Original research

BMJ Open

Primary care providers' experience and satisfaction with personalised breast cancer screening risk communication: a descriptive cross-sectional study

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ABSTRACT

Objective To describe primary care providers' (PCPs) experience and satisfaction with receiving risk communication documents on their patient's breast cancer (BC) risk assessment and proposed screening action plan.

Design Descriptive cross-sectional study.

Setting A survey was distributed to all 763 PCPs linked to 1642 women participating in the Personalized Risk Assessment for Prevention and Early Detection of Breast Cancer: Integration and Implementation (PERSPECTIVE I&I) research project in Quebec, approximately 1–4 months after the delivery of the risk communication documents. The recruitment phase took place from July 2021 to July 2022.

Participants PCPs.

Main outcome measures Descriptive analyses were conducted to report participants' experiences and satisfaction with receiving risk communication. Responses to two open-ended questions were subjected to content analysis.

Results A total of 168 PCPs answered the survey, from which 73% reported being women and 74% having more than 15 years of practice. Only 38% were familiar with the risk-based BC screening approach prior to receiving their patient risk category. A majority (86%) agreed with the screening approach and would recommend it to their patients if implemented at the population level. A majority of PCPs also reported understanding the information provided (92%) and expressed agreement with the proposed BC screening action plan (89%). Some PCPs recommended simplifying the materials, acknowledging the potential increase in workload and emphasising the need for careful planning of professional training efforts.

Conclusion PCPs expressed positive attitudes towards a risk-based BC screening approach and were generally satisfied with the information provided. This study suggests that, if introduced in Canada in a manner similar to the PERSPECTIVE I&I project, risk-based BC screening would likely be supported by most PCPs. However, they emphasised the importance of addressing concerns such as professional training and the potential impact on

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ This is the first study to report on the experience and satisfaction of primary care providers (PCPs) receiving patients' personalised breast cancer (BC) risk assessment and proposed action plans in order to adapt screening for their individual patients in a real-life scenario. By focusing on real-life scenarios, the study captures genuine feedback from PCPs, as opposed to feedback based on hypothetical situations.

⇒ The primary limitation of this study is the potential for selection bias, as participants with a more positive attitude towards risk-based BC screening may have been more likely to participate in our survey, leading to an over-representation of individuals who are more favourable to the approach compared with those who are less supportive.

⇒ Our sample is also not representative of the PCP population in the province of Quebec. We have an over-representation of women family physicians and an under-representation of primary care nurses' practitioners.

workload if the approach were to be implemented at the population level. Future qualitative studies are needed to further explore the training needs of PCPs and to develop strategies for integrating this approach with the high workloads faced by PCPs.

INTRODUCTION

According to the WHO, more than 2.3 million women were diagnosed with breast cancer (BC) in 2022, leading to 670 000 deaths.[1] In Canada, BC is the second most commonly diagnosed cancer, and more than 28 600 women were diagnosed with this disease in 2022.[2] Fortunately, the death rate from BC has steadily declined since its peak

in 1986.[3–5] Such a decline in mortality can be attributed to improved treatments and more efficient screening programmes.[3 6]

While current age-based BC screening programmes have been associated with a reduction in mortality for certain populations, there are still areas for improvement.[7] This includes reducing BC overdiagnosis,[8] which can have several consequences such as unnecessary medical examinations, treatments and psychological impacts on patients.[9] Moreover, age-based screening recommendations ignore several BC risk factors, such as genetic susceptibility, lifestyle habits or reproductive history.[10] Evidence suggests that a more personalised risk-based approach could be a cost-effective way to improve BC screening programmes.[11–15] This personalised approach involves targeting women at the highest risk for developing BC.[15] First, such risk stratification is expected to allow for reducing BC mortality through early detection of tumours in high-risk patients, thereby significantly increasing the chances of effective therapeutic management, cure and long-term survival.[15] Moreover, by focusing screening efforts on specific populations, this personalised approach would lead to a more rational and cost-effective allocation of limited healthcare resources, representing a significant benefit in terms of cost optimisation and spending efficiency within the healthcare system.[13 15]

