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# The Role of Nurses in Breast Cancer Treatment

## A Literature Review

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Abstract

Breast cancer is the most common cancer disease that affects a larger percentage of women. It is also the major cause of cancer deaths among women and accounts for 23% of cancer diagnosis and 14% of cancer deaths each year around the globe. The role of the nurse in breast cancer treatment is crucial in the determinant of the recovery process and as such clarity is needed of what nurse should do to help breast cancer patients.

The aim of this study was to identify the various roles nurses play to support women with breast cancer during treatment. The purpose was to review existing literature and provide information on how professional nurses play positive role to support women with breast cancer undergoing treatment. The information could serve as educational resource for nursing students aspiring to become breast care nurses as well as existing ones and also broaden knowledge in the field.

The study was carried out as a literature review. Cinahl, Cinahl Plus with full text, and Medline database were used for literature search. Eight peer-reviewed articles were selected for the review and content analysis was employed for data analysis.

The findings disclosed that nurses play three major roles in breast cancer treatment, which involves physical, psychological, and social support that ensures a comprehensive health care provision for women suffering from breast cancer. The study concludes that breast cancer can be demoralizing for women who suffer from it and nurses should be intuitive and altruistic in playing their role to support patients who undergo breast cancer treatment.



Keywords (subjects)

Nurses, breast cancer, treatment, women, patients.


Miscellaneous

## Contents

## Figures



## Tables

# 1 Introduction

Cancer is a group of disease that causes cells in the body to change and spread out of control, which eventually forms a lump or mass called a tumor and as it implies, the lump originates in the breast causing breast cancer (American Cancer Society 2017a). Breast cancer is the most common cancer disease that affects a larger percentage of women (Kedde et al. 2012). It is also the major cause of cancer deaths among women and accounts for 23% of cancer diagnosis and 14% of cancer deaths each year around the globe (Jemal et al. 2011). In Finland, 1 out of every 8 women is at risk of developing breast cancer in their lifetime and approximately 5000 women are diagnosed with breast cancer every year (Finnish Cancer Registry 2017). According to the Cancer Research UK (2017), similar ratio of women is at risk of developing breast cancer in their lifetime and substantial 54,800 women were diagnosed of breast cancer between the years 2013 – 2015.
In almost a decade ago, the number of women diagnosed with breast cancer has increased significantly and steadily worldwide with less developed regions appearing to have slightly more cases than developed regions (World Health Organisation 2012).

# 2 Background

## 2.1 Breast cancer

Cancer is the second leading cause of deaths globally, and accountable for approximately 9.6 million in 1 out of 6 deaths in 2018 (WHO 2018). Among cancer diseases, breast cancer is also the second leading cause of cancer deaths and

the most common among women in both developed and developing countries with 2018 global incidence rate of 2,088,849 and deaths rate standing at 626,679 representing 11.6% and 6.6% respectively (Bray et al. 2018). Breast cancer develops from a process called metastasis when cancer cells spread from a primary tumor to another part of the body. The disseminated tumor cells display high resistance to general treatments and can give rise to fatal metastatic lesions (Dittmer 2018). Conventionally, majority of breast cancer initiates in the breast tissue, which consists of glands that produce milk (lobules) and ducts that connects the lobules to the nipple (American Cancer Society 2019; Cancer Research UK 2017). Others also start in different tissues in the breast, which are classified as a small number and less common. These are usually referred to as sarcomas and lymphomas, which are not actually considered as breast cancer (American Cancer Society 2019). The development of breast cancer is usually identified through the process of screening with a mammography, which applies low-energy X-Rays to detect anomalies in the breast (WHO 2019), and a woman's self examination or observation of a lump that has developed in the breast.

In the United States of America, it is estimated that 268,600 new cases of invasive and 62,930 cases of carcinoma in situ breast cancers will be diagnosed while these incidences will lead to the death of 41,760 women. This means the average risk factor of a woman developing breast cancer once in her lifetime is nearly 12 percent, representing 1 in 8 chances of getting breast cancer (American Cancer Society 2019). Among the 28 European countries, 404,920 breast cancer incidences were recorded with 98,735 mortality rates in 2018 according to Ferlay et al. (2018). In the United Kingdom, statistics show that in 2016 breast cancer diagnosis among women were 45,656 (Office for National Statistics 2018) presenting 20% reduction in 2015 54,800 diagnoses of incidence rate (Cancer Research UK 2017). The difference may have occurred owing to increased and continuous improvement in breast cancer awareness and screening programmes (Bray et al. 2018). Here in Finland, the Finnish Cancer Registry demonstrates 2016

statistics in which breast cancer incidence rate stood at 4961 and deaths rate at 888 separately (Finnish Cancer Registry 2016).

