The State of and Issues Related to the Health Literacy of Healthy Elderly in Japan: A Survey of Participants of a Regional Recreational Event

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The Asian Conference on Psychology & the Behavioral Sciences 2018
Official Conference Proceedings

Abstract
In the aging society of Japan, the extension of healthy life expectancy is indispensable for managing the high medical and nursing care expenses and shortage of manpower for care workers. Further, it is important to improve the health literacy as social skills of the elderly for the management and maintenance of their health abilities. In this study, we conducted a questionnaire survey with 227 healthy elderly who participated in a bowling tournament, to clarify the conditions of health literacy and issues related to the necessary support. Only 9.7% of elderly collected health-related information. Most of the elderly used the support of their family or friends more often than that of health professionals to facilitate their health maintenance. A t test revealed that the total health literacy score and the communicative and critical health literacy scores were high among the elderly with a chronic illness or those with children. The functional health literacy score was high among men or those who could use the internet or smartphones.
These findings suggest that the elderly collected, confirmed, and selected information from conversations with their family or friends about their own health concerns. Collecting information from the internet is considered an effective skill of maintaining health; however, as the elderly have various kinds of complicated health histories, they need individualized care. Moreover, it is necessary to support the health behavior of the elderly with diseases by offering them opportunities to contact health professionals.

Keywords: Health Literacy, healthy elderly, social support

Introduction

In the aging society of Japan, the extension of healthy life expectancy is indispensable for managing the high costs of medical and nursing care and the shortage of manpower for care workers. Furthermore, it is important to improve the health literacy (HL) of the elderly for the management and maintenance of their health abilities. World Health Organization (1998) defines HL as "cognitive and social life skills that regulate personal motivation and ability to access, understand, and use information necessary for promoting or maintaining good health."

It is known that the mental and physical capabilities of the elderly decreases with aging, along with the development of various diseases, decreased frequency of going out, and decreased social exchanges (Ministry of Health, Labor and Welfare, 2016). Furthermore, the ability of active learning decreases with aging, and HL decreases as the cognitive ability to assess and evaluate information decreases (PLOS, 2014). If HL is low, the understanding and knowledge of diseases will also be low, thus resulting in events such as the accidental consumption of oral medication due to the inadequate understanding of instructions from doctors or nurses and the low frequency of use of preventive services (e.g., vaccination). Older adults with low HL tend to have poor self-management or chronic disease prevention in their lives (Berkman, Sheridan, Donahue, Halpern, & Crotty, 2011).

In the case of elderly people, high HL has been reported to have a positive effect on the extension of healthy lifespan, elderly quality of life (QOL), subjective health view, and happiness (Tokuda, Doba, Butler, & Paasche-Orlow, 2009). High HL would allow elderly people to collect, judge, and utilize necessary information and communicate clearly their own needs or doubts to the medical staff (Ishikawa, et al, 2018). Under a medical condition, HL could become a "risk" that can affect a patient's understanding of treatment and obstruct the communication between medical professionals and patients or become an "asset" that determines individual health (Nutbeam, 2008).

It is necessary for the elderly to express their symptoms and problems verbally and understand the explanations provided to them by the medical staff. It is important to improve the HL of the elderly to enable them to manage and maintain their health management abilities, obtain medical and nursing care information, and communicate with their families and medical personnel regarding health maintenance behavior and medical care/nursing care decisions.

Medical and nursing care information is readily available to everyone because of the development of mass media and the internet. The internet usage rate by individual age group in 2016 was >90% in each stratum from 13 to 59 years of age; however, it decreased to 80% for individuals who are 60 years of age and <50% for individuals who are >65 years of age (Ministry of Internal Affairs and Communication, 2017). Furthermore, a survey revealed that 60- to 90-year-olds face difficulty in using informational devices such as automated teller machines, mobile phones, and personal computers (Yoshida, Kawamura, Shigetoshi, Zouda, & Oshima, 2017). With increasing age, the proportion of the elderly utilizing the internet decreases. The elderly who depend on information from books, family, and friends tend to have reduced abilities of understanding and transmitting information (Kitada, Nakamura, &

Yamashiro, 2015).