Although a personalised risk-based approach appears promising, its implementation does represent a challenge.[14 16] Part of this challenge concerns the coordination of health services through adequate preparation of, and efficient communication with, primary care providers (PCPs).[14] Several studies indicated that PCPs seem to have positive attitudes towards the implementation of risk-based assessment for BC.[17–20] The use of genomic technologies for multifactorial risk assessment in other types of cancer also seems to be generally well received by various PCPs.[21–23] However, they tend to report a lack of training in conducting BC risk assessment.[24] Other barriers to implementing a risk-based screening approach were identified, such as an increased workload, a lack of financial and human resources and a lack of coordination between public and private PCPs.[25] Primary healthcare professionals, such as nurse practitioners and family physicians, are in a prime position to facilitate the implementation of BC screening approaches tailored to each patient's individual risk level.[20] Their role is essential on several instances.[20 26–28] First, they are expected to clearly explain to their patients the advantages and disadvantages of different screening methods based on personal risk assessments. Second, to be able to effectively interpret and communicate each patient's calculated risk level using specific prediction tools. Finally, to advise their patients on the most appropriate screening and prevention strategies based on their individual risk profile. Ultimately, PCPs in this context are expected to have the crucial responsibility of educating and guiding their patients towards the screening options best suited to their personal risk of BC.[20]

Most previous studies collected PCPs' opinions and attitudes on hypothetical implementation scenarios.[17 18 21–23] To our knowledge, no study has evaluated the experience and satisfaction of PCPs on the actual receipt of a patient's personalised BC risk category in real-life practice. This feedback is essential for informing future implementation efforts.[29]

The aim of our study was to describe the experience and satisfaction of PCPs regarding the receipt of information about their patients' personalised BC risk category and proposed screening action plan within the context of real-life practice, as part of the Personalised Risk Assessment for Prevention and Early Detection of Breast Cancer: Integration and Implementation (PERSPECTIVE I&I) study.[16 30]

MATERIALS AND METHODS
Setting
The present descriptive cross-sectional study is part of a major Canadian research project entitled PERSPECTIVE: I&I (Personalized Risk Assessment for Prevention and Early Detection of Breast Cancer: Integration and Implementation), which aims to improve BC risk assessment and determine optimal approaches for implementing risk-based screening and prevention within the Canadian health system.[16 31] This project included a pre-implementation research activity recruiting more than 3750 women from Quebec and Ontario, Canada's two most populous provinces.[30] Participating women underwent a comprehensive BC risk assessment using the Breast and Ovarian Analysis of Disease Incidence and Carrier Estimation Algorithm model implemented in the CanRisk prediction tool. This tool estimates participants' 10-year BC risk using the polygenic risk score (PRS) and multiple risk factors, namely age at menarche, age at menopause, number of children, age at first live birth, use of oral contraception, use of hormone replacement therapy, body mass index, height and alcohol use.[32–35] By identifying and combining common, low-penetrance genetic variants, PRS is considered a useful tool for estimating the genetic risk of developing disease at both individual and population levels.[35–38] The information from the risk assessment was then used to inform patients about their risk category and possible screening action plan. In Quebec province only, the risk communication documents were sent to both the women and their designated family physician or primary care nurse practitioner. This included a risk letter that reported on women's 10-year estimated risk, stratified into three risk categories using age-dependent risk thresholds. The remaining lifetime risks (from age 30 years to 80 years) for these three categories—referred to as 'average', 'higher than average' and 'high'—are based on percentages of less than 15%, 15–24% and more than 25%, respectively.[16] It also included the proposed screening action plan based on that risk category. Finally, it also includes a two-page information booklet on the study,

risk assessment, the importance of discussing their risk level with their patient and a follow-up decision tree detailing the proposed action plan based on risk category.[16 31]

Design and participants

All family physicians and primary care nurse practitioners designated by each of the 1642 women participating in PERSPECTIVE I&I in the province of Quebec were sent an invitation letter and the survey. They were mailed about 1–4 months after the letter informing women of their risk category and the corresponding screening action plan was sent out. To increase participation, two additional reminders were sent by fax 1–6 months after the initial mailing. The recruitment phase took place from July 2021 to July 2022. Participants were consented by completing the questionnaire. In addition, we specified the terms of confidentiality and participation in the first paragraph of the survey, while also providing a telephone number and email address for any questions concerning the study.

