RESEARCH ARTICLE

Activities with Higher Influence on Quality of Life in Older Adults in Japan

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Abstract

The present study aimed to investigate the influence of 10 activities on quality of life (QOL) in Japanese older adults and to verify which activities had higher influence on QOL level. The subjects were 465 Japanese community-dwelling older adults. QOL was assessed by the brief version of the World Health Organization Quality of Life (WHOQOL-BREF) and the complementary assessment to measure the QOL of older adults (WHOQOL-OLD) module. Activity and participation were measured through a questionnaire concerning frequency of engagement in several activities. The activity with the highest influence on WHOQOL-BREF was physical activity ($\beta = 0.209$, $p < 0.01$), followed by art activity ($\beta = 0.169$, $p < 0.01$) and reading and writing ($\beta = 0.141$, $p < 0.01$). The activity with the highest influence on WHOQOL-OLD was social activity ($\beta = 0.222$, $p < 0.01$), followed by reading and writing activity ($\beta = 0.118$, $p < 0.05$). The limitations of this study were the proportion of subjects and the place of recruitment. Further studies investigating in deep the relation between QOL and activity and participation, and other subjective and environmental factors that may influence the QOL are still needed among a higher and homogeneous subjects sample.

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Keywords

quality of life; activity and participation; older adults

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The ageing process is a worldwide concern. Major efforts in different areas of knowledge are being made to attend to this population's growing demands. In the health sciences, many studies have been developed to investigate their quality of life (QOL) (Kato et al., 2005; Walker, 2005; Rėklaitienė et al., 2009).

The QOL concept was introduced in healthcare research to complement the traditional medical outcomes, such as mortality and morbidity (Paskulin and Molzahn, 2007). Nowadays, this concept constitutes the highest level of health outcomes. The literature suggests that the factors that contribute to improve QOL level in older adults are maintenance of independence, autonomy, adaptability, social participation, social role functioning and others (Walker, 2005). Those factors remain an important topic of study because of a need to clarify the specific influence of each factor on QOL. Our study focuses on participation in

activity as one of the factors that can promote health and well-being (Yokoya et al., 2007).

It is known that activity serves as an antidote to the loss of productive roles in the retirement period and that involvement in activities may compensate for the social, functional and cognitive decline of older individuals, improving their skills and competencies and maintaining their social relationships while being involved in activities that are meaningful and purposeful (Havighurst et al., 1968; Law, 2002; Silverstein and Parker, 2002). The positive relationship between activity, participation and QOL has been confirmed in many studies. Some of them investigated the total influence of several activities on QOL (Matsuo et al., 2003), and others, the effect of one specific type of activity such as everyday occupations (Poole et al., 2007), regular physical activity (White et al., 2009), work after retirement (Pimenta et al., 2008) and leisure (Silverstein and Parker, 2002). However, it is still unknown which activities have the greater influence on QOL.

The aforementioned factors lead us to hypothesize that higher engagement in activities is related to higher QOL level and, further, that certain activities influence the QOL state in different intensities. Considering this, the purpose of this study was to examine the influence of 10 different activities on the QOL of Japanese older adults and to verify which activities had the greater influence on QOL. Japan was chosen because it is the most aged society in the world at the present, representing 23.1% of its population in 2011 (Statistics Bureau of the Ministry of Internal Affairs and Communications, 2011).

Methods

This research was a cross-sectional study. A total of 830 community-dwelling older adults who were able to respond to the questionnaire were recruited to participate in this research. Subjects were 60 years or older because of the usual retirement age of 60 for most companies in Japan. Additionally, as we aimed to cover a different spectrum of engagement in activities, we recruited the subjects in two different areas: a municipal centre of lifetime education for the aged in an urban area ($n = 550$) and a health centre in a rural area ($n = 280$). Both settings were in Japan. Four hundred sixty-five subjects completed the research procedures (Table I).

