



Review Article

Communication of cancer screening results by letter, telephone or in person: A mixed methods systematic review of the effect on attendee anxiety, understanding and preferences

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ABSTRACT

Attending and receiving a result from screening can be an anxious process. Using an appropriate method to deliver screening results could improve communication and reduce negative outcomes for screening attendees. Screening programmes are increasingly communicating results by letter or telephone rather than in-person. We investigated the impact of communication methods on attendees.

We systematically reviewed the literature on the communication methods used to deliver results in cancer screening programmes for women, focusing on screening attendee anxiety, understanding of results and preferences for results communication. We included qualitative and quantitative research. We searched MEDLINE, PsycINFO, CINAHL, Cochrane Library and Embase. Results were analysed using framework synthesis. 10,558 papers were identified with seven studies meeting the inclusion criteria.

Several key ideas emerged from the synthesis including speed, accuracy of results, visual support, ability to ask questions, privacy of results location and managing expectations.

Verbal communication methods (telephone and in-person) were preferred and facilitated greater understanding than written methods, although there was considerable variability in attendee preferences. Findings for anxiety were mixed, with no clear consensus on which method of communication might minimise attendee anxiety.

The low number of identified studies and generally low quality evidence suggest we do not know the most appropriate communication methods in the delivery of cancer screening results. More research is needed to directly compare methods of results communication, focusing on what impact each method may have on screening attendees.

1. Introduction

In 2018, 9.6 million people are estimated to die from cancer worldwide (WHO, 2018). Cancer screening programmes aim to aid the early detection of cancer at the population level, with millions of people attending various screening services internationally. Examples of cancer screening programmes in the UK are breast, cervical and bowel screening. A screening programme should be ethically designed to provide a benefit whilst minimising potential physical and

psychological harm. However, attending cancer screening can cause significant anxiety for attendees (Bond et al., 2013; Sheeran and Orbell, 2000; Wardle et al., 2000). This increase in anxiety is not only distressing for attendees but may also have a negative impact on future attendance at screening (Brett and Austoker, 2001).

Effective communication of the screening result may minimise the potential anxiety associated with attending, impacting on patient perceptions, expectations and future behaviour (Ong et al., 1995). Test results need to be delivered quickly, clearly and accurately, in order to

Abbreviations: NHSBSP, National Health Service Breast Screening Programme

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minimise anxiety for patients and, where a disease has been diagnosed, refer them on to the appropriate care pathway (Litchfield et al., 2014; Bolejko et al., 2014; Mayou, 1996; Leekha et al., 2009).

Across different healthcare contexts, a variety of communication methods are used to deliver results, including face-to-face consultations, telephone, letters and email (Leekha et al., 2009; Elder and Barney, 2012; Meza and Webster, 2000; Choudhry et al., 2015; Kuroki et al., 2013; Monsonogo et al., 2011; Peres and Wellman, 2001; Schofield et al., 1994). Media theorist Marshall McLuhan coined the phrase ‘the medium is the message’ (McLuhan et al., 1994). The medium used to deliver a message cannot be separated from the message itself, with the medium influencing the perception of the message and the psychological consequences of this. In the health care context, this highlights the importance of understanding the communication methods (or mediums) used and the psychological impact on patients (Lown and Rodriguez, 2012; Lee and Cho, 2017; Neuhauser and Kreps, 2003). The method of communication used to deliver test results is a potentially modifiable factor that may have a great impact on improving patient outcomes (Meystre-Agostoni et al., 2001). It is easier to modify one element of a healthcare system or programme, than to modify the behaviour or anxiety of every individual attendee (Matteau, 1994).

Beyond anxiety, the method of communication used to deliver results may also have an impact on factors such as screening attendees' knowledge and understanding of their result (Karliner et al., 2005; Kenny, 2018). For example, telephone and face-to-face communication allow the attendee to clarify and ask questions which may increase understanding in comparison to receiving written results (Gurol-Urganci et al., 2008). However, communicating results over the telephone limits non-verbal cues, which have been previously associated with understanding (Car and Sheikh, 2003). Attendee preferences may also contribute to the acceptability of different methods of communication (Allen et al., 2008).

