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Needs Assessment of Nutrition Education for Older Adults*

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ABSTRACT

This study was designed to assess the needs for nutrition education and educational materials for older adults. Two cross-sectional surveys were conducted. The first survey, conducted by personal interviews, was part of the large-scale elderly nutrition study. Subjects were adults aged 50 and over, recruited from 6 large cities and 8 middle-sized cities(n = 1,850). The second survey, done by mail survey using open-ended questions, was conducted with dietitians working at public health centers or hospitals(n = 53). Adults aged 50 and over were interested in topics such as healthy eating(32.1%), hypertension/stroke and diet(22.1%), osteoporosis and diet(11.4%), and diabetes and diet(9.2%). Television and radio(58.2%), health professionals(12.2%) and friends(7.9%) were common sources of nutrition information. Preferred topics of nutrition education and sources of nutrition information were different by general characteristics of subjects, suggesting that nutrition education or educational materials be planned considering the characteristics of subjects. About 70% of subjects indicated that they sometimes use or do not use nutrition information in daily lives, suggesting the need to provide more practical information. Among 53 facilities responding to the second survey, 73.6% provided nutrition education for older adults. Common topics for nutrition education included diabetes(39.3%), hypertension and stroke(19.1%) and general nutritional management(11.2%). These were consistent to the topics preferred by older adults. As materials in elderly education, dietitians wanted primarily to use leaflets and slides. Boards, booklets and posters were other commonly cited materials. For contents of elderly educational materials, dietitians mentioned the nutritional management for age-related diseases(33.8%), general nutritional management for older adults(25.4%) and practically applicable information(19.7%). They also suggested that nutrition education materials for the elderly should use larger print and attractive pictures, and be easily understood, as well as presenting simple, specific and practical information. These results provide baseline information for developing nutrition education and educational materials for older adults. (*J Community Nutrition* 3(2) : 110~119, 2001)

KEY WORDS : older adults · needs assessment · nutrition education · educational materials · dietitians.

Introduction

The proportion of older adults aged over 65 reached to 7% in 2000 and is expected to increase to 14% in 2022(National Statistical Office 2000). With the rapid increase in the elderly population, older adults suffering from chronic conditions are increasing. Chronic diseases among older adults were 2.4 times more prevalent compared to other age groups(Choi & Nam 1995). A report showed that 87% of older adults suffer from one or more chronic diseases such as arthritis, hypertension and diabetes, and 35% of them needed the assistance from others in daily activities(Byun 1999). The major causes of death in Korean elderly were cancers, cerebrovascular disease, heart disease, diabetes and liver diseases(National Statistical Office 2000).

Most of these diseases are closely related to diets. A recent survey also suggested that the diets of Korean elderly were deficient in nutrients such as energy, protein, calcium, iron, vitamin A, and riboflavin(Korea Health Industry Development Institute 1999 ; Lee et al. 1998 ; Park et al. 1999). Nutrition education, or intervention, has the potential to prevent and control chronic diseases, as well as improving the nutritional status of the elderly(Contento et al. 1995 ; Hermann et al. 1990). Nutrition education for older adults, howev-

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er, has not been a priority in nutrition research, and only a few programs have been reported(Lee 1998 ; Yim et al. 1997 ; Yim et al. 1999 ; Son & Kim 2001a). Yim et al.(1999) conducted nutrition intervention to 102 older adults for four months and reported that dietary intakes such as energy, protein, vitamin A and calcium were increased and that dietary habits including meal regularity and salty food reduction were markedly improved after the intervention. In a study with forty elderly women suffering from diseases(diabetes, hypertension, or hyperlipidemia), Son & Kim(2001a) recently reported that a seven-weeks nutrition education program was effective in changing biochemical indices such as blood glucose and atherogenic index, as well as inducing changes in dietary intakes. These results suggest the promising effects of nutrition education on inducing desirable dietary changes of older adults.

For effective nutrition education, it is important to use or develop educational materials that are reliable and attractive. While the interest toward nutrition education for the elderly is growing, educational materials specifically designed for older adults are lacking. In a survey with dieticians working at public health centers, it was noticeable that dietitians spend much time on developing educational materials and that they wanted to have standard educational materials for older adults(Kim 2000). Examples of standard educational materials might include leaflets for chronic diseases, booklets for diabetes, developed by the Korean Dietetic Association ; however, these materials were mainly developed for adults in general(KDA 1995 ; KDA 2000). The demands for educational materials for older adults are increasing.

