Understanding Women's Anxiety and Uncertainty Attending a Rapid Diagnostic Clinic for Suspicious Breast Abnormality: A Mixed Methods Study

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ABSTRACT

Background: Rapid diagnostic centres (RDC) for breast abnormality offer a speedier process from the discovery of a suspicious breast lump to same-day investigation and confirmation of a breast cancer diagnosis.

Purpose: This proof of concept study aimed to assess the anxiety and uncertainty levels of women going through an RDC and explore women's need for support during the diagnostic period.

Methods: Thirteen women who attended an RDC in 2013 took part in a sequential mixed-method study to assess anxiety and uncertainty levels. Measures were taken pre-and post-testing, at three weeks following receipt of results, and were followed by a semi-structured telephone interview.

Results: The mixed data results show congruence between women scoring above clinical values for anxiety and above normative values for uncertainty and detailing their RDC experience as stressful. At pre-diagnosis, uncertainty and anxiety levels were above clinical and normative values for the majority of the thirteen women. Among the women who received a cancer diagnosis (7/13), five had high anxiety, and two scored above normative values for uncertainty. Among the women with a benign diagnosis (6/13), all had anxiety scores below clinical levels, and three had scores above normative values for uncertainty. Anxiety and uncertainty levels remained relatively the same from the three days to three weeks post-testing. The women suggested the need to receive details of the day's unfolding, especially what medical procedures will take place, how, and why, and in advance of the day of testing.

Conclusion: While RDCs offer women with a suspicious breast lump the opportunity for quicker diagnostic testing, preliminary results suggest that the period leading up to the day of testing and three days and three weeks post-testing is marked with anxiety and uncertainty levels above clinical and normative values. The results illustrate the need for further inquiry into the psychological impact of obtaining testing at RDCs for a breast abnormality. Results suggest a potential role for nurses to support the waiting period with psycho-educational guidance and resources.

🏷 **KEYWORDS**

rapid diagnostic centre, breast cancer, psycho-educational support, uncertainty, anxiety

1 | INTRODUCTION

During the diagnostic period after a breast lump is discovered or a mammogram displays suspicious findings, women experience significant psychological distress, including anxiety, uncertainty, and symptoms of acute stress reaction. (1–5) A systematic review of thirty research studies with large sample sizes examining the presence of anxiety levels in the diagnostic period for women suspected of breast cancer found that, on average, 8% to 50% experienced high levels of anxiety. (2) The high anxiety was also found to persist throughout the diagnostic evaluation until certitude was achieved by establishing the definitive diagnosis. (6) Such high levels of anxiety can easily disrupt an individual's ability to maintain their everyday activities and are also documented as having a negative effect on the immune system. (7–9) Pre-diagnostic anxiety is a significant predictor of post-diagnostic anxiety that can impact a person's ability to cope and have implications for adverse long-term outcomes. (2,10) Although the diagnostic phase can be marked with intense emotional distress, this phase is often overlooked in research. (3,11) Rapid diagnostic centres (RDCs) or one-stop clinics were developed to improve the diagnostic process for women and offer same-day investigation and a quick turnaround for a diagnosis of breast cancer (same day to three days post-investigation). (3,12) Conceptually, the idea of RDCs for women with suspicious breast abnormalities is attractive, especially to reduce wait times to diagnosis. (13) However, for the few studies that have investigated the psychological impact of rapid diagnostic testing for breast cancer, the consensus remains unclear regarding its effects on the individual's anxiety, uncertainty, and stress (3,4,14–16); nonetheless, current longitudinal evidence is pointing towards a positive association between symptomatic breast disease and psychological distress. (2,4,17) In addition, there is limited information on whether receiving psychological support during the rapid diagnostic process is needed and valuable, and if so, in what forms. (18) The objectives of this proof of concept study were to assess these outstanding gaps by measuring and describing the levels of anxiety and uncertainty as experienced by women undergoing rapid diagnostic testing for a suspicious breast abnormality before and after testing and exploring the women-expressed needs for support during the diagnostic period.