Although, the rate of incidence and deaths from breast cancer is comparatively higher in developed countries, a recent trend indicates increasing rates at alarming proportions in almost all the regions around the world, which rings a bell for concern in all cycles of healthcare practice (WHO 2019). Moreover, while breast cancer often affects women over 50 years, the rate of incidence among young premenopausal women is also increasing rapidly worldwide (Ghiasvan et al. 2014). For this reason, the relevance of looking at the role of nurses in breast cancer treatment cannot be overemphasized

In practice, most healthcare practitioners, in particular nurses have had and continue to have daily interaction with breast cancer patients during their professional lives (Citrin & Kapustin 2016) and this makes it critically important for nurses to know and understand how best to holistically approach and assist breast cancer patients during treatment.

## 2.2 Breast cancer treatment options

There are a number of breast cancer treatment options that women with breast cancer may undergo, sometimes depending on historical grade of the breast tumor, age, and stage, which is recognized by the invasion of malignant if it is contained in the breast tissue or have seeped over the basement membrane leading to metastasis (Nounou et al. 2015). The treatment could possibly be determined by a patient's preference and or treatment suitability (Cancer Research UK 2017). The standard treatment options ranges from surgery, radiation therapy (RT), chemotherapy (CT), endocrine (hormone) therapy and

targeted therapy, which again, largely depend on the aforementioned conditions (Nounou et al. 2015; Cancer Research UK 2017). These methods are referred to as standard because experts approve that they are appropriate, acceptable, and have proven suitable in fighting against breast cancer on a broad basis (National Breast Cancer Foundation 2016).

When a woman is diagnosed of breast cancer, the orthodox treatment approach has generally been to perform breast conservation surgery to remove the area of cancer in the breast (Dhankhar et al. 2010) referred to as local excision or lumpectomy (Cancer Research UK 2017), which is preceded by neo-adjuvant chemotherapy (chemotherapy drugs given before surgery) treatment to shrink tumor mass (Nounou et al. 2015; Breast Cancer Care 2018). In the extreme circumstances, some surgery and or patients may require a complete removal of the breast based on the extent of dissemination of the cancer cells. This is termed as mastectomy, which removes the entire breast tissue, plus the skin, nipple, and all tissue layers of the chest after which breast reconstruction may follow upon the express request or wishes of the patient in which a surgeon builds a new (artificial) breast shape for the patient (Cancer Research UK 2017).

After surgery, the process is followed by adjuvant chemotherapy (systemic chemotherapy drugs administered after surgery to treat hidden breast cancer cells) in order to guarantee complete recovery and as well reduce the risk of metastases (Dhankhar et al. 2010). All cancer cells that may not be identified in the process of surgery can be killed by radiation to minimize potential risk of local reappearance of cancer, in which case radiation therapy is defined as a process of exposing cancer cells to high levels of radiation openly so as to kill the cells. The radiation therapy will cause the cancer tumor to become smaller in radiotherapy and chemotherapy fusion (Nounou et al. 2015). In chemotherapy treatment procedure, anti-cancer drugs (cytotoxic) are usually administered to patients intravenously, tablet and/or capsule to terminate and destroy cancer cells

that are proliferating inappropriately due to a genetic error with the aim of controlling the disease.

Chemotherapy destroys cancer cells by disrupting their ability to multiple uncontrollably (Breast Cancer Care 2018). Moreover, endocrine or hormone therapy is normally provided after surgery in the category of adjuvant treatment to also reduce the risk of breast cancer reoccurrence. The main aim of endocrine therapy is to balance or block hormones. Genetically, the female hormones estrogen and progesterone can potentially stimulate the growth of certain breast cancer cells. Thus, hormone therapy is dispensed to block or lower the levels of estrogen and progesterone to avert the growth of cancer cells (Dhankhar et al. 2010). There are different types of hormonal drugs that are used for primary breast cancer treatment including, Tamoxifen, oladex, Toremifene, Arimidex, Anastrozole, Aromatase, and several others (Breast Cancer Care 2018). Tamoxifen is a selective estrogen-receptor modulator (SERM), which blocks estrogen from joining to estrogen receptors on breast cancer cells and acts as anti-estrogen (Dhankhar et al. 2010). Patients whose conditions require for putting them on Tamoxifen or Aromatase inhibitor after surgery are usually recommended to take these drugs continuously for a minimum of five years (Breast Cancer Care 2018).