The purpose of this study was to assess the needs for nutrition education and educational materials for adults aged 50 – 64 and older adults.

Methods

1. Study design

This study consisted of two cross-sectional surveys. The first survey was conducted with adults who are 50-64 years old and older adults and a second survey was done with dietitians working at public health centers or hospitals.

2. Survey of adults aged 50 – 64 and older adults

The first survey was part of the large-scale elderly nutrition survey that collected information from 2,187 adults aged 50 – 64 and older adults. Adults between 50 and 64 years old were included in this study, based on the idea that many chronic diseases of older adults might be prevented or relieved if nutritional management began earlier. Subjects were recruited from six large cities(Seoul, Pusan, Daegu, Daejeon, Kwangju, Incheon, n = 1,380, 63.1%) and from eight middle-sized cities(Suwon, Anyang, Seongnam, Cheongju, Jeonju, Jinju, Chuncheon, Cheonan, n = 807, 36.9%). In this study, some data was excluded in data analysis because of multiple responses(n = 253) or no responses (n = 84). Data from 1,850 subjects(84.6% of collected) were finally used for statistical analysis. Data was mainly collected at senior centers by one-to-one interviews with trained graduate students and professors majoring in food and nutrition. The survey was conducted during October to December, 2000.

Items to assess needs related to nutrition education were included in the elderly nutrition survey. The questionnaire in the elderly nutrition survey also included scales such as health status, lifestyle factors, nutrition knowledge, food habits, and dietary intakes. In this study, items to measure general characteristics of subjects and items to assess nutrition education needs only were analyzed. General characteristics were measured by asking age, sex; education level, marital status, persons who live together, sources of living expenses and the person responsible for food purchase and preparation. Nutrition education needs were assessed by asking preferred topics for nutrition education, sources of nutrition information and the degree of applying nutrition information to daily lives. These were measured by closed-format questions.

3. Survey of dietitians

The second survey was designed to collect information from dietitians regarding the needs for nutrition education and educational materials for older adults. This survey was done by mail. The survey questionnaire was developed and mailed to 89 dietitians working at public health centers across the country that provided nutrition services(n = 47) and dieticians working at hos-

pitals(n = 42). Fifty-three questionnaires were returned after three reminders of telephone calls and the response rate was 59.6%. This survey was completed during January and February 2001.

The survey questionnaire was developed based on previous studies(Cho et al. 1999 ; Kim 2000), and items were added to assess the needs for nutrition education materials. More specifically, the questionnaire included items to examine if they provide nutrition education for adults and older adults aged 50 and over, topics and contents of elderly nutrition education if they provided, types and contents of educational materials(currently used or wanted), preferred education methods and materials for elderly nutrition education, content to be included in elderly nutrition education materials, and barriers and considerations in developing nutrition education materials for older adults. These items were mostly assessed by open-ended questions and dietitians were asked to respond to each question as thoroughly as possible.

4. Data analysis

Descriptive statistics were used to examine the distribution of variables. Survey data of adults aged 50-64 and older adults was mainly analyzed by the chi-square test using the Statistical Analysis System(SAS). Because the survey data of dieticians was mainly composed of responses from open-ended questions, the data was categorized by responses and frequencies of responses.

Results and Discussion

1. Survey of adults aged 50 – 64 and older adults

1) General characteristics of subjects

About two-thirds of the subjects were women and half of the subjects were those aged 65 – 74(Table 1). Adults aged 50 – 64 were 24%, and those who were over 75 years old were 24.6%. Those who lived alone comprised 19.6%, and the households only composed of older adults were 26.9%. The households composed of older adults(living alone or as a couple) were somewhat higher than that reported in other studies (Lee et al. 1998 ; Park et al. 1999). Sixty-four percent of the subjects received education less than elementary school. For living expenses, the subjects tended to rely on their children(47%) and governmental support (10.7%). Economic difficulty and poverty are the major area of concern of older adults. A study indicated that 65% of older adults felt a shortage of resources and 45% did not have enough pocket money(Song & Lee 1992). Subjects were more independent in meal preparation ; three-quarters of the subjects, or their spouses, did grocery shopping and cooking. Yang et al.(1998) also suggested that 55.4% of the surveyed older adults actually participated in meal preparation.