2 | THEORETICAL MODEL

The Mishel Uncertainty in Illness model guided this study. (19) Mishel ((19), p. 225) defines uncertainty as "the inability to determine the meaning of illness-related events." Uncertainty arises when a person cannot characterize an event because of insufficient cues. This inability may be especially acute in a complex situation, such as a diagnostic workup, where the patient is overwhelmed with an abundance of unfamiliar cues. When a situation is appraised negatively, uncertainty is viewed as a threat rather than an opportunity. In these instances, uncertainty becomes a covariate of anxiety. (20) Thus, one can anticipate that a reduction in uncertainty could, in turn, lead to a reduction in anxiety. (4,21)

3 | METHODS

The setting for this preliminary proof of concept study occurred in an RDC situated in a large Canadian cancer research, treatment, and educational centre. The study followed a sequential mixed-method design. A quantitative phase was first used, followed by a qualitative phase to describe and understand the anxiety and uncertainty experienced by women undergoing rapid diagnostic testing for a suspicious breast abnormality. The quantitative data were collected at three-time points [at pre-diagnosis (T1), three days post-diagnosis (T2), and three weeks post-diagnosis (T3)]. Using the interview format, we collected the women's accounts of their experience at three weeks post-testing, coinciding with quantitative data's last time point measurement. The purpose was to deepen the understanding of the women's scores on the anxiety and uncertainty scales as experienced during the rapid diagnostic phase and obtain their views on the type of support needed during the diagnostic

phase. Data collection occurred in 2013. Research ethics approval was obtained from the Research Ethics Board of the participating hospital 14-092-CE.

3.1 | Sampling

Inclusion criteria included women from the hospital's catchment area who had a suspicious breast abnormality that was detected radiologically or clinically, with no previous history of breast cancer diagnosis, who had an appointment at the RDC and did not have a known history of *BRCA1/BRCA2* mutations. Women were excluded if they did not read or speak English, were less than 18 years of age, had a recent fine needle aspiration that was suspicious for malignancy, or had pre-existing anxiety or major depressive disorder diagnosis. A convenient sampling approach was used to select women. Women who met the inclusion criteria were identified and approached initially by the clinic's medical administrative assistant using an information script. If the women were interested in participating, they were asked for verbal permission to forward their name and telephone number to the study research assistant, who arranged for and conducted the informed consent process. Only those that provided written consent were included in the analysis. Twenty-four women were approached for the study. In total, 13 women met the eligibility criteria and agreed to participate. Reasons for declining were not interested in the study and could not commit time to conduct the interview.

3.2 | Data Collection and Measures

The quantitative data collected included demographics and two validated scales measuring uncertainty and anxiety. Uncertainty was measured using Mishel Uncertainty in Illness Scale - Community form (MUIS-C). (22,23) The MUIS-C is a 23-item scale with responses rated on a 5-point Likert scale ranging from 23 to 115 with a mid-range score of 69 and normative values for breast cancer identified at 33.7. (22–24) In our study, alpha coefficients ranged from 0.88 –0.97. Anxiety was measured using Spielberger's State-Anxiety scale (STAI-

S), (25,26) a 20-item scale with responses rated on a 4-point Likert scale ranging gram 20 – 80. The normally recognized score of 40 for the clinically significant value of symptoms of a state of anxiety was used in this study. (27,28) Alpha coefficients in our study ranged from 0.94 – 0.97. Questionnaires were administered over the telephone; the participant had a copy of the questionnaire to follow along while the research assistant read out the questions and answers. The questionnaires were administered at pre-diagnosis (T1), three days post-diagnosis (T2), and three weeks post-diagnosis (T3). At T3, the principal investigator contacted the women to invite them to participate in a telephone semi-structured interview that focused on 1) the participant's perception of the diagnostic process, 2) challenges faced during this process, 3) their views on areas of uncertainty and anxiety during this process, and 4) suggestions for service improvement. Examples of questions from the interview included: "Tell me what it was like waiting for further testing and waiting for your results? What feelings or concerns did you have during the waiting times? Was waiting for your test results stressful for you? What was it like "not knowing"? What suggestions would you have to improve the diagnostic process?" All participants were interviewed except one who was lost to follow-up following T2. All interviews were audio-recorded and transcribed verbatim.

