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Educational differences in responses to breast cancer symptoms:

A qualitative comparative study

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ABSTRACT

Objective Advanced stage at diagnosis for breast cancer is associated with lower socio-economic status (SES). We explored what factors in the patient interval (time from noticing a bodily change to first consultation with a health-care professional) may contribute to this inequality.

Design Qualitative comparative study.

Methods Semi-structured interviews with a sample of women (≥ 47 years) from higher ($n = 15$) and lower ($n = 15$) educational backgrounds, who had experienced at least one potential breast cancer symptom. Half the participants ($n = 15$) had sought medical help, half had not ($n=15$). Without making breast cancer explicit, we elicited women's sense-making around their symptoms and help-seeking decisions.

Results Containment of symptoms and Confidence in acting upon symptoms emerged as two broad themes that differentiated lower and higher educational groups. Women from lower educational backgrounds tended to attribute their breast symptoms to trivial factors, and were reticent in using the word 'cancer'. Despite 'knowing' that symptoms could be related to cancer, women with lower education invoked lack of medical knowledge – "*I am not a doctor*" – to express uncertainty about interpreting symptoms and accessing help. Women with higher education were confident about interpreting symptoms, seeking information online, and seeking medical help.

Conclusions Our findings suggest that knowledge of breast cancer alone may not explain socioeconomic differences in how women respond to breast cancer symptoms as women with lower education had 'reasons' not to react. Research is needed on how to overcome a wider spectrum of psycho-social factors to reduce future inequality.

INTRODUCTION

Breast cancer is the most common cancer in women in the developed and developing world, with early detection a key strategy for breast cancer control (World Health Organisation, 2015). In developed countries such as the UK there are organised breast cancer screening programmes to aid early detection. Despite this, symptomatic presentation in primary care is still the most common route to diagnosis, with approximately seven out of ten breast cancers in England being diagnosed after people contact their doctor with symptoms (Lyratzopoulos & Abel, 2013; Walker, Hyde, & Hamilton, 2014).

Lower socioeconomic status (SES) is associated with increased risk of being diagnosed with later stage disease (Baquet & Commiskey, 2000; Downing, Prakash, Gilthorpe, Mikeljevic, & Forman, 2007; Jean, Martin, & David, 2004; Lyratzopoulos, Abel, Brown, et al., 2013) and poorer survival (Downing et al., 2007; Rutherford et al., 2013). It has been estimated that if deprivation differences were eliminated, 600 women a year with advanced stage disease in England would be diagnosed at an earlier stage (Lyratzopoulos & Abel, 2013; Lyratzopoulos, Abel, Brown, et al., 2013) and about 450 breast cancer deaths every year could be avoided (Rutherford et al., 2013).

The association between delay and advanced stage at diagnosis is well-established for breast cancer (Richards, Westcombe, Love, Littlejohns, & Ramirez, 1999). The Model of Pathways to Treatment and the Aarhus statement identify several intervals where delays in diagnosis may occur, including the patient interval (pre-presentation), and the primary care interval (post-presentation) (Scott, Walter, Webster, Sutton, & Emery, 2013; Walter, Webster, Scott, & Emery, 2012; Weller et al., 2012). The length of the primary care interval in women subsequently diagnosed with breast cancer is very short. For example, in English symptomatically detected women with breast cancer the median primary care interval is 0 days (inter-quartile range=0-1 days) (Lyratzopoulos, Abel, McPhail, Neal, & Rubin, 2013). Concordantly, multiple pre-referral consultations (which are strongly associated with the

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length of the primary care interval) are rare in women with breast cancer (Lyratzopoulos, Abel, McPhail, et al., 2013; Lyratzopoulos, Neal, Barbiere, Rubin, & Abel, 2012). Therefore inequalities in stage at diagnosis of breast cancer are likely to reflect inequalities in the length of the patient interval (Lyratzopoulos & Abel, 2013; Lyratzopoulos, Abel, Brown, et al., 2013; Macleod, Mitchell, Burgess, Macdonald, & Ramirez, 2009; Rutherford et al., 2013).