Table I. Characteristics of the subjects ($n = 465$)

Variable	*n*	%
Place		
Rural area	178	38.3
Urban area	287	61.7
Age group		
60–69 years	281	60.4
70–79 years	147	31.6
80–89 years	37	8.0
Gender		
Male	238	51.2
Female	226	48.6
Educational level		
Elementary school	7	1.5
Junior high school	73	15.7
High school	242	52
Junior college	23	4.9
University	84	18.1
Other	25	5.4
Family structure		
Alone (single or widower)	90	19.4
Couple	231	49.7
Three or more	120	25.8
Other	20	4.3
Use of medical services		
Yes	286	61.5
No	166	35.7

Data collection and procedures

Initially, the researchers met with the directors of the institutions, explained the research project and requested permission to conduct surveys. In the second step, the researchers met with the subjects in the institutions to explain the study and ask them to participate. In the urban area, the researchers met the subjects on a common lecture day, and in the rural area, in the annual health check-up time offered to the community organized by the health centre. The invitation to participate in the research was made orally and in writing by the informed consent form that explained the research procedures, the right of the older adult to refuse or to withdraw the research without penalty and the guarantee of subjects' anonymity when the results of the research were published. The questionnaires were distributed with the informed consent form attached. The estimated time needed to fill out these questionnaires was 30 minutes. Subjects mailed the completed questionnaires to the researcher. Because the answered questionnaires represent their consent to participate in the research, the subjects were not asked to send back the informed consent with signature to the researcher. Data were collected

from August 2009 to January 2010. This research was approved by the ethics committee at Nagoya University (see http://www.nagoya-u.ac.jp/ for reference) in June 2009 (protocol number 9-606).

Measurements

A brief questionnaire was used to collect demographic variables such as gender, age, education, family structure and frequency of medical services.

Quality of life was assessed through two questionnaires: World Health Organization Quality of Life Assessment (WHOQOL)-BREF Japanese version (Tazaki and Nakane, 1997) and WHOQOL-OLD Japanese preliminary version (Kato et al., 2005). Both were developed by the World Health Organization and were used together to assess the QOL in older adults. WHOQOL-BREF is an abbreviated version of WHOQOL-100. It consists of 26 items: two items measure overall QOL and general health, and the others items are divided into the physical, psychological, social relationship and environment domains. The scores for each item range from 1 (*poor*) to 5 (*good*); a higher score means a higher level of QOL. The internal consistency tested by Cronbach's alpha ranges from 0.66 to 0.82. Discriminate validity is 31.2 for physical health, 12.3 for psychological health, 8.4 for social relationships and 6.6 for environment (World Health Organization – WHO, 1998). WHOQOL-OLD is a complementary assessment to measure the QOL of older adults. It consists of 24 questions divided into six domains: sensory abilities, autonomy, past–present–future activities, social participation, death and dying, and intimacy. The scoring is similar to those for the WHOQOL-BREF. The WHOQOL-OLD Japanese preliminary version showed a high validity score, except for the question of death and dying (Tazaki, 2004). The internal consistency for the final version of the Japanese WHOQOL-OLD instrument has not yet been published.

The level of activity and participation was measured through an original questionnaire with 10 questions concerning the frequency of engagement in several activities (Table II). These activities were chosen on the basis of occupational performance areas in the Occupational Therapy Practice Framework, which focuses on occupations and daily living activities (American Occupational Therapy Association, 2002). Other items

Table II. Questionnaire for participation in activities

Activity and participation questionnaire				
This questionnaire concerned the frequency of engagement in several activities. Considering the last two weeks, please, make a circle in the number that you decide most appropriate.				
Example: Drink green tea (condition: drink green tea 3–4 times in a week)				
Never	Seldom	Quite often	Very often	Always
1	2	③	4	5
(0 times/week)	(1–2 times/week)	(3–4 times/week)	(5–6 times/week)	(7 times/week)
1. *Housework* (washing; cleaning; daily shop; repair house, garden; care of the family, others)				
1	2	3	4	5
2. *Work* (full time job; part time job; informal work; include volunteering)				
1	2	3	4	5
3. *Contact with friends and family that lives apart* (meeting; visit; talk by telephone; contact by mail, others)				
1	2	3	4	5
4. *Using transport or driving a car*				
1	2	3	4	5
5. *Social activity* (community event; elderly's club; religious activity, others)				
1	2	3	4	5
6. *Reading and writing* (read a book, a newspaper; write a letter, a poem, others)				
1	2	3	4	5
7. *Physical activity* (walking; gate ball; gymnastics; sports, others)				
1	2	3	4	5
8. *Handicrafts* (knitting; sewing; articles made out of paper by hand)				
1	2	3	4	5
9. *Art activity* (appreciate a movie; art museum; picture; musical instrument performance; chorus; tea ceremony, flower arrangement, etc.)				
1	2	3	4	5
10. *Watching TV and listening to music*				
1	2	3	4	5