Survey instrument development

The survey was based on previous work[15 22 23 39–41] and developed in French by a multidisciplinary team of clinicians and scientists with expertise in epidemiology, social science and medicine. This nine-item questionnaire was pilot tested with 12 clinicians and scientists not involved in the study. In the survey introduction, PCPs were reminded that, as part of the PERSPECTIVE I&I research project, they have received a letter reporting risk category for at least one of their patient's BC risk assessments. After this introduction, PCPs were invited to share their experience and satisfaction through seven close-ended multiple-choice questions related to the following aspects:

► Familiarity with the risk-based BC screening approach, clarity of the letter used to inform women on their risk category, usefulness of the information booklet in understanding the result letter, attitudes and readiness regarding the proposed screening action plan and perceived needs for more training (one question with eight statements).
► Use and appreciation of the PERSPECTIVE I&I project website, which provides further information about the risk-based BC screening approach (one question with four statements).
► Attitudes towards implementing a risk-based approach at the population level and its perceived benefits (two questions).
► Sociodemographic information such as profession, gender and years of practice (three questions).

The survey also had two open-ended questions on possible ways to improve the risk-based BC screening approach and the material provided and on additional resources that would be needed to support their practice (two questions). The questionnaire is available in online supplemental file 1.

Statistical analysis

Descriptive analyses were used to report participants' responses to the seven closed-ended questions. We used Fisher's exact test with the SAS software V.9.4 (Copyright 2016 by SAS Institute) for our bivariate analyses. Specifically, we examined whether participants' attitudes towards the risk-based BC screening approach varied based on years of practice and gender. Years of practice were classified as follows: less than 5 years, 5–10 years, 11–15 years, 16–20 years, 21 years and over.

A content analysis was performed on the two open-ended questions. Responses were coded by AO and JL to group them into larger themes using an Excel spreadsheet. A-SB also independently coded the data. AO, JL and A-SB then deliberated over their respective coding to come up with intercoder agreement to assure the reliability of the identified themes.[42] An inductive approach was favoured for the coding and analysis of our qualitative data, where codes were selected without prior theoretical framework. It should be noted that the answers to our open-ended questions were generally short. To remain faithful to the perspectives of our participants, the themes identified are also presented in general terms.

Patient and public involvement

Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

RESULTS

Out of the 763 PCPs contacted, 168 (22%) participated in our study. Most of them (ie, 72.4%) had only one patient participating in the PERSPECTIVE I&I project, while 27.6% had two patients or more. Among participants, 72.6% were female and 74.4% had more than 15 years of practice (table 1).

Quantitative results

Only 38.1% of our participants knew about screening based on personalised BC risk assessment. Despite this, 86.9% of participants believed it is appropriate to carry out BC risk assessment prior to screening. The majority also found the proposed action plan appropriate (85.7%) and were ready to follow it (88.7%). Moreover, 92.3% reported understanding the information provided in the risk letter, and 89.3% of them agreed that the information booklet enabled them to understand the description of their patient's risk category. Finally, the perception of participants was mixed about the need for more training; 44.1% of them agreed that they need more training while 34.5% neither agreed nor disagreed with this statement (figure 1).

