

Original Article

Factors that affect the quality of life of community-dwelling elderly women with musculoskeletal disorders

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Abstract. [Purpose] This study aimed to examine the quality of life (QOL) of community-dwelling elderly women with musculoskeletal disorders and factors that affect it. [Subjects] The subjects were 27 community-dwelling elderly women with musculoskeletal disorders (mean age: 76.3 ± 7.4 years). Their physical and psychological conditions, QOL, and other characteristics were researched. [Methods] The Japanese version of Life-Space Assessment was used to assess the subjects' daily life activities; the Japanese version of Fall Efficacy Scale (FES), to assess their fear of falling; the Geriatric Depression Scale (GDS 15), to assess their depression status; and the Life Satisfaction Index K (LSIK), to assess their QOL. [Results] The results indicated that the number of family members living together, degree of pain, fear of falling, and depression affect the LSIK scores of the community-dwelling elderly women with musculoskeletal disorders. [Conclusion] The study results suggest that the LSIK scores of community-dwelling elderly women with musculoskeletal disorders can be improved by easing their pain, improving their physical abilities to prevent falls, and improving their mobility. The results also suggest that continuing rehabilitation treatment is required.

Key words: Quality of life (QOL), Life satisfaction, Community dwelling elderly women with musculoskeletal disorders

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INTRODUCTION

According to the Report of the Basic Research on the Japanese People's Life¹⁾ issued by the Ministry of Health, Labour and Welfare (MHLW), bone fractures due to falling are the fourth most common cause and bone, joint, and other musculoskeletal disorders are the fifth most common cause of elderly people's disabilities that require support and long-term care. If the fourth and fifth most common causes are combined, their frequency even surpasses those of cerebrovascular disorders, which are the most common cause of elderly people's disabilities. Musculoskeletal disorders are clearly a major cause of elderly people's disabilities that cause them to require support and care, and significantly reduce their quality of life (QOL). Therefore, in order to reduce the prevalence of people requiring long-term care and to prevent the elderly from requiring care in Japan, which is a super-aging society, addressing musculoskeletal disorders

is urgently required. Supporting elderly people with musculoskeletal disorders so that they can live safely and with satisfaction is important. Although several studies^{2, 3)} have reported on the physical functions of community-dwelling elderly people with musculoskeletal disorders, few have reported on their QOL⁴⁾. In order to continue living safely and with satisfaction, community-dwelling elderly people need support services that consider their QOL in addition to focusing solely on musculoskeletal disorders.

This study examined community-dwelling elderly women with musculoskeletal disorders, assessed their physical conditions and QOL, and analyzed and examined factors that affect their QOL to discover how they can maintain their living in their communities.

SUBJECTS AND METHODS

The subjects were 27 community-dwelling elderly women with musculoskeletal disorders who were receiving outpatient treatment at orthopedic clinics (mean age: 76.3 ± 7.4 years). The subjects were interviewed by asking questions on their QOL. According to the ethical considerations of the study, we explained to the subjects in writing the purposes of the study and that they can drop out at any time, even in the middle of an interview; that obtained data will be treated with anonymity to prevent personal identification;

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Table 1. Correlation coefficients of the disabled elderly women's QOL (LSIK score) and investigation

Investigation item	LSIK			
	I	II	III	Total
Age	0.082	-0.290	-0.299	-0.257
Level of pain	-0.225	-0.428 *	-0.384 *	-0.467 *
Frequency of going out	-0.104	0.128	0.121	0.063
LSA	-0.069	0.195	0.111	0.142
FES	0.146	0.394 *	0.374 *	0.386 *
GDS	-0.378 *	-0.407 *	-0.481 *	-0.561 **

**p<0.01, *p<0.05

I: Satisfaction with life in general, II: Stability of mind, III: Evaluation of toward aging

and that no information obtained will be disclosed to any third parties. Patient consent was obtained thereafter.

The survey items included the subjects' age, whether they have pain, the degree of pain if they do, how often they go out, their daily life activities, their fear of falling, their depression status, and their QOL.

The degree of pain was evaluated by using the visual analogue scale, with 0 indicating no pain and 10 indicating the maximum pain that the subject had experienced. The subjects indicated their degree of pain by marking the scale, and the markings were converted into scores. For the frequency of going out, the subjects were asked how many times they go out in a week.