were taken from Activity and Participation in the International Classification of Functioning, Disability and Health, such as learning and applying knowledge; general tasks and demands; communication; mobility; domestic life; interpersonal interactions and relationships; major life areas; and community, social and civic life (World Health Organization, 2001), and from a previous study that included engagement in activities for Japanese older adults (Ito et al., 2003).

Statistical analysis

Subject characteristics were investigated using descriptive analysis. QOL in relation to demographic information was analyzed by *t*-tests, one-way ANOVA and post hoc tests. State of activity and participation were analyzed using the Mann–Whitney test or Kruskal–Wallis test. The correlation between QOL and activity and participation was analyzed using Spearman's correlational analysis and multiple regression analysis.

Results

The data of 465 subjects, who returned the completed questionnaires, were used in the analyses. Three hundred sixty-five participants did not return the questionnaires. Overall, the return rate was 56%.

Characteristics of quality of life in Japanese older adults

The total mean score for WHOQOL-BREF in the present study was 3.60 ± 0.43, and the total mean score for WHOQOL-OLD was 3.52 ± 0.42. The total mean score of both WHOQOL assessments showed a normal distribution calculated by Skewness and Kurtosis (WHOQOL-BREF Skewness = −0.115, SD = 0.43, Std. Error = 0.122; Kurtosis = 0.300, Std. Error = 0.243; WHOQOL-OLD Skewness = −0.238, SD = 0.42, Std. Error = 0.118; Kurtosis = 0.274, Std. Error = 0.236). The domains with the highest scores were the physical domain in WHOQOL-BREF and sensory abilities in WHOQOL-OLD. The domains with the lowest scores were, respectively, social relationships and intimacy, followed by death and dying domain (Table III).

There was a significant difference of QOL score according to the living area and educational level. The results obtained by *t*-test indicated that subjects living in an urban area had a higher QOL total mean score than those from rural areas. As indicated by one-way ANOVA, there was also a difference of QOL according to educational level (Table IV).

State of activity and participation in Japanese older adults

The mode of the frequency of participation in activities indicated that most subjects performed everyday housework, read and wrote, watched TV and listened to music, and engaged in physical activity. However, most did not participate in handicraft or work activities and seldom participated in art or social activities (Table V).

There was a significant difference in participation in activities depending upon the demographic information as calculated by Mann–Whitney test or Kruskal–Wallis analysis (Table VI). Concomitantly to the difference of QOL between those living in the urban and in the rural area, there was a difference of engagement on activity and participation between both groups. The subjects living in an urban area had higher QOL and higher participation in reading and writing ($U = -3.33$, $p < 0.01$),

Table III. Mean scores of World Health Organization Quality of Life (WHOQOL) domains

		n	Mean	SD	Minimum	Maximum
WHOQOL-BREF	Physical	437	3.79	0.50	1.71	5.00
	Psychological	443	3.59	0.57	1.50	5.00
	Environment	446	3.53	0.50	1.88	5.00
	Social	431	3.35	0.54	1.33	5.00
WHOQOL-OLD	Sensory abilities	441	4.03	0.69	1.50	5.00
	Autonomy	454	3.64	0.70	1.00	5.00
	Social	450	3.54	0.54	1.00	5.00
	Past, present and future	452	3.50	0.58	1.25	5.00
	Death and dying	459	3.39	0.90	1.00	5.00
	Intimacy	460	3.01	0.64	1.50	5.00

Table IV. Quality of life and demographic information ($n = 465$)