A recent review identified psychosocial factors that may be sensitive to SES and help explain differences in how people respond to symptoms (Whitaker, Scott, & Wardle, 2015). People with lower SES link less 'warning signs' to cancer when presented with a checklist of symptoms (Hvidberg, Pedersen, Wulff, & Vedsted, 2014; Linsell, Burgess, & Ramirez, 2008; Robb, Stubbings, Ramirez, Macleod, Austoker, Waller, et al., 2009), have lower attentional resources to dedicate to interpreting bodily sensations (Nettle, 2010), and may side-line or 'contain' worrying bodily changes to help manage negative or fatalistic expectations about health (Andersen, Paarup, Vedsted, Bro, & Soendergaard, 2010; Beeken, Simon, von Wagner, Whitaker, & Wardle, 2011; Wardle & Steptoe, 2003). Socio-cultural factors relating to healthcare systems may also influence help-seeking. For example, people from higher SES groups are more successful at negotiating 'candidacy', defined as perceived eligibility for accessing healthcare services (Dixon-Woods et al., 2006).

Although possible psychosocial and socio-cultural factors have been highlighted, to our knowledge there is no research that has specifically explored how women from different socioeconomic backgrounds interpret and respond to potential breast cancer symptoms within the context of daily life. Therefore, we conducted in-depth qualitative interviews with a sample of women from lower and higher socioeconomic backgrounds, who were experiencing potential breast cancer symptoms, to understand SES differences in the patient interval. We chose to interview women without a current breast cancer diagnosis because retrospective studies of patients with breast cancer can lead to their narratives being influenced by the cancer diagnosis (e.g. Granek & Fergus, 2012). Secondly, we adopted a

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qualitative approach because quantitative studies such as surveys (e.g. Robb et al., 2009) can overlook the ambiguities inherent in symptom interpretation and the specific context of help-seeking.

Our approach was informed by the Model of Pathways to Treatment (MPT) in that we attended to factors relevant to both symptom appraisal and help-seeking intervals (Scott et al., 2013). The model takes into account individual patient factors (e.g. demographic characteristics, attitudes to help-seeking) but also healthcare provider factors (e.g. access to healthcare). MPT draws on two specific psychological theories to explicate the processes taking place during these intervals: the Common Sense Model of Illness Self-Regulation (CSM) (Leventhal, Meyer, & Nerenz, 1980; Leventhal, Brisette, & Leventhal 2003), and Social Cognitive Theory (SCT) (Bandura, 2001), which inform the symptom appraisal interval and the help-seeking interval, respectively.

According to CSM, heuristics such as age, severity, duration, or novelty underpin the interpretation of symptoms, and these operate in line with an individual's illness representations and health history. CSM posits further that people are motivated to cope emotionally with their symptoms and that in certain circumstances symptoms may be interpreted in ways that help people avoid receiving psychologically threatening diagnoses. In terms of the help-seeking interval, Bandura's Social Cognitive Theory (SCT) and in particular the concept of self-efficacy (a mechanism of personal agency) are viewed by MPT as providing a useful theoretical framework for understanding why some individuals may be more able than others to formulate help-seeking intentions and to translate them into action. However, SCT recognises that the self is embedded in a network of wider socio-structural relations, and that social factors such as education or socioeconomic status can impinge on one's sense of self-efficacy.

METHOD

Participant selection and recruitment

We purposively sampled women from lower and higher socioeconomic backgrounds in England, using education as a recommended index of socioeconomic status (SES) in older adults (Grundy & Holt, 2001). We also purposively sampled to ensure an equal balance of women who had or had not sought help within each educational group. Women with no formal qualifications were categorized as lower SES, and women with qualifications (including more than two O-levels, GCSE, A-levels or higher, university degree or higher) were categorized as higher SES, in line with previous research (Linsell et al., 2008). O-levels (Ordinary Levels) represent academic qualifications gained through exams usually taken at age 16; GCSE (General Certificate of Secondary Education) is a qualification in a specific subject typically taken by school students aged 14–16, and below A level; and A-levels (Advanced Levels) are qualifications gained through exams usually taken at age 18 and required for university entrance. The inclusion criteria were women aged 47 years or older who had experienced at least one breast cancer symptom in the past 6 months. We recruited women aged 47 or older because among this age group breast changes are more likely to be symptoms of breast cancer than among women younger than 47 (Cancer Research UK, 2016). The exclusion criteria were women with a current or previous diagnosis of breast cancer.

