Senior Citizens Experience of Barriers to Information About Healthy Behaviour

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Abstract. The study examined barriers to information about healthy behaviour, experienced by senior citizens aged 60 years and older. The data was gathered by a questionnaire survey in 2012. Total number of participants was 176. Participants were presented with 13 statements which measure perceived information barriers, a 5-point response scale (1 = Strongly disagree – 5 = Strongly agree) was used. To assess how information barriers relate to age, the participants were divided into two groups, people aged 60 to 67 years and 68 years and older. ANOVA (one-way) was performed to examine difference across the age groups. To examine the effects of sex and education, and how it interacts on the age groups experience of information barriers, factorial analysis of variance (FANOVA) was used. The results suggest that senior citizens are faced with barriers to information that can have impact on their possibilities to promote their knowledge of healthy behaviour. Of the 13 statements, 10 were found to represent information barriers. Sex was found to interact with age for two statements. Education interacted with age for seven statements, with participants with primary education experiencing lower barriers than participants with secondary or university education. Possible explanation to this finding is discussed in the paper.

Keywords: Health literacy · Healthy behaviour · Information barriers · Senior citizens

1 Introduction

The study explores barriers to information about healthy behaviour, experienced by senior citizens in Iceland. The changes in age distribution, with a growing proportion of senior citizens in the world population, poses great challenges. It is expected that from 2013 to 2050 the number of people aged 60 years and older will more than double globally [1]. In Western countries the predictions are slightly lower with the proportion of senior citizens forecasted to double, from 11 % in 2006 to 22 % in 2050 [2].

This means that the welfare society needs to prepare for the increasing number of senior citizens and ensure their prospects for health and wellbeing. An important factor is to encourage them to be actively involved in health promotional interventions through lifelong learning. To obtain the necessary knowledge about healthy lifestyles, they need to have an easy access to quality information that satisfy their needs.

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The term health literacy is important in this context. According to World Health Organization [3], health literacy stands for "the cognitive and social skills which determine the motivation and ability of individuals to gain access to, understand and use information in ways which promote and maintain good health (p. 10)." Health literacy, therefore, goes beyond the basic reading or numeracy skills, measured by screening tools such as the Test of Functional Health Literacy in Adults (TOFHLA) [4]. The need for health information to be written so that suits adults with low reading capabilities differs by world regions. The National Institutes of Health in the United States recommends for example that health materials should be written for seventh or eighth grade reading levels, to meet the needs of a typical adult [5]. In comparison, the literacy skills of adults in the Nordic countries are high [6], therefore the necessity for health information to be aimed at individuals with low reading skills is not the same. Health literacy is, furthermore, closely related to a joint definition by UNESCO and IFLA (International Federation of Library and Information Association) of media and information literacy, which allows individuals to "…access, retrieve, understand, evaluate and use, create, as well as share information and media content in all formats…" [7].

The term media and health information literacy is used in this paper, as it combines the concepts of health literacy and media and information literacy. Thus, competency in media and health information literacy is important as a tool for lifelong learning, which provides people with better opportunities to make informed health decisions. Furthermore, there are indications about a positive connection between healthy behaviour and media and health information literacy [8–10]. Various factors, however, may act as barriers that senior citizens perceive as limiting their possibilities to add to their knowledge and understanding of the interrelated aspects of health and lifestyle.

Information barriers have been the subject of a multitude of studies, within information studies as well as other disciplines. A comprehensive overview of the discussion about the issue is not possible within the constrains of this paper. However, several authors have provided literature reviews that may prove useful at shedding a light on the topic [11–14]. The focus here, on the other hand, is on the hindrances that senior citizens experience in relation information about healthy living.

In the past years, the emphasis has been on the digitalization of health information and the restrictions that senior citizens deal with in that respect. This includes for example weak physical condition and health problems which can cause challenges for a certain group of elderly people [15]. Communication barriers, such as problems with the visual and auditory presentation of information [2], and changes in the motor ability which people can experience as they grow older [16] can affect the ability to use digital devices. By taking the needs of older people into account when information technology is designed, for example with suitable interface design and touch screen solutions [17], some of the obstacles that they are faced with might be minimised.