The aim of this systematic review is to:

- 1) Explore which communication methods are used for the delivery of results in cancer screening programmes, and how women prefer to have their results delivered.
- 2) Systematically review evidence of how the communication method used to deliver results impacts upon attendee anxiety and understanding of results.

In order to thoroughly investigate the impact of communication methods, this review included evidence from all cancer screening programmes involving a female population (McLean and Anderson, 2009). The focus was on females only, due to the potential gender differences in anxiety.

The review took a mixed methods approach, allowing the synthesis of quantitative anxiety and understanding measures with the qualitative experiences of screened women. The results from this review will inform further research, aiming to help update future policy guidelines for the communication of breast screening results in the National Health Service Breast Screening Programme (NHSBSP) in England. Due to the scope of this review, the results may also have a wider international application to the communication methods used in other screening programmes.

2. Methods

The PRISMA Framework was used to guide the reporting of this review (Moher et al., 2009). The protocol was registered on the International Prospective Register of Systematic Reviews (PROSPERO), registration number #CRD42016042689.

2.1. Search strategy

Search terms were based on a combination of a scoping literature review, NHSBSP expert advice and assistance from a subject librarian. The initial search was developed in MEDLINE and was then adapted for PsycINFO, CINAHL (The Cumulative Index to Nursing and Allied Health Literature), Cochrane Library (Wiley) and Embase. This search was then adapted for the other databases. The four elements of the search focused on ‘general communication’, ‘communication methods’, ‘cancer screening’ and ‘outcome measure’ (see Appendix 1). These elements were combined into one search using AND between each element.

The reference lists for included studies were checked for any other relevant articles not identified by the electronic search. The original search was conducted on 10th January 2017 with an updated search conducted on 14th September 2018.

2.2. Eligibility criteria

Both qualitative and quantitative studies were included in the review.

To be included, studies needed to be set in a routine cancer screening programme defined as a population-level programme aimed at screening for cancer. Participants had to be within the eligible population for which the screening programme was targeted. This excluded all research where participants were already diagnosed.

To be included, studies also needed to explicitly report at least one communication method, be focused on the communication between a healthcare professional and screening attendee during the results delivery process and must report at least one of the outcomes of interest (anxiety, understanding, preferences). Studies focusing on any result (malignant, benign, and negative) from any stage of the screening process (screening/further diagnostic tests) were included. Only studies published in English were included. There were no date or methods restrictions. Only peer reviewed journal articles were included, excluding all books, conference abstracts, short notes, commentaries etc. For full eligibility criteria, see Appendix 2.

The abstracts of included papers were independently reviewed against the inclusion criteria by three reviewers (SW, RC & JP). Any papers for which consensus could not be met were taken forward for full text review. The resulting full texts were independently reviewed by two of the same authors (SW & JP) against the inclusion criteria. Any disagreements about eligibility of articles were discussed between the two reviewers, with assistance from a third reviewer (STP) where an agreement could not be reached.

2.3. Data extraction

The data were extracted by two independent reviewers (SW & JP) following the same process used during eligibility criteria assessment. The communication methods used to deliver results and the key outcomes of interest (anxiety, understanding and preferences) were extracted.

Data were extracted using predefined extraction forms – one for qualitative papers and one for quantitative papers.

Data items that were extracted for both qualitative and quantitative papers included: screening programme, country, study aims, study design, sample characteristics, recruitment, response rates, communication methods and strengths/limitations.

Data items that were extracted for quantitative papers only included: outcome measures and results, eligibility criteria, confounding factors and adjusted/unadjusted odds ratios (if applicable).

Data items that were extracted for qualitative papers only included: data analysis approach.

2.4. Data synthesis

To bring together qualitative and quantitative findings, a combination of reciprocal translation and a framework synthesis approach was used. Reciprocal translation involves comparing the findings of different studies, to develop a consistent understanding (Melendez-Torres et al., 2015; Noblit and Hare, 1988; Barnett-Page and Thomas, 2009). The translation of one study into another allows comparisons to be made between different pieces of research, whilst maintaining the integrity of each original study (Jensen and Allen, 1996; Walsh and Downe, 2005).

