Original Article

Coping behaviors for skeletal muscle injuries and disorders among community-dwelling elderly persons in Japan

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Abstract. [Purpose] This study aimed to determine the coping behaviors of elderly Japanese community-dwelling persons toward their skeletal muscle injuries and disorders. [Participants and Methods] A mail-in, self-administered questionnaire survey was administered to 1,084 community-dwelling adults aged 70 years and older. Information was obtained regarding their coping behaviors when dealing with bone fractures, dislocations, sprains, bruising, stiff shoulders, low back pain, acute muscle/joint pain, chronic muscle/joint pain, and daily fatigue. [Results] Visits to hospitals or general clinics were the most popular coping behavior for bone fractures, dislocations, sprains, bruising, low back pain, acute muscle/joint pain, chronic muscle/joint pain, and daily fatigue. [Results] Visits to hospitals or general clinics were the most popular coping behavior for bone fractures, dislocations, sprains, bruising, low back pain, acute muscle/joint pain, chronic muscle/joint pain, and daily fatigue. [Results] Visits to a Judo therapist’s office were the second most popular coping behavior for these conditions. Acupuncture, as well as chiropractic and massage clinics, were less frequently visited. For stiff shoulders and daily fatigue, many participants did not visit any medical facility. [Conclusion] Among the elderly, visits to hospitals or general clinics were the most used coping behavior for many types of skeletal muscle injuries and disorders. Visits to a Judo therapist’s office were the second most used coping behavior. Visits to acupuncture, chiropractic, and massage clinics were less frequent. With these data, therapists could improve their care skills upon consideration of the coping preferences among community-dwelling elderly persons.

Key words: Musculoskeletal diseases, Health behavior, Aged

INTRODUCTION

Skeletal muscle injuries and disorders are becoming a social problem in Japan. According to the Comprehensive Survey of Living Conditions by the Health of Ministry of Health, Labour and Welfare in Japan, the most frequently reported subjective symptoms were skeletal muscle disorders: low back pain (9.2%) and stiff shoulders (11.8%) for males and females, respectively1). The proportion of persons with skeletal muscle injuries and disorders is increased among elderly persons, compared to young persons1). Additionally, skeletal muscle injuries, particularly those involving femoral neck bone fracture, are the primary cause of long-term care requirement among elderly persons2). Prevention of muscle injuries and disorders among elderly persons can contribute to their overall health.

Several coping behaviors, including complementary and alternative medicine (CAM), had been reported for skeletal muscle injuries and disorders worldwide3–9). For example, osteopathy and chiropractic care are popular in England3, 4). Chiropractic care and massage are popular in the United States5, 6). In Australia, acupuncture is common7, 8). Types of CAM differ among countries.

In Japan, coping behaviors for skeletal muscle injuries and disorders are less frequently reported9). There are 2 potential...
reasons. First, national certification systems for CAM therapists differ among countries. Osteopathic and chiropractic therapists are the major types of CAM practitioners in many countries; however, they are not certified in Japan, whereas Judo therapists and acupuncturists are certified. Accordingly, it is difficult to research types of treatment with no clear definition. Secondly, patients tend to first visit hospitals or clinics, because they can receive medical treatment cheaply due to the availability of universal health insurance in Japan. Therefore, many surveys tend to include research at hospitals or clinics.

Each year, CAM therapies in Japan cost 400 billion yen. Although this is a small cost compared to that of hospital visits, medical cost reduction is an important social problem. Determining the coping behaviors for skeletal muscle injuries and disorders is an important first step for the reduction of social medical expenses. Importantly, the coping behaviors for skeletal muscle injuries and disorders among elderly persons are unclear. Thus, the aim of this study was to determine the coping behaviors for skeletal muscle injuries and disorders in Japanese community-dwelling elderly persons.

PARTICIPANTS AND METHODS

A mail-in self-administered questionnaire survey was conducted between October and November 2015. A total of 1,051 study participants, aged ≥70 years, were randomly selected in a city in Shizuoka prefecture in Japan. The city was suburban; the population was ≥100,000, and elderly persons comprised approximately one-fourth of the population. Family members completed the questionnaire for those who needed assistance. The question was “What facility do you use for treatment of the following skeletal muscle injuries and disorders?” Nine skeletal muscle injuries and disorders were listed: bone fracture, dislocation, sprain, bruising, stiff shoulders, low back pain, acute muscle/joint pain, chronic muscle/joint pain, and daily fatigue. For each of the 9 items, ≥1 of 5 coping behaviors could be chosen: hospital or general clinic, Judo therapist’s office (osteopathic clinic), acupuncture clinic, chiropractic and massage clinic, and none. Ethical approval was obtained from the Institutional Review Board of the Hamamatsu University School of Medicine (E15-213). Written informed consent was obtained from all participants. We calculated the proportions of use of each facility for 9 skeletal muscle injuries and disorders by gender. A $\chi^2$ test was conducted to compare proportions between males and females. Statistical analyses were performed using SPSS version 25 (IBM Japan, Tokyo, Japan). P values <0.05 were considered to be significant.

