

Health-related factors influencing food choices of active home-living older adults in Norway.

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Abstract

Aims: As the proportion of elderly increases rapidly in all industrialised countries, more knowledge is needed on how to enable this group to stay active and live home longer in older years. In this study, importance of health-related aspects and eating contexts for daily food related behaviour is addressed.

Methods: A quantitative web survey (N=782, 65-89 years) and an exploratory qualitative study (N=15, 67-84 years) were conducted among active home-living Norwegian older adults.

Results: The study showed that health considerations such

as changes in consumption of foods and ingredients influence eating behaviour for Norwegian older adults. Eating context was important for their daily routines and eating behaviour.

Conclusion: This study focused on exploring how health aspects and daily routines influence eating behaviour of active home-living older adults. The results implicate that using the meal context as a venue for improving eating behaviour as well as providing information may be a way towards upholding health among less healthy and active older adults.

Introduction

It has been acknowledged that a complexity of factors influences eating and healthiness of older adults (1). In addition, the older population is not a homogeneous group where one recipe for healthy ageing fits all (2). As the importance of a healthy diet for a healthy life increases with age it is necessary to improve our understanding of how older adults living at home manage their daily diet (3).

Factors influencing food intake for older people are closely associated with health as well as social and contextual aspects, where no single factor is the only problem or solution for a good quality of life (3-5). Previous research has shown that food and its importance for health is strongly linked for older adults, but that the perception of healthiness of foods and meals varies (5). What constitutes a healthy diet will vary according to

Highlights

- Health considerations play a major role in active home-living older adults' food choices
- Healthy eating is promoted by appetite and food enjoyment which is connected to both eating occasion and the food itself
- Upholding daily routines is important for seniors' food intake

the needs of the individual. Many older adults have malnutrition or overweight concerns, as well as medical conditions that require their attention to what they eat (6). Lundkvist et al. (2010) found that older adults differed about following a healthy diet based on its importance for themselves. Some older adults followed health advice while others argued that they had lived so long, so it did not really matter what they did (7). Health advice also includes exercise and physical activity, which is important for older adults (8).

Social life is another essential factor contributing to healthy ageing (9). Enjoying food is important for older people, and, in addition to taste, good social networks contribute to food enjoyment (3, 9). It is postulated that eating together with others increase enjoyment and food intake (10, 11). For older adults living alone, effort of cooking, lack of cooking skills, and little social activity are risk factors for an inadequate diet (12, 13).

A context-related aspect that occurs when people reach retirement age is a shift in daily routines. In addition to new routines caused by not being required to turn up at work, economical restraints and

physical abilities change the way older adults move about (14). Changes in the household due to illness and death are more frequent among older adults, and this severely disrupts their daily life (15). Altogether, these factors have an impact on nutrition and food intake in older adults, particularly if they do not, or cannot, compensate by changing their behaviour to uphold a healthy diet (16).

Given the focus put on health challenges that comes with the increased proportion of older adults in the population, it has been done surprisingly little research on eating habits in home-living older citizens (5). Considering that many older adults stay active, manage themselves and have a good life at home, more knowledge is needed about how food plays a part in their daily life. Understanding arguments for their eating behaviour are therefore of importance in facilitating for a healthy diet and a healthy lifestyle for home-living older adults in general (3). More knowledge is needed on how active home-living older adults manage their daily meals, how they feel about it, and whether they employ strategies for upholding a healthy diet (16).

In this study, health-related food behaviour among active home-living older adults in Norway was investigated. The study aimed to contribute new insights and valuable knowledge about this important group that can be helpful in facilitating strategies for preventive purposes.

The following research questions were addressed:

Which health-related aspects influence active home-living Norwegian older adults' eating behaviour?

How does the eating context influence active home-living Norwegian older adults' eating behaviour?

Methods

The Norwegian government defines active aging as being able to participate in working and social life and maintain independence longer (17). In this study, the target population was 65 years and older, resident in Norway, retired, living at home and being able to cook and care for themselves. Two approaches were planned to investigate health-related food behaviour in the study population. A web-based quantitative survey among older adults (N=782) to provide an overview of their health-related food behaviour, and an exploratory qualitative study among 15 older consumers to elicit in-depth information about how food and food-related aspects influence their lives (Table 1).