Complementary to chemotherapy and endocrine is targeted therapy that provide a more effective treatment to breast cancer as it can attack and block the growth of particular breast cancer cells without damaging good cells. In the event of positive human epidermal growth factor receptor 2 (HER2), targeted therapy may be employed to block any chance of an abnormal protein such as the HER2 that stimulates the growth of breast cancer cells (NBCF 2016). Currently, there are seven broadly exploited breast cancer targeted therapies, which have proven to be effective in blocking several molecular pathways such like: Afinitor or everolimus, an mTOR inhibitor (stops cancer cells from receiving energy supplies);

Avastin or bevacizumab (prevents the growth of new blood vessels, which supply oxygen and nutrients to cancer cells for growth and function); Herceptin or trastuzumab (blocks the ability of cancer cells to receive signals that command them to grow; Kadcyla or T-DM1 is a mixture of Herceptin and emtansine in which Herceptin is deployed as a means of transport to carry the emtansine chemotherapy to cancer cells; Perjita or pertuzumab functions by obstructing cancer cells from getting growth signals; Tykerb or lapatinib is a HER2 inhibitor that blocks indications of cell growth (Masoud & Pages 2017). However, among these targeted therapies, Tykerb or lapatinib that targets the HER2 protein overexpression on the surface of breast cancer cells has been identified as the most efficient targeted therapy (Masoud & Pages 2017).

As patients undergo the various treatments for breast cancer, from screening, to diagnoses, and to treatment, the nurse has an inseparable role throughout each process that ensures patients full recovery and wellbeing. This is why it is important to review specific roles of nurses in breast cancer treatment in order to broaden knowledge in this clinical specialty.

## 2.3 Patients experiences and effects of breast cancer treatment

While the above treatment options and procedures offer a leap in remedy and benefits in fighting against breast cancer cells, they have also been known to cause diverse side effects on women during and after treatment as patients share their arduous experiences. For instance, radiotherapy is known to cause decreased sensation in the breast tissue or under the arm, skin disorder in the local area ranging from breast heaviness, sunburn, discoloration skin, general fatigue (Møller et al. 2018; NBCF 2016b). Itching, soreness, peeling, redness, and moist and weepy skin are also some of the experiences reported by patients' during treatment (Nounou et al. 2015). Moreover, surgery has been found to have

devastating effect on body image in terms of outlook approval among younger women aged below 50 years (Paterson, Lengacher, Donovan, Kip, & Tofthagen 2016).

Additionally, chemotherapy treatment bring along divers side effects on women during and after breast cancer treatment for which many patients have recounted changes in cognition, feeling of fatigue, and poor appearance satisfaction in body image which manifest in different ways as baldness, sexuality and intimacy issues, lost of breast, and premature menopause (Paterson et al. 2016; Morgan, Tyler, Fogel, & Barnett 2014; Fobair & Spiegel 2009). Baldness alone can put women in social isolation (Ferrari et al. 2018). Also, the use of cytotoxic drug for chemotherapy treatment poses a certain degree of risk of direct impairment to a woman's ovaries that can lead to premature menopause in younger women aged below 50 and consequently affects their fertility (Breast Cancer Care 2018; NBCF 2016c). A report by the Korean Society of Menopause (2011) indicated that 89% of premenopausal women experienced early menopause after undergoing chemotherapy treatment. Bauld and Brown (2009) recounted that in the process of administering various anti-cancer drugs, the toxicity of such drugs can cause amenorrhea in which the quantity of follicle cells are lessened, which can lead to early menopause in younger women with recurrent and painful symptoms than naturally experienced. Hormone therapy can also lead to the risk of developing uterine cancer, blood clots in the legs, and strokes in post-menopausal women (American Society of Cancer 2017b). Not all cognitive declines in patients in breast cancer treatment are caused by chemotherapy exposure, which show an increased risk of cognitive impairment in breast cancer patients (Stewart et al. 2008). However, in most cases, patients have reported of experiences of "chemo brain or chemo fog", a cognitive change that occur as a result of chemotherapy treatment. This change appears to be persistent and affects the quality of life of patients (Stewart et al. 2008). Further complaints of chemotherapy from patients' ranges from nausea and vomiting, lack of appetite, dull taste of food, taste of

medicine that affects appetite as some report a metal taste during eating and dehydration (Ferrari et al. 2018).