Women were mainly recruited through a specialist recruitment agency (Saros Ltd.) with expertise in recruiting members of the public with health conditions. Female panel members were sent a screening questionnaire (see below) by Saros Ltd. Women who met the screening criteria (based on education, history of previous illness and experience of breast symptoms) were subsequently called by the agency and re-screened on the telephone before being booked for interviews.

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Prospective participants were given an information sheet which outlined the purpose of the study without making breast cancer explicit (i.e. how women make sense of health symptoms in the everyday context), and a consent form which provided information on data protection and confidentiality. Upon agreeing to participate, the women were booked by the recruitment agency for a telephone or face-to-face interview (according to their preference), and their contact details were passed on to the research team who then conducted the interviews (first author). Three other women (interviewed by the last author) were recruited from an ongoing symptom survey conducted through primary care, details of which have been published elsewhere (Whitaker et al 2015a). This study received a favourable ethical opinion from the University of XX (UK). The wider symptom survey conducted through primary care from which three participants were interviewed received NHS ethical approval.

Breast cancer symptoms

We designed a screening questionnaire which the specialist recruitment company used to recruit women among their online participant panels who met our inclusion criteria. We asked women about their experience of breast symptoms in the past 6 months, using symptoms in the Breast Cancer Awareness Measure (BCAM: Linsell et al., 2010) (e.g. change in the position of your nipple, pain in one of your breasts or armpit, discharge or bleeding from your nipple, lump or thickening of your breast, nipple rash). For the women recruited from the symptom survey the women reported an unexplained lump in breast or armpit (n=2) and pain in breast (n=1). Women were also asked if they had sought medical help for their symptom (Yes/No).

Interview

Without making breast cancer explicit, we elicited women's experience of breast-related symptoms, symptom attribution, and actions taken (or not) in response to their symptoms. The interviews varied in length from 20 to 67 minutes, lasting on average 44 minutes and were carried out either over the telephone (n=23) or at university offices (n=7) by first author

and last author. Both the first and the last author have a background in psychology and are experienced at conducting qualitative research (field interviews, focus groups, telephone interviews) asking people about health risk perceptions, symptom experience, medical help-seeking, and motivations for engaging in preventive behaviours in relation to disease.

The interview topic guide was informed by prior work (Whitaker et al, 2015b; Whitaker et al, 2015a). See supplementary information for topic guide. The questions pertained to women's experience of breast-related changes, their thoughts and feelings about these symptoms, their help-seeking strategies (formal and informal), and their experiences of barriers (if any) in the healthcare system (e.g. interactions with GP, easiness of making appointments).

Finally, we assessed the participants' views on whether they ever delay seeking medical help and why.

In the information sheet participants were advised to contact their GP if they felt worried as a result of the interview, and also had the option to contact the named researcher. We also debriefed participants at the end of the interview and gave them information about breast cancer, whilst also reassuring them that not all breast changes or symptoms are linked to cancer. Women were encouraged to seek advice from their GP for their symptoms if they had not already done so, or if they had any concerns.

