



Reasons for not participating in breast cancer screening, ways to obtain information and measures to improve participation in screening

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Abstract. Breast cancer is the most commonly diagnosed tumor in women in the world. Early detection and treatment of breast cancer has an impact on life expectancy, reduced mortality and improved quality of life. The reduction in mortality depends largely on interventions. The objective of this study was to describe the reasons for not participating in breast cancer screening, ways to obtain information and measures to improve participation in screening. The survey was conducted among 1200 women aged 50–69 in Estonia. Statistical data analysis was performed with SPSS 26.0, using descriptive statistics. For comparison of the results with background data, the Mann–Whitney U test and the chi-square test were used. The main reason for not participating in breast cancer screening was the absence of symptoms. Information on breast cancer and breast cancer screening is mostly obtained from friends and acquaintances, and the least from the mobile application on breast cancer screening. The most desirable sources of information about breast cancer are information leaflets and the family doctor, and the internet is the least searched for information. Convenient access to a mammography examination and the family doctor’s initiative provide support, while the information in women’s magazines and social media has low importance for participation. The information channels used were related to age, native language and level of education. Place of residence did not affect access to information. The results show that women seek information primarily from friends and acquaintances, although they are also open to seek information from leaflets or the family doctor, indicating the need for more emphasis on those sources. Different sociodemographic variables should be considered in related communication.

Keywords: breast cancer, screening, participation, information, mixed quantitative and qualitative study design.

1. INTRODUCTION

Breast cancer is the second most common type of cancer in the world and the primary cancer type in 22.5% of women (Özerdoğan et al. 2017). Breast cancer is the most frequently diagnosed tumor in women worldwide (Ayoub et al. 2019), accounting for 28.8% of all cancer cases in women, and 425 000 new cancer cases are diagnosed each year (Marmarà et al. 2017). Breast cancer is the second leading cause of cancer death in developed regions (15.4%) after lung cancer (Pérez-Lacasta et al. 2019). It is a multifactorial disease, in which genetic and envi-

ronmental factors influence its occurrence (Prolla et al. 2015).

One of the most effective measures to reduce breast cancer mortality is early detection (Amasha 2013; Larson et al. 2016; O’Mahony et al. 2017; Somayyeh and Aydogdu 2019). Breast cancer research, early detection and treatment have increased the survival rate of cancer patients, but not the incidence of breast cancer. Despite advances in preventive medicine, breast cancer continues to spread throughout the world, indicating gaps in women’s motivation to participate in breast cancer screening and early detection programs. Raising awareness of breast cancer and its risk factors would in turn help to increase motivation (Merakou et al. 2013).

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The main reasons why women avoid using preventive services related to breast cancer prevention are forgetting to participate in screening, lack of knowledge, low level of education, lack of time, low income, poor transport connection to the healthcare provider and the difficulty of getting to the doctor's appointment (Wu and Chen 2017). In a previous study conducted in Estonia, age and existing health practices significantly influenced the decision-making for participating in screening. The results also highlighted that the possibility to participate in screening increased with existing supportive health practices and with age (Lubi et al. 2022). Women's behavior is also influenced by feelings of shame before screening, lack of family support, fatalism, beliefs and attitudes, as well as fear of screening methods, possible cancer diagnosis and breast removal, and related anxiety and worry, as well as the possible need to change habitual lifestyles (Merakou et al. 2013; Rainey 2018; Somayyeh and Aydogdu 2019). Explanations and counseling by a healthcare professional are an important factor in reducing fear and anxiety and in deciding to participate in screening (Merakou et al. 2013).

Although the occurrence of breast cancer in Estonia is much lower than in other European countries, the mortality from breast cancer is still high, especially among older age groups. Early detection and advanced treatment must be combined to prevent premature death from breast cancer (Baburin et al. 2016). Since 2002, women in Estonia have been invited to breast cancer mammography screening every few years, with the aim of detecting breast cancer at the earliest possible stage, thereby reducing mortality and improving the quality of life of patients. It is important that women without complaints or symptoms go for an examination, because breast cancer does not show itself in the early stages (Kiisk et al. 2016). A survey previously conducted in Estonia revealed that breast complaints are one of the reasons for going for a screening examination (11.9% of the women who participated in the survey), but 15% of the respondents still wanted more information about screening (Aasmaa and Mägi 2007).