Category	WHOQOL-BREF mean total score	Post hoc	t or F value	p value	WHOQOL-OLD mean total score	Post hoc	t or F value	p value
Place			−5.75	**			−2.40	**
Rural	3.43 ± 0.40				3.46 ± 0.41			
Urban	3.68 ± 0.42				3.56 ± 0.42			
Gender			1.728	n.s.			0.57	n.s.
Male	3.64 ± 0.41				3.53 ± 0.40			
Female	3.56 ± 0.45				3.51 ± 0.43			
Age group			1.017	n.s.			1.46	n.s.
60–69 years	3.59 ± 0.43				3.54 ± 0.42			
70–79 years	3.65 ± 0.43				3.52 ± 0.43			
80–89 years	3.56 ± 0.40				3.41 ± 0.35			
Educational level			3.133	**			2.36	*
Elementary	3.49 ± 0.68				3.24 ± 0.59			
Junior high school	3.44 ± 0.39**				3.42 ± 0.43*			
High school	3.60 ± 0.42**				3.51 ± 0.42*			
Junior college	3.65 ± 0.45**				3.55 ± 0.37*			
University	3.72 ± 0.42**				3.63 ± 0.39*			
Other	3.65 ± 0.42				3.58 ± 0.31			
Family structure			1.348	n.s.			1.09	n.s.
Alone	3.52 ± 0.48				3.46 ± 0.47			
Couple	3.62 ± 0.41				3.53 ± 0.41			
Three or more	3.65 ± 0.42				3.56 ± 0.40			
Other	3.58 ± 0.49				3.58 ± 0.32			
Used medical services			−1.78	n.s.			−0.96	n.s.
Yes	3.57 ± 0.42				3.51 ± 0.41			
No	3.65 ± 0.43				3.55 ± 0.41			

Notes: WHOQOL, World Health Organization Quality of Life; n.s., not significant. Significance level $p < 0.05$ was indicated by (*) and $p < 0.01$ was indicated by (**).

Table V. Frequency of participation in activities ($n = 465$)

		Always		Very often		Quite often		Seldom		Never	
Activity	n	n (%)		n (%)		n (%)		n (%)		n (%)	
Housework	450	**233**	**(51.8)**	80	(17.8)	66	(14.7)	50	(11.1)	21	(4.7)
Reading and writing	447	**307**	**(68.7)**	60	(13.4)	49	(11.0)	24	(5.4)	7	(1.6)
TV and listening to music	451	**304**	**(67.4)**	80	(17.7)	53	(11.8)	12	(2.7)	2	(0.4)
Physical activity	448	**113**	**(25.3)**	108	(24.2)	107	(23.9)	84	(18.8)	35	(8.0)
Using transport or car	443	139	(31.4)	**178**	**(40.2)**	62	(14.0)	35	(7.9)	29	(6.5)
Contact friends, family	450	59	(13.1)	**147**	**(32.7)**	137	(30.4)	95	(21.1)	12	(2.7)
Social activity	447	14	(3.1)	83	(18.6)	128	(28.6)	**141**	**(31.5)**	81	(18.1)
Art activity	449	4	(0.9)	77	(17.1)	107	(23.8)	**142**	**(31.6)**	119	(26.5)
Handicrafts	448	10	(2.2)	24	(5.4)	58	(13.0)	93	(20.8)	**262**	**(58.6)**
Work	443	48	(10.8)	34	(7.7)	52	(11.7)	80	(18.1)	**229**	**(51.7)**

Note: Numbers in boldface indicate the mode.

contacts with friends and family that live apart from them ($U = -2.87$, $p < 0.01$), physical activities ($U = -4.17$, $p < 0.01$) and art activities ($U = -7.38$, $p < 0.01$) than those from a rural area. Subjects from rural area were more engaged in work activities ($U = -3.43$, $p < 0.01$) than those from urban area. Another difference of QOL was among the educational level groups that also showed a difference of participation in activities. The subjects with a university education had the lowest participation in housework (Kruskal–Wallis $\chi^2 = 18.51$, $df = 5$, $p < 0.01$) and handicrafts activities (Kruskal–Wallis $\chi^2 = 35.89$, $df = 5$, $p < 0.01$); however, they showed a higher engagement in reading and writing (Kruskal–Wallis $\chi^2 = 15.47$, $df = 5$, $p < 0.01$), physical