Framework synthesis is a meta-matrix based approach to synthesising data, structuring the process of reciprocal translation by setting a priori outcomes of interest (Dixon-Woods, 2011; Pope et al., 2000; Oliver et al., 2005; Thomas et al., 2004). A meta-matrix is a way to visually represent and compare data from framework synthesis (Melendez-Torres et al., 2015; Dixon-Woods et al., 2006). In this review, the aim was to synthesise findings, stratified by the methods of communication used, versus the a priori outcomes of interest: anxiety, understanding and preferences.

Overall, this approach to synthesis offers a higher order understanding of review findings (Dixon-Woods, 2011).

For the purpose of this review, a six-step process (see below) was followed to guide synthesis. These steps were created by the authors, drawing from elements of previous qualitative and mixed-methods research (Melendez-Torres et al., 2015; Noblit and Hare, 1988; Jensen and Allen, 1996; Walsh and Downe, 2005; Dixon-Woods, 2011; Pope et al., 2000; Thomas et al., 2004; Dixon-Woods et al., 2006; Creswell, 2013; Atkins et al., 2008; Bazeley, 2009; Bryman, 2007; Green and Britten, 1998; Johnson and Waterfield, 2004; Lewis, 2015; Lockwood and Porritt, 2015; Thorne et al., 2004; Tobin and Begley, 2004; Tashakkori and Teddlie, 2010).

- 1) **Narrative synthesis of qualitative data:** The extracted data from qualitative papers was summarised individually in a narrative synthesis, through a process of re-reading and immersion in the data. The summaries were focused on answering the systematic review question, using the a priori outcomes as a guide for synthesis (anxiety, understanding, preferences).
- 2) **Narrative synthesis of quantitative data:** The extracted data from quantitative papers was summarised individually in a narrative synthesis, through a process of re-reading and immersion in the data. This involved transforming the quantitative data into textual data. The summaries were focused on answering the systematic review question, using the a priori outcomes as a guide (anxiety, understanding, preferences).
- 3) **Combining qualitative and quantitative summaries into meta-matrix:** The narrative syntheses from the quantitative and qualitative papers were combined into the pre-defined meta-matrix, using the framework synthesis approach. The meta-matrix was originally defined with three columns, with each column representing a different communication method (telephone, in-person, written).
- 4) **Reworking and redefining the meta-matrix** – Variations between a priori, defined categories and resulting categories were addressed.
- 5) **Discussion of findings within the research team** – The synthesis findings were compared with particular focus on the meta-matrix findings and analytical memos of the two reviewers.
- 6) **Summarising findings** – The final synthesis was presented in a final 3 × 4 meta-matrix (see Appendix 3).

2.5. Quality assessment

Quality assessment was undertaken by the same two reviewers (SW & JP). The quality of the included quantitative studies was assessed using the Joanna Briggs Institute Critical Appraisal tools for use in JBI

Systematic Reviews – Checklist for Analytical Cross Sectional Studies (Moola et al., 2017). These eight questions assess outcomes used, validity, reliability and potential bias.

The quality of the included qualitative studies was assessed using the Joanna Briggs Institute Critical Appraisal tools for use in JBI Systematic Reviews – Checklist for Qualitative Research (Lockwood and Porritt, 2015). These ten questions assess congruence between philosophical perspective, research methodology, research objectives, representation and analysis of data and interpretation of results. This tool also assesses potential researcher bias within the studies.

No study was excluded on the basis of quality.

3. Results

3.1. Included studies

The database search identified 16,237 citations. Following de-duplication, 10,558 papers remained. Of these, 10,544 were excluded at the title and abstract stage based on the inclusion criteria, leaving 14 citations to be taken to full-text review. The majority of papers that were excluded (8480) did not include routine screening. Examples of papers excluded were papers focusing on different screening programmes and papers with a 'generic' sample population rather than a targeted screening population. A total of 7 studies met the eligibility criteria for the review (Schofield et al., 1994; Karliner et al., 2005; McCaffery and Irwig, 2005; Marcus et al., 2012; Goldsmith et al., 2008; Priyanath et al., 2002; Lind et al., 1992). See Fig. 1 for a flow chart of study selection as adapted from PRISMA guidelines (Moher et al., 2009).