Analysis

The interviews were digitally recorded and transcribed verbatim. Data analysis was led by the first author, with input from the second and last authors. Transcripts from each SES group were first read and analysed inductively, separately, to enable us to build an understanding of the idiographic qualities of each sub-group before moving on to a deductive analytic stage to draw similarities and differences between sub-groups. We analysed sub-groups initially, using inductive thematic analysis (Boyatzis, 1998; Braun & Clarke, 2006), which is a bottom-up approach where the codes and themes are driven by the data and not by a theoretical framework. At this stage, each set of transcripts was read

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repeatedly, and codes were developed by the first author and written in the margins of the transcripts, e.g. “symptom too intermittent to cause concern”, where codes are labels representing meaningful and important features in the data. The codes were revised in consultation with the last author. Codes were then grouped to construct themes; e.g., “bra attributions”, and “symptom to be expected at this age” were combined to form the “*Normalising*” theme.

After conducting an initial inductive analysis, we employed a deductive thematic comparison to refine the themes and to highlight key differences and similarities between the two sub-groups. Our final analysis was deductive for two main reasons: first, we wanted to go beyond the experiences of breast cancer symptoms which have been covered in detail in past research (see Khakbazan et al., 2014, for a meta-ethnographic synthesis) and focus instead on SES differences in symptom appraisal and help-seeking strategies; second, we drew on MPT (Scott et al., 2013) to explore how any identified SES differences might be understood within the theoretical frameworks offered by CSM and SCT, respectively.

During the stage of deductive analysis we grouped the themes into two master themes to summarise key differences between lower and higher SES groups that could help explain patient delay in help-seeking for breast cancer symptoms. Our deductive analytic approach was informed by framework analysis (Ritchie & Lewis, 2003), because it enabled us to chart similarities and differences systematically and thus draw rigorous comparisons between higher and lower SES participants. Framework analysis is a method of qualitative data analysis similar to thematic analysis in that it enables researchers to use codes, construct themes and use theoretically-driven analytic approaches. However, framework analysis is different from thematic analysis as it “*involves a systematic process of sifting, charting and sorting material according to key issues and themes*” (Ritchie and Spencer, 2002: p310), and the mapping of themes against each individual transcript. Crucially, framework analysis is specifically suitable for qualitative studies where there is a specific research question, a

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short timeframe, a pre-designed participant sample, and an a priori issue (Srivastava & Thomson, 2009).

We used Microsoft Excel spreadsheets to index and chart the data: each respondent was allocated a row; each column denoted a code (e.g. 'age attribution') with codes at the top of columns; separate worksheets grouped codes and relevant quotes into emerging themes. The indexing and charting of the data enabled us to maintain rigour in the analytic process. The authors included a social psychologist (X), qualitative researcher (X), professor of general practice (X), cancer epidemiologist (X) and health psychologist (X), which ensured a multi-disciplinary approach to the analysis. Next to the participants' quotes below we indicate the participant identification number, age, and SES, where 'L-SES' represents lower SES and 'H-SES', higher SES.

RESULTS

Participants

We recruited 30 women (mean age=56 years, range from 47-81 years) from higher (n=15) and lower (n=15) educational backgrounds. Half of the participants (n = 15) had sought medical help for their breast symptoms, and half had not (n = 15): of the 15 participants from higher educational backgrounds, six had contacted the GP about their symptoms, while of the 15 participants from lower educational backgrounds, nine had contacted the GP. Those who had sought help had not received a breast cancer diagnosis. Respondents were 83% White British (25/30), 63% married (19/30), and 67% working (20/30). The majority of women (80%; 24/30) had participated in mammography in the last two years, which is slightly higher than the national 3 year average uptake of mammography (76%) (Cancer Research UK, 2016).

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Symptom experience

Women reported a range of breast cancer symptoms. Over half of women interviewed (57%) reported pain in the breast or armpit (n=17) and two women reported pain in breast or armpit accompanied by a change in breast size or shape (n=2). Other symptoms included lump in breast or armpit (n=7), nipple rash and redness of breast skin (n=3) and one woman reported discharge or bleeding from the nipple (n= 1).

Educational differences in interpretation and responses to breast symptoms

We constructed two master themes summarising the main differences in how women from lower and higher SES backgrounds interpreted their symptoms (containment), and responded to them (confidence in acting upon symptoms). See Table 1 for an overview.