RESULTS

A total of 983 participants responded (response rate of 93.5%); 70.7% of respondents were female. The ages of the respondents (mean ± standard deviation) were 77.7 ± 4.9 years and 78.8 ± 4.8 for males and females, respectively. Characteristics of the participants are shown in Table 1.

Visits to hospitals or general clinics were the most popular coping behavior for bone fracture, dislocation, sprain, bruising, low back pain, acute muscle/joint pain, and chronic muscle/joint pain. Visits to a Judo therapist’s office were the second most popular coping behavior for bone fracture, dislocation, sprain, bruising, stiff shoulders, low back pain, and acute muscle/joint pain. The acupuncture clinic was less frequently used as a coping behavior for many skeletal muscle injuries and disorders. For stiff shoulder and daily fatigue, many participants did not visit any medical facilities. Regarding gender differences in use of coping behaviors, females more frequently used a Judo therapist’s office for bruising and acute muscle/joint pain, compared to males. Coping behaviors for skeletal muscle injuries and disorders are shown in Table 2.

Table 1. Characteristics of the participants

|                         | Male (n=288) | Female (n=695) |
|-------------------------|-------------|---------------|
| Age (years)             | 77.7 ± 4.9  | 78.8 ± 4.8    |
| Weight (kg)             | 57.5 ± 8.5  | 46.8 ± 6.9    |
| Height (cm)             | 160.3 ± 7.5 | 147.3 ± 6.3   |
| Education               |             |               |
| High school or more     | 165 (58.3)  | 309 (45.6)    |
| Living                  |             |               |
| Alone                   | 21 (7.4)    | 97 (14.2)     |
| Marital status          |             |               |
| Married                 | 231 (82.2)  | 294 (44.0)    |
| Self-rated health       |             |               |
| Good                    | 125 (44.6)  | 329 (49.0)    |
| Fair                    | 100 (35.7)  | 200 (29.8)    |
| Bad                     | 55 (19.6)   | 14 (21.2)     |
| Medical history         |             |               |
| Stroke                  | 16 (6.1)    | 25 (4.1)      |
| Heart attack            | 38 (14.4)   | 57 (9.4)      |
| Cancer                  | 13 (4.9)    | 17 (2.8)      |

Data are shown as mean ± standard deviation or n (%).
Visits to hospitals or general clinics were the most frequently used coping behaviors for many types of skeletal muscle injuries and disorders. The second most frequently used coping behavior was visits to a Judo therapist’s office; acupuncture clinics were less frequently used. Yamashita et al. 9) reported that the proportions of use of orthodox Western medicine, chiropractic care or osteopathy, and acupuncture and moxibustion were 65.6%, 7.1%, and 6.7%, respectively; our results were nearly consistent with those of the prior study. Chiropractic care is popular in Europe and the United States3, 5, 6) . Chiropractors are regarded as CAM care professionals in these countries 10), but not in Japan. In contrast, Judo therapy and acupuncture are regarded as CAM in Japan; thus, this type of care is covered by medical insurance. The numbers of muscle skeletal injuries and disorders covered by insurance is high for Judo therapy, whereas it is low for acupuncture. Therefore, Judo therapy and acupuncture were the most common approaches after hospitals and general clinics in Japan.

For stiff shoulder and daily fatigue, many participants reported visiting no medical facilities. Our study results are consistent with the results from the Comprehensive Survey of Living Conditions on Health by the Ministry of Health, Labour and Welfare2). The mechanism and treatment method for stiff shoulder are not yet established 11). Elderly persons might suspect that the use of a medical facility for stiff shoulder is unnecessary because this comprises a common chronic disorder, rather than an emergency requiring treatment2). Therefore, recognition of care for stiff shoulder is not common among either providers or patients.

The Judo therapist’s office was more frequently used by females for treatment of bruising and acute muscle/joint pain, compared to males. A previous study reported that CAM tended to be used more frequently by females than by males9). Although the differences were not significant, our results showed that sprain, low back pain, chronic muscle/joint pain, and daily fatigue were common reasons for use of coping mechanisms among females, compared to males. These injuries and disorders tend to exhibit acute pain, without need for urgent care. Our results indicated that female elderly persons tend to visit the Judo therapist’s office when acute, nonemergent pain occurred on a daily basis.