Table VI. Differences of engagement on activities by demographic information

Activity								
		n	Median	n	Median	U value	p value	
Place		Rural		Urban				
Contact friends and family		163	3	287	4	−2.87	**	
Physical activity		161	3	287	4	−4.17	**	
Art activity		162	1	287	3	−7.38	**	
Work		158	2	285	1	−3.43	**	
Gender		Male		Female				
Physical activity		220	4	202	3	−0.35	**	
Housework		220	3	202	5	10.9	**	
Contact with friends		220	3	202	4	−5.32	**	
Handicrafts		220	1	202	2	−11.80	**	
Medical Service		Non-users		User				
Work		149	2	270	1	−2.1	*	
	n	Median	n	Median	n	Median	χ^2	p value
Groups by age	60s		70s		80s			
Using transport or driving	257	4	136	4	30	3	10.27	**
Art activity	257	2	136	2	30	1	14.45	**
Education	Elementary		Junior high		University			
Housework	5	5	60	5	79	4	18.51	**
Handicrafts	5	2	60	1	79	1	35.89	**
Physical activity	5	2	60	3	79	4	13.68	**
Art activity	5	2	60	1	79	2	25.13	**
Family structure	Alone		Couple		Other			
Housework	86	5	216	4	16	5	15.33	**
Contact friends and family	86	4	216	3	16	3	21.91	**
Handicrafts	86	2	216	1	16	1	11.29	**

Notes: Significance level $p < 0.05$ was indicated by (*) and $p < 0.01$ was indicated by (**).

activities (Kruskal–Wallis $\chi^2 = 13.68$, $df = 5$, $p < 0.01$) and art activities (Kruskal–Wallis $\chi^2 = 25.13$, $df = 5$, $p < 0.01$) than those with an elementary and junior high school level of education.

Relation between quality of life and activity and participation

The results obtained by Spearman's correlation analysis showed that performing physical activity, doing art activities, reading and writing, having contact with friends and family, being socially active and using public transport or driving a car related positively to QOL as measured by WHOQOL-BREF and WHOQOL-OLD. Work activity only related positively with OLD (Table VII).

The intensity of influence of activities on QOL was investigated by multiple regression analysis by using a stepwise approach. The activity with the highest influence on WHOQOL-BREF was physical activity, followed by art activity and reading and writing. Participation in these activities contributed to 13% of the total WHOQOL-BREF. In WHOQOL-OLD, the activity with the highest influence was social activity, followed by reading and writing activity. These activities influenced the total WHOQOL-OLD by 7% (Table VIII).

Table VII. Activities related positively to quality of life ($n = 465$)

	WHOQOL-BREF	WHOQOL-OLD
Physical activity	0.271 (**)	0.156 (**)
Art activity	0.269 (**)	0.205 (**)
Reading and writing	0.242 (**)	0.194 (**)
Contact with friends and family	0.190 (**)	0.150 (**)
Social activity	0.170 (**)	0.215 (**)
Using transport or driving a car	0.142 (**)	0.159 (**)
Work	0.097 (n.s.)	0.114 (*)

Notes: WHOQOL, World Health Organization Quality of Life; n.s., not significant. Significance level $p < 0.05$ was indicated by (*) and $p < 0.01$ was indicated by (**).

Table VIII. Activities with higher influence on quality of life ($n = 465$)

WHOQOL-BREF		WHOQOL-OLD	
$R^2 = 0.13$	$p = 0.001$	$R^2 = 0.072$	$p = 0.001$
Factor	Regression coefficient β	Factor	Regression coefficient β
Physical activity	0.209	Social activity	0.222
Art activity	0.169	Reading and writing	0.118
Reading and writing	0.141		

Note: WHOQOL, World Health Organization Quality of Life.