The characteristics for included studies can be seen in Appendix 4. The included studies were a mixture of quantitative (n = 4) and qualitative research (n = 3), from either a breast screening programme (n = 4) or a cervical cancer screening programme (n = 3). Most of the studies were in the USA (n = 4), with other studies in Australia (n = 2) and England (n = 1).

3.2. Quality assessment

The area of highest quality across the four quantitative studies was the clear definition of participant inclusion criteria (Schofield et al., 1994; Karliner et al., 2005; Priyanath et al., 2002; Lind et al., 1992). The area of lowest quality across the four quantitative studies was addressing the validity and reliability of the outcome measures (Schofield et al., 1994; Karliner et al., 2005; Priyanath et al., 2002; Lind et al., 1992).

The areas of highest quality across the three qualitative studies were congruity between the research methodology and research question, methods, representation, analysis and interpretation of results (McCaffery and Irwig, 2005; Marcus et al., 2012; Goldsmith et al., 2008). Other areas of high quality included the adequate representation of participant's voices and the conclusions flowing from the research report (McCaffery and Irwig, 2005; Marcus et al., 2012; Goldsmith et al., 2008). The area of lowest quality across the three qualitative studies was a lack of acknowledgement of the influence of researcher on the research, which may cause bias (McCaffery and Irwig, 2005; Marcus et al., 2012; Goldsmith et al., 2008). The papers were also rated as low quality for the lack of a statement locating the researcher culturally or theoretically within the research (McCaffery and Irwig, 2005; Goldsmith et al., 2008). It was unclear across the three included papers whether there was congruity between the authors stated philosophical perspective and the research methodology used (McCaffery and Irwig, 2005; Marcus et al., 2012; Goldsmith et al., 2008).