Data collection - quantitative survey

To collect information about eating habits among active older adults who had reached retirement age and, thus, might have experienced changes in their daily routines, a web-based survey was conducted with home-living older adults in Norway in 2012. The survey was administered and the respondents recruited through a market agency using their consumer panel consisting of about 18 000 subjects 65 years or older. Eligibility questions were: Age (65 years or older), Retired (yes), "I or my partner shop and cook the food ourselves" (yes), Participation in one or more of the following activities (physically active/exercising, member in a club/union/association, socialising/be with friends, attend senior centres). We aimed to survey a representative distribution of males/females (45/55). The final sample had an equal distribution of men and women (Table 1). Target size

**Table 1:** Respondent distribution on age group and sex for the survey and age, sex and marital status for the qualitative interviews

Study	Sex	Age		TOTAL
		65-70 years	71-89 years	N (%)
Survey	Male	220	162	382 (49%)
	Female	240	160	400 (51%)
	TOTAL	460	322	782 (100%)

		Married/ cohabiting	Widowed/living alone	TOTAL (N)
		Interviews	Males (70-77 years)	3
	Females (67-84 years)	4	6	10
		7	8	15

for the study sample was 800 respondents, and following one reminder 782 questionnaires were available for analysis. This sample size was selected to allow for segmentation of respondents for statistical analyses in five sub-groups on food products which are not included here. Variables included in this study concern reasons for choosing foods, and statements on food and meal habits (See **Table 2** for statements and measures).

Data collection – qualitative study

The following selection criteria for the interviews were applied: Retired older adults responsible for buying food and preparing their own meals. The respondents were recruited at senior and fitness centres in the eastern part of Oslo and outside Oslo, Norway, and on one bus tour arranged for older adults. The respondents were considered active as they catered for themselves and were recruited at locations that required a certain amount of effort to get to. The interviewer personally approached subjects and asked if they would fill in a short questionnaire on food habits (Results not reported here). The respondents could indicate on the questionnaire if they would participate in an in-depth

interview on food and food-related subjects. Out of 50 returned questionnaires, 15 respondents agreed to and participated in the in-depth interviews (Table 1).

The interviews were conducted face-to-face by the first author at senior and fitness centres or in the participants' homes after agreement with the respondents, using a semi-structured interview process. Topics included in the interview guide were related to health and eating context aspects, eating behaviour, food choice, and appetite. All the interviews were recorded and transcribed. After transcription of the interview recordings were deleted, and all transcribed interviews were anonymised as per agreement. A systematic text condensation was used (18). The transcripts were coded, grouped and analysed following the topics in the interview guide.

Data analysis – quantitative data

The data analyses consist of frequency distributions and Pearson correlations. This was done in the data analysis program IBM® SPSS® Amos 24 (New York, USA).

Data from the survey was used for investigating food practices compared to behavioural intentions.

Data analysis – qualitative data

The interviews were coded and analysed using ATLAS.ti 7.8 (Scientific Software Development, Berlin, Germany).

Ethical considerations

In the quantitative study the researchers received an anonymised data file from the market agency and no sensitive information was collected. The respondents had an agreement with the market agency to participate in surveys and received a small fee for each fulfilled questionnaire. They were informed that they could withdraw at any time.

The qualitative study was approved by the Norwegian Centre for Research Data (NSD). Following NSD's advice the respondents were informed of the purpose of the study, and that they could withdraw at any time.

Results

In the survey, information about retired older adults (65+ years) food-related behaviour and health was collected. More than half of the respondents considered themselves healthier than the average person at the same age (62 percent), and 69 percent reported that they exercised several times a week.

Thus, our requirement targeting older adults with an active lifestyle was confirmed (Table 2).

Only five percent of the older adults said they were actively dieting. Yet, 60 percent were concerned with avoiding fattening foods (Figure 1, see Table 2 for wording of statements). Comparing this finding with reported behaviour, 44 percent were actively choosing foods to avoid weight gain to a large or very large degree. There was a large observed difference between intention to eat nutritious food and reported behaviour, 55 percent versus 23 percent. The respondents reported slightly higher actual behaviour concerning taking medical considerations for food choice compared to intentions, 41 percent versus 35 percent.

Insights into eating behaviour

The in-depth interviews explored in more detail how aspects of life, such as how health aspects and eating context, influenced the respondents' eating behaviour.