Our study revealed the coping behaviors for several skeletal muscle injuries and disorders. Overwork among doctors is a serious concern in Japan15). There are many co-medical staff (e.g., physical therapists and occupational therapists) and CAM therapists (e.g., Judo therapists and acupuncture therapists) in Japan13). Collaboration among doctors, co-medical staff, and CAM therapists may be effective in improving overwork among doctors in Japan.

The present study has 2 strengths. First, the response rate was high. Notably, the survey was conducted with the cooperation of the city, which might have increased the response rate. Secondly, our study obtained detailed information regarding types of skeletal muscle injuries and disorders. To our knowledge, this is the first study to investigate the coping behaviors for several skeletal muscle injuries and disorders.
behaviors for several skeletal muscle injuries and disorders among Japanese community-dwelling elderly persons. However, our study has some limitations. The assessed information was obtained from self-administered questionnaires. Thus, the validity of the information might be low. Additionally, our study did not include patients undergoing long-term care, because community-dwelling elderly persons were targeted in our study; it is necessary to determine generalizability for the entire elderly population. Our study did not determine whether participants actually visited medical practitioners as reported in the survey. Thus, the results may be affected by the ability of participants to accurately recall their medical visits. We could not obtain information regarding participants who were 65 to 69 years of age; the elderly population is generally defined as those ≥65 years of age. Our results are thus not fully generalizable to the entire elderly population.

In conclusion, this study showed that visits to hospitals or general clinics were the most popular coping behavior for bone fracture, dislocation, sprain, bruising, low back pain, acute muscle/joint pain, and chronic muscle/joint pain. Visits to a Judo therapist’s office and acupuncture clinics were the next most frequent coping behaviors. Finally, for stiff shoulder and daily fatigue, many participants reported no use of medical facilities. Therapists should improve their care skills with consideration of the coping preferences among community-dwelling elderly persons.

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**Conflict of interest**

None.

**REFERENCES**

1) Ministry of Health, Labour and Welfare: Comprehensive survey of living conditions on health 2016. https://www.mhlw.go.jp/english/database/db-hss/cslc-report2016.html (Accessed Jan. 28, 2019).
2) Rubenstein LZ: Falls in older people: epidemiology, risk factors and strategies for prevention. Age Ageing, 2006, 35: ii37–ii41. [Medline] [CrossRef]
3) Hunt KJ, Coelho HF, Wider B, et al.: Complementary and alternative medicine use in England: results from a national survey. Int J Clin Pract, 2010, 64: 1496–1502. [Medline] [CrossRef]
4) Thomas KJ, Nicholl JP, Coleman P: Use and expenditure on complementary medicine in England: a population based survey. Complement Ther Med, 2001, 9: 2–11. [Medline] [CrossRef]
5) Eisenberg DM, Davis RB, Ettner SL, et al.: Trends in alternative medicine use in the United States, 1990–1997: results of a follow-up national survey. JAMA, 1998, 280: 1569–1575. [Medline] [CrossRef]
6) Clarke TC, Black LI, Stussman BJ, et al.: Trends in the use of complementary health approaches among adults: United States, 2002-2012. Nati Health Stat Rep, 2015, 10: 1–16. [Medline]
7) Xue CC, Zhang AL, Lin V, et al.: Complementary and alternative medicine use in Australia: a national population-based survey. J Altern Complement Med, 2007, 13: 463–650. [Medline] [CrossRef]
8) MacLennan AH, Myers SP, Taylor AW: The continuing use of complementary and alternative medicine in South Australia: costs and beliefs in 2004. Med J Aust, 2006, 184: 27–31. [Medline]
9) Yamashita H, Tsukayama H, Sugishita C: Popularity of complementary and alternative medicine in Japan: a telephone survey. Complement Ther Med, 2002, 10: 84–93. [Medline] [CrossRef]
10) Cleary-Guida MB, Okvat HA, Oz MC, et al.: A regional survey of health insurance coverage for complementary and alternative medicine: current status and future ramifications. J Altern Complement Med, 2001, 7: 269–273. [Medline] [CrossRef]
11) Eiji T, Kenji T: Clinical manifestations and differential diagnosis of neck and shoulder pain. Spine Spinal Cord, 2016, 29: 1000–1006 (In Japanese).
12) Suzuki S: Exhausting physicians employed in hospitals in Japan assessed by a health questionnaire. Sangyo Eiseigaku Zasshi, 2017, 59: 107–118 (In Japanese).
13) Ministry of Health, Labour and Welfare: Survey of Medical Institutions. https://www.mhlw.go.jp/english/database/db-hss/smi.html (Accessed Jan. 28, 2019).