The subjects' daily life activities were evaluated by using the Japanese version of Life-Space Assessment (LSA), which was developed by Baker et al.⁵⁾ and converted into the Japanese version by Harada⁶⁾. The LSA questionnaire assesses whether respondents conducted any activities in each living space, the frequency of such activities if they did, and how independent they were in order to comprehend their physical activities in terms of daily life activities. The perfect score is 120, indicating the maximum level of daily life activities, physical activities, and independence.

The subjects' fear of falling was measured by using the Japanese version of the Fall Efficacy Scale (FES), which was developed by Tinetti et al.⁷⁾ and converted into the Japanese version by Haga et al.⁸⁾. The FES asks respondents how confident they are to conduct their daily life activities without falling. For each of 10 activity items, respondents answer on a scale of 1 to 4. The scores range from 10 to 40, where a higher score indicates less fear.

The shortened version of the Geriatric Depression Scale (GDS) was used to assess the subjects' depression status⁹⁾. The GDS was developed to measure depression status of patients. Respondents answer yes or no to 15 questions. The raw scores range from 0 to 15, where a higher score indicates deeper depression.

The Life Satisfaction Index K (LSIK) was used to assess the subjects' QOL¹⁰⁾. The LSIK was developed based on analyses of existing scales for measuring elderly people's subjective feeling of happiness. The LSIK is a self-administered questionnaire. Respondents choose one answer from several options, which have different scores. The LSIK consists of 9 questions. For choosing a positive option, 1

point is given, and no points are given for choosing other options. Points earned for the 9 questions are added together. The perfect total score is 9.

Spearman's rank method was used to analyze the correlations between the LSIK scores and the scores of other survey items. For statistical analysis, Stat Soft's statistical analysis software, STATISTICA, was used. A significance level of 5% was considered statistically significant.

RESULTS

Table 1 shows the correlations between the LSIK scores, including the subscales, and other survey items. No statistical significance was observed between the LSIK scores and the patient age, frequency of going out (mean: 5.63 ± 1.74), and LSA scores.

All of the subjects had moderate pain (mean: 4.52 ± 1.81). A significant negative correlation was observed between the LSIK scores and the degree of pain. The stronger the pain, the significantly lower the LSIK scores ($r = -0.47$, $p < 0.05$).

A significant positive correlation was observed between the LSIK and FES scores. The weaker the fear of falling, the higher the LSIK scores ($r = 0.39$, $p < 0.05$). A significant correlation was also observed between the LSIK and GDS15 scores. The deeper the depression, the significantly lower the LSIK scores ($r = -0.56$, $p < 0.01$).

DISCUSSION

Musculoskeletal disorders are clearly a major cause of elderly people's disabilities that cause them to require support and care, and significantly reduce their QOL¹⁾. In this study, community-dwelling elderly women with musculoskeletal disorders were selected, assessed according to LSIK scores, and analyzed and examined for factors that affected the LSIK scores. The results indicated that patient age, frequency of going out, and daily life activities do not directly affect the LSIK scores of the community-dwelling elderly people with musculoskeletal disorders. The results also indicated that the degree of pain, fear of falling, and depression status affected the LSIK scores.

Concerning the relationship between pain and QOL, Ebihara et al.⁴⁾ reported that the QOL of elderly patients with locomotive syndrome is reduced by physical factors such as

pain caused by their musculoskeletal disorders. Taniguchi et al.¹¹⁾ reported that the LSIK scores of elderly patients with back pain tended to be lower. The results of the present study indicated that the LSIK scores were significantly lower when pain was stronger. This clarifies once again that pain is a factor that reduces the LSIK scores of elderly people with musculoskeletal disorders. Therefore, in order to improve the LSIK scores of elderly people with musculoskeletal disorders, easing and preventing pain are important.