Dissatisfaction with the organization of health information can lead to negative health-related outcomes and factors, including a decrease in health-related quality of life (Ladd 2016). When investigating women's information needs about breast cancer, the women expressed a desire to receive information about breast cancer in order to verify existing knowledge about their condition and to clarify what they already know (Balka et al. 2010). Although patients desire and seek information about their cancer or rare diseases, information needs are often not met (Ladd 2016).

The objective of the research was to describe the reasons among women in Estonia for not participating in breast cancer screening, ways to obtain information and

measures to improve participation in screening. The research questions were:

- What are the reasons for participation and non-participation in breast cancer screening?
- What information sources on breast cancer are used by women?
- What are the measures to improve participation in screening?

2. MATERIALS AND METHODS

2.1. Participants

The research used a combined telephone and online survey among Estonian women aged 50–69. The selection of the target group was based on the age range of women invited for breast cancer screening funded by the Estonian Health Insurance Fund. In selecting the sample, compliance with the proportions of the Estonian female population aged 50–69 in terms of age, place of residence, native language and education was taken into account. Valid health insurance was a prerequisite for being selected. The initial sample was formed as a random sample. All 1200 respondents participated in the survey.

2.2. Materials and methods

2.2.1. Data collection

This research used mixed research design, both quantitative and qualitative approaches. The Estonian Research Centre conducted a study among Estonian women aged 50–69 in the period of 27.02.–24.04.2020 on behalf of the Estonian Health Insurance Fund, with the purpose of identifying the reasons for not participating in breast cancer screening. 75% of the survey was conducted in the Norstat Estonia online panel and 25% as telephone interviews. The interviews took place either in Estonian or Russian, according to the respondent's native language. A research company was involved with the aim of obtaining answers across all age groups. The telephone interviews were structured interviews (exactly the same questionnaire questions were asked to all interviewees over the telephone and no more questions were added). Interviews were used in data collection to ensure that women in the older age group also responded, as internet use is less common in this age group than in the younger age group. The average length of the interview was 17 minutes, with a median of 14.5 minutes.

The basis of the study was a questionnaire consisting of 31 questions, which were previously used in Lya Mägi's master's thesis (Aasmaa and Mägi 2007) and adapted and supplemented in cooperation with the academic staff of

Tallinn Health Care College (authors of this article) and the Estonian Health Insurance Fund. For using the initial questionnaire, permission was obtained from Lya Mägi. The questionnaire consists of three parts, the topics of which are breast cancer, participation in screening, awareness of breast cancer and breast cancer information. The questionnaire contains open-ended questions, yes/no questions and multiple-choice questions.

The research company provided the SPSS data file in coded form to the researcher responsible for the data. The interviews were also included in the data file in coded form by the research company to ensure the confidentiality of the research participants.

2.2.2. Data analysis

The data were analyzed with the statistical program SPSS 27.0 using descriptive statistics. Data analysis took place in two stages. The results of the first stage of the analysis are presented using frequency tables, which show the number and percentage distribution of the respondents. Arithmetic mean and median were calculated for age. The data were partly analyzed qualitatively (open-ended questions). The chi-square test (χ^2 -test) was used to compare the results of the second stage analysis, and the results are presented using cross-tabulations. The Spearman's correlation analysis was performed to assess the relationships. Associations and differences between groups with $p < 0.05$ were considered significant.

2.2.3. Ethical considerations

Ensuring the reliability of the research started already with the selection of the sample (1200 women). Thanks to the large sample, the data of this research can be generalized to the population. Answering the questions was based on anonymity and voluntariness. The data of the study will not be disclosed. The questionnaire was adapted to the study provided in cooperation with Tallinn Health Care College and the Health Insurance Fund. Ethics permit No. 2650, issued by the Human Research Ethics Committee of the National Institute for Health Development, was required to conduct the research.