Although barriers related to digital information is an important group of studies, other types of information barriers have been identified, in connection with various social groups. Restrictions in access to information can be caused by a variety of reasons. McKenzie [18] found that people may be reluctant to seek information from health professionals. McKenzie [18] and Dunne [19], furthermore, noted that health professionals are sometimes unwilling, or unable, to provide the needed information. In

addition, it has been reported that finding an information source, as well as knowing what kind of information is to be found in it, can be problematic [19, 20]. Cognitive emotional processes are also worth considering, such as emotional distress linked to information or to the information seeking procedure. The tendency to avoid information rather than to seek it has for example been documented in relation to health information [21]. This is, furthermore, related to perceive self-efficacy, where beliefs about poor capabilities can lead to lower motivation to seek information and knowledge [22].

Health information is increasingly being disseminated digitally. Concerns have been raised that because of lack of practice at using the internet and mistrust in the information, senior citizens may not benefit as much from the digitalization as others [23]. Several studies have pointed out that a lack of confidence in an information source can be a hindrance. In particular, health information on the internet may be regarded as less reliable than information from other sources or channels [24–27]. The same applies to beliefs about the lack of utility of information in different kind of sources [19, 26, 28]. Furthermore, previous results have revealed that, although senior citizens sought health information on the internet more frequently in 2012 than they did in 2007, they had at the same time also become more critical of the information and considered it both less useful and less reliable [29]. It is therefore vital to guide them as to where they can access quality health information on the internet. Otherwise, they will be cut off from using it to make rational decisions about their health related behaviour.

Mettlin and Cummings [28] described a number of hindrances that inhibit health communication. They argued that information aimed at promoting a long-term healthy behaviour need to motivate people that may see themselves as healthy, and if information is to be sought out, or even noticed, it needs to be directed at people's interest. They also noted that information that tell people why it is necessary to change their behaviour is not enough, as useful instructions about how to go about it is also needed. Furthermore, they pointed out that information presented through many different channels may result in people receiving conflicting information, and that health information are often considered complex and technical. The last point, difficulties in understanding information has also been found by McKenzie [18].

Apart from research about access and use of digital information, senior citizens perception of barriers to health information has not been widely explored. Nevertheless, there are some indications about hindrances that they face. In a study of senior citizens belonging to the Swedish-speaking minority in Finland, Kristina Eriksson-Backa [30] reported that they experienced barriers such as feeling worried because they did not get enough information about their health care, finding the information contradictory and confusing, and having problems interpreting it. This corresponds with results by Brown and Park [31], who noted that as people grow older, they face more problems in understanding and learning new information. The need for health information that is understandable and can easily be accessed has been stressed. In particular for those groups of older people whose position is not strong, such as people with poor health, lower educational level, and people who are not interested in health information [32].

1.1 Aim and Research Questions

The possibilities of senior citizens to improve their knowledge, in order to make informed choices that promote health and wellness, is a crucial issue which may have impact on the wider prospects for sustainable health and wellbeing. Yet, there is still a number of unanswered questions about the information barriers that they may experience. By identifying these hindrances, the health professionals who are responsible for health promotion are given the opportunity to diminish, or preferably eliminate, them. Subsequently, people's access to health information and their capacity to use it effectively to improve their way of living can be enhanced.

The aim of the current study is to examine the perceived barriers to information about healthy living among people at the age 60 year and older in Iceland. The paper will seek answers to the following questions: (1) What barriers do senior citizens experience in relation to information about healthy living? (2) How do the perceived barriers relate to their age groups, sex and education?

2 Methods

2.1 Data Collection

The data were gathered in spring 2012, using an internet and a telephone survey from two random samples of 600 people each, aged 18 years and older from the whole country. The datasets were merged, allowing answers from all individuals belonging to each set of data. The total response rate was 58.4 %. The current study involves only participants who are 60 years and older. A comparison of the sample and the population shows that there were more people who are 60 years and older in the sample (27.5 %) compared to the population (18.7 %).

In Western countries it has been traditional to use the retirement age to define "elderly" [33], and in Iceland elderly is defined by law as people who have reached the age of 67 [34], when it is usual for people to retire. This has, however, been criticised for not taking into consideration the heterogeneity of senior citizens [35]. It has been pointed out that people's chronological age is less important than determinants, like their physical, cognitive and social capabilities [36]. In accordance with the viewpoints, that there is no clearly defined age when people become senior citizens, the associations for senior citizens in Iceland admit those who have reached the age of 60 to become members [37]. It was decided, in view of this, that people who have reached the age of 60 should be included in the study, and that those who are at the age 60 to 67 years, a group who is approaching retirement, should be compared with people aged 68 years or older, who have reached the retirement age. A total of 176 people participated in the study, 86 women and 90 men. Participants aged 60 to 67 years were 87 while 89 participants were 68 years or older.