Influence of health aspects on eating behavior

The interviews clarified the findings from the survey that health is a major factor influencing Norwegian older adults' behaviour and food decisions. Health encompassed much of what the respondents were concerned about, not only related to food but also regarding physical activity as exemplified by the following citations:

"I exercise a little bit every morning, regularly... Yes, I do mostly the same while the food is getting warm

and maybe I make a cup of coffee, I do body exercises and such." (Male, 76 yrs)

"I should have taken off something here. I hope to get rid of this roll of fat after the new exercise lady came, because she is really fit. She is 70 years old, she is... I have never seen anyone so fit." (Female, 84 yrs)

Concerning health and food, selection of foods and adherence to dietary advice were frequently mentioned by the respondents.

"Well, these lean foods... I look more at that now than I did before. Because I... as I said, it is this thing with the heart." *"I eat so lean, I can hardly eat any leaner."* (Male, 74 yrs)

The respondents differed with respect to knowledge about what they should eat or not, but they had picked up some advice that they tried to follow.

Table 2: Distribution of responses on health-related statements, N=782.

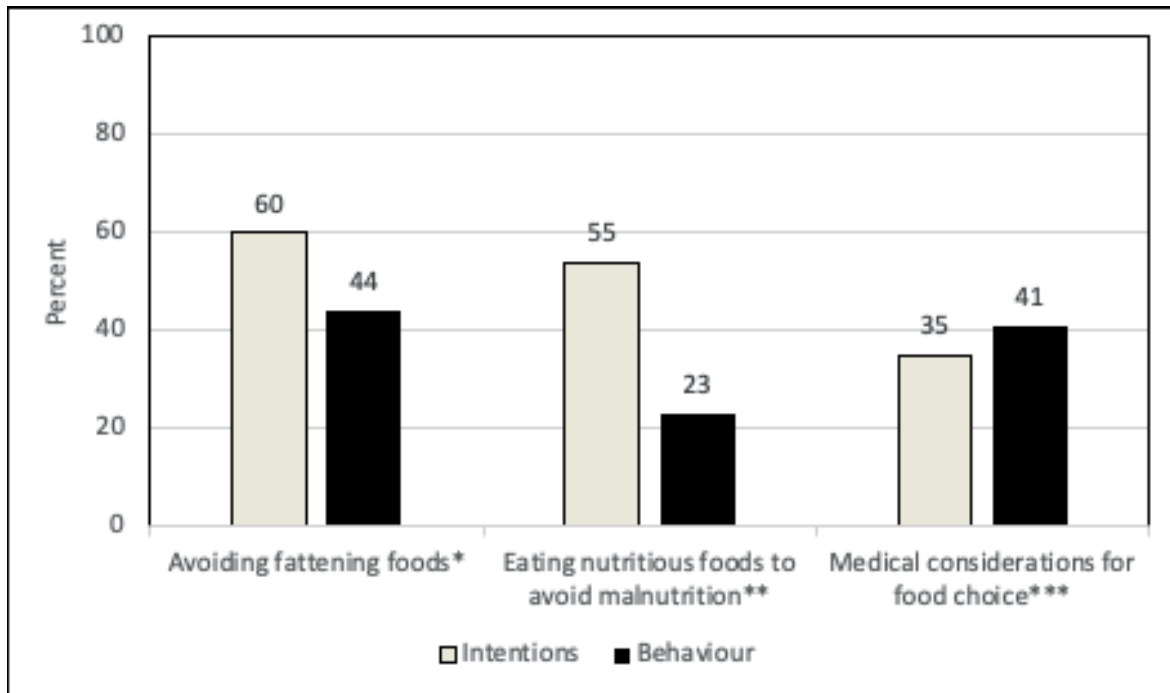
	Scores					Mean score (SD)
	1 n (%)	2 n (%)	3 n (%)	4 n (%)	5 n (%)	
Behaviour (To what degree do you choose foods)*						
To avoid overweight	151 (19)	101 (13)	185 (24)	218 (28)	127 (16)	3,1 (1,35)
To prevent malnutrition	341 (44)	101 (13)	159 (20)	108 (14)	73 (9)	2,3 (1,4)
For illness/health reasons	212 (27)	87 (11)	162 (21)	155 (20)	166 (21)	3,0 (1,5)
Intention **						
I try to avoid fattening foods (to avoid overweight)	61 (8)	63 (8)	190 (24)	294 (38)	174 (22)	3,6 (1,15)
I am concerned that the food I eat is nutritious (to avoid malnutrition)	65 (8)	87 (11)	204 (26)	258 (33)	168 (22)	3,5 (1,18)
I take medical considerations when choosing food	195 (25)	138 (18)	175 (22)	157 (20)	117 (15)	2,8 (1,4)
I often indulge a little in my daily diet (beef steak and red wine, fine cheeses etc.)	46 (6)	84 (11)	162 (21)	293 (38)	197 (25)	3,7 (1,14)
Health statements **						
I exercise once or more per week	57 (7)	71 (9)	112 (14)	185 (24)	357 (46)	3,9 (1,27)
I have better health than what is usual for persons of my age	8 (1)	27 (4)	264 (34)	279 (36)	204 (26)	3,8 (0,89)
I often look for information on diet and health	80 (10)	115 (15)	195 (25)	258 (33)	134 (17)	3,3 (1,21)
I am often dieting	503 (64)	190 (24)	54 (7)	27 (4)	8 (1)	1,5 (0,85)