Suzuki et al.¹³⁾ reported that approximately 50% of elderly people living in their homes fear that they may fall and observed a correlation between their QOL and fear of falling among elderly women. The results showed a significant correlation between the LSIK and FES scores. The stronger the fear of falling, the lower the LSIK scores. This clearly indicates that fear of falling affected the LSIK scores of the elderly women with musculoskeletal disorders. This also suggests that reducing fear of falling is important for maintaining and improving the LSIK scores of elderly women with musculoskeletal disorders. Austin et al.¹²⁾ reported that the decrease in physical functions due to aging leads to reduced daily life activities and fear of falling. Raguso et al.¹⁴⁾ reported that the decrease in physical functions can be prevented by maintaining a high level of physical activities in daily life. Therefore, in order to improve the LSIK scores of elderly people with musculoskeletal disorders, improving their physical functions without worrying about falling and maintaining a high level of daily life activities are important. Concerning the correlation between LSIK score and depression, the results indicate that the LSIK scores were lower when depression was deeper. As Taniguti et al.¹¹⁾ and Demura et al.¹⁵⁾ remarked, people with depression tend to be less satisfied with their life in general. This decreases the LSIK scores of elderly people with musculoskeletal disorders.

The results of this study suggest that the LSIK scores of elderly women with musculoskeletal disorders can be improved by easing their pain, improving their physical abilities so that they do not fall, and improving their mobility. Moreover, the study results suggest that continuing rehabilitation treatment is required.

REFERENCES

- 1) Ministry of Health: General condition of national life base investigation in 2013. <http://www.mhlw.go.jp/toukei/saikin/hw/k-tyosa/k-tyosa13/dl/05.pdf>. (Accessed May 18, 2015)
- 2) Ito H: [Diagnosis of musculoskeletal ambulation disability symptom complex (MADS)]. *Clin Calcium*, 2008, 18: 1560–1565. [Medline]
- 3) Kubo A, Murata S, Otao H, et al.: Comparison of physical function by age and MADS complex diagnosis in community-dwelling elderly women. *J Phys Ther Sci*, 2012, 24: 527–530. [CrossRef]
- 4) Ebihara C, Arai T, Fujita H, et al.: The relationship between locomotive syndrome and quality of life of community-dwelling elderly people. *J Phys Ther Sci*, 2013, 28: 569–572.
- 5) Baker PS, Bodner EV, Allman RM: Measuring life-space mobility in community-dwelling older adults. *J Am Geriatr Soc*, 2003, 51: 1610–1614. [Medline] [CrossRef]
- 6) Harada K, Shimada H, Sawyer P, et al.: [Life-space of community-dwelling older adults using preventive health care services in Japan and the validity of composite scoring methods for assessment]. *Nippon Koshu Eisei Zasshi*, 2010, 57: 526–537. [Medline]
- 7) Tinetti ME, Richman D, Powell L: Falls efficacy as a measure of fear of falling. *J Gerontol*, 1990, 45: 239–243. [Medline] [CrossRef]
- 8) Haga H: Scaling of consideration and attitude to falling among the elderly in Hokkaido. Comprehensive study on falls and fractures in the community elderly in Japan, Scientific research grants (science research grant-in-aid) study for submission of results report (education science Ministry issued minutes) of 1995–1996 fiscal year (Research representative: Shibata H), 1997, pp 127–136.
- 9) Kasahara Y, Kada H, Yanagawa Y: Measure to evaluate depression state (1). *Japan. J Geriatr Psychiatry*, 1995, 6: 757–766.
- 10) Koyano K, Shibata H, Haga H, et al.: Structure of a life satisfaction index: multidimensionality of subjective well-being and its measurement. *Jpn J Gerontol*, 1989, 11: 99–125.
- 11) Taniguchi N, Katsura T, Hoshino A, et al.: Comparison of QOL factors between so-called younger old and older old community residents. *Nihon Nousei Igaku*, 2013, 62: 91–105.
- 12) Austin N, Devine A, Dick I, et al.: Fear of falling in older women: a longitudinal study of incidence, persistence, and predictors. *J Am Geriatr Soc*, 2007, 55: 1598–1603. [Medline] [CrossRef]
- 13) Suzuki M, Kanamori M, Yamada K: Incidence and factors related to, the fear of falling among the elderly living in their own home. *Jpn J Geriatr Psychol*, 1999, 10: 685–695.
- 14) Raguso CA, Kyle U, Kossovsky MP, et al.: A 3-year longitudinal study on body composition changes in the elderly: role of physical exercise. *Clin Nutr*, 2006, 25: 573–580. [Medline] [CrossRef]
- 15) Demura S, Sato S: Relationships between depression, lifestyle and quality of life in the community dwelling elderly: a comparison between gender and age groups. *J Physiol Anthropol Appl Human Sci*, 2003, 22: 159–166. [Medline] [CrossRef]