2.2 Measurements and Data Analysis

1. Socio-demographic information included traditional background variables. Based on previous analysis the variables sex and education are used in the current study.

Education was measured as the highest level of education completed. Three levels were distinguished: (1) primary education includes those who have finished compulsory education; (2) secondary education includes those who have completed vocational training or secondary school; (3) university education.

2. Age groups. To assess how the experience of information barriers may relate to age, the participants were divided into two groups, those who are aged 60 to 67 years and those who are 68 years and older.
3. Information barriers. Based on the concept of media and health information literacy and the discussion of information barriers above, 13 statements which measure perceived information barriers were developed. A 5-point response scale (1 = Strongly disagree – 5 = Strongly agree) was used for each statement. The statements were categorized in two groups, called physical barriers and cognitive barriers. Physical barriers consisted of three items that refer to the situation that people live in, that is difficulties in getting away from home to seek information, as well as cost hindrances in relation to time and finances. Cognitive barriers consisted of 10 items. Five refer to beliefs about the availability of information, one item refers to the impact of language skills or educational capabilities and four items refer to capabilities of evaluating the relevance of information.

ANOVA (one-way) was performed to examine difference across the age groups for perceived information barriers, for each statement. To examine the effects of sex and education, and how it interacts on the age groups experience of information barriers, factorial analysis of variance (FANOVA) was used.

3 Results

The 13 statements about information barriers were categorized in two groups, called physical information barriers and cognitive information barriers. Results about how each age group experienced the physical information barriers will be are presented first, in Fig. 1. This will be followed by results of how the effects of sex and education interacts on the age groups experience of physical information barriers, where only results about significant differences will be presented.

After that, results about cognitive information barriers will be presented, in the same order as outlined above.

3.1 Perceived Physical Information Barriers

Figure 1 presents the results about the age groups experience of physical information barriers.

The value for all three statements, categorised as physical barriers, are above median (3, Neither agree nor disagree). The statements represent considerable barriers, for both age groups, with values close to or above 4. The values are very similar for the age groups and an examination of each statement, by ANOVA (one-way), revealed that there is no significant difference across them (Fig. 1).

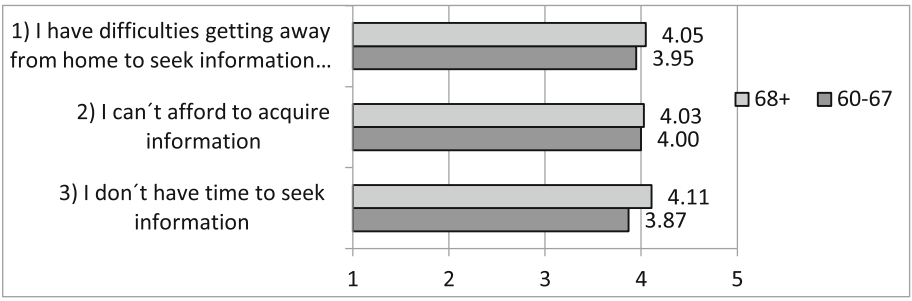

Fig. 1. Physical information barriers

Factorial analysis of variance (FANOVA) was then used to test the statements against education and sex, for each age group. Significant differences were found for statements 1 and 2. The results are presented in Figs. 2, 3, 4 and 5.

Results about statement 1, "I have difficulties getting away from home to seek information about health promotion", in Fig. 2, show a significant difference by age and education. Participants in the younger group with primary education did not agree with this, as opposed to those who have secondary education ($p < .000$) and university education ($p < .000$). There was not a significant difference across participants with secondary and university education ($p = .853$). No significant difference was found by education for the older age group ($F(2,160) = 0.2$, $p = .843$).

