Effects of Health Status and Interpersonal Relationships in the Community on Quality of Life of Elderly Adults: Status Quo and Issues

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Abstract

This study examined quality of life (QOL) among elderly adults living in a provincial city. Health status and interpersonal relationships are considered to strongly affect QOL and were accordingly considered as related factors. Participants were 151 elderly adults; they completed a questionnaire and a motor function test. Participants' demographic characteristics, health status, and lifestyle were analyzed using descriptive statistics. Three quarters of participants were female and the majority reported engaging in regular social interaction. Items independently correlated with physical component summary (PCS-8) and mental component summary (MCS-8) scores were extracted using stepwise multiple regression analysis. PCS-8 scores correlated with "Perceived Health Compared with the Previous Year," locomotive syndrome score, and "Self-Evaluation of Health." MCS-8 scores correlated with "Self-Evaluation of Health" and "Perceived Health Compared with the Previous Year." No correlation was found between QOL and the presence of interpersonal relationships. The large proportion of participants reporting regular social interaction may have been due to the large proportion of female participants. Thus, the fact that no significant correlation was found between QOL and interpersonal relationships may have been due to a methodological limitation: females may be more naturally disposed to socializing and less likely to become socially isolated.

Keywords: elderly adults, quality of life, motor function, interpersonal relationships, health status

1. Introduction

The Japanese government promotes improvement of ability in activities of daily living (ADL) and social participation in order to improve quality of life (QOL) among elderly adults, to cope with Japan's rapidly aging population and extremely low birthrate. Research has actively examined QOL since the 1970s; however, QOL is strongly multidimensional, subjective, and

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case-specific.[1] Moreover, QOL's implications vary depending on the field of inquiry discussing it.[2] Nonetheless, QOL tends to be high among individuals who are able to independently manage ADL, and low among individuals who are unable to go out or who experience insomnia.[3] Further, ADL independence and QOL tend to decrease with age, in association with certain diseases.[4]

Lonely death among elderly people living alone has recently become problematic. Living alone strongly affects rates of social interaction, particularly among elderly people; therefore, a range of measures have been implemented to prevent isolation among elderly people living alone. In this context, ADL independence's relationship with health may strongly affect elderly adults' QOL.

In this context, this paper examined factors affecting QOL among elderly adults living in a provincial city. Health status and interpersonal relationships, which were considered to affect QOL, were considered as related factors.

2. Purpose

The purpose of this research is to consider the connection with people and health conditions as a related factor about elderly adults QOL of local city residence.

3. Materials and Methods

3.1 Participants

This study was approved by the Toyohashi Sozo University of Health Sciences Ethical Review Board (Authorization Number: H2014002). All participants voluntarily provided written consent to participate. Participants were 204 adults aged > 65 years residing in A city; 151 provided valid responses (74.0%). We recruited participants by contacting the president of each elderly citizen's council in A city.

3.2 Outcome measures

The survey was conducted from October through December 2014. An anonymous self-report survey examined the following variables: age, sex, family structure, presence of disease or symptoms, locomotive syndrome, presence of interpersonal relationships, and participants' QOL. The researchers measured participants' toe power and retention time standing on one leg with eyes open. The presence of interpersonal relationships was determined following previous research[5,6]; participants' relations with family members and neighbors and frequency going out were measured.

The SF-8 was used to examine participants' QOL. MOS 36-Item Short-Form Health Survey

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(SF-36) is a comprehensive measure for measuring the health related quality of life (HRQOL), and it is widely used internationally. The medical outcomes study 8-items short form health survey (SF-8) is a short version of SF-36. SF-8 contains eight self-administered questions for the quantification of health-related QOL using eight multi-item scales, including physical functioning (PF-8), role physical (RP-8), bodily pain (BP-8), general health perception (GH-8), vitality (VT-8), social functioning (SF-8), role emotional (RE-8), and mental health (MH-8). And as summary scores Physical Component summary (PCS-8), Mental Component summary (MCS-8). The eight scales are scored separately from 0 to 100, with higher scores indicating better health status. These domain scores are standardized using Japanese population norms to have a mean score of 50 and a standard deviation of 10. In addition, it has been confirmed that it has high content validity in the age range of 18 to 75 years old[7].

3.3 Statistical analysis

Descriptive statistics were calculated for participants' demographic characteristics, health, and lifestyle. Multiple linear regression analysis with forward stepwise selection (likelihood ratio) was conducted with demographic characteristics, disease and symptoms, interpersonal relationships, locomotive syndrome total score, toe power, and retention time standing on one leg with eyes open as independent variables, and PCS-8 and MCS-8 scores as dependent variables. All statistical analysis was performed using SPSS v. 19.0. Statistical significance was set at $P < 0.05$.

3.4 Ethical considerations

Participants were informed of the overview of the research in print which was distributed at the groups of elderly adults, and each one signed for approval at the research. This study was approved by the Ethical Committee of the Toyohashi Sozo University (Approval number H2014002, 17 June 2014).