With regards to targeted therapy, the side effects can range from mild to serious complications as some women may develop heart attack with some drugs such as trastuzumab, pertuzumab, or ado-trastuzumab emtansine that can lead to congestive heart failure. This risk can even be worse when these drugs are combined with certain chemotherapy drugs such as doxorubicin and epirubicin that are known to cause heart damage (American Cancer Society 2018).

Apart from the biological experiences and effects associated with breast cancer treatment, patients also experience a myriad of emotional/psychological, social, and information/educational needs and effects. The risk of local recurrence, which most patients' experience after treatment can be daunting, and persistent psychological trauma (Wang et al. 2020). A group of older women complained about difficulty in pushing or pulling large objects after treatment as well as difficulties with mobility, carrying out normal activities and completing domestic chores (Breast Cancer Care 2013). Emotionally, patients endure high rate of vulnerability along treatment pathways. Emotional experiences such as the ability to stay resilient and hold ones sense of normality throughout treatment course still remains a challenge for almost all patients (Llewellyn, Howard, & McCabe 2019). It is an act of self-denier and concealment of a patient's feeling of not asking for help even when her situation is not better. Some women who undergo mastectomy even find it difficult to disclose it to their own children (Olasehinde et al. 2019). This is possibly so as some patients may think of being a burden and or extending their worry to family members and may also refrain from asking for support from a nurse and people around. In excruciating scenarios, some young women below the age of 45 who have had one of their breast removed and experienced early menopause with consequent lack of libido, vagina dryness, and painful sex have asked their husbands to divorce them and go and find a woman

with complete breast and a libido that works (O'Riordan 2019). Potentially, this can ruin a relationship.

Working class women diagnosed of breast cancer who must go through treatment afterwards stand a high risk of losing their jobs due to long leave of absence from work, and even if they are able to return to work after treatment, most of them experience and complaint about frequent tiredness and lack of concentration (cognitive dysfunction) (Braybrooke et al. 2015). In instances where diagnoses are made at an early stage, it can serve as a high psychological relief for a patient to relish speedy family and social inclusion, however, if the cancer is diagnosed too late, adjuvant and neo-adjuvant therapy, mammary reconstructions and amputee surgical mediations can result in poor life prognosis and additional psychological disability issues such as lymphedema (Alfilani 2015). In this case, expensive and aggressive treatments will deny the patient's ability to fight for a longer period of time and force the patient towards early retirement, which would eventually affect their economic standing (Alfilani 2015).

Not only do workingwomen experience challenges with work, but also those who have little babies and children have need of support for childcare during treatment, which can be stressful and the elongated period could also lead to disconnection between mothers and children (Braybrooke et al. 2015). Obviously, this affects their ability to perform their former family role as women, and may generate additional stress and a sense of emptiness and guilt for not being there for their family. To compound the effect is single women who lonely battle the arduous infirmity and experience the highest psychosocial impact of breast cancer resulting in high risk of mortality (Alfilani 2015). On the other hand, Søderman, Friberg, Alexanderson, and Wennman-Larson (2019) study revealed that when women with less advanced breast cancer are encouraged and supported to work during treatment, it reduces their leave of absence from work and boost their morale of being healthy.

Information and communication is one of the significant experiences and effect of breast cancer, which runs through the entire process of breast cancer treatment Receiving bad news of breast cancer is obviously very devastating information to begin with. For example, in their study, Brattheim et al. (2017) found delay in screening, detection of initial symptoms, biopsies, primary and adjuvant treatment to follow-up care, which are part of an important information and education package right from the beginning of diagnoses that could make significant impact in a patients' life. They also revealed ambiguous and inaccurate information and education throughout the trajectory as one of the challenges breast cancer patients' face. Moreover, in assessing the unmet information needs of breast cancer survivors, McRoy et al. (2018) identified a range of information needs encompassing medical, social, psychological, and physical needs, which bothers breast cancer patients. In these findings, patients' also mentioned resource and wellness as potential solution pathways.

In the study of "Assessment of quality of life of women with breast cancer", Gavric and Vukovic (2016) concluded that "breast cancer affects all the domains of the quality of life of women" which cut across physical, emotional/psychological, social, financial, and information needs. In almost all of the treatment options, most patients have expressed uncertainty and fear from the very beginning to the end, referring to the diagnostic and treatment process as scary and severe, bringing an unbearable sudden dread and burden upon them and their family members (Zøylner, Lomborg, Christiansen, & Kirkegaard 2018). The obvious experiences and many side effects of breast cancer treatment means that nurses have to play inevitable role to help stabilize health conditions of women with breast cancer.