3.3 | Data Analysis

Quantitative data: The statistical software SPSS 20 was used to generate percentages, means, standard deviations, and reliability scores (Cronbach's alpha), as well as non-parametric statistical analyses to test for significance and correlation from the quantitative data generated from the study survey: MUIS-C (uncertainty outcome) and STAI-S (anxiety outcome). Descriptive statistics were used to summarize the participants' characteristics and levels of uncertainty and anxiety. Pearson correlation coefficient was used to test the association between anxiety and uncertainty levels.

Qualitative data: Qualitative data generated from the semi-structured interviews were transcribed verbatim

and coded using content analysis (29,30) to develop the categories and themes that represented the aggregate data. Three members (CM, CW, DH) independently coded the data. Interview coding continued until a consensus of coding categories and thematic saturation was reached.

Triangulation of Quantitative and Qualitative Data: This study followed a mixed, quantitative-qualitative, sequential analytical approach in which the quantitative data was dominant and analyzed first, followed by the analysis of the qualitative data, used as an adjunct to understand the quantitative findings further. (31) A matrix was developed to show high and low scores of anxiety and uncertainty, with the qualitative data providing a deeper understanding of the quantitative emotional values observed during and after testing. The same three investigators independently reviewed the integration of quantitative and qualitative data and then met as a team to discuss the final findings until consensus was reached.

4 | RESULTS

The thirteen women who took part in the study are representative of the general population seen at the RDC. They had a mean age of 50, had an average of two children, the majority were married (n=8/13) and university-educated (n=8/13). While about 15%-20% of all breast cancer cases tend to be familial (32), in this sample, there was a higher sample of women with a family history of the diseases (n=7/13). Following testing, among the 13 women, seven were found with a malignant tumour and six with a benign tumour.

At the pre-diagnosis, nine out of thirteen women scored above the clinical values for symptoms of state anxiety and all thirteen scored above normative values for the state of uncertainty (normative mean value = 33.7, standard deviation + 12.9; a range of 23–115) (see **Table 1**). A two-tailed Pearson correlation coefficient test between anxiety and uncertainty revealed a strong association of 0.757 (p=0.003).

The following categories separate the triangulated results from the quantitative and qualitative data to reveal themes that could help explain their emotional experience: 1) by the time of diagnosis from pre-diagnosis to three days and three weeks post-diagnosis and 2) by below and above clinical and normative values for anxiety and uncertainty.

4.1 | Pre-diagnosis: Below clinical values on anxiety but above for uncertainty

Two themes best describe women's experiences with low anxiety (n = 4/13) but high uncertainty (13/13): use of positive reinterpretation and support received by clinical staff.

Use of Positive Reinterpretation: The four women in this category, although experiencing high levels of uncertainty, maintained their anxiety level below the cut-off by viewing their situation in a more favourable light, such as an opportunity. That is, whenever they worried about their upcoming test results, the women described using repetitive positive thoughts and holding on to the belief that their suspicious breast abnormality would probably be benign. They viewed their situation as positive: "it is just the healthcare team erring on the side of caution" (Participant 2). The four women also described the use of calming self-talk to help reinterpret negative anxiety-provoking thoughts into positive thoughts "I am able to get through it. I can deal with this… I am strong" (Participant 1). Another woman described how she practiced letting go of a situation she had no control over and how that process left her feeling less anxious "so I said to myself, until I have more information, I am just going to leave it and not try to think about what it could be" (Participant 2).

Support by clinical team: All the four women in this category mentioned how the support and reassurance they received from the clinical team helped them remain calm: "it is most likely not cancer" (Participant 9). The clinical nurses' explanations as to why further tests were needed were mentioned as helpful to reduce uncertainty and anxiety.