Discussion

The results showed that the state of Japanese QOL is poor in comparison with the data from 23 WHOQOL-BREF centres (Shevington et al., 2004). The lower Japanese scores were in the social and intimacy domains, similar to the results of other Japanese studies (Kato et al., 2005; Tajima and Nakane, 2007). This deficit in the social area can be explained by the social crisis that the country is going through. Many Japanese have turned away from their families and friends as they seek professional and financial success (Okabayashi et al., 2004; Taylor, 2006). Later in the retirement period, they feel loneliness due to the breakdown of their work relationships and the abundance of free time. At present, participation in activities plays an important role, as it replaces some of the lost work occupations. This consequently increases their QOL, as seen in the results of this study and similar to previous studies (Silverstein and Parker, 2002; Matsuo et al., 2003; Menec, 2003).

There were different QOL conditions between subjects from urban and rural areas and also among subjects with different educational status. It may be explained by the difference of engagement on activity and participation. The subjects from urban area and those with higher educational level were more engaged in physical and art activities that are positively related with QOL as showed by the present results in comparison with those from rural area and with lower educational level. Thus, we as health promoters in contact with older adults may investigate the engagement on such activities, and if it were low or inexistent, we may explain the importance of such activities and firstly try to add it in their treatment routine aiming to introduce the activities to them and after it, and we may try to extend these activities for their routines outside the health facility, considering their culture, generation, gender and individual aspects. By enriching their occupational routine with social activity, physical activity, reading and writing, and art activity that we verified being the most important for QOL in the older adults, we may increase their QOL and guide them for a successful ageing.

The benefits of social activity include re-establishing interpersonal relationships and creating opportunities to give and receive social support; it allows older adults a fulfilling and self-validating experience that can enhance feelings of psychological well-being (Kim et al., 2000). Other studies have confirmed that social participation is one of the most important factors for QOL in older adults (Kim et al., 2000; Gureje et al., 2008; Levasseur et al., 2009). Another important activity that enhances well-being is the art activity. It seems that the benefits of the art activities are that it rescues a feeling of happiness, achievement and self-esteem, thus adding value to people's lives. It can excite an emotional reaction, stimulate more independence and willingness, and explore their thoughts, feelings and new abilities (Horesh, 2004; Michalos and Kahlke, 2008). A study with Japanese older women concluded that subjects who received art education for a prolonged period tended to have better results in cognitive function, physical and social activity, and life satisfaction, seeming to find a purpose for life and living and a greater positive attitude in comparison with other women (Hoshino, 2001). For the rural subjects that had rare opportunities to engage in art activities in the present study, activities such as performing traditional tea ceremony, preparing Japanese flower arrangements or playing music instruments may be offered in the community settings to give them some opportunity to be involved in art activity and thus promote their QOL.

Another recommendation for Japanese older adults, who showed a weak engagement in social activities that affected their QOL, is to develop more social activities such as meeting friends or family in different places such as a coffee shop, park, zoo, religious place and others, or attending or organizing traditional festivals in their communities. Another suggestion is to perform

the social and art activities in conjunction. The older adult may meet with friends and organize art activities in a group depending upon their interest and available resources. These activities may be a different and new experience from their regular routine. We also recommend that Occupational Therapists (OTs) who that are involved with this population explore these activities in order to attempt to prevent the social, emotional and physical decline that is significant amongst this population.

Japanese subjects typically showed daily participation in physical activities that contributed to the higher QOL score for the physical domain. The benefits of physical activity for QOL are well known. It improves physical and mental health status by developing physical conditioning and independence, which influences their self-esteem. This activity is considered to be an important health promoter for ageing well (McAuley et al., 2006; White et al., 2009). Activities that may be suggested for the older adults are pole walking, water exercise, resistance training, sports and dance. It is important to emphasize the global physical conditioning and to ensure their safety during activity performance. When possible, we suggest performing the physical activity in a group to strengthen social relationships and to ensure safety.

Reading and writing was also important in the everyday life of subjects in this study and was positively related to QOL. The reading and writing activities provide opportunities for keeping the brain active and healthy, stimulating the intellectual power and connecting them with the world (Dodge et al., 2008). They can be offered as a leisure activity and as an opportunity to improve social interaction. Health professionals or community leaders may create a local journal as an incentive for the older adult to express themselves through poems, testimonials, life experiences, reporting social events or discussing topics about ageing. This journal could be distributed in the community or institution, and the readers will have an opportunity to better understand older adults and to participate in their lives.