Table 1. General characteristics of adults aged 50 – 64 and older adults

Variables	N	%
Age		
50 – 64	444	24.0
65 – 74	951	51.4
≥ 75	455	24.6
Sex		
Male	636	34.4
Female	1214	65.6
Those who live together		
Live alone	362	19.6
With spouse	497	26.9
With spouse, other family members/ With other family members	989	53.5
Marital status		
Married, live with spouse	926	50.1
Widowed, single, others	922	49.9
Education		
None or less than elementary school	480	26.0
Graduated elementary school	700	38.0
≥ middle school	665	36.0
Those who are responsible for living expenses		
Older adults	590	31.9
Older adults & children	193	10.4
Children	869	47.0
Government support, etc.	197	10.7
Food purchase & preparation		
Older adults, spouse	1350	73.0
Daughter-in-law, daughter, others	499	27.0

n = 1,850

2) Preferred topics of nutrition education and sources of nutrition information

With respect to the topics of nutrition education, adults aged 50 – 64 and older adults wanted to learn about healthy eating(32.1%), hypertension or stroke and diet (22.1%), osteoporosis and diet(11.4%), diabetes and diet(9.2%) and stomach diseases and diet(7.3%), in the order of decreasing frequency(Table 2). From focus

group interviews with 68 older adults, Crockett et al. (1990) reported that older adults were interested in topics such as healthy food choices, basic nutrition, snacking, new preparation ideas, and cooking for one or two. The interest toward general nutritional management(healthy eating) found in the current study was consistent with Crockett et al.'s study(1990). In addition, subjects in this study were interested in nutrition related to specific diseases such as hypertension or stroke, osteoporosis and diabetes. This might reflect common diseases that Korean older adults suffer from. The prevalent diseases among Korean elderly included arthritis, hypertension, diabetes and osteoporosis (Byun 1999). Stroke and cerebrovascular diseases are the second leading causes of death in adults over 50 years old(National Statistical Office 2000). Similar to the current study, Steward et al.(1998) also showed that older adults were interested in topics such as food choices and food preparation methods in relation to personal health conditions.

The major source of nutrition information was TV and radio(Table 2). This supported the finding of previous study that TV and radio were the number one source of nutrition information among older adults (Yang et al. 1998). As physical changes, such as decreased visual acuity and decreased ability to concentrate, are accompanied by aging, older adults may have difficulty in reading materials. In addition, older adults may be exposed to TV or radio more frequently than participating in other leisure or social activity. These might explain that older adults were more likely to rely on broadcasting media than printed materials such as newspapers and booklets. Contrary to this study, print media including magazines, newspapers and cookbooks were found to be the major source of nutrition information of older adults in a western country(Briley et al. 1990 ; Krinke 1990).

In terms of personal sources, health professionals such as doctors and nurses(12.2%), and friends(7.9%) were pointed out as more common sources of nutrition information than family members(5.4%). Most of subjects were able to ambulate and did not have problems in daily activities. They might have access to facilities like public health centers or senior centers where it is possible for them to obtain nutrition information from health professionals or by word of mouth from friends. About 70% of the subjects indicated that they sometimes use or do not use nutrition information in daily lives. This suggests that elderly nutrition education be delivered in a practical way by providing tips for eating right and through recipes for one or two rather than just providing fact-based information. Older adults usually showed interest in immediate use of the information presented(Schlenker 1998).