When asked about their appreciation of the study's online resource, 158 (94%) participants reported that they did not visit the website mentioned in the risk communication documents. As for the 10 (6%) participants who did visit it, all agreed that the website answered

Table 1 Participants' characteristics (n=168)

Sociodemographic variables	Frequency n (%)
Profession	
Physician	163 (97.0)
Primary care nurse practitioner	5 (3.0)
Prefer not to answer	0 (0.0)
Gender	
Women	122 (72.6)
Men	46 (27.4)
Other	0 (0.0)
Years of practice	
<5	14 (8.3)
5–10	20 (11.9)
11–15	8 (4.8)
16–20	20 (11.9)
>21	105 (62.5)
Prefer not to answer	1 (0.6)

their questions, that the information was clearly presented and easily accessible and that they would recommend the website to their colleagues if they wish to learn more about risk-stratified BC screening approach.

When we asked participants how likely they would encourage their patients to participate in a risk-based BC screening programme, 87.5% of them responded that they were likely or very likely to encourage their patients to take part in such a programme (figure 2).

When presented with various statements about the benefits of personalised risk-stratified approach for BC screening, 82.1% of the participants agreed that it could screen high-risk women, and 69% of them responded that it could both reduce unnecessary mammograms in the future and screen women of less than 50 years of age. A little more than 40% agreed that it could reduce the number of false positive mammograms and that it could lead to cost savings for society. Only a third (34.5%) of our participants believed that the approach could reduce the number of BC deaths (figure 3).

Qualitative results

A total of 42 participants provided an answer to the open-ended question on whether there are aspects to be modified in the risk-based BC screening approach and in the material provided. A few participants considered the approach to be ineffective, unnecessary or irrelevant. The main concern was related to the potential increase in PCPs' workload. The importance of addressing the follow-up care for high-risk patients was also emphasised, along with the need to focus on promoting the risk-based BC screening approach within the general population. Concerning the documents received, some would have

appreciated a shorter, simplified version, while others felt that it would be necessary to clarify which information should be provided to patients. Lastly, some participants stated that there were no aspects to change to the risk-based approach or to the risk communication documents received.

A total of 21 participants responded to the open-ended question on additional resources that would help their practice within a risk-based BC screening approach. Participants mentioned the need to develop resources for PCPs such as a mobile application. They were concerned about improving access to information about genetics and mentioned the importance of developing information tools for patients. The need for additional training and case discussions was also raised. Finally, participants suggested transferring the follow-up role to nurses.

DISCUSSION

Summary of results and perspective of the literature

According to our results, a risk-based approach to guide BC screening is receiving strong support from PCPs, with a majority considering the approach appropriate and being likely or very likely to recommend the approach if it were to be implemented at a population level. This positive appraisal of the risk-based BC screening approach echoed the results reported in previous studies.[17–20]

However, one of the main concerns was related to the potential impact on workload. This concern is also reported in other studies and is deemed an important barrier to implementation.[17 43 44] Future risk-based BC screening initiatives will need to invest in the development and implementation of an efficient operational integration of this approach.[45] As our participants suggested, this could involve a greater role for nurses in assessing and communicating BC risk category to patients. Several implementation scenarios, such as self-management by women themselves, are possible for the risk-based BC screening approach and should be considered and pilot tested.[39 46]