Timepoint	Anxiety Above Cut-Off (40)	Uncertainty Above Normative Values BC (33.7)
T1 **Pre-Diagnosis**	Malignant n=3 Benign n=6 Total n=9	Malignant n=6 Benign n=7 Total n=13
T2 **3 Days Post-Diagnosis**	Malignant n=5 Benign n=0 Total n=5	Malignant n=2 Benign n=3 Total n=6
T3 **3 Weeks Post-Diagnosis**	Malignant n=3 Benign n=2 Total n=5	Malignant n=4 Benign n=3 Total n=7

TABLE 1 Uncertainty and Anxiety above clinical cut-off by diagnosis received. Malignant, n=7, Benign, n = 6, Total, n=13.

4.2 | Pre-diagnosis: Above clinical values for both anxiety and uncertainty

For both groups of women with a malignant and benign diagnosis whose scores were above clinical values at pre-diagnosis for anxiety (n = 9/13) and uncertainty (n = 13/13), two themes best describe their experiences: 1) additional testing generating uncertainty, and 2) concern over maintaining responsibilities.

Additional testing generating uncertainty: These women described a lack of understanding of the additional testing being carried out and how additional testing led to considerable uncertainty. They also talked about feeling anxious while waiting for the test results from their additional testing. One woman described her anxiety arising from a statement made by her health professional that the participant could not decipher the true meaning of "they want to do a biopsy to check on some cells... What exactly did she mean? I consider this a statement with no ending" (Participant 8). To another woman, the feeling of uncertainty occurred because the necessity of additional tests made it hard for her to view the situation in any other way than "catastrophic" (Participant 9). Notwithstanding the small sample of nine, the findings above are aligned with the association found between the quantitative measures of anxiety and uncertainty before receiving their diagnostic results (p=0.003).

Concerns over maintaining responsibilities: Women who feared the "worst-case scenario.": Women who expressed fears and increased perception of being found with cancer described how they were affected by intrusive thoughts of cancer and had difficulty carrying out their daily responsibilities such as childcare. They described their pre-emptive worrying about the potential cancer diagnosis and recounted their thoughts about how it could negatively and significantly affect their obligations, responsibilities, and lifestyle, citing examples such as their ability to be a good mother. For instance, a mother with a young child at home described the situation in this way:

> "... I was worried; I have a seven-year-old boy, and when you do not know... what is happening, you think about the worst-case scenario...cancer and then the treatment and how this is going to affect your lifestyle and the fact that you have a...very young child. I worry about the future as a mother"
>
> *Participant 5*

In expecting the worst-case scenario, these women explained their experience prior to testing as being frozen by their fear and having difficulty functioning in their daily tasks. Finally, one contextual similarity was found among the women of this category who exceeded clinical and normative values for both anxiety and uncer-

tainty: their shared family history with cancer. They experienced the highest anxiety levels, with scores up to 73 with a possible maximum score of 80. (25,26)

4.3 | Three days post-diagnosis: Above clinical values for anxiety and uncertainty among the women who received a cancer diagnosis

Among the women who received a cancer diagnosis (7/13), five had high anxiety, and two scored above normative values for uncertainty. Three major themes were described by those receiving a cancer diagnosis: 1) as "life-changing"; 2) as having to face many uncertainties and stressors, and 3) for two women, "a relief."

Cancer is life-changing: These women described a cancer diagnosis as life-changing with many uncertainties. One of the women captured this feeling when she explained how she felt after hearing she has breast cancer, "I mean, how can you not be upset? Your whole life is completely discombobulated at that point because you have so many things to think about, and your whole life is going to completely change" (Participant 3). The women described feeling anxious about how they would maintain their daily routines for themselves and others, such as their weekly physical activity routine. Half (4/7) of the women described how overwhelmed they felt and how upset they were at their bodies for having let them down. They portrayed the situation as one of the most stressful events of their lives. However, some women said that they felt thankful for the way the healthcare team attempted to reassure them, providing them with immediate details of treatment plans and that they felt supported as they moved into the next phase of being a cancer patient. In the days following the diagnosis, the women described how they reached out for support from family, with one specifying how she sought refuge in her religious faith.