In addition, significant difference was found by age and sex, with women in the older age group ($p < .05$) finding it more difficult to get away from home to seek

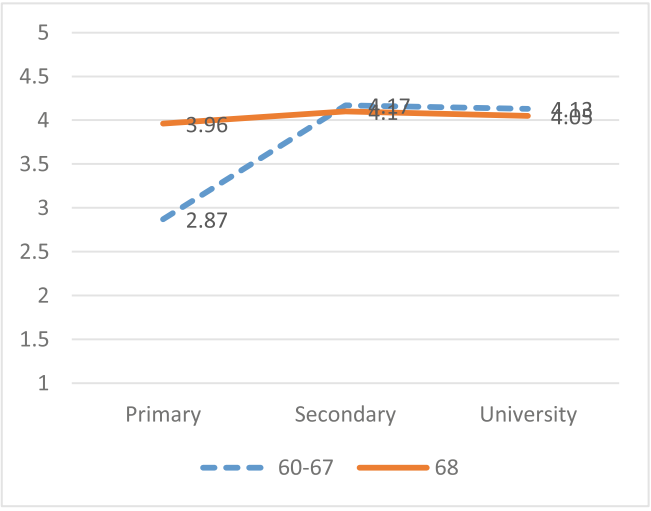

Fig. 2. Difficulties getting away from home to seek information – differences by age and education

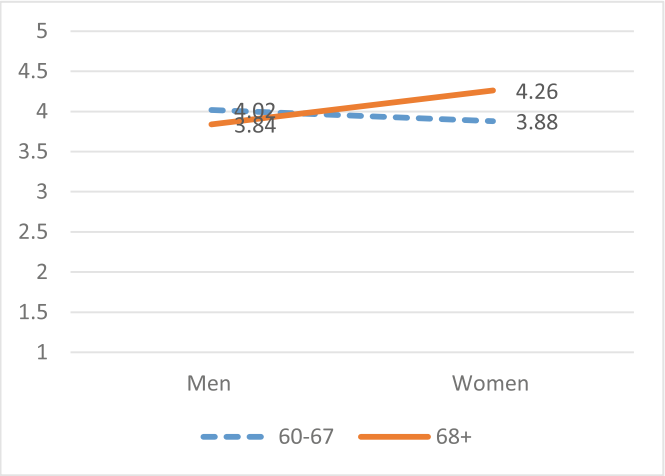

Fig. 3. Difficulties getting away from home to seek information – differences by age and sex

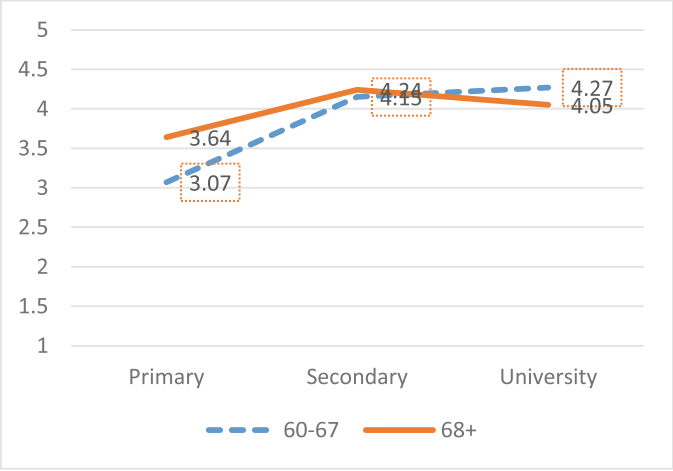

Fig. 4. I can´t afford to acquire information – differences by age and education

information than men, while men and women in the younger age group did not differ significantly ($p = .50$) (see Fig. 3).

Significant difference was found for both age groups when statement 2, "I can´t afford to acquire information", was tested against education, see Fig. 4. In the younger group, those who have primary education agreed less with this than participants with both secondary ($p < .000$) and university education ($p < .000$). Significant difference was not found across participants with secondary and university education ($p = .726$). In the older group participants with primary education were less in agreement than those who have secondary education ($p < .010$), while no significant difference was

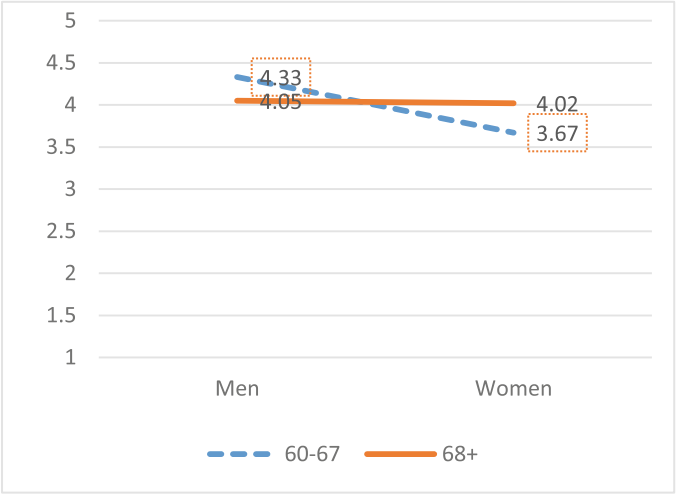

Fig. 5. I can´t afford to acquire information – differences by age and sex

found across those with primary and university education (p = .136), nor across participants with secondary and university education (p = .459).