In Japan, it was estimated that the number of elderly aged >65 years will increase between the years 2015 and 2040, in parallel with the increase in the single-occupancy rate (National Institute of Population and Social Security Research, 2018). Given the rapid increase in the elderly population, the relationship among elderly people, families, and communities has been diluted to an extent that it has become difficult for the elderly to obtain social support (Waki, 2007). Supporting the increasing elderly population will be a challenge, such as in gathering information on medical, health, and nursing care, and will put a strain on family or neighbors. However, despite this situation in Japan, studies on the HL of the elderly are lacking, and information support remains poor.

In this research, we focused on healthy elderly people from a preventive perspective of maintaining health and improving health management skills. We conducted a questionnaire survey to identify the HL conditions of our subjects and the issues related to the acquisition of necessary support, including the type of support resources used to obtain the necessary information and the practice of health maintenance or healthy behavior. Moreover, we discussed the provision of information in accordance with the needs of the elderly to encourage the improvement of QOL.

Methods

Subjects

A self-administered questionnaire survey was conducted in June 2017 on 227 healthy elderly people who participated in a bowling tournament organized by the city's social welfare council. The questionnaires were distributed at the venue, asked to be filled out during the waiting time of the competition, and collected at the end of the event. The questionnaires were distributed at the reception of the bowling competition area. In the overall announcement, we explained the outline and purpose of the research, method, and ethical consideration and presented the research manual. The exclusion criteria were elderly people under the age of 60 years with difficulty in understanding the purpose of the research, low cognitive ability, poor eyesight, poor communication skills, poor ability of using writing instruments, inability to answer the questions themselves, and health issues that did not allow bowling.

Measures

(a) Characteristics of subject

The questionnaire included questions on age, gender, material status, presence or absence of a child, household composition, health conditions, health status, disease status (such as hypertension, diabetes, cataract, cancer, lumbago, heart disease, femoral fracture, renal failure, and cerebrovascular disease), health maintenance activities, social support, and internet use.

(b) Health literacy

HL was measured using the 14-item HL scale (HLS-14), which has been confirmed

reliable and valid for Japanese adults (Suka, et al., 2013). The 14 items comprised 5 items for functional HL, 5 items for communicative HL, and 4 items for critical HL. The reliability and validity of the HLS-14 were then assessed. Functional HL is defined as the skill to read, write, and function effectively in everyday life. Communicative HL involves the ability to obtain or collect information from different resources, and critical HL is the ability to critically analyze the obtained information. Respondents chose from one of the five options (1 = strongly agree/disagree to 5 = strongly disagree/agree), and the scores on the items were added to obtain the HLS-14 score (ranging from 14 to 70 points). The scores of each subscale (5–25 points for functional and communicative HLs and 4–20 points for critical HL) were then calculated. A higher subcategory score means a greater HL. In this study, we used the total scores of HLS-14 and the scores of functional, communicative, and critical HLs for analyses.

Statistical analysis

SPSS version 24 was used to analyze the data. For the relationship between each attribute and the subclassification of HLS-14, t-test was conducted to obtain the Pearson's correlation coefficient and difference.

Ethical consideration

This study was conducted with the approval of the Ethics Committee of Osaka University Hospital.

Results

(a) Characteristics of subject

A total of 227 people responded to the questionnaires (men = 59.0%; women = 40.5%; average subject's age = 73.4 ± 4.9). Table 1 shows the age, marital status, and household composition of the subjects. The HL score was 19.31 for functional HL, 15.05 for communicative HL, and 11.03 for critical HL. The total HL score was 46.03.

(b) Health status, health behaviors, and supporter for health maintenance

The recognition of the subject's health status is shown in Table 2, and the contents for health maintenance behavior are given in Table 3. The majority of the subjects (90.3%) stated that they were in a "very healthy to good health" state, whereas 70.5% mentioned having chronic illnesses. The chronic illnesses reported included hypertension (40.9%), diabetes mellitus (13.6%), heart disease (5.0%), cerebrovascular disease (3.7%), and cancer (5.8%). The aging symptoms of lower back pain and cataract were reported by 13% and 6% of the subjects, respectively.

Almost all subjects (99.6%) practiced health maintenance behaviors such as exercise (29.9%), participation in volunteer activities (14.7%), conversation with friends (14.2%), ingenuity of meals (12.5%), and travel (8.0%). Approximately 14% of the patients visited a hospital, and only 9.7% of the patients gathered health-related information.