Facing uncertainties and stressors: The uncertainty of their treatment plan and the unfamiliarity with potential side-effects left women feeling anxious: "...I have heard that you are really sick in chemo, but are you sick the whole time or are you just sick on certain days

and then the whole idea of losing your hair" (Participant 3). Another woman described how her treatment plan, which consisted of chemotherapy, was going to affect her ability to enjoy the seasons and holidays: "...I knew it was a year, a year by the time you go through all this (chemotherapy). So then in your mind, you are thinking, okay, well I am going to miss...the fall and Christmas. This is not going to be great" (Participant 8). Women went through additional testing such as a biopsy to obtain their diagnosis. One woman described this experience as a "funeral moment".

A sense of relief: The sense of relief expressed by two women in the cancer group was described by three certainties: "know[ing] what the [diagnosis] was" (Participant 3), "knowing cancer had not metastasized" (Participant 8), and "being recommended treatment that did not include mastectomy" (Participant 11). Knowing their breast abnormality was cancer provided a sense of certainty to some women. They now knew what they were dealing with (cancer) and could formulate treatment plans in line with their wishes. This, in turn, gave them a feeling of control over the situation. As described by one of the women, "When they recommended a lumpectomy...tsunami of relief rush[ed] through me because I was so afraid of losing my breast that when they said lumpectomy, I was like, fine...where do I sign?" (Participant 11).

4.4 | Three days post-diagnosis: Above clinical values for anxiety and uncertainty among the women who received a benign diagnosis

Among the women who received a benign diagnosis (n = 6/13), all had anxiety scores below clinical levels, and three had scores above normative values for uncertainty. Two themes describe their experience post-diagnosis for this subgroup: a) absolute relief and b) adjusting to the diagnosis.

Absolute relief: The six women described a sense of relief upon hearing that their suspicious breast lump was benign. The women described the event as a huge weight taken off their shoulders, allowing them to return

to their daily routine and habits, as well as validating their initial instincts that the lump would be found to be benign or their suspicions unfounded. One woman (Participant 10) who had advocated for a referral to the RDC to receive additional testing to confirm a previous diagnosis of benign fibroadenoma explained that she felt relief from having it "confirmed" by a biopsy.

Adjusting to the diagnosis: For the three women who scored above normative values for uncertainty three days post-diagnosis, their uncertainty levels remained above three weeks post-diagnosis. However, two of these three women who received a benign diagnosis were told they would need a lumpectomy and further pathological testing to remove the abnormal tissue formation. They described the need for further investigation using language that was suggestive of residual uncertainty, such as how tumour growth is unpredictable, no diagnosis is ever 100% certain, that this is why they want to remove the abnormal growth, and we cannot predict every single detail of what is going to happen next. Specifically, the women used words such as "So...when I got the diagnosis that it is a great possibility that it is 100% benign, but there is still a chance…" (Participant 4) and "there is a possibility that it could be a type of benign tumour...that could get larger, so the recommendation is to have it removed" (Participant 7). Another woman who presented with residual uncertainty three days post-diagnosis despite receiving a benign diagnosis reported that she understood her diagnosis as having both a malignant and benign form of cancer that could later develop into full cancer.

4.5 | Three weeks post-diagnosis: Above clinical values for anxiety and uncertainty

Anxiety and uncertainty levels remained relatively the same for both groups of women with a malignant and benign diagnosis from three days to three weeks post-testing. There was, however, an increase noted in the benign group, with two now experiencing anxiety above the clinical levels and an additional woman experiencing uncertainty above normative values. The two women

who now experienced high anxiety at three weeks post-testing described that they expected to receive a cancer diagnosis eventually. One woman described her belief as "the negative now is that I am waiting for it...I missed this one...but I figure it will hit me at 60, 65...so you know other women would say, oh my God, it is a blessing, it is fantastic, I am saved! No, I am waiting. I am waiting for the shoe to drop" (Participant 5).