When the same statement was tested against sex, men in the younger group were found to be more in agreement with this than women (p < .001), but men and women in the older group did not differ significantly (p = .912), see Fig. 5.

3.2 Perceived Cognitive Information Barriers

Figure 6 presents results about statements 4–10, which were categorized as cognitive barriers.

Results in Fig. 6 show that statements 4–10 represent barriers for both age groups. For the older group, statements 4–6 stand for barriers that are somewhat higher than statements 7–10 do. For the younger group, statements 4 and 7 stand for slightly higher barriers than statements 5, 6, 8–10.

The value for statement 11 "Specialists don't always agree on how to protect health, therefore I don't know what information can be trusted", statement 12 "The media often publishes information from people whose qualifications I don't know, therefore it's difficult to know what is reliable and quality information", and statement 13 "The amount of information on the internet makes it difficult to choose from", are below 3 (Neither agree nor disagree), indicating that they do stand for barriers.

When each statement was analysed by ANOVA (one-way), no significant differences were found across the age groups. However, when the statements were tested against education and sex for each age group, by factorial analysis of variance (FANOVA), significant differences were found by education for statements 4, 5, 7, 8 and 10. The results are presented in Figs. 7, 8, 9, 10 and 11.

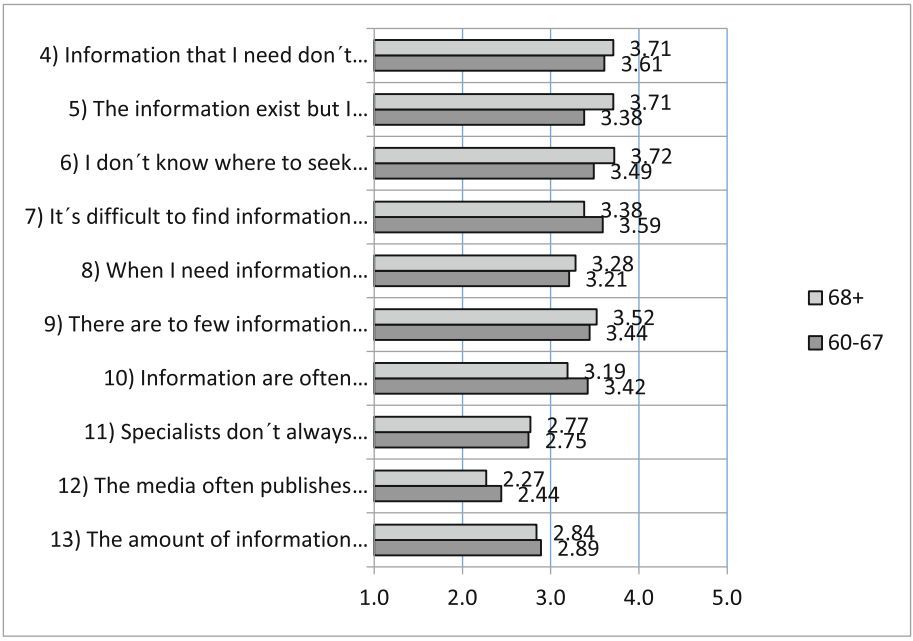

Fig. 6. Cognitive information barriers

Results about statement 4, "Information that I need don't exist", show a significant difference by age and education. Participants with primary education, in both the younger ($p < .010$) and the older group ($p < .05$), were less in agreement with this than participants with secondary education. Participants with secondary and university