Approximately 75% of the subjects reported receiving support in maintaining health

from spouses (34.4%), friends (17.9%), children (14.5%), neighbors (11.1%), and medical personnel (5.7%) (Table 4). Support for health maintenance was provided more by family and friends than by health professionals.

(c) Experiences of providing nursing care

The proportions of subjects with experience in providing nursing care and those that believed that they would be provided with care in the future were 41% and 53%, respectively. Some subjects (46%) were not worried about receiving nursing care, whereas 80% of subjects were worried. The subjects hoped to receive nursing care at home (47.4%), at a child's home (1.7%), at a facility (47.4%), and at a hospital (6.5%).

Table 1 Characterisics of thestudy subject

		N	%
Gender	Male	134	59.0
	Femal	92	40.5
	No answer	1	0.4
Age	60-69	52	22.9
	70-79	148	65.2
	80-89	24	10.6
	Over 90	1	0.4
	No answer	2	0.9
Marital parter	Present	168	74.0
	Missing	49	21.6
	No answer	10	4.4
Child Status	Have child/children	169	74.4
	Have no child	9	4.0
	No answer	49	21.6
Household composition	Solitude	31	13.7
	Couple	99	43.6
	Two generations family (living with children)	80	35.2
	Others	12	5.3
	No answer	5	2.2
		Mean	SD
Health literacy scores	Functional HL	19.31	4.56
	Communicative HL	15.05	4.75
	Critical HL	11.56	3.51
	Total health literacy score	46.03	8.10

Table 2 Health status

	N	%
Good	44	19.4
Moderate	161	70.9
Not good	18	7.9
Poor	1	0.4
No answer	3	1.3

Table 3 Health maintain behaviors

	N	%
Exasise	175	29.9%
Volanteer	86	14.7%
Visiti to hospital	84	14.3%
Talk with friends	83	14.2%
Ingenuity of meal	73	12.5%
Collecting the health information	22	3.8%
Go to trip	47	8.0%
Not particularly	9	1.5%
Other	7	1.2%

Table 4 Support for maintain health conditions

	N	%
Spouse	90	34.4%
Friends	47	17.9%
Child/children	38	14.5%
neighbors	29	11.1%
Medical staff	31	11.8%
Grandson/grand daughter	7	2.7%
Welfare staff	15	5.7%
Others	5	1.9%

(d) Relationship among each attribute and HLS-14

No correlation was observed between the health conditions of the subjects and their HL; however, HL was affected by the presence of a chronic illness (Table 5).

Table 5 Correlation of factors

	Gender	Age	Child	Household composition	Health status	Choronic illness	Functional	Communi cative	Literacy	Total of HL
Material status	.40 **	.05	.05	-.31 **	.06	-.05	-.10	.04	.06	-.01
Gender	—	-.14 *	-.10	-.10	-.03	.12	-.15 *	.00	.01	-.08
Age		—	.09	-.17 *	-.10	-.06	-.10	.04	.09	.01
Child			—	-.17 *	-.10	-.02	-.03	-.15 *	-.16 *	-.17 *
Household composition				—	-.04	.06	-.11	.00	-.01	-.07
Health status					—	-.31 *	-.06	.11	.09	.07
Choronic disease						—	-.08	-.35 **	-.22 **	-.35 **
Functional							—	-.22 **	-.29 **	.32 **
Communicative								—	.75 **	.81 **
Literacy									—	.73 **

The t-test revealed that elderly individuals with chronic illnesses had higher levels of communicative HL (t = 5.43, df = 218, p < .001), critical HL (t = 3.36, df = 218, p < .01), and total HL (t = 5.57, df = 218, p < .001) than those with no illnesses (Table 6). Furthermore, elderly people with children had higher communicative HL (t = 2.03, df = 176, p < .05), critical HL (t = 2.15, df = 176, p < .05), and total HL (t = 233, df = 176, p < .05) than those without children (Table 7). Men showed greater levels of functional HL than women (t = 2.21, df = 224, p < .05), and subjects who were familiar with the use of the internet or smartphones also showed high functional HL level (t = 4.12, df = 224, p < .001) (Table 8). The presence of familiar supporters and

prior experience with nursing care had no effect on the HLS-14 score.

