very satisfied). There was a significant difference found between the three age groups [F , (2, 421) = 17.52, $p = .000$]. Post hoc comparisons using Tamahane's T2 test (because variances were not equal) indicated that the mean score for the youngest age group ($M = 5.79$, $SD = .368$) was higher than age group 2 ($M = 5.66$, $SD = .577$), and higher than group 3 ($M = 5.23$, $SD = .966$). The two older age groups were not significantly

different from each other.

Satisfaction with social support was measured with the SSQ. No differences were found between the three age groups. On the whole, the participants rated a high level of satisfaction ($M = 5.7$, $SD = .591$ on a scale of 1-6).

Overall life satisfaction was measured with the SWLS with a scale that ranges from a low satisfaction level of 5 to a high of 35. A one-way between groups ANOVA was conducted to explore the impact of age on levels of life satisfaction. There was no significant difference found between the three age groups [F , (2, 367) = 1.507, $p = .223$]. Post hoc comparisons using Tukey's HSD test indicated that the mean score for the groups were: youngest age group ($M = 24.95$, $SD = .593$) age group 2 ($M = 23.93$, $SD = .683$), and group 3 ($M = 23.28$, $SD = 6.93$).

Participants were also asked to list three things that contributed to their QOL and three things that detracted from their QOL. Respondents reported most frequently that good health, family, spouse, friends, attitude and independence contributed to QOL. Less than 20% of those aged 75+ named their spouse as a contributing factor to QOL and less than 20% of those aged 85+ mentioned friends. Factors named most frequently as being detractors from QOL included poor health, physical impairment, poor finances, family difficulties and age. Twenty percent or more of those aged 65-74 identified poor health and finances; those aged 75-84 named poor health and those age 85+ identified poor health, mobility and poor vision. (More details available in Good, 2008b).

Bivariate correlation analyses were used to further explore the impact of impairments on overall life satisfaction for the entire group of participants and for each of the three age groups. Overall, those impairments significantly linked to lower life satisfaction scores ($p < .05$) were vision impairment, stroke, physical impairment, hernia, diabetes, cancer, angina and hearing impairment (listed in descending order of significance).

For those aged 65-74 ($n = 242$), the most significant relationship between impairment and lower satisfaction with life scores ($p < .05$) was found for those

Table 3a: Regression models on Life Satisfaction for older people aged 65+

Model of Life Satisfaction	Adults age 65+ (N = 425)		Sig (p)
	B	(Beta) β	
Satisfaction with Independence	2.07	.209	.000
Satisfaction with Social Support	.556	.246	.000
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	R	Adjusted R ²	
	.378	.143	

experiencing physical impairments, arthritis, other unidentified impairments, hepatitis, angina and hearing impairments (listed in descending order of significance).

For those aged 75-84 (n = 150) the impairments with the strongest relationship with lower life satisfaction (p < .05) were hernia, diabetes, cancer, vision impairment, physical disability and stroke.

For those aged 85+ (n = 33) there were no impairments significantly linked with lower life satisfaction.

Standard multiple regression analysis was used to determine which of the variables under study contributed substantially to overall life satisfaction. Thus, the variables with a correlation of .3 and above were entered into the models (Pallant, 2001; Tobachnick & Fidell, 1996). Satisfaction with independence and satisfaction with social support were entered as independent variables. As can be seen in Table 3, satisfaction with independence and satisfaction with social support explained about

14% (R² change = .143) of variance in life satisfaction. Each variable has been found to make a unique contribution to the variance of overall life satisfaction.

Further analyses were done to investigate which variables made unique contributions to the prediction of life satisfaction for each of the three age groups. For the two younger age groups, satisfaction with independence and satisfaction with social support were entered as independent variables. Satisfaction with independence and satisfaction with social support explained about 13% (R² change = .133) and 18% (R² change = .178) of variance in life satisfaction for Groups 1 and 2 respectively. Each variable has been found to make a unique contribution to the variance of overall life satisfaction.