4.6 | The need for support during the diagnostic period

The women suggested the need to receive details of the day's unfolding, especially what medical procedures will take place, how, and why, and in advance of the day of testing. They wanted to know if they needed to take pain medication prior to their clinic appointment for further testing and if it was best to be accompanied. On the day of receiving their results, half of the women shared needing more information on their diagnosis, such as a written report on the stage of their diagnosis. One suggestion was to provide a lecture on breast cancer diagnosis and the possible stages that might be found, which was seen "as a way to brace [themselves]" (Participant 8) for all diagnostic possibilities. The women recommended that they be asked if they would prefer to receive such a lecture while waiting for further testing or waiting for their results. Some of the women viewed the option of knowing in advance the possible implications of being diagnosed with cancer as a means by which to lower their uncertainties and distress.

In addition to their information needs, most women described a need for supportive care. The women described a need for preparatory emotional support or counselling to help acquire and build adequate coping skills prior to attending the RDC. The women suggested having a one-time telephone call from a nurse before and after attending an RDC to assess their support needs and coping skills. They also suggested having educational sessions on the upcoming procedures to reduce the uncertainties about the event on testing day. The women also recommend that prior to attending their full day of testing and waiting, someone from the clinic

should recommend they come with a support person. After all, as one woman shared, "we are here all day getting tests done, waiting for the results at the end of the day with the possibility of being told we have cancer. It is a lot to take in alone."

5 | DISCUSSION

The study findings bring further insights to several current gaps in the empirical literature examining women's emotional experiences of having a suspicious breast lump requiring further investigation through an RDC. As observed in this study, the women experienced high anxiety and uncertainty levels during the pre-diagnostic phase. These results accord with Mishel's uncertainty theory (33) which explains that when faced with unfamiliarity, uncertainty arises. Thus, uncertainty theory would suggest that if women viewed the need for additional testing at the RDC as a threat rather than an opportunity, their appraisal of the situation would increase uncertainty and anxiety. In this study, the women faced the unfamiliarity of not knowing what to expect from their additional testing and faced a potential threat that could disrupt their daily lives. As explained by the uncertainty theory, being in an ill-defined situation further pulls individuals toward identifying the situation as a threat. When the event is viewed as a threat, there is a greater likelihood for an individual to experience higher anxiety levels. (11,34) All of these components likely played a role in the women's emotional experience of undergoing further testing for a suspicious breast abnormality.

One avenue of research to explore further would be methods to guide and support those going through an RDC for suspicious breast abnormalities to assess their situation as an opportunity rather than a threat. Several examples of how the RDC experience could be framed as an opportunity include: 1) an opportunity for quick screening; 2) an opportunity to spend fewer days living with the uncertainty if their breast abnormality is cancerous or not, and in some instances; 3) an opportunity to benefit from a quicker turnaround to begin treatment.

By offering women optional perspectives to appraise their life-threatening situation positively, uncertainties experienced during the waiting period and upon the receipt of their diagnosis may be viewed instead as opportunities for action planning.

The mixed-methods approach in this study also led to further time-specific insights into the women's emotional experiences. (35) The qualitative data helped explain the women's reactions to the waiting period and the period following diagnosis. Within this group of women, a small group used positive reframing to keep their anxiety low while waiting to obtain further testing, while for others, the lack of understanding as to why the additional test was needed and how it would take place made them feel even more anxious and experience high levels of uncertainty. Harnessing quantitative evidence on the women's emotional responses while also capturing the detailed nuances of their time-specific reactions via qualitative data helped achieve a more robust understanding of women's experiences of rapid testing for breast abnormalities than with quantitative data alone.