3.3. Synthesis findings

The synthesis findings, combining the narrative synthesis from the

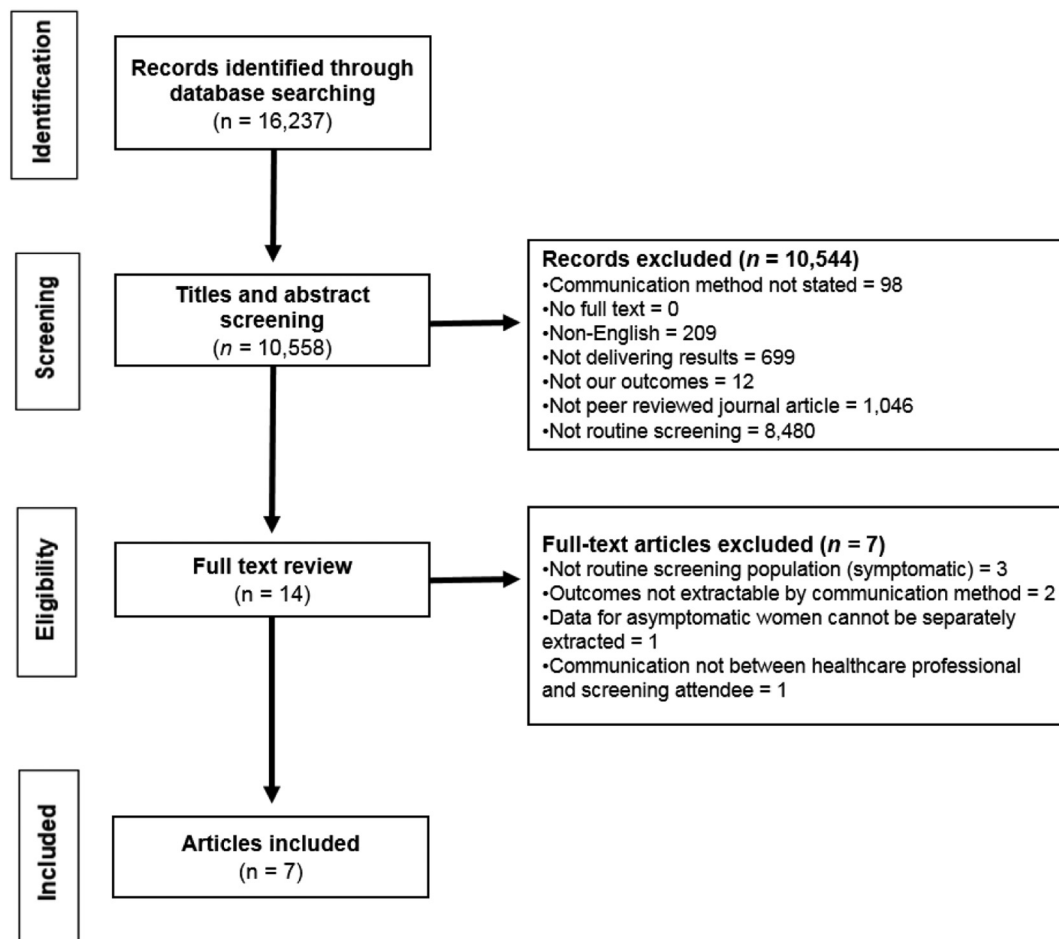


Fig. 1. Flow chart of paper selection.

qualitative and quantitative papers, are presented below in a meta-matrix (see Appendix 3). The matrix displays communication method by outcomes of interest, bringing together these insights in the final column.

This matrix was pre-defined and reworked as part of the synthesis process, with the final version presented here (see Appendix 3). In synthesising the study findings, an extra column was added to the communication methods ('verbal methods'). Variations on the meta-matrix included exploring differences between screening programmes and separating findings into positive and negative attendee outcomes. These explorations did not reveal any differences. The findings from each column (telephone, in-person, verbal and written) were then categorised into three rows relating to the a priori outcomes (anxiety, understanding and preferences).

The findings from the meta-matrix will now be discussed in more detail.

3.3.1. Anxiety

Two quantitative (Priyanath et al., 2002; Lind et al., 1992) and three qualitative papers (McCaffery and Irwig, 2005; Marcus et al., 2012; Goldsmith et al., 2008) provided data on anxiety. In the synthesis, four key ideas emerged: privacy, the link between understanding and anxiety, the anxious wait and managing expectations.

Overall, the review findings were mixed for the outcome of anxiety. Some evidence suggested that written results do not significantly increase anxiety (Priyanath et al., 2002) with others showing attendee distress at receiving a results letter (McCaffery and Irwig, 2005; Marcus et al., 2012). Differences in anxiety between in-person and telephone results consultations were not discussed in the literature.

3.3.1.1. Anxiety and privacy. In some cases, written communication was associated with an increase in attendee anxiety, with one reason for this including a lack of privacy in the location in which the results were received (McCaffery and Irwig, 2005).

"I just remember my mom freaking out. Her instant thought was cancer... I read the letter and it didn't say she had cancer... it's just when you get that cold, sterile letter... she automatically thought cancer." (Marcus et al., 2012).

This is important to consider when thinking about telephone results too as, like written results, it is not always possible to control the setting in which results are received.

3.3.1.2. Anxiety and understanding. Another reason for increased anxiety associated with written results was the confusion caused by the language used in the letter (Marcus et al., 2012). This suggests that the outcomes of anxiety and understanding might be related. This provides further support for considering the impact of communication methods because, if more effective communication is linked with increased understanding, this might be linked to lower anxiety.

3.3.1.3. Anxiety and waiting: the 'anxious wait'. Reducing the 'anxious wait' was important to attendees. Women who received their screening results over the telephone were grateful that they didn't have to wait anxiously for their results (McCaffery and Irwig, 2005). However, no direct comparison was made between in-person and telephone anxiety. Therefore, it is not known whether a quicker result or a more personal face-to-face interaction would be more reassuring.

3.3.1.4. Anxiety and managing expectations. If women were expecting a

telephone call, but were instead invited to attend an unexpected appointment in-person, this led to increased levels of anxiety (McCaffery and Irwig, 2005). This suggests that, not only is the method of communication important, but also preparing the woman for how her results will be delivered, and managing these expectations appropriately.

3.3.2. Understanding

One quantitative (Karliner et al., 2005) and three qualitative papers (McCaffery and Irwig, 2005; Marcus et al., 2012; Goldsmith et al., 2008) provided data on understanding. In the synthesis, four ideas emerged: the differences between receiving only a letter vs. receiving an accompanying letter further explaining verbal results, visual support, the value of asking questions and valuing accuracy.