3. RESULTS

3.1. Background data

1200 women aged between 50 and 69 voluntarily participated in the survey. The average age of the respondents was 59.5 ± 5.6 years (median 60). 72% of the respondents were Estonian-speaking and 26.9% Russian-speaking women.

3.2. Participation in breast cancer screening and reasons for non-participation

1171 (97.6%) of the subjects had received an invitation to participate in breast cancer screening, 1056 (88%) went for breast cancer screening after receiving the invitation, and 1117 (93.1%) plan to participate in breast cancer screening in the future if they receive an invitation. One of the most frequently cited reasons for participating again in screening when invited was that it gives a sense of security:

“To ensure peace of mind. I am overweight, I work in a harmful environment, i.e. I administer chemotherapy to the sick, there have been many different cancers in the family.” (Questionnaire No. 585)

It was also highlighted: *“for self-confidence and satisfaction”* (Questionnaire No. 1183) and *“To be sure of my health or, if necessary, hope for timely detection”* (Questionnaire No. 313)

A number of reasons were given for the importance of prevention, and taking care of one's health was also considered very important:

“I care about my health and it's good that screening tests are carried out and it's also free for us. There is a slight doubt whether the radiation that occurs during mammography is harmful to health.” (Questionnaire No. 494)

83 (6.9%) of the study participants do not plan to participate in breast cancer screening in the future, which was justified, for example, as follows:

“In previous years, I went whenever I got an invitation, but I have ignored the last few invitations because I have small breasts and having them stretched and pressed between two metal plates is painful and traumatic.” (Questionnaire No. 708)

“I can't stand it when my breasts are hurt, I'm very sensitive about it. Sometimes a finding is overreacted, it would affect me psychologically. Sometimes nothing is found, but the tumor is still there.” (Questionnaire No. 458)

Of the women who went for the examination after receiving the invitation, the mammography process was rated as rather simple and easy by 698 (58.2%) of the respondents, and 637 (53.1%) thought that the process was difficult due to the complicated queue, and 665 (55.4%) considered that it was a difficult process due to the difficulty in making an appointment (Table 1).

1165 (97.1%) women believed that breast cancer can be detected by mammography during screening, and 35 (2.9%) women did not believe in this.

After the mammography examination, 311 (25.9%) women did not go to the doctor until one year later, 278 (23.2%) waited for the doctor to inform them when they needed to come for a check-up, and only 172 (14.3%) respondents said that they visited the doctor at the first

Table 1. Women’s evaluation of the simplicity of mammography screening

Statements	The process was simple and easy	The process was difficult because of the queue	The process was difficult because of making an appointment
Totally disagree	12 (1%)	637 (53.1%)	665 (55.4%)
Rather disagree	22 (1.8%)	320 (26.7%)	307 (25.6%)
Partially agree/disagree	40 (3.3%)	47 (3.9%)	44 (3.7%)
Rather agree	284 (23.7%)	35 (2.9%)	30 (2.5%)
Totally agree	698 (58.2%)	17 (1.4%)	10 (0.8%)
Not answered	144 (12%)	144 (12%)	144 (12%)
TOTAL	1200 (100%)	1200 (100%)	1200 (100%)

chance. 295 (24.6%) chose the answer “other” and 144 (12%) did not answer this question.

Among the 119 (9.9%) women participating in the study who had received an invitation to participate in breast cancer screening but did not go for screening, the most cited reason for non-participation was lack of complaints. The participants could choose all the answers relevant to them (see Table 2).