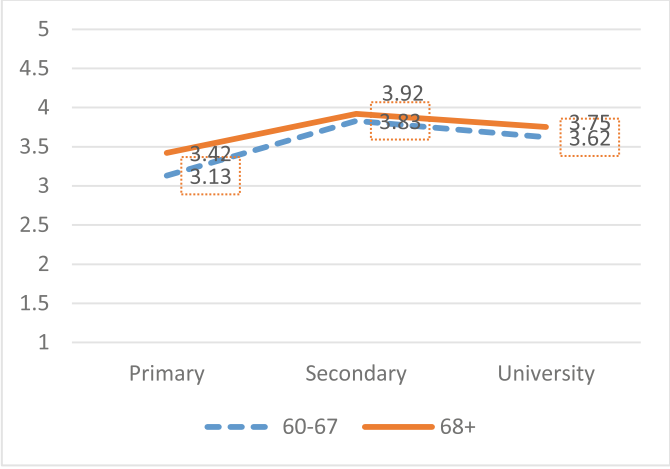

Fig. 7. Information that I need don´t exist – difference by age and education

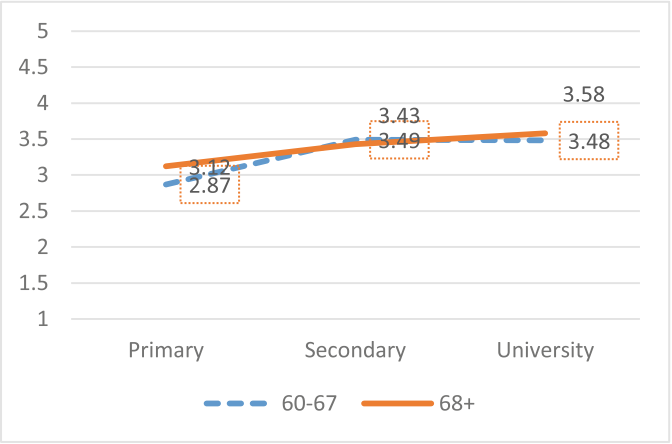

Fig. 8. The information exist but I don't have access to it – difference by age and education

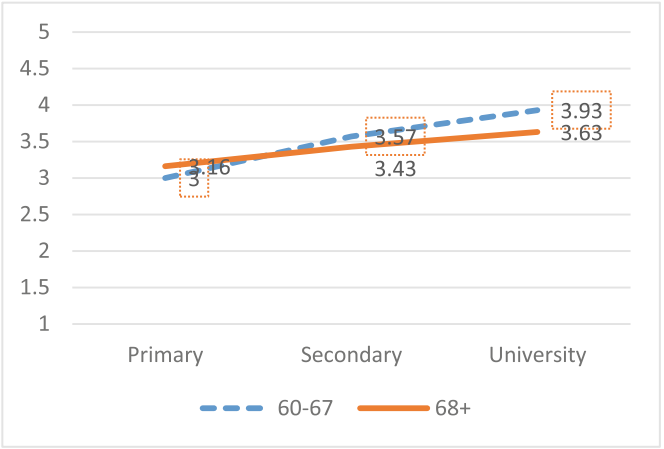

Fig. 9. It´s difficult to find information with useful advice about health protection – difference by age and education

education in the younger group ($p = .379$) and the older group ($p = .487$) did not differ significantly. Nor did participants with primary and university education in the younger group ($p = .086$) and the older group ($p = .246$) (Fig. 7).

Significant difference was found for statement 5, "The information exist but I don't have access to it". Figure 8 shows that participants in the younger group with primary education did not agree with this statement (value below 3), as opposed to those who have secondary ($p < .05$) and university education ($p < .05$). Participants with secondary and university education did not differ significantly ($p = .994$). No significant difference was found by education in the older age group ($F(2,162) = 1.4$, $p = .249$).

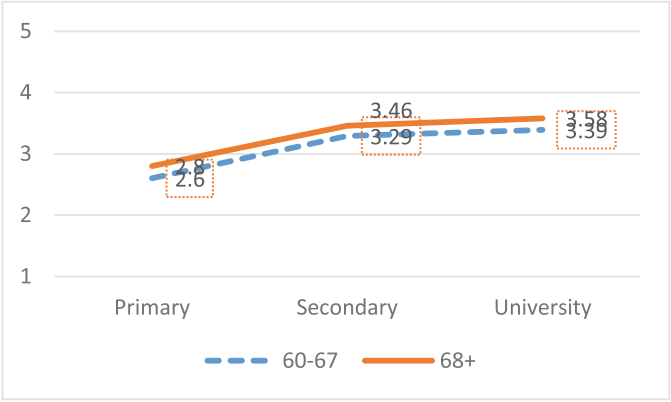

Fig. 10. When I need information about specific items it can be difficult to find – difference by age and education