Overall, verbal methods of communicating results facilitate better understanding in screening attendees than communicating results by letter. However there was no research comparing different verbal communication methods, in order to establish any similarities or differences in attendee understanding.

3.3.2.1. Understanding: the differences between receiving only a letter vs. an accompanying letter, further explaining verbal results. Some women did not understand their results when they were provided in writing alone due to the content and language of the letter (McCaffery and Irwig, 2005). This may be related to factors such as the education level of the screening attendee or even factors such as ethnicity (Marcus et al., 2012). There will be other factors outside of communication method that will impact upon understanding. It may be that verbal results are the most appropriate method of delivery, but understanding is enhanced when used in combination with written communication.

3.3.2.2. Understanding and visual support. During face-to-face appointments, health care professionals can also use diagrams to further aid understanding (Goldsmith et al., 2008). This would be missed in telephone consultations. However, we do not know how frequently diagrams are used in delivering screening results – this may be due to variability of ‘who’ delivers the result (e.g. physician, nurse, receptionist etc.).

3.3.2.3. Understanding and the value of asking questions. The review findings suggest that verbal methods of communication facilitate better attendee understanding than written notification methods (Karliner et al., 2005; McCaffery and Irwig, 2005; Marcus et al., 2012; Goldsmith et al., 2008). This may be due to the two-way communication dynamic of verbal methods, allowing the opportunity for women to ask questions about their results (Gurol-Urganci et al., 2008).

“You have the opportunity to ask questions because you can't ask questions when you get a letter.” (Marcus et al., 2012).

However, there was no clear comparison between telephone and in-person results, with the opportunity to ask questions present in both methods of communication.

3.3.2.4. Understanding and valuing accuracy. Women raised the issue of receiving incorrect information by telephone (Marcus et al., 2012). This shows that women value results that are accurate, which is something to consider in results implementation services. However, incorrect results could also occur in-person. Therefore, this may not be directly linked to the method of communication used, but instead linked to an overall flaw in the communication process of the screening programme investigated.

3.3.3. Preferences

Four quantitative (Schofield et al., 1994; Karliner et al., 2005; Priyanath et al., 2002; Lind et al., 1992) and three qualitative papers (McCaffery and Irwig, 2005; Marcus et al., 2012; Goldsmith et al., 2008) investigated preferences. In the synthesis, the main idea that

emerged was that preferences are individualised and tend to vary depending on if the result is normal or abnormal (Lind et al., 1992). Another idea that emerged was speed.

Overall, it appears that the general preference is for verbal communication, with written results linked with higher levels of dissatisfaction (Marcus et al., 2012; Priyanath et al., 2002). However, some women with normal results may be accepting of written communication and some women with abnormal results express a preference for in-person communication (Lind et al., 1992). This may be indicative of the personal and individualised nature of preferences.

“A phone call is best” (Marcus et al., 2012).

“...There's nothing like talking to someone face to face” (Marcus et al., 2012).

“I think they [telephone results] work really well” (McCaffery and Irwig, 2005).

However, there was no evidence to directly compare the differences between telephone and in-person methods of results communication. Furthermore, reasons behind these communication preferences were not explored.

3.3.3.1. Preferences and speed. Women with ‘normal’ results tend to prefer quicker methods of communication, such as a letter or telephone call (Lind et al., 1992). However, written results are associated with a higher level of dissatisfaction than verbal results (Marcus et al., 2012; Priyanath et al., 2002).

Despite most women with ‘normal’ results preferring quicker methods of communication, some women prefer verbal notification even when their result is normal, even if this means a slower or delayed result. A reason for this might be the importance the individual woman places on screening. If screening is perceived as more important, communication preferences might be more satisfactory when they are more personal (Marcus et al., 2012). This could lead to some women feeling unsatisfied with written communication, despite preferring results methods that might be quicker. This suggests there is a balance between speed and satisfaction.

4. Discussion

The aim of the review was to evaluate and synthesise literature regarding the impact of the communication method used to deliver results on attendee anxiety, understanding of results and preferences for communication in cancer screening programmes. Overall, this review has identified a lack of evidence investigating communication methods used to deliver results and the impact on patient outcomes. This review has also identified a lack of distinction between results delivered in-person and results delivered over the telephone, with studies tending to group these together as ‘verbal communication’. This masks the ability to distinguish the potential differences between telephone and in-person results.