Containment of symptoms

Normalising

Across educational groups, women gave alternative plausible explanations for their breast symptoms, for example, attributing them to getting older or to the menopause:

Nothing sinister, it's just apparently an age thing, your breasts get lumps and move around and get bigger (P29, 55, H-SES).

I just put it down to age-related, because I'm 68 next month. Maybe these things happen. I've gone through the menopause, still getting the occasional hot flush from the menopause. I'm putting it down to that (P11, 67, L-SES).

Normalising symptoms was related to dismissing the possibility of breast cancer, using symptom characteristics for justification: “*because it's an intermittent pain, I don't think I've*

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got anything like breast cancer” (P11, 67, L-SES). Women also used the ‘all-clear’ results from the most recent mammogram to justify not being alarmed or seeking help:

Because I’ve just had a scan and that’s come back clear, I didn’t think that I need to worry about it (P17, 54, H-SES).

Although both groups normalised breast-related symptoms, L-SES women drew on a wider range of external causes, such as wearing an uncomfortable bra, being overweight, washing powder, or older age:

Some of my bras are quite tight. I work nights, so I’m always in a bra in the day, in the daytime, and I wear a bra at night for work. I do 12.5hr shifts. And sometimes I wonder if it’s maybe because my bra is tight, that could be a reason (P5, 48, L-SES).

I was putting it down to several different things: to the fact that I’d put a bit of weight on, and then I was putting it down to the fact that it was summer and I was rushing around, so was I sweating a lot, or was it my washing powder I was using? I didn’t put it down to anything major (P13, 55, L-SES).

Not only me but most people my age, and as we grow up you get all these things. [...] As you get older your muscles are not so strong, and I think you get an ache, really, more than a pain (P3, 81, L-SES)

Considering cancer

Although the majority of L-SES women did consider breast cancer a possibility, they did not make explicit reference to breast cancer; rather, they couched their concerns in tentative language, using expressions such as ‘*something sinister*’, ‘*anything dodgy*’ or ‘*the worst thing*’:

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Well obviously I worry that it could be something more serious. And I do check my breasts quite regularly. But I just think, well, it's just before a period. (P5, 48, L-SES)

Well, the first thing that comes into my mind is the worst. But you say to yourself at the same time, try not to think about the worst thing (P7, 50, L-SES).

In contrast, the H-SES women made more explicit references to breast cancer, and also appeared to engage more actively in strategies to have their concern either confirmed or ruled out:

At first I was checking out online to see it's not breast cancer. I don't think its breast cancer. I haven't found anything (P19, 65, H-SES).

L-SES women, however, were somewhat more hesitant than H-SES women to resolve ambiguities around the nature of their symptoms, and more reluctant to seek health information:

No, [I haven't tried to find out more about it], I just think it doesn't come that often to do anything about it. If it was coming every week, or something like that, then I would probably do something about it (P11, 67, L-SES).

I think I've read in magazines, just general women's magazines, that your breasts do feel a little bit more tender around the time of period and approaching menopause as well. But that's just in a magazine. I've never really thought to google anything about breast pain, to be honest (P5, 48, L-SES).

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Invoking situational constraints

Another strategy of containment, evident among L-SES women, related to using situational constraints such as work and childcare as justification for not seeking medical help:

When you lead a busy life and you've got work and family, sometimes it's just fitting things in as well, or when there's appointments. Working nights as well, and I need to sleep in the day, I've got teenagers, they need my attention, then there's all the domestic things, housework, shopping. (P5, 48, L-SES)

I did say on a couple of occasions, "Oh I should make an appointment at the doctor's", but then I just didn't do anything. I'm a busy mum, I work, and you put yourself last, generally. (P24, 47, L-SES)

Confidence in acting upon symptoms

Confidence in contacting doctor/ information-seeking

Educational differences emerged in relation to how women expressed confidence in seeking and accessing medical help for their breast symptoms. H-SES women indicated being proactive and decisive in obtaining clear answers about their breast symptoms, for example 'I asked for a second opinion from another doctor (P19, 65, H-SES) and:

I wasn't happy and I wasn't prepared to wait ten days, and I told the GP that I had already made a decision to use my private medical policy and I already had the surgeon in mind that I wanted to go and see at my local private hospital, and I asked her for a letter of referral. (P8, 67, H-SES)

In contrast, some L-SES women were less confident in approaching their doctor and more worried about wasting their doctor's time:

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I just feel if I went with that the GP might just say, 'Oh it's just a slight irritation, here's a bit of cream.' I feel like I've wasted his time. I feel really embarrassed, because I know how busy he is. (P13, 55, L-SES)

Furthermore, some L-SES women expressed lack of assertiveness in accessing medical care, and a lack of knowledge about follow-up investigations:

I was hoping I would have got more help from doctors. I don't know what the procedure is, if you have a pain in your breasts, I don't know if you are supposed to be x-rayed or what. It was actually in the hands of the doctor. They should have offered me other investigations, [...] I do occasionally think it's maybe something that should be investigated, but then I think, well, I don't want to always go to the doctor and tell the doctor what I would like. (P22, 62, L-SES)

There was an implicit tendency among some L-SES women to express reliance on the doctor, which, alongside the claim that '*I am not a doctor*' (P30, 50, L-SES), was used to voice a lack of self-confidence in appraising their symptoms, or to cast doubt on the value of looking up the symptoms online:

I've looked online. Sometimes I think, it's probably better if I don't look online because sometimes – I'm not a doctor, obviously – you read things online that might kind of put some fear into you. And I would rather not really think about it. (P22, 62, L-SES)

H-SES women almost never invoked this argument. While they shared the L-SES women's concerns that online information-seeking is not fully trustworthy and can contain "*too much scaremongering stuff*" (P23, 52, H-SES), they rarely expressed lack of self-confidence in

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making sense of the information. Instead, the H-SES women articulated higher levels of medical knowledge, and more confidence about looking up medical information:

I've looked on the Internet. I downloaded a fact sheet about breast pain. I did actually read that most breast pain isn't actually cancer" (P20, 60, H-SES).

Cancer fear

Fear was a further barrier that prevented L-SES women feeling confident to act on their symptoms. While some H-SES women acknowledged that "*[breast cancer] was something at the back of my mind right from the beginning*" (P6, 48, H-SES), the fear of a potential cancer diagnosis was more explicit among L-SES women, which made them reluctant to see the doctor. These L-SES women knew 'in their heart' that they should seek medical help, yet avoided doing so due to fear of being examined or being given a breast cancer diagnosis:

[I waited] about four or five weeks. Which is stupidity on my part, I know, but it's this you-don't-want-to-know attitude. I chickened out, which is silliness. (P14, 58, L-SES)

What was going through my mind was, if I was sensible, I would have told my GP and he would have examined me or sent me to see somebody. [...] I was frightened. I know it is the most stupid reason, but one of the reasons I didn't pursue it at the time, I cannot bear anybody touching my breast in the medical sense. (P15, 65, L-SES)

In contrast, H-SES women almost never described their actions around their symptoms as irrational and even denied delaying seeking help:

'Yes, I would [go back to the doctor about the lump if it changed], I wouldn't be silly' (P2, 77, H-SES).

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Among H-SES women, fear of cancer encouraged, rather than prevented, prompt help-seeking for symptoms:

First of all, your automatic reaction as things are getting worse, is there something wrong? Like, you know, you panic, which is why I went to the doctor's. (P18, 48, H-SES)

I wanted to eliminate the anxiety. If you feel you have something in you which you think it's cancer... [...] I phoned up and I said it was urgent and I needed an appointment that day, and I eventually got one that day. (P8, 67, H-SES)

DISCUSSION

In this qualitative interview study, we have obtained novel insights into how women from different educational backgrounds interpreted and responded to potential breast cancer symptoms. Readily attributing breast symptoms to benign causes such as age or the menopause was common in women of both SES groups. This is comparable to previous research with older people, and specifically with women (Low, Whitaker, Simon, Sekhon, & Waller, 2015; Whitaker, Macleod, Winstanley, Scott, & Wardle, 2015). One explanatory framework is provided by the situational–adaption model, where symptoms are ‘contained’ or contextualised into expectations of what is ‘normal’ to prevent them from impacting on daily life (Alonzo, 1979; Andersen et al., 2010).