4. Results

4.1 Participant characteristics

Table 1 presents statistics describing participants' characteristics. Most participants were female (113 participants; 74.3%), aged 70−79 years (83; 55.0%) or 80−89 years (48; 31.9%), and had a disease (109, 72.2%) or symptoms (122, 80.8%). Most participants reported good health (*healthy*, 75.5%; *very healthy*, 11.9%). The majority of participants reported being healthy compared to the previous year (98, 64.9%).

Table 1. Participant demographics (n = 151)

Sex	Female	113 (74.3)
Age (years)	65–69	19 (12.6)
	70–79	83 (55.0)
	80–89	48 (31.9)
	> 90 years	1 (0.0)
Family structure	Living alone	21 (13.9)
	Living with partner	64 (42.4)
	Living with one's child	44 (29.1)
	Living with one's parent	3 (2.0)
	Three generations living together	15 (9.9)
	Other	4 (2.6)
Disease	Present	109 (72.2)
Symptoms	Present	122 (80.8)
Dependents	Present	141 (93.4)
Perceived health	Very healthy	18 (11.9)
	Healthy	114 (75.5)
	Less healthy	17 (11.3)
	Not healthy	2 (1.3)
Perceived health compared to the previous year	Yes	98 (64.9)
	No	9 (6.0)
	Neither	44 (29.1)
Toe power (kg)	Right	3.2 ± 1.4
	Left	3.1 ± 1.2
Retention time standing on one leg with eyes open (sec)	Right	40.7± 39.9
	Left	39.6± 40.8

Note. Values reported as numbers and percentages or mean values and SDs.

4.2 Lifestyle

Almost all participants reported that they would greet others (146 participants, 96.6%); 61 and 71 participants reported that they would "usually" or "sometimes" stop and talk to others (40.4% and 47.0%, respectively). Twenty-seven and 64 participants reported "usually" or "sometimes" visiting friends or relatives at home (17.9% and 42.4%, respectively). Nine and 61 participants reported that they would "usually" or "sometimes" request help from others (6.0% and 40.4%, respectively).

Ninety-nine participants reported going out every day (65.6%); 88 reported carrying out light activities and walking (58.3%). Twenty-two and 94 participants reported engaging in community activities "every day" or "sometimes" (14.6% and 62.3%, respectively). Forty-four and 95 participants reported going on trips "every day" or "sometimes" (29.1% and 62.9%, respectively).

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Table 2. Lifestyle (n = 151)

Activity	Frequency				
	Usual	Sometimes	Rarely		Very rarely
Salutation	110 (72.8)	36 (23.8)	4 (2.6)		1 (0.7)
Stop and talk	61(40.4)	71 (47.0)	15 (9.9)		4 (2.6)
Visit at home	27 (17.9)	64 (42.4)	44 (29.1)		16 (10.6)
Request help	9 (6.0)	61 (40.4)	58 (38.4)		23 (15.2)
	Every day	3−4 times weekly	1−2 times weekly	1−2 times monthly	Almost never
Go out	99 (65.6)	46 (30.5)	3 (2.0)	1 (0.7)	2 (1.3)
Walk or other exercise	88 (58.3)	46 (30.5)	14 (9.3)	1 (0.7)	2 (1.3)
	Every day		Sometimes	Almost never	
Community activity	22 (14.6)		94 (62.3)	35 (23.2)	
Go on a trip	44 (29.1)		95 (62.9)	12 (7.9)	

Note. Values of variables given as numbers and percentages.

4.3 Locomotive syndrome

Locomotive syndrome item check numbers were as follows. Not applicable: 55 participants (36.4%), one item: 50 (33.1%), two items: 33 (21.9%), three items: 7 (4.6%), four items: 5 (3.3%), five items: 1 (0.7%).

4.4 8 health concept and summary scores of the 2

Table 3 presents 8 health concept and summary scores of the 2.

Table 3. 8 health concept and summary scores of the 2 (n = 151)

	mean	25%	median	75%	SDS	minimum	maximum
PF	48.23	47.77	47.77	53.54	7.20	16.69	53.54
RP	48.47	47.42	54.09	54.09	7.77	21.80	54.09
BP	49.73	46.10	52.46	52.46	7.86	21.68	60.35
GH	50.49	50.27	50.27	50.27	6.18	26.89	63.38
VT	50.87	44.48	53.74	53.74	6.00	28.68	60.01
SF	49.52	45.60	55.14	55.14	7.55	26.00	55.14
RE	49.21	48.04	54.19	54.19	7.34	19.98	54.19
MH	51.33	50.72	50.72	56.93	6.87	27.59	56.93
PCS	47.32	43.69	48.08	52.12	6.90	19.69	61.36
MCS	50.41	47.53	52.20	55.19	6.86	26.22	66.68

Note. PF: Physical functioning, RP: Role physical, BP: Bodily pain, GH: General health perception,
   VT: Vitality, SF: Social functioning, RE: Role emotional, MH: Mental health,
   PCS: Physical Component summary, MCS: Mental Component summary.