The need for more professional training was mentioned in both our qualitative and quantitative results. As with workload, the need for training is a recurring aspect in previous studies looking at the implementation of risk-based screening.[18 24] This indicates the necessity of leading concerted multilevel strategies to offer adequate training in personalised risk assessment and stratification that includes genomics and precision medicine approaches.[22] In the context of the PERSPECTIVE I&I project, a website was available and mentioned in the documents for PCPs wishing to have additional information about the approach. It was concerning to know that only 6% of our participants consulted the website despite admitting their need for more training. Two factors may explain the limited use of the website. First, participants found the information in the documents clear and sufficient to understand the BC risk assessment and screening action plan. Second, this
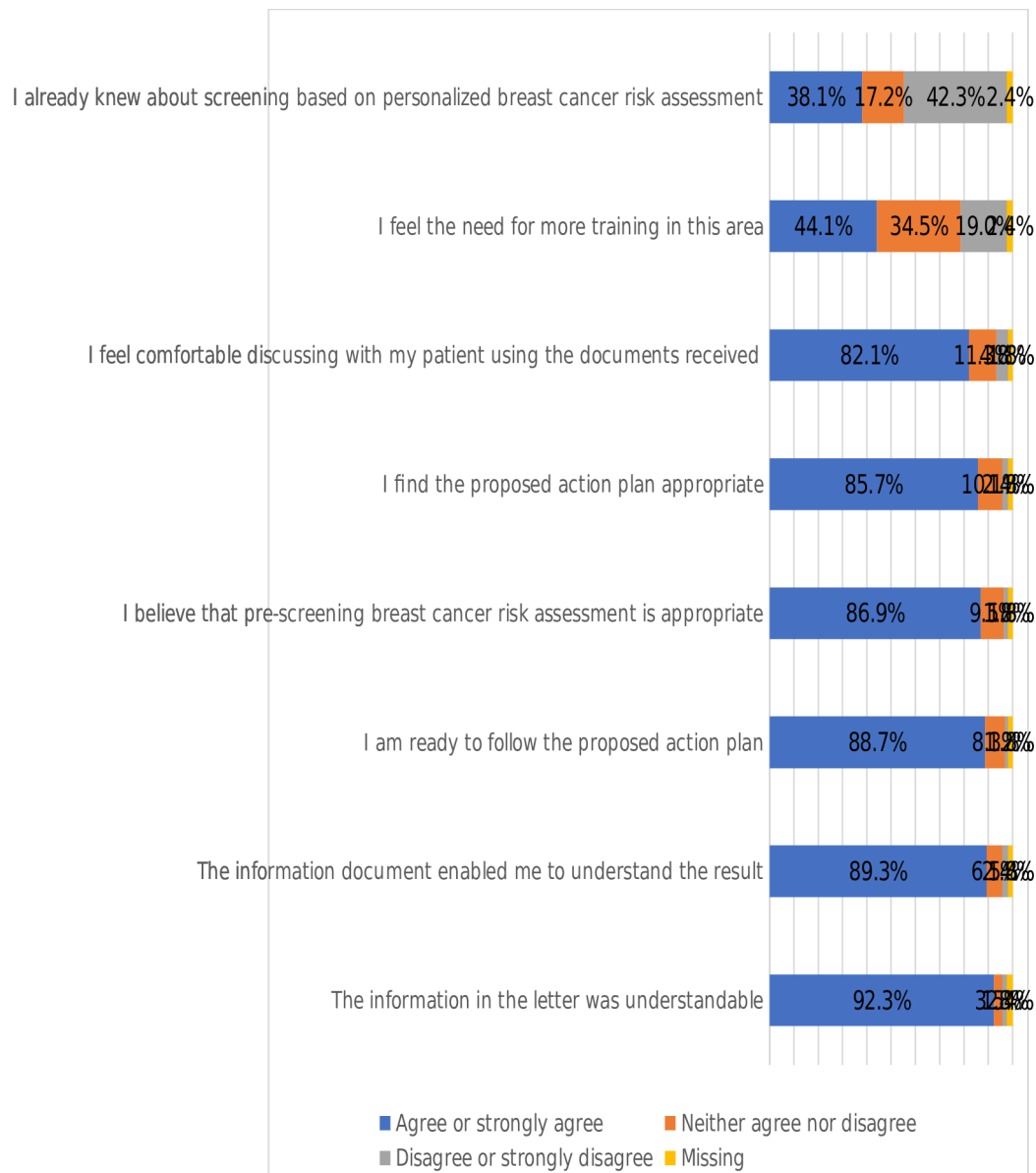
Figure 1 Participants' experience and satisfaction with the risk letter and the risk-based breast cancer screening approach.

aligns with the concerns expressed by PCPs regarding an increased workload. In light of these results, risk-based BC screening initiatives should ensure that risk assessment letters describing the risk category are concise, clear and in an easy-to-read format. This also indicated the importance of involving all relevant stakeholders, particularly PCPs, when designing communication tools. If implementation efforts include a website or online resources, these should complement, rather than replace, the information booklet provided with the risk category letter. The website should offer complementary and detailed information for those wishing to learn more about personalised risk assessment and risk-stratified BC screening approach. As mentioned by PCPs, given the limited resources in healthcare systems, the most important objective is to ensure the simplicity and clarity of the information provided rather than quantity.