It was also possible to specify one’s non-participation where appropriate, some of which are listed below:

“I will go when I have the slightest doubt. I don’t have now, my breasts are small, I’m thin, I can touch myself. My lifestyle is healthy, I eat organic food, I try to avoid unhealthy environment, exposure to pollutants.” (Questionnaire No. 177)

“Basically, lack of time, and the ‘business thing’ – having to go somewhere, looking for an office, etc.” (Questionnaire No. 211)

“There was no lack of time. Rather, my own experience and that of friends. And not positive. First of all, it hurts

Table 2. Reasons for non-participation in screening

Statements	Totally disagree	Rather disagree	Partially agree/disagree	Rather agree	Totally agree
Lack of time	34 (2.8%)	28 (2.3%)	23 (1.9%)	19 (1.6%)	15 (1.3%)
I just went to the examination	76 (6.3%)	19 (1.6%)	5 (0.4%)	5 (0.4%)	14 (1.2%)
No complaints	8 (0.7%)	5 (0.4%)	9 (0.8%)	41 (3.4%)	56 (4.7%)
Fear that cancer will be discovered during the examination	60 (5.0%)	27 (2.3%)	15 (1.3%)	14 (1.2%)	3 (0.3%)
I am not at risk of breast cancer	34 (2.8%)	28 (2.3%)	39 (3.3%)	14 (1.2%)	4 (0.3%)
Enrolment in the examination was difficult	39 (3.3%)	44 (3.7%)	18 (1.5%)	14 (1.2%)	4 (0.3%)
It is not economically possible to participate in the study	58 (4.8%)	48 (4.0%)	6 (0.5%)	5 (0.4%)	2 (0.2%)
Getting to the examination was difficult	32 (2.7%)	35 (2.9%)	23 (1.9%)	23 (1.9%)	6 (0.5%)
I do not think screening is good for my health	28 (2.3%)	29 (2.4%)	31 (2.6%)	20 (1.7%)	11 (0.9%)

a lot there personally, and after going, my breasts still hurt. And secondly, X-ray has never been good either." (Questionnaire No. 161)

The 1200 people who took part in the study were asked why they did not believe that mammography could detect breast cancer, and among the answers were claims that there had been cases among their acquaintances where women who had undergone mammography received a false negative answer which later proved to be positive:

"My friend had a mammogram which was negative, but after a week, her family doctor diagnosed her with breast cancer." (Questionnaire No. 506)

"My sister had breast cancer, which the mammogram didn't show. An ultrasound only detected the cancer. But you still have to check." (Questionnaire No. 870)

Of the respondents, 5 women (0.4%) said that they simply did not believe that breast cancer could threaten them.

A statistically significant difference was detected in answers where women with primary or basic education visited the doctor as soon as possible after the mammography examination ($\chi^2 = 12.616$; $p < 0.05$). In the Spearman's correlation analysis, there was a statistically significant relationship between age and reasons for not participating in breast cancer screening, where it was revealed that the older a person was, the more fear there was that breast cancer would be detected during the examination ($r = 0.210$; $p = 0.022$), not believing that screening would benefit health ($r = 0.286$; $p = 0.002$) and believing that breast cancer was not a risk ($r = 0.187$; $p = 0.041$).

3.3. Using breast cancer information sources

More than half of the respondents answered that they had sufficient knowledge about breast cancer (61.6%). For 237 (19.8%) respondents, the most frequently used source of information on breast cancer was face-to-face communication with friends and acquaintances based on other people's experiences, 228 (19%) had received information about breast cancer from radiologists and 208 (17.3%) from healthcare workers. In terms of the media, 200 (16.7%) respondents used an internet search, e.g. Google, and 159 (13.3%) information leaflets about breast cancer. 904 (75.3%) respondents received information from oncologists and 871 (72.6%) from midwives, and 844 (70.3%) never used thematic apps as a source of information. The most common answers, among others, were mass media sources, relatives, or the respondents being related to the healthcare field:

"I am a healthcare professional and I work with such patients." (Questionnaire No. 294)

"From relatives." (Questionnaire No. 328)

"From the mass media." (Questionnaire No. 460)

Many women answered that they would like to receive information about breast cancer from healthcare workers: 159 (47.2%) from family doctors, 158 (46.9%) from gynecologists, 136 (40.4%) from radiologists, and 126 (37.4%) from family nurses. Also, 153 (45.4%) respondents preferred to obtain information from information brochures on breast cancer and 108 (32%) from the homepage of the Health Insurance Fund. The most common answer was that they would never like to receive information from thematic apps or Facebook groups and the internet (e.g. YouTube).