4.5 Multiple linear regression

PCS-8 scores were correlated with perceived health compared with the previous year, locomotive syndrome score, and self-evaluation of health (Table 4). MCS-8 scores were correlated with self-evaluation of health and perceived health compared with the previous year. QOL scores were not correlated with interpersonal relationships (Table 5).

Table 4.　Multiple linear regression analysis of PCS-8　(n = 151)

	Regression coefficient	Standard error	Wald	P
Perceived health compared to the previous year	−3.682	0.911	32.253	0.000
Locomotive syndrome score	−1.437	0.479	−4.042	0.000
Self-evaluation of health	−2.861	1.016	−3.003	0.003
Constant	59.816	1.855	−2.817	0.006

Note. R = 0.576, R^2 = 0.332.

Table 5.　Multiple linear regression analysis of MCS-8　(n = 151)

	Regression coefficient	Standard error	Wald	P
Self-evaluation of health	−3.922	1.094	−3.584	0.000
Perceived health compared to the previous year	−2.049	0.969	−2.114	0.000
Constant	61.244	2.011	30.453	0.036

Note. R = 0.418, R^2 = 0.174.

5.　Discussion

5.1　Participant demographics and lifestyle

This study examined factors related to QOL, health status, and interpersonal relationships among elderly adults living in a provincial city. Participants gave responses of "usually" or "sometimes" to many items concerning frequency of social or community activity and many participants indicated regularly communicating with their neighbors. Most participants indicated leaving their house fairly often.

In 2013, the prevalence of people aged > 65 years was 65%, and 70% of those people had gone to hospital.[8] In this study, 80.8% and 72.2% of participants reported having symptoms or a disease, respectively; however, 87.4% reported good health. These results indicate that older people may accept some level of symptoms or disease as compatible with generally good health.

Around 40% of elderly people in Japan do not actively participate in society, and only 30% regularly socialize in their neighborhood.[9] In this study, a considerably larger proportion of participants reported community activity and neighborhood socialization. Hence, social interaction and engagement may be more common in provincial populations of elderly people

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in Japan than among the overall population of elderly Japanese people.

In Japan, 31.1% and 25.6% of people aged > 65 years live in a couple and alone, respectively.[8] In this study, 42.4% and 13.9% of participants lived in a couple and alone, respectively. It thus appears that the greater proportion of participants living in a couple reduced the remaining proportion of participants living alone, relative to the national averages. This difference may also be characteristic of elderly people living in provincial areas. Additionally, the relatively high rates of companionship, activity, socialization observed among this study's participants may underlie the coexistence of significant rates of diseases and symptoms alongside generally good reported health.

Finally, around three quarters of this study's sample was female. Older men are generally more likely to experience social isolation and withdrawal than older women[10]; additionally, older Japanese women's normal family role tends to lead to preserve neighborhood socialization.[11] Therefore, the large proportion of women in this study's sample may also partly explain the generally high rates of socialization that this study found.

5.2 Factors affecting QOL among elderly people

This research examined participants' health and interpersonal relationships on the expectation that these factors would be associated with participants' QOL. Participants' PCS-8 score (indicating physical health) correlated with responses to "perceived health compared with the previous year," locomotive syndrome scores, and responses to "self-evaluation of health." Participants' MCS-8 score (indicating mental health) was correlated with responses to "self-evaluation of health" and "perceived health compared with the previous year." Participants' responses to "self-evaluation of health" and "perceived health compared with the previous year" were considered to indicate participants' interest in self-health care. It is generally considered that inactive elderly people commonly experience reduced body function.

MCS-8 and locomotive syndrome scores were not correlated, supporting the possibility that motor function deterioration does not affect mental health as a component of QOL. Psychological factors (e.g., self-evaluation of health, general motivation, and family role) more strongly affect houseboundedness among elderly people than physical factors.[12] Additionally, high PCS scores indicate a generally positive outlook on subjective health.[13] This may explain this study's finding that mental health QOL was not correlated with deteriorating exercise function: that result may reflect a stronger relationship between interest in self-health care and QOL among elderly people.

In this study, QOL was not clearly related to neighborhood socialization. In a QOL study, elderly participants rated their QOL using the Philadelphia Geriatric Center Morale Scale or Life Satisfaction Index-K.[14] In that study, participants with more friends and acquaintances were more likely to report high subjective happiness.[15]

This study has the following limitations. Only elderly adults participating in councils for elderly people were included; this may limit the present findings' generalizability to other populations. Additionally, this study's cross-sectional design prevented testing of casual relationships between the examined variables. Future research should therefore test the present findings in a more diverse sample and use a longitudinal design to examine causal relationships between the variables examined in this study.

6. Conclusion

That result may reflect a stronger relationship between interest in self-health care and QOL among elderly people. QOL was not clearly related to neighborhood socialization.

Acknowledgements

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