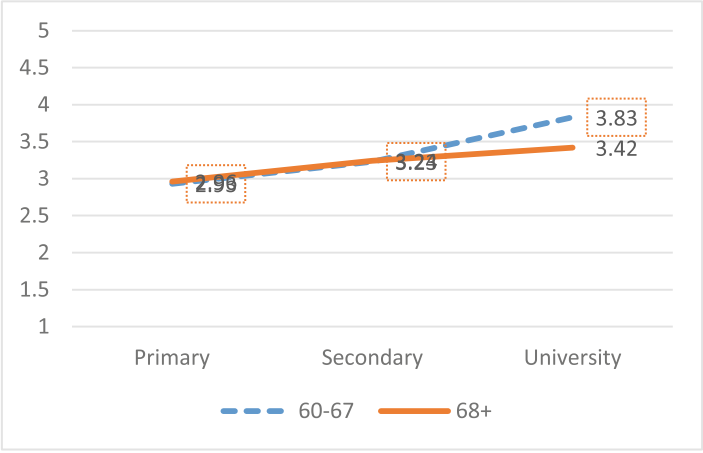

Fig. 11. Information are often complicated and difficult to understand – difference by age and education

Results in Fig. 9 about statement 7, "It's difficult to find information with useful advice about health protection", show a significant difference by education in the younger group. Participants with university degree agreed more with this than those who have primary education ($p < .010$), while there was not a significant difference across those with university and secondary education ($p < .152$) nor across participants with secondary and primary education ($p < .076$). No significant difference was detected by education in the older age group $F(2,159) = 1.2$, $p = .298$).

Values for statement 8, "When I need information about specific items it can be difficult to find", were below 3 (Neither agree nor disagree) for participants with primary education in both age groups (Fig. 10). They therefore disagreed with this

statement, while participants with secondary and university education were in agreement with it. Furthermore, in the younger group, participants with primary education scored significantly lower than both those with university education ($p < .010$) and secondary education ($p < .05$). Participants with university and secondary education did not differ significantly ($p = .675$). In the older group, participants with primary education scored significantly lower than both those with university education ($p < .010$) and secondary education ($p < .010$), while there was not a significant difference across participants with university and secondary education ($p = .671$).

For statement 10, "Information are often complicated and difficult to understand", a significant difference was found by education in the younger group. Figure 11 shows that participants with university education were more in agreement with this than those with secondary ($p < .05$) and primary education ($p < .010$). Participants with secondary and primary education did not differ significantly ($p = .361$). No significant difference was revealed across the educational groups in the older age group $F(2,160) = 4.7$, $p = .328$).

4 Discussion

It is crucial to enable senior citizens to acquire the information and understanding that is necessary to maintain, and preferably to improve their knowledge of healthy behaviour. By presenting findings about how people who are 60 years and older experience barriers to information, the study sought to contribute to current research of senior citizens possibilities for healthy living, and sustainable health and wellbeing.

The current study investigated the perceived information barriers that senior citizens are confronted with. These hindrances can be different, at least some aspects of them, from those that younger citizens deal with. Particularly the youngest generation, who is often described as being technology-wise in comparison with the elderly generation. Nevertheless, the results show that senior citizens did not find it problematic to select from information on the internet. Nor did they consider identifying the quality of information in other information channels to be a hindrance. Thus, although senior citizens seek digital information to a lesser extent than those who are younger [38–40], they seem to be confident about their capabilities at critically evaluate the information.

The study results provide some insight to the hindrances that senior citizens are confronted with. Of the 13 statements presented in the study, 10 were found to represent information barriers. The participants' experience of hindrances varied though. On the scale of 1 to 5, the values for the three statements categorised as physical barriers were either above or close to 4, which indicates that the circumstances that senior citizens live in may create considerable hindrances to information. Seven of the 10 statements which were classified as cognitive barriers stood for information barriers. The values for these statements were though more diverse and somewhat lower than for physical barriers. But taken together, these results suggest that senior citizens are faced with obstacles that can have impact on their possibilities to promote their knowledge of healthy behaviour.