Table 2. *Preferred topics of nutrition education & sources of nutrition information in adults aged 50 – 64 and older adults*

Variables	N	%
Preferred nutrition education topics		
Healthy eating	593	32.1
Hypertension/Stroke	409	22.1
Osteoporosis	210	11.4
Diabetes	171	9.2
Stomach diseases	135	7.3
Cardiovascular diseases/Atherosclerosis	122	6.6
Cancer	70	3.8
Constipation	45	2.4
Obesity	38	2.1
Meal preparation	33	1.8
Food sanitation & management	24	1.3
Sources of nutrition information		
TV/radio	1077	58.2
Doctor/Nurse/Pharmacist	226	12.2
Friends	146	7.9
Family(spouse, children)	100	5.4
Newspapers/Magazines	80	4.3
Booklets/Posters	35	1.9
Others(dieticians, internet/computer)	16	0.8
No response	170	9.2
Application of nutrition information in practice		
None	627	33.9
Sometimes	658	35.6
Frequently	367	19.8
Always	198	10.7

$n = 1,850$

3) Comparison of preferred nutrition topics and sources of nutrition information by general characteristic of subjects

We further analyzed if there was a difference in preferred nutrition education topics by general characteristics of the subjects. For this purpose, nutrition topics were categorized into general nutritional management and topics regarding specific diseases. As presented in Table 3, significant difference in preferred topics was found by sex, education level, sources of living expenses($p < 0.001$) and marital status($p < 0.01$). More spe-

cifically, women compared to men, were more interested in learning about nutrition related to specific diseases such as hypertension, stroke, diabetes and cardiovascular diseases. Subjects who were interested in learning about nutrition related to specific diseases also included those who do not have a spouse, the less educated and those who were dependent on others (governmental support, sons or daughters) for living expenses. This finding might represent the concern of subgroups of older adults who were economically deprived. Costs resulting from chronic diseases and expenses for medical care were the major area of concern for older adults(Byun 1999). Education level or marital status(e.g., widowed) might reflect economic status, and economic status affects the quality or service of health care that they receive. From these points, it was possible that those who were disadvantaged economically were more interested in nutrition regarding specific diseases than nutrition in general. Subjects in all age groups wanted to learn more about nutrition related to specific diseases than general nutritional management during later adulthood, therefore preferred topics were similar by age group.

Sources of nutrition information were also different by general characteristics of subjects(Table 4). Men, compared to women, were more likely to receive information from materials(print, visual and electronic materials) than getting information from personal sources (family, friends)($p < 0.001$). This is somewhat different from the finding of Briley et al.(1990). In a study with 199 older adults, elderly women were more likely to use food labels, magazines and books than were men (Briley et al. 1990). Characteristics of subjects who received nutrition information from educational materials

Table 3. Comparison of preferred nutrition education topics by general characteristics of subjects

Variables[1]	Preferred nutrition education topics		χ^2
	General nutritional management[2]	Specific diseases[3]	
Age			
50 – 64	154(35.8)[4]	276(64.2)	0.8[NS 5]
65 – 74	344(36.9)	589(63.1)	
≥ 75	152(34.4)	290(65.6)	
Sex			
Male	287(46.4)	332(53.6)	43.8***
Female	363(30.6)	823(69.4)	
Those who live together			
Live alone	118(33.2)	237(66.8)	5.0[NS]
With spouse	194(40.1)	290(59.9)	
With spouse, other family members/With other family members	338(35.1)	626(65.0)	
Marital status			
Married, live with spouse	355(39.5)	544(60.5)	9.5**
Widowed, single, others	294(32.5)	610(67.5)	
Education			
None or less than elementary school	137(29.1)	334(70.9)	17.8***
Graduated elementary school	244(35.7)	439(64.3)	
≥ middle school	267(41.3)	379(58.7)	
Those who are responsible for living expenses			
Older adults	236(41.2)	337(58.8)	22.3***
Older adults & children	85(45.0)	104(55.0)	
Children	266(31.3)	583(68.7)	
Government support, etc.	63(32.6)	130(67.4)	
Food purchase & preparation			
Older adults, spouse	488(37.1)	829(63.0)	2.2[NS]
Daughter-in-law, daughter, others	162(33.3)	325(66.7)	

1) n = 1,805
2) Include topics of healthy eating, preventing constipation, food preparation, and food sanitation
3) Include topics of hypertension, stroke, diabetes, cardiovascular diseases, cancers, osteoporosis, obesity and stomach diseases
4) n(%)
5) ** : $p < 0.01$, *** : $p < 0.001$, NS : not significant at $p < 0.05$

Table 4. Comparison of nutrition information sources by general characteristics of subjects