Strengths and limitations

To our knowledge, no study has examined the experience and satisfaction of PCPs in receiving personalised BC risk assessments and proposed action plans to tailor screening for their individual patients. This makes it possible to collect real-life PCP feedback compared with feedback based on hypothetical scenarios. Furthermore, our results are timely given that several major research projects are underway to study the implementation of risk-based BC screening approaches.[14 16 47 48]

The main limitation of this study is that our sample may be biased towards PCPs with more positive attitudes towards risk-based BC screening. As a result, PCPs who were less interested in this approach may have been less likely to participate in the survey, leading to their under-representation in our sample. Thus, such a sample cannot be considered representative of the broader PCP population. In addition, our sample is not representative
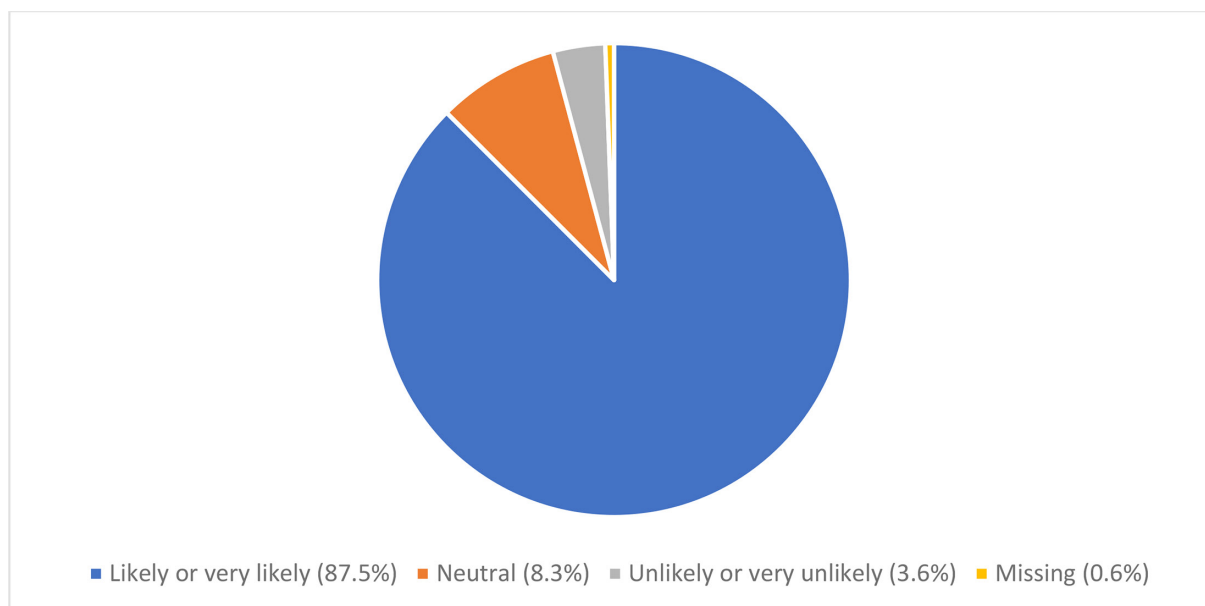
Figure 2 Participants' likeliness to encourage patients to participate in programmes that offer personalised risk assessment for breast cancer screening if it were to be offered at population level.

of PCPs in the province of Quebec. Notably, there is an over-representation of female family physicians and an overall under-representation of primary care nurse practitioners,[49] which may impact the generalisability of our findings. However, it is important to note that the survey was launched during the midst of the third wave of the COVID-19 pandemic, a time when healthcare professionals were under significant stress and facing an increased workload.[50 51] Another limitation is the lack of sociodemographic data for the 78% of PCPs who did not participate in our survey, which limits the statistical analysis and generalisability of our findings.