No significant difference was found when the age groups were compared. However, a closer examination, where the age group were tested against education and sex,

revealed certain trends about the senior citizens experience of information barriers. Significant differences were found more often for participants aged 60 to 67 (statements 1, 2, 4, 5, 6, 8 and 10), than those who are 68 years or older (statements 1, 2, 4, 8). It is not possible to draw broad conclusions from this but the question comes up why this is so.

For only two of the statements, sex was found to interact with age. Women aged 68 years and older found it more difficult to get away from home to seek information than men did, while men aged 60 to 67 years were more likely to feel that they could not afford to get information, than women. Education was found to interact with age for seven of the statements (number 1, 2, 4, 5, 6, 8, 10). The main result here is that for all of these statements, participants with primary education experienced lower information barriers than participants with either secondary or university education, and in some cases both.

At first sight, this finding may appear contradictory, as it seems more logical for those who have higher education to experience lower information barriers than people who are less educated. The key elements of media and health information literacy is that people possess the motivation and the personal skills that allow them to acquire information about healthy living and draw knowledge from it, for their own advantage [3, 5]. Previous research have reported that people who are more educated are also more likely to engage in health information seeking than those who are less educated [9, 41–43]. In addition, the need to pay more attention to motivation, especially how interest in a topic may act as a driving force that inspires people to seek health information, has been stressed in several studies [11, 12, 34, 44, 45]. Thus, more educated senior citizens might also be more motivated and likely to seek information about healthy living and, as a result of this, it is possible that they are more aware of information barriers than those who are less educated.

Although this is merely speculations that serve to seek an explanation, the findings of the study are interesting and give reasons to look further into the connection between the perceived information barriers and the skills of media and health information literacy that people possess. The study results from statements about the availability of information indicate that senior citizens have difficulties seeking information. Therefore, it is suggested that future research could, in particular, pay attention to their ability in this respect and how it can be strengthened. Social cognitive theory and its main component, perceived self-efficacy, might prove useful and come up with suggestions about how such initiative can be improved. Self-efficacy refers to people's expectations about whether or not they will be able to master a certain behaviour, and how successful they will be. Those who are high on self-efficacy beliefs are considered likely to be more strongly motivated, to set themselves higher goals and to have the strength to carry out the act, than those who are low on self-efficacy [22]. Hence, by evaluating the capabilities of senior citizens, in order to discover specific aspects where skills development is needed, the chances of ensuring that they receive appropriate instructions that are aimed at raising both their self-efficacy beliefs and level of competence at information seeking may be improved. Moreover, as interest in healthy behaviour has been recognized as an important motivational factor [28, 32], more research is needed to investigate how it can be enhanced, so that senior citizens may be inspired to practice lifelong learning about healthy living.

Today's information environment is constantly changing. In particular, information and communication technology has rapidly transformed the possibilities to disseminate and access information, a progress that can be expected to continue in the coming years. Hence, in future the questionnaire about barriers needs to be developed accordingly, so that it reflects the various aspects of media and information literacy that people need to be in command of.

The overall study is limited by a rather low response rate of 58.4 %. This is considered satisfactory in a survey bit nevertheless raises the question, whether or not those who answered the survey are giving a biased picture of those who didn't respond. However, the rate of people at the age of 60 years and older in the sample (27.5 %) is higher than in the population (18.7 %), which strengthens the findings. Thus, the study results may provide valuable information about the information barriers experienced by senior citizens.

5 Conclusion

As a key to senior citizens' health and wellbeing, it is important to promote their possibilities to be actively involved in health promotional interventions, through life-long learning. This cannot be achieved while they are confronted with hindrances to information. The results of the study indicate that senior citizens are faced with barriers to information that can have impact on their options to enhance their knowledge of healthy behaviour. The findings shed light on these hindrances, as well as calling for answers to new questions.

Taken together, the results suggest that it is problematic for senior citizens to gain information because of difficulties at getting away from home and cost hindrances in relation to time and finances. In addition, knowing where information are to be found, and the ability to seek it, is challenging for them. It is, therefore, of great significance for those who are responsible for health promotional activities to recognize and address these hindrances, and thereby improve the changes of providing senior citizens with information. In doing so, it is vital, not only to ensure them access to quality information, but also guide them as to where and how they can seek it. The policy implications of the findings are that health authorities and professionals need to work together to find ways to make available information about healthy living that can be easily reached by senior citizens, preferably for free. Otherwise, senior citizens may become a disadvantage group in society.

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