Variables	Print, visual, electronic materials	Family, friends	Professionals	No	χ^2
Sex					
Male	440(69.2)	52(8.2)	82(12.9)	62(9.8)	22.5***
Female	756(62.3)	194(16.0)	156(12.9)	108(8.9)	
Age					
< 65	327(73.7)	52(11.7)	43(9.7)	22(5.0)	
65 - 74	615(64.7)	121(12.7)	140(14.7)	75(7.9)	54.6***
≤ 75	254(55.8)	73(16.0)	55(12.1)	73(16.0)	
Those who live together					
Live alone	226(62.4)	42(11.6)	45(12.4)	49(13.5)	
With spouse	323(65.0)	55(11.1)	83(16.7)	36(7.2)	23.2***
With Spouse, other family members/ With other family members	645(65.2)	149(15.1)	110(11.1)	85(8.6)	
Marital status					
Married, live with spouse	636(68.7)	90(9.7)	133(14.4)	67(7.2)	33.7***
Widowed, single, others	558(60.5)	156(17.0)	105(11.4)	103(11.2)	
Education					
None or less than elementary school	251(52.3)	82(17.1)	68(14.2)	79(16.5)	
Graduate elementary school	454(64.9)	101(14.4)	94(13.4)	51(7.3)	73.3***
More than middle school	488(73.4)	62(9.3)	76(11.4)	39(5.9)	
Those who are responsible for living expenses					
Older adults	421(71.4)	56(9.5)	73(12.4)	40(6.8)	
Older adults & children	126(65.3)	28(14.5)	23(11.9)	16(8.3)	48.7***
Children	527(60.6)	147(16.9)	117(13.5)	78(9.0)	
Government support, etc.	121(61.4)	15(7.6)	25(12.7)	36(18.3)	
Food purchase & preparation					
Older adults, spouse	908(67.3)	152(11.3)	176(13.0)	114(8.4)	24.2***
Daughter-in-law, daughter, others	287(57.5)	94(18.8)	62(12.4)	56(11.2)	

n = 1850, *** : $p < 0.001$

compared to personal sources included those who were younger, who have a spouse, the more educated, and those who were more independent for living expenses or for meal preparation($p < 0.001$). A survey of Americans suggested that the use of print materials(e.g., newspapers, magazines) as sources of nutrition information was more popular with the increase in education and income(The Gallup Organization 1990). These results suggest that nutrition education or education materials be planned considering the characteristics of the subjects, such as age, sex, education level and economic status.

2. Survey of dietitians

1) Nutrition education for aged 50 - 64 and older adults

Among the 53 facilities responding to the questionnaire, 73.6% of the facilities provided nutrition education for adults aged 50 - 64 and older adults(Table 5). This result was similar to that reported by Kim(2000) in a survey of public health centers. As nutrition services at public health centers have become popular since 1994, there was more opportunity for older adults to be exposed to nutrition education. The high percentage of facilities(73.6%) providing nutrition education for older adults reflects these societal changes during the past several years. A study showed that older adults wanted to have nutrition counseling and education as the most desired service among nutrition services at public health centers, followed by meal service and home-visit nutrition service(Son & Kim 2001b). It is desirable to develop and implement elderly nutrition education programs systematically to meet the growing needs for nutrition services for older adults.

Table 5. Elderly nutrition education at public health center & hospitals

Variables	Frequency	%
Nutrition education for the elderly		
Yes	39	73.6
No	14	26.4
Number of topics covered in nutrition education		
1 - 2	26	66.7
3 - 4	9	23.0
5	4	10.3
Topics for nutrition education		
Diabetes	35	39.3
Hypertension/stroke	17	19.1
Nutritional management during later adulthood	10	11.2
Hyperlipidemia/heart disease/ atherosclerosis	8	9.0
Kidney diseases	7	7.9
Osteoporosis/arthritis	5	5.6
Others(cancer, stomach disease, anemia, obesity)	7	7.9
Nutrition education methods		
Group education & individual counseling	19	48.7
Group education	10	25.6
Individual counseling	7	17.9
No response	3	7.7

Two-thirds of the 39 facilities implementing nutrition education for the elderly covered only one or two topics, and 23% of the facilities covered three or four different topics in nutrition education(Table 5). This finding suggested that nutrition education might not be diverse enough to cover the needs of older adults.