863 (71.9%) did not answer the question. 93 (7.8%) women need more information about breast cancer, while 61 (5.1%) need more information about screening. Women also offered their own answer options, such as updates, symptoms and treatment options, prevention, course of the disease, detection, cause, etc.:

"It is always good to receive information that is more recent in this area, etc., even as an update." (Questionnaire No. 692)

"How it occurs, how the treatment is carried out, at what age the risks are higher." (Questionnaire No. 572)

The most common source of information on breast cancer screening was breast cancer information leaflets for 205 (17.1%) respondents. Of the healthcare service providers, most information was obtained from radiologists (191 respondents or 15.9%), gynecologists (167 or 13.9%) and family doctors (127 or 10.6%). Thematic apps as a source of information were used noticeably less – by 24 (2%) respondents, videos viewed on the internet (e.g. YouTube) were used by 838 (69.8%) respondents, 900 (75%) received information from midwives and 892 (74.3%) from oncologists. Other responses mentioned more often were a letter sent home with the screening invitation, relatives or acquaintances who had been exposed to the disease, or information from the media:

"A letter has come home with an invitation for screening." (Questionnaire No. 548)

"From advertisements in urban space." (Questionnaire No. 666)

"From those friends who have had such an experience." (Questionnaire No. 785)

3.4. Measures to improve participation in screening

It appeared that women would be most encouraged to regularly participate in breast cancer screening if they had quick and convenient access to the mammography examination, including without screening, referral, etc. – 522 (43.5%) respondents. Many (402 or 33.5%) thought that the initiative of the family doctor was very important. 277 (23.1%) respondents found that women would be

encouraged by thematic advertising in the media (including the internet, TV, print media, etc.). There was also the opinion that nothing encourages women to regularly participate in breast cancer screening – 24 (2.5%) respondents (see Table 3).

1062 (88.5%) respondents offered their answer options: “You have to start raising awareness at the end of primary school, then all the girls are still accessible. Also other diseases specific to women.” (Questionnaire No. 565) “Personal contact with the family doctor and good advertising.” (Questionnaire No. 1173)

There was a statistically significant difference between age groups in the information sources used for obtaining information on breast cancer, with the 50–54 age group having the highest number of women who sometimes use an internet search ($\chi^2 = 32.354$; $p < 0.0001$), the 65–69 age group having the highest proportion of those who never receive information from gynecologists ($\chi^2 = 28.709$; $p = 0.001$) and who never use thematic apps ($\chi^2 = 27.971$; $p = 0.001$).

The Spearman’s correlation analysis showed statistical relationships between age and breast cancer information sources – the older the person, the less internet search (e.g. Google) was used ($r = -0.088$; $p = 0.002$), information was obtained from other people’s experiences in

Facebook groups ($r = -0.102$; $p < 0.0001$), from midwives ($r = -0.117$; $p < 0.0001$) and gynecologists ($r = -0.126$; $p < 0.000$), and even more information from radiologists ($r = 0.100$; $p = 0.001$). The older a person is, the less likely they are to receive information about breast cancer from thematic apps ($r = -0.193$; $p < 0.0001$).

The older a person is, the less likely they are to receive information about screening from other people’s experiences in Facebook groups ($r = -0.92$; $p < 0.0001$), from midwives ($r = -0.109$; $p < 0.0001$), gynecologists ($r = -0.129$; $p < 0.0001$) and thematic apps ($r = -0.113$; $p < 0.0001$).

The older the person, the less encouraged they are to participate in breast cancer screening regularly (every 2 years) ($r = 0.069$; $p = 0.017$).