Although we observed similarities with women from higher SES backgrounds, women with lower SES attributed their breast symptoms to a wider range of external causes, such as wearing a bra, older age, or being overweight, and were reticent in mentioning ‘cancer’ as a possible cause. One standard explanation for these findings is that less educated women may have lower awareness of the signs and symptoms of breast cancer, and therefore do not interpret their symptoms as worrying or in need of medical attention (Linsell et al., 2008).

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However, recent research showed that women with lower levels of education were less likely to mention cancer as a possible cause of a hypothetical breast symptom scenario, and were less likely to want to know if they had breast cancer (Marcu et al, 2016), which adds validity to our finding that women with lower education were less likely to mention 'cancer' in our qualitative interviews. This has implications for public health campaigns aimed at encouraging prompt presentation.

For breast cancer, campaigns in the UK have included raising awareness of the signs of breast cancer, but as new campaigns are developed it will be important to address the potential issue of avoidance to prevent exacerbating existing inequalities (Marcu et al, 2016). Further research is required here, as we don't yet understand the mechanisms underpinning higher cancer avoidance in people from lower SES backgrounds or how this might be addressed in public health campaigns. For example, people with lower SES may react differently to public health messages featuring doctors (e.g. 'Your doctor wants to know'), or there may be other individual differences (e.g. higher comorbidities in people with lower SES) that may desensitise certain groups to public health messages.

Despite women 'knowing' that their symptom could be a warning sign of breast cancer, and that accessing healthcare was 'the right thing to do', women from lower SES backgrounds were more likely to describe a discrepancy between what they knew in theory and how they behaved in practice. We propose several explanations for this discrepancy that fit with the context of Social Cognitive Theory (Bandura, 2001). For example, personal barriers to help-seeking invoked by women with lower SES included lack of time, lack of self-confidence and fear, whilst system barriers included lack of understanding of operational aspects of the healthcare system (e.g. follow-up investigations).

In line with previous research women with lower SES cited situational constraints as a barrier to help-seeking, e.g. being too busy to fit an appointment in with other competing

priorities (Facione, 1993). Although it is likely that women from all educational backgrounds are tasked with coping with competing priorities, evidence suggests that lower SES is associated with lower reactive responding (the ability to deal with numerous daily hassles), which in turn reduces resources available for anticipatory planning (von Wagner, Good, Whitaker, & Wardle, 2011).

Lower SES women also appeared less confident in acting on their symptoms, in particular frequently claiming '*I am not a doctor*'. Finally, women with lower SES described fear of being examined or diagnosed with cancer as a personal barrier to help-seeking. Fear has recently been described as a deterrent to help-seeking for possible cancer symptoms (Whitaker et al 2015), which may explain our finding that women with lower SES were reluctant to even mention the word cancer, and were less likely to engage in strategies to have their concern either confirmed or ruled out. This contributes to existing survey-based evidence that people with lower education are more likely to experience cancer fear than people with higher education (Robb, Stubbings, Ramirez, Macleod, Austoker, & Waller, 2009; Vrinten, van Jaarsveld, Waller, von Wagner, & Wardle, 2014). However, this is the first time fear has emerged within a qualitative comparison approach exploring differences in symptom interpretation and action for women experiencing breast symptoms.

System barriers reported by women from lower SES backgrounds included difficulty navigating healthcare, which could be interpreted within the context of the candidacy framework (Dixon-Woods et al., 2006), where candidacy refers to an individual's ability to present their symptoms as eligible for medical attention. For example, there may be inequalities in how women perceive themselves to be eligible for healthcare, and also inequalities in ease of accessing services. Difficulty in accessing primary care has previously been highlighted as a potential problem, as people from deprived backgrounds are more likely to use the emergency department as a first point of care (Bottle et al., 2012; Rubin et al., 2015).