Dieticians were asked to write down the topics and contents of nutrition education for older adults and adults aged 50 - 64 as thoroughly as possible, if they provide nutrition education. The common topics for nutrition education were diabetes(39.3%), hypertension or stroke(19.1%), general nutritional management(11.2%) and education related to hyperlipidemia, heart diseases and atherosclerosis(9.0%)(Table 5). Compared to the results at public health centers(Kim 2000), the current survey showed that education for chronic diseases were more common. This might be explained by the fact that the current survey also included hospitals as well as public health centers. The common topics of nutrition education reflect the prevalent diseases among older adults(National Statistical Office 2000). Since these results were similar to the preferred topics as presented in Table 2, it might be said that nutrition education at public health centers or hospitals corresponded to the needs of the aged 50 - 64 and older adults.

In nutrition education, group education with individual counseling was popular(48.7%), while 25.6% used group education only and 17.9% only relied on individual counseling(Table 5). The previous study reported that older adults liked individual counseling over group education and lectures(Yim et al. 1997). When considering the limitations of the personal and material resources at many facilities, however, it is desirable to combine group education and individual counseling. In case of group education, 51.7% of the facilities implemented nutrition education once or twice each month, and 20.7% did three or four times per month. On the average, group education was done 3.0 $\pm$ 2.0 times per month. In case of individual counseling, dietitians counseled 4.3 $\pm$ 4.0 adults aged 50 - 64 and older adults each day.

2) Needs for developing educational materials

Regardless of implementing nutrition education for older adults, dietitians were asked to check on preferred educational materials in nutrition education of older adults. The results are shown in Table 6. Preferred materials in education of older adults were leaflets, slides, boards, booklets, posters, OHP and computers, in the order of decreasing frequency. Major reasons for choosing leaflets included the followings : a) it is possible to provide simple and specific information, b) it is easy to create, c) they can be used anytime, anywhere. Slides or boards were chosen as preferred materials because of visual stimulation and the possibility of providing simple and specific information. In comparison to the current study, Yim et al.(1997) found that older adults liked posters and booklets more than other materials. In American elderly, highly preferred materials were written materials and nutrition newsletters that were simple and easy to understand(Crockett et al. 1990 ; Krinke 1990).

As to the contents for elderly education materials, the most preferred were nutritional management for age-related diseases such as diabetes, hypertension and stroke(33.8%). Dietitians also mentioned the following

as contents to be included in educational materials for older adults ; the general nutritional management for older adults(25.4%), practically applicable information (19.7%) and pictures and food models(8.5%)(Table 6). Krinke(1990) reported that older adults were interested in practical information, such as getting one's money's worth in buying foods and food preparation skills. Lancaster et al.(1997) also suggested that providing practically applicable information was important and included how-to information such as tips to try and Q& A in the nutrition newsletters for older adults.

Most often cited as difficulties in developing elderly education materials were differences in cognition or education level of older adults(26.7%) and difficulty in developing materials considering the physical changes associated with aging(e.g., decreased visual acuity, or hearing loss)(26.7%). Dietitians also listed that there were few materials for older adults in the past and accordingly it is difficult to develop materials for older adults. In addition, they mentioned that it is difficult to develop attractive and interesting materials(Table 7).

With respect to considerations in developing education materials for older adults, many of them cited the need to develop visually appropriate materials by using a larger font and inserting interesting pictures (31.6%). Weinrich & Boyd(1992) recommended to use 12 to 16 point type, and to use high color contrast in elderly education materials. In addition, dieticians pointed out that it is important to develop materials that are easily understood(17.5%). For this purpose, it is recommended to use short sentences and to show examples and analogies. In addition, they responded that educational materials include simple and specific information as well as practically applicable information (Table 7). The principle of KISS(Keep It Simple and Specific) should be kept in mind, especially in designing educational materials for older adults. As suggested in the previous study(Kim 2000 ; Yim et al. 1997), it

Table 6. Preferred types and contents of elderly educational materials among dietitians