4. DISCUSSION

The research by Watson-Johnson et al. (2011) and Marmarà et al. (2017) revealed that there is little faith in the effectiveness of mammography. However, the results analyzed by the authors of this paper revealed the opposite. Of course, there were also respondents who did not believe in the effectiveness of mammography and,

Table 3. Women’s preferences for measures to encourage their participation in breast cancer screening (every 2 years)

Methods of encouraging participation in breast cancer screening	n (%)				
	Totally disagree	Rather disagree	Partially agree/disagree	Rather agree	Totally agree
Thematic advertising in the media (including the internet, TV, print media, etc.)	26 (2.2)	75 (6.3)	265 (22.1)	557 (46.4)	277 (23.1)
More breast cancer-related writings and advertising in women’s magazines, on Facebook, etc.	34 (2.8)	91 (7.6)	320 (26.7)	565 (47.1)	190 (15.8)
Quick and convenient access to the mammography examination, including without screening, referral, etc.	6 (0.5)	37 (3.1)	107 (8.9)	528 (44.0)	522 (43.5)
Family doctor’s initiative (e.g. when referring for screening, etc.)	8 (0.7)	50 (4.2)	157 (13.1)	583 (48.6)	402 (33.5)
Specialist’s initiative	20 (1.7)	68 (5.7)	192 (16.0)	564 (47.0)	356 (29.7)
Annual breast check-up when visiting another doctor for another reason (e.g. family doctor, gynecologist, etc.)	23 (1.9)	78 (6.5)	212 (17.7)	513 (42.8)	374 (31.2)
Something else	1062 (88.5)				
Nothing	754 (62.8)	238 (19.8)	142 (11.8)	42 (3.5)	24 (2.5)

similar to the data in the literature, someone close to them was diagnosed with cancer some time after the examination.

The reasons given for not participating in screening were lack of time, lack of complaints, and not believing that participating in screening would benefit their health. If the results of this research are compared with these of previously conducted studies (Watson-Johnson et al. 2011; Marmarà et al. 2017; Katz et al. 2018; Sandoval et al. 2018; Gong et al. 2022), several similarities emerge in the reasons for non-participation in the breast cancer screening program. One of the most common reasons why women consistently do not participate in breast cancer screening programs is the pain that was highlighted in open-ended questions. Often this can also be due to the body mass index, where women with a low body mass index, who are underweight, have less breast tissue and the procedure can be more painful (Katz et al. 2018). One of the participants mentioned that she has small breasts and mammography is painful due to this. False positive/negative test results, as well as other people's experiences, which often proved negative, were also added.

Marmarà et al. (2017) have described various fears that women have regarding mammography. Although the fear of getting a cancer diagnosis was little mentioned in the present study, older women are more afraid of receiving a cancer diagnosis. The fear of breast cancer was similarly a very small cause for non-participation according to a study conducted by Aasmaa and Mägi (2007). In a study conducted in the Netherlands (Gong et al. 2023), it was found that one of the reasons for non-participation, especially among women with a lower level of education, is the fear of receiving radiation. In the present study, only a small proportion of women answered that mammography is not good for health and one wrote a comment that X-ray is not good for health. Sandoval et al. (2018) cited cost as one of the reasons for non-participation, but this reason was not indicated in this research.

The research revealed that Estonian women's awareness of breast cancer should be improved, as slightly more than half of the respondents answered that they had sufficient knowledge about breast cancer and that they did not want/need to receive more information about it. It can be concluded that all breast cancer information sources were used in almost equal proportions among Estonian women: face-to-face communication with friends and acquaintances, information from radiologists and gynecologists, an internet search, e.g. Google, and information leaflets about breast cancer. The participants were asked to choose one or more answers, and thus no preferences emerged. In a study conducted by Suleiman (2014) at the University of Jordan, participants received information about breast cancer from friends and healthcare workers. The results of the study by Koninklijke Philips N. V.

(2015) in Sweden and Horsley et al. (2018) in the USA showed that the main sources of information on screening are healthcare providers and the invitation letter. The invitation letter was not mentioned in the present study. Even though the media plays a big role in our society, more attention is still paid to the information that our loved ones or acquaintances provide.

The overall results showed that most respondents would like to receive information about breast cancer from healthcare professionals. These included the family doctor, gynecologist, radiologist and family nurse. It was suggested that information could be obtained from information brochures about breast cancer and the homepage of the Health Insurance Fund, as the older a person is, the less they use the internet, e.g. Google, Facebook groups, YouTube and thematic apps, to search for information. In a survey previously conducted in Estonia (Aasmaa and Mägi 2007), most women wanted to receive new information on breast cancer from newsletters/leaflets (48%), from their family doctor/doctor/nurse (43%) and also from the press and television (29%).