For age group 3, Activity (FAI) and Independence were the variables entered. Overall, about 30% (R² change = .306) of variance in life satisfaction is explained by these two variables, each making a unique contribution.

Discussion

In summary, independence and frequency of activity were reported to be lower for older age groups. Although it is generally well understood that older people do have more impairments and concerns that may limit independence and activity, there is little data available to provide insights into specifics of activity, independence and functioning. Functional decline was not found in all domains of daily living. Similarly, Avlund (2004) found that the proportion of functional decline was larger in the oldest of older adults, yet both improvement of functional ability and functional decline are rather common in older people. Understanding that activity and independence are likely to reduce with age can be useful in understanding what to expect of ourselves and others as we age and in knowing how to set reasonable and informed goals for rehabilitation and in instruction of daily living skills for those experiencing significant losses in function, as a result of disability, for example. Knowing that peers are also likely to experience diminished activity and independence may enhance self-esteem and satisfaction with functioning according to theories of social comparisons (Festinger, 1954; Good & Kabel, 2009). Yet it could also be useful to understand that specific areas of activity, such as domestic tasks, and independence domains such as basic activities of daily living, kitchen management, laundry tasks, individual hobbies, caring for others, active recreation and money handling

Table 3b: Regression model on Life Satisfaction between age groups

Model of Life Satisfaction	Age Group One (65-74) (n = 242)		Sig (p)	Age Group Two (75-84) (n = 150)		Sig (p)	Age Group Three 85+ (n = 33)	
	B	(Beta) β		B	(Beta) β		B	(Beta) β
Satisfaction with Independence	4.15	.269	.000	2.37	.224	.019		
Satisfaction with Social Support	1.89	.196	.003	2.64	.251	.009		
Activity							2.37	.368
Independence							.316	.382
								.027
								.022
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	R	Adjusted R ²		R	Adjusted R ²		R	Adjusted R ²
	.365	.125		.422	.166		.553	.256

are areas that have shown evidence of remaining stable over time.

The older age groups were less satisfied with activity and independence. Yet there were no significant differences found between the three age groups in relation to satisfaction with social support, which is often viewed as an important buffer for the impact of many life difficulties (Good, 2006). This report of positive satisfaction with social support could explain the overall high levels of reported life satisfaction from all three age groups. It is interesting to note that neither age, gender, number of impairments, nor social support network size were significantly correlated to overall life satisfaction. And although for the participants as a whole, social support satisfaction and satisfaction with independence made significant and unique contributions to life satisfaction, more than 86% of the variance in overall life satisfaction remains unexplained. Other factors must yet be explored to reveal what may impact on our life satisfaction as we age. Policy, culture and assessment practices are often focussed on activity and independence. Deficits in functioning are the targets for many millions of health and education dollars. Quality levels of activity and independence are important for survival and day to day living, of course, yet according to older participants in this study, other factors are just as likely or more likely to predict life satisfaction.

Limitations to this study are that it was undertaken within a small geographical area, with its own unique services, community activities and supports. The findings may be generalisable in varying degrees in other communities. Alternative explanations of these results could be related to skewed scales or missing data, although participant numbers were high enough to accommodate these differences and multivariate statistical assumptions were met with the untransformed data.

Conclusion

We now have data from an empirical observation related to activity and independence and how daily functioning relates to satisfaction amongst older people. This information can help us to identify when to apply health promotion activities or initiatives. We also now

have some information about tasks and their difficulty within specific age groups. This information can help us to assess needs, plan rehabilitation goals, provide instruction to this population, and ultimately improve life satisfaction. We also have data about which particular factors are likely to predict a higher level of life satisfaction. Satisfaction with independence and satisfaction with social support have been found to be crucial to well being in older years. Understanding this may be useful to families and service providers as they coach older people who may be undergoing rehabilitation or difficult times. Older people could be encouraged to find circles of friends or peers with whom to make social comparisons in order to enhance life satisfaction.