Several key ideas emerged from the synthesis which may help to guide the direction of future research. These included speed, accuracy of results, visual support, ability to ask questions, privacy of results location and managing expectations.

The limited evidence from this review suggests that verbal methods of communicating results may have the most positive impact on people receiving results from cancer screening programmes. Verbal results (telephone or in-person) are associated with higher levels of understanding and tend to be preferred by attendees, although this may vary based upon whether the result was normal or abnormal. Very little is understood about the impact of communication method on anxiety. Although some evidence relating to written communication was found, the evidence is mixed, with no clear picture about which method of communication might minimise the anxiety experienced whilst receiving a screening result.

The majority of screening attendees state a preference for verbal methods of communication (e.g. in-person or over the telephone). In

the review update, a commentary paper that did not meet the review criteria found a preference (71.2%) for telephone communication when delivering benign biopsy results in breast screening (Brazeal et al., 2018). However, attendee reasons for this preference were not explored.

The review also revealed additional general findings suggesting that screening attendees express a preference for timely and consistent results (Goldsmith et al., 2008; Priyanath et al., 2002). Quicker and more consistent results communication is associated with lower anxiety (Priyanath et al., 2002). However, more exploration is needed to explain the differences in individual preferences for results communication.

Other advantages and disadvantages of different communication methods did not emerge from the review data. Other research suggests that the cost-effectiveness and time efficiency of telephone results should be evaluated (Car and Sheikh, 2003). Other research also highlights the role of social support in receiving a result, which might only be possible when results are delivered in-person (Car and Sheikh, 2004). Consideration should also be given to who delivers results, as well as the method used. These factors did not emerge in the review, which may be due to limited evidence. Wider factors associated with communication may be important to consider in future research.

4.1. Strengths and limitations

A strength of this review is the method used to synthesise findings from both qualitative and quantitative papers. The method combined the rigour of a traditional systematic review with the flexibility of the framework synthesis approach, which has been applied in other research aiming to update policy guidelines (Dixon-Woods, 2011; Oliver et al., 2005; Thomas et al., 2004). Having a second reviewer to check through the search strategy and pre-validated quality assessment tools minimised the potential for bias in the review findings (Egger et al., 2003; Mulrow et al., 1997). Another strength of the review was the use of broad and inclusive search terms.

Only a small number of studies ($n = 7$) were identified in this review. Furthermore, the quality of the evidence available was generally low as rated by the JBI quality assessment tools. This makes it difficult to draw any firm conclusions about the impact of communication method on attendee factors in cancer screening. Furthermore, the differences in anxiety between in-person and telephone results consultations did not appear in the literature. This is a major gap. Therefore, it is recommended that research is needed, directly comparing telephone and in-person results for any differences in screening attendee outcomes.

This review only focused on a female population of screening attendees, due to the potential gender differences in anxiety. Future research should consider evidence from other screening programmes including other populations.

5. Conclusions

Overall, there is limited evidence regarding the impact of communication method on attendees at cancer screening. From the limited evidence, the review findings suggest that verbal methods of communication (telephone and in-person) are most favourable for facilitating understanding, in comparison to written methods of communication. However, there was not enough evidence to infer which method of communication may minimise anxiety for screening attendees. The majority of cancer screening attendees prefer verbal methods of communication. However, the reasons for this preference remain unexplored. Furthermore, there was not enough evidence to show the difference between communicating results in-person or over the telephone.

Further research is required to understand the impact of the delivery of results on screening attendees via different communication methods.

This may become particularly salient as methods for communicating results become more technologically advanced, for example, the use of video consultations or interactive patient reports (Armfield et al., 2015; Greenhalgh et al., 2016; Short et al., 2017). Therefore, it is essential that researchers from psychology, communication and healthcare backgrounds come together using a multidisciplinary approach to ensure that we fully understand the impact of results communication on screening attendees.

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.pmedr.2018.12.016>.

Conflict of interest statement

Jacque Jenkins, Margaret Casey and Olive Kearins are employed by the NHSBSP and Public Health England. This is not anticipated to have influenced this review.

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