* Measured on a scale 1=to a very low degree – 5=to a very high degree

** Measured on a scale 1=does not fit at all – 5=fits very well



Figure 1: Percentage of older adults who fully or partially agreed with dieting statements compared to statements about food choice behaviour. N=782. Pearson corr sign at 0,01 level (two-tailed) *0,472, **0,351, ***0,524.



“I don’t use salt. I have stopped with that because it is not healthy when one gets old”. (Female, 84 yrs)

“It’s in the back of my head that I try to eat healthily. I know too little about diet and what is healthy. But vegetables, raw food and such, fruits... that I consider to be healthy.” (Male, 76 yrs)

“We use a lot more chicken than we did before. And you get to hear that white meat is healthier than red meat.” (Female, 67 yrs)

All the respondents except for one took nutrition supplements. The reasoning behind this was not clarified such as whether they had received medical advice or not, but some of the arguments pointed to the influence of advertising.

“And then I take two B-vitamins, because that is good for hair, and nails, and skin, and so on, should be. But you get wrinkles anyway (laughter). It really doesn’t help, but I think it helps for nails and such.” (Female, 70 yrs)

However, as tastiness is often associated with foods that are not considered healthy, consumption of sweet and salty snacks often battled with the wish to eat healthily. In such circumstances, some respondents defended their food choices by referring to the need not to go to extremes.

“Yesterday all these girls came to me, and I made coffee for them, and then I served cake and ice cream, and we had a good time. One cannot be totally fanatic.” (Female, 84 yrs)

Another man reflected that, although taste was important, health considerations weighed heavily in his food choices. About his breakfast, he stated: “it is some cereal stuff which is also very dull, no sugar or anything, with some kind of blueberry things and skimmed milk.”

As can be seen from these results health-related aspects were often mentioned by respondents in relation to meals.

Eating context and eating behaviour

Closer examination showed that reasons for and feelings about the meals were nuanced and depended on the life situation of the informants. In this context, daily routines came up as important.

Breakfast was eaten every day at home and seemed to be the meal most influenced by fixed routines. For all respondents except one, breakfast was a cold meal consisting of either bread or cereals and usually accompanied by something sweet such as jam, fruit yoghurt and juice. One respondent put forward the necessity to eat breakfast because daily medications had to be taken at fixed times and with a meal.

“I first take the medication I shall have in the morning, and then I take two slices of bread.” (Female 84 yrs.)

The lunch meal usually consisted of foods served cold such as sandwiches, rolls or crispbread. In

contrast to the breakfast meal, the lunch meal often had a social aspect and was consumed with friends in different locations such as in cafeterias, at senior centres, on excursions, or in friends' homes.

“And then I eat lunch, either at home, or I am at the cafeteria with someone.” (Female, 67 yrs.)

“And then we often meet at the mall, I am there several times a week.” (Female, 80 yrs)

The dinner meal was a hot meal consumed at home by all the informants except one who had dinner at the senior centre. Food made from scratch was most desired by the respondents, particularly the females.

“I make food the old-fashioned way, I do. The stores are full of packages and whatnot you can buy and get both the one and the other. But I use very little of the packaged meal system they have. No, such ready-to-eat meals I really don't fancy.” (Female, 80 yrs)

One issue mentioned by several was that dinner meals were difficult to make just for one serving. Different strategies were implemented to address this, such as planning for use of leftovers, or portioning and freezing parts of the dinner.