References

- Avlund, K. (2004). Disability in old age: Longitudinal population based studies of the disablement process. *Danish Medical Bulletin*, 51, 315-349.
- Davis, C., Lovie-Kitchin, J. & Thompson, B. (1995). Psychosocial adjustment to age-related macular degeneration. *Journal of Visual Impairment & Blindness*, 89, 16-27.
- Diener, E., Emmons, R. A., Larsen, R. J. & Griffin, S. (1985). The Satisfaction with Life Scale. *Journal of Personality Assessment*, 49, 71-75.
- Festinger, L. (1954). A theory of social comparison processes. *Human Relations*, 7, 117-140.
- Good, G.A. (2005). *Ageing and vision impairment: Activity, independence and life satisfaction*. Unpublished doctoral dissertation, Massey University, Palmerston North, New Zealand.
- Good, G.A. (2006). Social support reported by older New Zealanders with and without impaired vision: A descriptive, comparative study. *Anthropology & Aging Quarterly* 27, 20-23; 32.
- Good, G.A. & Kabel, A. (2009). An exploration of relationships between social comparisons, disability, and life satisfaction. *AER Journal* 2, 6-8.
- Good, G.A., La Grow, S.J. & Alpass, F.M. (2008). An age-cohort study of older adults with and without visual impairments: Activity, independence and life satisfaction. *Journal of Visual Impairment & Blindness*, 102, 517-527.
- Good, G.A. (2008). Life satisfaction and quality of life of older New Zealanders with and without impaired vision: A descriptive, comparative study. *European Journal of Ageing*, 5, 223-231. DOI: 10.1007/s10433-008-0087-3
- Goudy, W. J. & Goudeau, J. F. (1981). Social ties and life satisfaction of older persons: Another evaluation. *Journal of Gerontological Social Work*, 4, 35-50.
- Guralnik, J. M. (1985). Determinants of functional health status in the elderly. *Dissertation Abstracts International* 47, 1014B.
- Health Funding Authority. (1998). *Disability in New Zealand: Overview of the 1996/97 surveys*. Wellington: Ministry of Health.
- Holbrook, M. & Skilbeck, C. E. (1983). An activities index for use with stroke patients. *Age and Ageing*, 12, 166-170.
- Luker, K. A. & Perkins, E. S. (1987). The elderly at home: Service needs and provision. *Journal of the Royal College of General Practitioners*, 37, 248-250.
- MidCentral District Health Board. (2004). *Health and wellbeing of older people: A strategic direction for 2004-2010 Consultation Document*. Palmerston North.
- Moore, D.S. & McCabe, G. E. (1999). *Introduction to the practice of statistics*. (3rd ed.). New York: W. H. Freeman & Co.
- Pallant, J. (2001). *SPSS survival manual: A step by step guide to data analysis using SPSS for Windows (Version 10)*. Buckingham: Open University Press.
- Sarason, I. G., Sarason, B. R., Shearin, E. N. & Pierce, G. R. (1987). A brief measure of social support: Practical and theoretical implications. *Journal of Social and Personal Relationships*, 4, 497-510.
- Statistics New Zealand (2001). *New Zealand census of population and dwellings*. Wellington: Statistics New Zealand.
- Statistics New Zealand (2004). *Older New Zealanders-65 and beyond*. Wellington: Statistics New Zealand.
- Statistics New Zealand (2010). *National population estimates, March 2010 quarter*. Retrieved 23 July 2010, from http://www.stats.co.nz/browse_for_stats/population/estimates_and_projections/NationalPopulationEstimates_HOTPMar10qtr/Commentary.aspx
- Tobachnick, B. G. & Fidell, L. S. (1996). *Using multivariate statistics* (3rd ed.). New York: Harper Collins.

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