Studies from both Estonia and other countries show that women trust healthcare workers more, because they are probably confident about the information that the doctor or nurse gives them. It is noteworthy that the media (trusted websites) is becoming more trusted and more information is sought there. It is remarkable that the role of family doctor or family nurse was very small in providing information about breast cancer and breast cancer screening. Primary healthcare professionals should be the priority in the provision of information, as they have appointments with patients more often than other healthcare providers. The role of primary healthcare in breast cancer detection has also been highlighted in previous studies (Oluwatosin 2012; Hajiebrahimi et al. 2017; Sala et al. 2021). The results of the study by Koninklijke Philips N. V. (2015) in Sweden and Horsley et al. (2018) in the USA show that the main sources of information on screening are healthcare providers and the invitation letter.

5. CONCLUSIONS

The main reasons for not participating in screening were lack of time, lack of complaints, and not believing that participating in screening would benefit their health. Some of the respondents thought that they did not see the significance of this examination at all, and often they had no breast complaints. They also believed that they were not at risk of breast cancer and did not believe that screening would benefit their health. Other people's experiences also played an important role in the reasons for non-participation. The study highlighted a case where

a close friend of the respondent had a negative experience with a false-negative test result, which also affected the attitude of the woman participating in the study towards the study in general.

It can be concluded that all information sources about breast cancer, such as face-to-face communication with friends and acquaintances, information from radiologists and gynecologists, an internet search, e.g. Google, and information leaflets about breast cancer, were used in almost equal proportions among Estonian women.

Based on the present study, it can be argued that the activities of primary healthcare workers should be enhanced to promote the importance of breast cancer screening among women. Family doctors and nurses have a great potential to inform women about breast cancer and screening, especially in the older age group who rarely or never visit a gynecologist.

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Rinnavähi sõeluuringul mitteamisemise põhjused, informatsiooni saamise viisid ja meetmed sõeluuringus osalemise parendamiseks

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Rinnavähk on naistel kõige sagedamini diagnoositud kasvaja maailmas. Rinnavähi varajane avastamine ja ravi pikendab eeldatavat eluiga, vähendab suremust ja parandab elukvaliteeti. Suremuse vähendamine sõltub paljuski sekkumisest. Uuringu eesmärk oli kirjeldada rinnavähi sõeluuringus mitteamisemise põhjuseid, teabe hankimise viise ja meetmeid sõeluuringus osalemise parendamiseks. Uuringus osales 1200 Eesti naist vanuses 50–69 aastat. Statistiline andmete analüüs viidi läbi SPSS 26.0-ga, kasutades kirjeldavat statistikat. Tulemuste võrdluseks taustaandmetega kasutati Mann Whitney U testi ja Hii-ruut testi. Rinnavähi sõeluuringul mitteamisemise peamiseks põhjuseks oli sümptomite puudumine. Enamasti saadakse teavet rinnavähi ja selle sõeluuringu kohta sõpradelt-tuttavatelt, kõige vähem aga rinnavähi sõeluuringu mobiilirakendusest. Kõige rohkem sooviti infot rinnavähi kohta infovõrgust ja perearstilt ning kõige vähem internetist. Mugav ligipääs mammograafiauuringule ja perearsti algatus olid olulised, kuid naisteajakirjades ja sotsiaalmeedias olev info on vähetahtis. Kasutatud infokanalid olid seotud vanuse, emakeele ja haridustasemega. Elukoht ei mõjutanud juurdepääsu teabele.

Tulemused näitavad, et naised otsivad infot eelkõige sõpradelt ja tuttavatelt, kuigi kõige tõenäolisemalt infolehelt või perearstilt, mis viitab sellele, et teabele viie tuleb rohkem tähelepanu pöörata. Suhtluses tuleks arvesse võtta erinevaid sotsiaaldemograafilisi muutujaid nagu näiteks vanus, rahvus ja elukoht.