“If we have leftovers, we eat them the next day. Add some extra vegetables and some zucchini or something.” (Female, 70 yrs)

“When I make meat loaf, I usually make two forms and partition into such pieces, and then I have several dinners.” (Female, 84 yrs)

The dinner meal was also mentioned as a meal containing memories and associated with eating together with someone. The respondents living alone dealt with this in various ways.

“I always sit down with something underneath the plate and enjoy the food. But then I have to listen to the

radio because it is kind of lonely not to have anyone to talk with. Or I have a newspaper beside me sometimes, or... yes.” (Female, 80 yrs)

“But you can say that meals are a necessity to us, and then I like to make it as cosy as I can even if I am sitting there alone and munching.” (Female, 84 yrs)

The informants thus emphasised the importance of meals and meal routines in managing their daily life.

Discussion

In the present study on active home-living Norwegian older adults, the respondents considered health an important factor for their food related behaviour. This is in line with official advice promoting the importance of a varied and nutritionally adequate diet to uphold good health in the later years (8, 19).

The informants in our study described how their health status influenced consumption, and that they had to use various strategies such as changing food and ingredient intake to avoid compromising their health. In a review, Song et al. (2016) found that various health issues among older adults such as dental problems led to modification of food choices (20). The results also indicated that both health and taste factors play a role, suggesting that sensory aspects are a motivator for healthy food choices (21).

In a study comparing eating behaviour over the lifetime, the importance of health significantly changed with age, increasing with increasing age (22). In our study, the respondents quoted nutrition advice, as they understood it, and described how they implemented strategies for exchanging previously chosen foods, such as red meat, to healthier varieties, such as white meat. Despite trying to eat

healthily, the older adults professed a desire to deviate from the general food ideals and indulge if they, in general, followed a varied and balanced diet. Lundkvist et al. (2010) also describe these strategies. The finding that older adults' intentions to eat healthy were higher than reported behaviour is in line with other research and provides a challenge for information dissemination as well as product development for this group (7).

Avoiding fattening foods was the health behaviour considered most important in the survey. However, “avoiding fattening foods” seemed not to be part of the concept of dieting as only five percent reported that they did this. An explanation may be that “avoiding fattening foods” may be perceived to be more general and preventive compared to “dieting”, which may be perceived as a specific strategy for achieving a slim and fit body, and which may not be so relevant for this group. Lundkvist et al. (2010) postulate that following a diet is so ingrained in the older adults' daily lives, that they do not really consider this as dieting (7).

Many older adults consider proper meals to be important for healthy eating (6). Thus, for Norwegian older adults, adherence to structured eating occasions is one way for of upholding an adequate food intake. In the present study, the older adults were conscientiously following meal routines like routines established during working years. Another motive for consuming meals was presented in the qualitative study, as one of the respondents commented on the need to take medications with food. The implications of this reasoning for consuming a meal could be explored further to ensure adequate food intake in older adults.



Healthy eating is promoted by appetite and food enjoyment which is connected to both eating occasion and the food itself (16). The narratives in the present study reflect how some older adults manage their food consumption by making the eating occasion pleasurable. One explanation for the food enjoyment expressed by our subjects may be through the selection process that particularly targeted active, home-living older adults instead of a representative sample of the consumer group. The insights from this group can however be useful to identify factors that are positive for upholding a good life among home-living older adults in general (9).

The study did not specifically address factors in older adults' life that were difficult or distressing regarding food, which might be a limitation. Rather, in this instance focus was on the respondents' health consciousness, habits and coping strategies with respect to food. The older adults were generally positive with how they managed their meals and food consumption and were not consciously pointing to difficulties. When the respondents were prompted, they addressed some strategies used for coping, but this was not presented as an important barrier for upholding a good diet. The high health consciousness among active home-living older adults constitutes a solid platform on which to plan strategies for providing knowledge that can further improve food consumption among older adults in general. In addition, conducting further studies to identify healthy coping strategies when it comes to food choice and eating is important to provide better conditions for older adults that are less able and more vulnerable.

Conclusions

This study focused on exploring how health aspects and daily routines influence eating behaviour of active home-living older adults. The results implicate that using the meal context as a venue for improving eating behaviour as well as providing information may be a way towards upholding health among less healthy and active older adults.

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