Table 6 t-test for choronice illness

	Presence		Absence			
	M	SD	M	SD	*t*	
Functional HL	19.54	4.36	18.75	5.20	1.12	
Communicative HL	16.02	4.47	12.23	4.63	5.43	***
Critical HL	12.00	3.39	10.20	3.68	3.37	***
Total of HL score	47.57	7.48	41.18	7.15	5.58	***

Table 7 t-test for child status

	Presence		Absence			
	M	SD	M	SD	*t*	
Functional HL	19.24	4.62	18.67	6.93	0.35	
Communicative HL	15.43	4.63	12.22	4.18	2.04	*
Critical HL	11.67	3.45	9.11	3.62	2.16	*
Total of HL score	46.34	8.00	40.00	6.18	2.34	*

Table 8 t-test for user of internet devices

	User		Non user			
	M	SD	M	SD	*t*	
Functional HL	20.52	4.10	18.10	4.72	4.12	*
Communicative HL	14.69	4.88	15.36	4.62	-1.06	
Critical HL	11.16	3.55	11.92	3.43	-1.63	
Total of HL score	46.37	8.20	45.38	7.49	0.95	

Discussion

We conducted a questionnaire survey to clarify the conditions of HL and the issues related to the support needed by the elderly, including the type of support resources required to obtain health information and the activities undertaken for health maintenance or health status.

We found that the HL scores of healthy elderly individuals were almost the same as those of elderly individuals > 65 years of age (Otsuka, et al., 2017). Moreover, most of the elderly utilized familiar support resources such as spouses and friends. A previous study also reported that elderly people also seek opinions from family members or friends (Kitada, Nakamura, & Yamashiro, 2015).

We found that communicative HL, critical HL, and total HL were higher in subjects with children and in those with chronic illnesses. Although ≥90% subjects performed exercises, undertook volunteering activities, visited hospitals, talked with friends, and maintained healthy behaviors, <10% of the elderly collected health-related

information. Furthermore, relying on health professionals as information sources was noted in 20% of the subjects, whereas no relation was noted between HL and the recognition of health condition. The subjects also visited hospitals as a health maintenance behavior. Many subjects with chronic illnesses such as high blood pressure and diabetes considered themselves "healthy" enough to participate in the bowling competition. Considering that most subjects recognized that they were "healthy," only a few of them felt the need to acquire knowledge from medical experts because they believed that the knowledge and information acquired from families, friends, and children were sufficient.

However, elderly people usually have severe/chronic diseases or a history of disease conditions; therefore, they require comprehensive support. Medical experts ensure that not only the elderly but also their families can contact experts who can help support the health behavior of elderly individuals. Moreover, it will be necessary to support the maintenance and improvement of HL, which can help acquire the correct knowledge and utilize the obtained information.

In this survey, approximately 50% of the subjects answered that they can utilize the internet or smartphones, and these subjects showed significantly high functional HL. Subjects with chronic illnesses were usually capable of obtaining health information via the internet. However, it was reported that elderly people who obtained information from books, magazines, and newspapers also tended to trust information from television media (Kitada, Nakamura, & Yamashiro, 2015). Therefore, the manner of information transmission for the elderly should be considered because medical staff does not distribute information only on the internet.

A previous study reported that participation in cultural activities such as going to cinemas, theaters, galleries, and museums, in addition to the use of the internet and participation in social activities, leads to the improvement of HL in elderly people (PLOS, 2014). The continuation of activities to maintain health and social interactions is one of the factors that affect life in advanced age (Koga & Takahata, 2014). Environments wherein elderly people can easily interact with one another (e.g., the bowling competition in this case) will be indispensable.

Considering that the elderly suffer from various diseases, it is necessary to increase their HL to ensure that they can maintain their health, acquire the correct knowledge, and transform health behavior after illnesses. Medical professionals also need to practice effective communication with the elderly to improve their HL and decision making with regard to the type of treatment or care they desire.

Conclusion

The elderly subjects evaluated in this study received information and made health-related decisions on the basis of their conversations with familiar families and friends. Information gathering using the internet and web devices is effective in maintaining health status; however, the elderly have high individuality of medical history and medical condition and are carefully supported by medical staff when required. Medical experts should ensure contact opportunities by including not only the elderly patient but also their families for appropriate information dissemination.

Acknowledgments

This research was supported by JSPS KAKENHI Grant Number Jp17K12500 (representative: Kaori Hatanaka) and JSPS KAKENHI Grant Number & Jp15H03456 (representative: Tomoko Tanaka).

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