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Our finding of educational differences in perceived personal and system barriers to help-seeking can be understood within the context of social cognitive theory, where socio-cultural factors such as SES influence people's efficacy beliefs (i.e. the belief you can produce the desired result), and hence behaviour (Bandura, 2001). Lack of educational opportunities, illness experience and lower resources in people from lower SES backgrounds have previously been hypothesised as drivers of social inequalities in uptake of cancer screening (von Wagner, Good, Whitaker, & Wardle, 2011). One possibility is that fewer personal and vicarious experiences of self-initiated success, and more negative experiences of illness and healthcare may also impact the psycho-social antecedents of accessing medical help.

To our knowledge, this is the first study to specifically explore socioeconomic differences in responses to possible breast cancer symptoms. Key strengths were that we used a comparative approach and purposively sampled women from lower and higher educational backgrounds. We also had an equal number of women seeking and not seeking help to draw on a diverse range of perspectives and experiences. However, this also limited the number of women from lower SES backgrounds who described not seeking help. Future research could focus on using qualitative approaches in particular sub-groups to further understand barriers to help-seeking. We do not have information on differences between responders and non-responders in the present study, which is a limitation. However, as we purposively sampled by our variables of interest (e.g. education), we do not have the classic bias of under-representation from people from lower socioeconomic backgrounds.

Another possible limitation to be addressed in future research is the lack of public or patient involvement in the research. However, to some extent this may have been mitigated as the topic guide was developed over the course of our previous research with community-based samples and had therefore previously been applied in a public setting.

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Focusing on women without breast cancer, and their interpretation of breast symptoms (over the past 6 months), ensured that women's responses were not influenced by having a cancer diagnosis - a key limitation of previous research. Despite the importance of symptom characteristics (e.g. severity) in driving help-seeking (Whitaker et al, 2016), we did not find differences in descriptions of symptoms according to socioeconomic status. The majority of breast symptoms reported by women in our study were low risk symptoms (i.e. not a breast lump) (Walker et al., 2014), and one possibility that may need further exploration is that inequalities in stage at diagnosis relate more to 'atypical' symptomatic presentation than 'typical' symptomatic presentation. Although we did not match the educational groups according to the specific symptoms reported, approximately half of the women in each group reported pain in breast or armpit, with the other breast symptoms reported less often in both SES groups.

Our findings provide novel evidence for patient factors that may be implicated in differential patient intervals. Despite 'knowing' their symptoms could be warning signs of breast cancer, women with lower educational attainment attributed symptoms to a wide range of benign causes. Women with lower education invoked situational constraints and expressed fear and lack of confidence in making the decision to seek help. Broadening the exploration of psycho-social factors beyond knowledge of breast cancer may pay dividends for reducing future socioeconomic inequality.

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Table 1: Summary of educational differences in responses to possible breast cancer symptoms

Theme (in bold) and sub-themes	Lower education	Higher education
Containment of symptoms		
<ul style="list-style-type: none"> • Normalising • Considering cancer 	<p>Attributed symptoms to wide range of external factors</p>	<p>Made more explicit reference to breast cancer</p>
<ul style="list-style-type: none"> • Invoking situational constraints 	<p>More likely to claim to be too busy to respond to symptoms</p>	
Confidence in acting upon symptoms		
<ul style="list-style-type: none"> • Confidence in contacting doctor • Information-seeking 	<p>Reticent about seeking help online</p>	<p>Confident about acting on symptoms</p>
		<p>Higher health knowledge</p>
		<p>Rationalised help-seeking as 'the right thing to do'</p>
<ul style="list-style-type: none"> • Cancer fear 	<p>Avoiding the doctor due to fear</p>	

* Women with no formal qualifications were categorized as lower SES, and women with qualifications (including more than two O-levels, GCSE, A-levels or higher, university degree or higher) were categorized as higher SES.