It is highly feasible to develop the activities previously mentioned in the community or in facilities supervised by OTs and/or other health professionals. We need to assume responsibility for enabling older adults to participate in a life of achievement and satisfaction within their individual limits and potentials (Spencer, 2001). QOL is formed by all life experiences and is greatly influenced by daily occupation. Retirement may provide freedom to explore new interests and occupations, or retirement may result in isolation from routine and community, poor self-motivation and, often, decline in health and QOL (Spencer, 2001). As health professionals, OTs are familiar with occupations and have the opportunity to use the findings from this study and others to help guide older adults towards better ageing practices. Finally, we can also play an important role in orienting staff and family members to encourage participation in activities for their ageing relatives.

The results of this study have verified the therapeutic properties of certain activities in improving QOL in Japanese older adults despite that the contribution of activities to QOL is statistically relatively low. As older adults have long and different life histories, factors other than participation in activities such as income, spirituality, social discrimination, self criticism, regrets, pain, disease and medication, among others, may influence their QOL (Tazaki, 2004; Kato et al., 2005).

Study limitations

The limitations of this study were the proportion of subjects and the place of recruitment. There was a different proportion of subjects in urban and rural areas according to gender, age and educational levels. In addition, physical and cognitive health status of the subjects (except for the usage of medical services), income, motivation and personal preferences were not examined, and these factors may possibly affect QOL as well.

The response rate was relatively good (56%), considering that the researchers only used a voluntary posting survey without reward. Future studies should attempt to raise the participation level by using other collection methods and/or some reward.

Further studies should make a more in-depth investigation into the relationship between QOL, activity, participation, and other subjective and environmental factors that may influence QOL in a larger and more homogeneous sample.

Conclusions

This research achieved its purpose of verifying that certain activities had a slight positive effect on QOL. The activities with the highest influence on WHOQOL-BREF were physical activity, followed by art and reading and writing activities, and those with the highest

influence on WHOQOL-OLD were social activity, followed by reading and writing.

The findings of this study are applicable to OT practices for older adults especially in preventive and health promote approach and make us realize the importance of engagement in occupations that enable a fulfilled life. OTs play an important role to evaluate diverse aspects of health and to implement healthier lives for older adult individuals through occupations.

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REFERENCES

American Occupational Therapy Association (2002). Occupational therapy practice framework: domain and process. American Journal of Occupational Therapy 56: 609–639.

Dodge HH, Kita Y, Takechi H, Hayakawa T, Ganguli M, Ueshima, H (2008). Healthy cognitive aging and leisure activities among the oldest old in Japan: Takashima study. The Journals of Gerontology Series A: Biological Sciences and Medical Sciences 63(11): 1193–1200.

Gureje O, Kola L, Afolabi E, Olley BO (2008). Determinants of quality of life of elderly Nigerians: results from the Ibadan study of ageing. African Journal of Medicine and Medical Sciences 37(3): 239–47.

Havighurst RJ, Neugarten BL, Tobin, SS (1968). Disengagement and patterns of aging. In Neugarten BL (ed), Middle Age and Aging: A Reader in Social Psychology (pp. 161–72). Chicago: University of Chicago Press.

Horesh RHR (2004). A temporary guest: the use of art therapy in life review with an elderly woman. The Arts in Psychotherapy 31: 303–319.

Hoshino E (2001). Neuropsychology of music: a review of work on the brain and singing ability. The Japanese Association for Music Psychology and Therapy 30: 3–10.

Ito E, Hatta T, Ito Y, Nagahara N, Hatta T, Kawaguchi J, Karasawa K, Toyosawa J (2003). Effect of leisure activities on cognitive functions. Journal of Human Environmental Studies 1(2): 15–20.

Kato Y, Hatada K, Tazaki M, Ishii Y, Ebihara Y, Takayama M, Hirose N, Kakuma T, Kuniyoshi M, Suzuki C, Hasegawa E, Matsuda M (2005). QOL of the elderly in Japan – the results of the survey using the Japanese preliminary WHOQOL-OLD instrument. Japanese Journal of Geriatric Psychiatry 16: 1057–1067.