The qualitative and quantitative results speak to a need for support to cope with the uncertain and highly anxious experience that comes from attending an RDC. Nurses are in an ideal position to provide and adopt this support to the psychological and educational needs of the individuals. One possibility to explore that may help decrease the short-term anxiety in individuals undergoing further cancer tests is for nurses to teach coping and relaxation skills such as positive reframing. Nurses could also facilitate communication with other professionals on the healthcare team and provide procedural support. (2,6,18,36,37) The integration of a nurse navigator in an RDC to reduce anxiety and increase satisfaction with care and services has been discussed positively in the literature. (38–40) Adapted education for RDCs with the support of a nurse navigator was reported as an important component to reducing distress and helping women prepare for decision-making around treatment options. (41)

5.1 | Implications for Practice

While waiting for further testing, most of the participants in this study experienced considerable heightened anxiety, and all scored above population norms for uncertainty. The participants expressed that these heightened levels impacted their daily personal, familial, and professional living activities. These results of high levels of anxiety are in accord with other studies investigating the emotional responses of women who received an abnormal screening mammography result and waiting for further testing and diagnosis. (42) For example, Pineault (42) noted that out of the 631 women who took part in their study, 51% were moderately or very anxious at every stage of the pre-diagnostic phase. Our results show that 69% of the women reported very high anxiety levels during the pre-diagnostic phase. Individuals attending RDCs are likely to experience clinical anxiety levels, and uncertainty warrants the consideration to screen for distress at the initial visit and each follow-up. While further studies are needed to assess equipoise between healthcare costs and enhanced patient experience with the implementation of distress screening, identifying individuals who may need further psycho-educational support can improve the quality of care and patient outcomes. (43) The findings further underline the need for emotional support during the post-testing period, especially for those found to have cancer. This study also suggests that at three weeks post-testing targeted psychosocial support may be helpful for those with a benign diagnosis.

The participants provided suggestions and several avenues on how to support those attending a rapid diagnostic clinic. One suggestion that aligns with the idea of a nurse navigator is to have this professional guide the day's process prior to and after attending the RDC, including guidance on the possible tests to be done. Several delivery options may need to be explored, such as group teaching, telehealth, or individual telephone support. (39) Considering the short time frame between the discovery of a suspicious breast lump to the day of testing at the RDC, the latter two support options might be most feasible. Patient preferences and individual needs along with personnel availability may, in the end, dictate which approach would be most appropriate.

5.2 | Recommendations for Research

This study was explorative and a proof concept. There remain outstanding gaps in our understanding of the emotional impact and implications of attending an RDC after discovering a suspicious breast abnormality. Notably, future studies are needed to investigate how psycho-educational nursing-led interventions can reduce anxiety and uncertainty during and after the diagnostic process and which effective interventions provide patients with the greatest satisfaction. Such studies could guide the development of new models of care for RDCs across Canada. In addition, further studies could help identify risk factor profiles for high anxiety and uncertainty in women attending an RDC, such as individuals with a strong family history of the disease.

5.3 | Study Limitations

Like many other studies investigating the clinical and psychological impact of RDCs (16), this study's findings are constrained by its small sample size and with more than half of the sample having a family history with the disease. Given that this profile may not represent the general population, further research is needed to assess the associations between family history of cancer and anxiety levels and the need for genetic counselling and psychological support among those attending RDCs. This study was carried out in one cancer center offering rapid diagnostic testing for women with a suspicious breast lump, and the above profile may not represent other RDCs. However, the strengths of the mixed-methods findings contribute significantly to our empirical understanding of the women's emotional experience attending an RDC, and the potential role nurses can play within this clinical context to address the full range of emotional and information needs across all diagnosis types.

6 | CONCLUSION

RDCs offer women with a suspicious breast lump the opportunity for quicker diagnostic testing. The period, even if short, between the discovery of a suspicious breast abnormality and further testing at an RDC is marked by high, intense, emotional turmoil. Anxiety and uncertainty levels remain high for the group with malignant tumours post-diagnosis and three weeks post-diagnosis. Considering the women's descriptions and the anxiety and uncertainty levels observed by the women who took part in this study, further investigation towards the possible provision of psychosocial support as part of the nurse working in RDC care is warranted.

7 | ACKNOWLEDGEMENTS

8 | CONFLICT OF INTEREST

The authors have no conflicts of interest to declare. All authors have made substantial contributions and had full access to the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis. There is no financial interest to report.

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