Variables	Frequency	%
Preferred educational materials by dieticians		
Leaflets	23	18.5
Slides	23	18.5
Boards	21	16.9
Booklets	13	10.5
Posters	10	8.1
OHP	10	8.1
Computers	10	8.1
Others	14	11.3
Contents to be included in education materials		
Nutritional management for age-related diseases	24	33.8
General nutritional management for older adults	18	25.4
Practically applicable information	14	19.7
Models/pictures	6	8.5
Information about supplements or folk remedies	5	7.0
Others	4	5.6

Table 7. Difficulties and considerations in developing educational materials for older adults

Variables	Frequency	%
Difficulty in developing educational materials		
Font size, decreased visual acuity/hearing loss	8	26.7
Differences in cognition(education)	8	26.7
Lack of materials for older adults, lack of materials reflecting characteristics of the elderly	4	13.3
Lack of attractive materials(pictures, explanations)	4	13.3
Difficulties in providing age-related materials	2	6.7
Considerations in developing education materials		
Visually appropriate materials(large font, pictures)	18	31.6
Understanding(words, accuracy)	10	17.5
Simple, specific information/repetition	9	15.8
Practically applicable information	5	8.8
Materials specifically designed for older adults	5	8.8
Reflecting individual, regional characteristics	4	7.0
Attractive, interesting materials	3	5.3
Others(validity, reliability/developed & used easily)	3	5.3

is urgent to develop educational materials specifically designed for the elderly.

Summary and Conclusion

This study was designed to assess the needs for nutrition education and educational materials for older adults. Two cross-sectional surveys were conducted, one with adults aged 50-64 and older adults and the other with dietitians working at public health centers or hospitals. The results of this study are summarized as follows :

1) Adults aged 50-64 and older adults($n = 1,850$) wanted to learn about healthy eating(32.1%), hypertension or stroke and diet(22.1%), osteoporosis and diet(11.4%), diabetes and diet(9.2%). The interest toward specific diseases reflects the prevalent diseases of Korean elderly. Most often cited sources of nutrition information were TV and radio(58.2%). Health professionals(12.2%) and friends(7.9%) were more common sources of nutrition information than family members (5.4%). Seventy percent of the subjects sometimes use or do not use nutrition information in daily lives, suggesting that nutrition education be implemented in a practical way.

2) The preferred topics of nutrition education among adults aged 50-64 and older adults were different by the characteristics of the subjects. Those who wanted to learn nutrition related to specific diseases included women, the less educated, those who were dependent on others for living expenses($p < 0.001$) and those who do not have a spouse($p < 0.01$). Characteristics of subjects who received nutrition information from educational materials compared to personal sources were those who were younger, who have a spouse, the more educated and those who were less dependent on others for living expenses or for meal preparation($p < 0.001$). These suggest that nutrition education or educational materials be planned considering the characteristics of the subjects.

3) Among the 53 facilities surveyed, 73.6% provided nutrition education for adults aged 50-64 and older adults. Common topics for nutrition education included diabetes(39.3%), hypertension and stroke(19.1%), general nutritional management(11.2%) and heart disease and atherosclerosis(9.0%). These were consistent to the topics preferred by older adults.

4) Dietitians preferred to use leaflets and slides in education of older adults. Boards, booklets, posters were other commonly cited materials. For the contents of elderly educational materials, dietitians cited the nutritional management for age-related diseases(33.8%), general nutritional management for older adults(25.4%) and practically applicable information(19.7%) the most.

5) Dietitians mentioned that it is difficult to develop educational materials for the elderly, because there was a marked difference in the cognition or the education level among older adults and because the physical changes associated with aging(decreased visual acuity, hearing loss) should be considered in developing educational materials. They also suggested that nutrition education materials for older adults should use larger print and attractive pictures, and be easily understood, as well as presenting simple and specific, practical information.

6) With the growing numbers of elderly population, the needs for developing education programs and educational materials for older adults are increasing. Nutrition education and materials for older adults should focus on age-related diseases as well as general nutritional management during later adulthood. It is also necessary to consider the characteristics of the subjects (e.g., age, sex, education level, economic status) in designing nutrition education programs for older adults. In addition, there is a need to develop educational materials specifically designed for older adults considering the findings of this study.

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