Kim HK, Hisata M, Kai I, Lee SK, Lee K (2000). Social support exchange and quality of life among the Korean elderly. Journal of Cross-Cultural Gerontology 15(4): 331–347.

Law M (2002). Participation in the occupations of everyday life. American Journal of Occupational Therapy 56: 640–649.

Levasseur M, St-Cyr Tribble S, Desrosiers J (2009). Meaning of quality of life for older adults: importance of human functioning components. Archives of Gerontology and Geriatrics 49: 91–100.

Matsuo M, Nagasawa J, Yoshino A, Hiramatsu K, Kurashiki K (2003). Effects of activity participation of the elderly on quality of life. Yonago Acta Medica 46: 17–24.

McAuley E, Konopack JF, Motl RW, Morris KS, Doerksen SE, Rosengren KR (2006). Physical activity and quality of life in older adults: influence of health status and self-efficacy. Annals of Behavioral Medicine 31(1): 99–103.

Menec V (2003). The relation between everyday activities and successful aging: a 6-year longitudinal study. Journal of Gerontology 58: 74–82.

Michalos AC, Kahlke P (2008). Impact of arts-related activities on the perceived quality of life. Social Indicators Research 89(2): 193–258.

Okabayashi H, Liang J, Krause N, Akiyama H, Sugisawa H (2004). Mental health among older adults in Japan: do sources of social support and negative interaction make a difference? Social Science & Medicine 59(11): 2259–70.

Paskulin LMG, Molzahn A (2007). Quality of life of older adults in Canada and Brazil. Western Journal of Nursing Research 29(1): 10–26.

Pimenta FAP, Simil FF, Torres HOG, Amaral CFS, Rezende CF, Coelho TO, Rezende NA (2008). Retiree quality of life assessment with SF-36 questionnaire. Journal of the Brazilian Medical Association 54: 55–60.

Poole JL, Chiappisi H, Cordova JS, Sibbitt WJ (2007). Quality of life in American Indian and white women with and without rheumatoid arthritis. American Journal of Occupational Therapy 61: 280–289.

Rėklaitienė R, Bacevičienė M, Andrijauskas K (2009) Quality of life in Lithuanian population: the impact of country residence and socio-economic status. Central European Journal of Medicine 4(4): 476–482.

Shevington SM, Lotfy M, O'Connel KA (2004). The World Health Organization's WHOQOL-BREF quality of life assessment: psychometric properties and results of the international field trial – a report from the WHOQOL group. Quality of Life Research 13: 299–310.

Silverstein M, Parker MG (2002). Leisure activities and quality of life among the oldest old in Sweden. Research on Aging 24: 528.

Spencer A (2001) Ageing through occupation. Asian Journal of Occupational Therapy 1: 15–21.

Statistic Bureau Japan, Ministry of Internal Affairs and Communications Website (2011) Retrieved from http://www.stat.go.jp/data/jinsui/pdf/201102.pdf

Tajima M, Nakane M (2007). A Guide to WHOQOL-26. Tokyo, Kaneko Shobo.

Taylor M (2006). Strategies of dissociation: a mimetic dimension to social problems in Japan. Anthropoetics: The Journal of Generative Anthropology 12(1): 1–17.

Tazaki M (2004). Result of QOL research with Japanese elderly people – the results of WHOQOL-OLD instrument development study in Japan. Quality of Life Research 13(9): 1498.

Tazaki M, Nakane Y (1997) A Guide to WHOQOL-26. Tokyo, Kaneko Shobo.

Walker A (2005). A European perspective on quality of life in old age. European Journal of Ageing 2: 2–12.

White SM, Wójcicki TR, & McAuley E (2009). Physical activity and quality of life in community dwelling older adults. Health and Quality of Life Outcomes 7: 1–7.

World Health Organization – WHO (1998). The World Health Organization quality of life assessment (WHOQOL): development and general psychometric properties. Social Science & Medicine 46(12): 1569–85.

World Health Organization – WHO (2001). International Classification of Functioning, Disability and Health (ICF). WHO, Geneva.

Yokoya T, Demura S, Sato S (2007). Relationships between physical activity, ADL, capability and fall risk in community-dwelling Japanese elderly population. Environmental Health and Preventive Medicine 12: 25–32.