The inclusion of qualitative open-ended questions provided valuable context to our quantitative results by allowing participants to offer insights and suggestions that our research team had not anticipated during the development of the questionnaire. Notably, this included concerns about increased workload and the way information was presented in the letter and information leaflets. In this way, the responses to the open-ended questions enriched our findings, offering new perspectives and more detailed explanations of PCPs' views on implementing the risk-based screening approach.[52]

However, open-ended questions alone do not provide a comprehensive understanding of PCPs' attitudes and perspectives. Future qualitative research is needed to gather more contextualised and detailed data on their views, particularly regarding training needs and how to integrate a risk-based BC screening approach while managing high workloads.

Despite these limitations, our findings provide valuable insights into the experiences and satisfaction of family
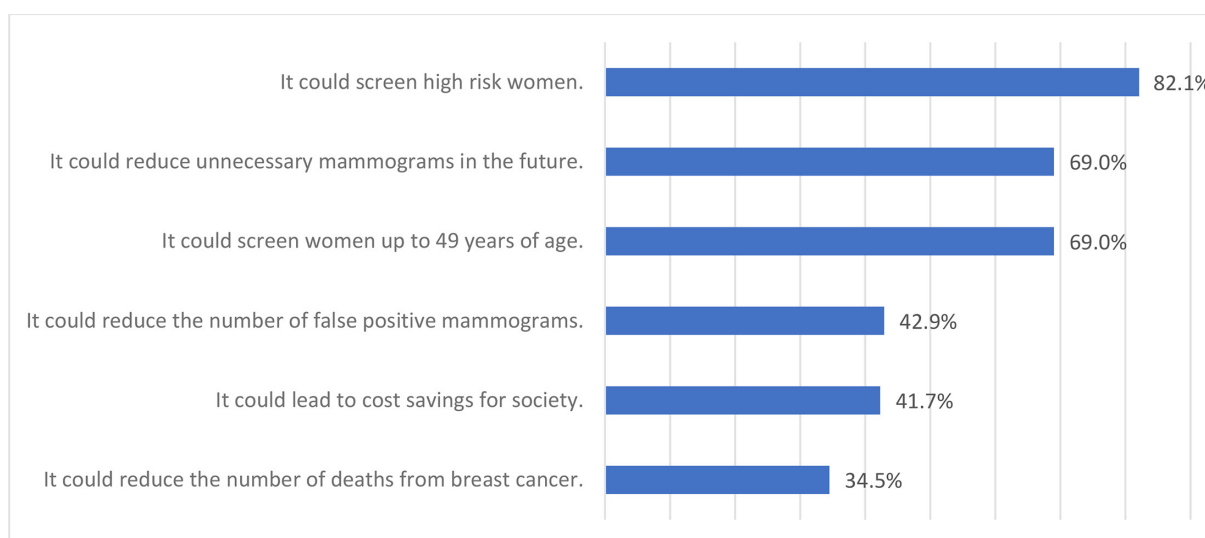

Figure 3 Benefits of personalised risk assessment for breast cancer screening according to participants.

physicians and nurse practitioners when receiving their patients' BC risk categories and screening action plans.

Implications for clinical practice and future research

Overall, our results show that PCPs are in favour of the integration of the risk-based BC screening approach when provided with real-life information about risk category and screening action plan. With the reduction of costs associated with genome sequencing and the rapid advancement of technologies,[53] it is becoming increasingly feasible for healthcare systems to allocate resources in calculating patients' genomic risk to include in risk assessment tools in order to offer to patients a risk-stratified approach for screening tailored to their risk category. This study contributes to the growing body of scientific evidence evaluating the potential of implementing personalised risk assessment to offer a risk-based BC screening approach. Specifically, our findings indicate the importance of considering PCPs' perspectives when planning to implement this BC screening approach. In addition, future studies with a qualitative design would probably provide a unique opportunity to further explore PCPs' views about the approach and put our findings into a wider context.

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