## 2.4 Breast cancer patients' experiences of nursing care during treatment

It has been established that various biomedical breast cancer treatment offer hope for remedy, however, there is a paradigm shift concerning provision of high quality cancer care, which places growing significance on patients' experiences of the care they receive from health professionals (Mollica et alt. 2017), and successive lessening of potential burden of breast cancer (Brattheim et al. 2017).

The concept of patient experience is multidimensional that embraces characteristics such like administrative matters, care staff, and therapeutic differences. One of the key features in this area is the provision of useful, clear, and understandable information and communication among patients and health professionals (Helsedirektoratet: as cited in Brattheim et al. 2017.) It could be pontificated that, it is only when patients are well informed about their sickness, treatments and associated consequences, that they can play active role in the journey and effectiveness of their prescribed treatment. In the study of "Breast cancer patients' experiences with information and communication in cancer disease trajectories" Brattheim et al. (2017) noted that as patients take active role in communication with healthcare professionals in decision making process regarding their own health, it enhances their feeling of empowerment, understanding of personal health condition, as wells as having adequate awareness to accept medication or undergo treatment. In the same study, patients indicated areas of information and communication needs, which includes: 1) the need to be taken seriously by healthcare professionals; 2) perfect timing of information – not too soon and not too late; 3) unambiguous and accurate information about diagnosis, treatment plan, side effects (acute and late), follow-up and rehabilitation; 4) Healthcare professionals to talk to face-to-face in various phases of disease trajectory; and 5) if you need information, you ask and receive answers from healthcare professionals. Patients' can have complete negative

experience with a nurse if they feel that any of the above concerns are not met during their interaction.

In the study of “Surgical breast cancer patient pathways: experiences of patients and their relatives and their unmet needs” (Zøylner et al. 2018), indicated that patients complained about nurses hash approach to explanation of their radiotherapy treatment process and considered the approach as not been caring and a lack of empathy. This shows that empathy can be demonstrated in many ways in the caring process involving communication, information, attention etc. However, Lam et al. (2018) found patients who were satisfied with the amount of information received from nurses in advanced breast cancer treatment.

When a breast surgeon was diagnosed with stage-3 breast cancer, she revealed through her experience that healthcare professionals are good in providing effective clinical and safe treatments but falls short in caring for the experiences of patients during treatment. She realized there are many aspects ranging from sex and libido after treatment, exercise, dealing with fear of recurrence, patients’ families coping ability, anxiety of waiting for scan results, toothpaste and brushes for ulcerated gums, toiletries for burning skin, coping with night sweats and hot flushes, and getting a feel of the emotional trauma that patients’ suffer everyday that she did not make them prime concern during treatment than the appearance of the breast, symptoms of possible recurrence and drug administration. As a breast surgeon who became breast cancer patient, she admitted of how clueless she realized she was about a range of treatment options and putting herself in the shoes of a patient (O’Riordan 2019).

Showing an act of kindness to patients impacts their experience of nursing care during cancer treatment and also enhances a sense of fulfillment in nurses. In the study of the “role of kindness in cancer care” (Berry, Danaher, Chapman, Awdish 2017), patients and nurses emphasized their experiences of encounter with each

other in the manner kindness was displayed in various ways as deep listening, empathy, generous acts, timely care, gentle honesty, and support for family caregivers. Also Pinkert, Holtgräwe, & Remmers (2013) explained experiences of patients in deep listening and the way nurses took their time to genuinely and patiently listened and understood the needs and anxieties of patients and their families. Nurses demonstrated empty for patients' by showing in body language a feel of the pain and taking steps to prevent further suffering. When patients experienced selfless level of care that goes beyond their expectation, they regarded to such deed as generous act. How long a patient is left to endure pain, stress and anxiety can devastate their already unbearable condition. Using a variety of tools and systems to reduce such agonizing pains as promptly as expected by patients is regarded as a timely care experience. Do patients care about being told the truth about their health condition and can nurses be genuinely truthful with patients at the same level of expectation? Patients expect nurses to tell them directly the vivid truth about their health situation in well-chosen and guided words for which they refer to such kindness as gentle honesty experience. Holistically, patients and nurses also expressed that support for the physical and mental well-being of patients' families is vital in high quality care experience (Berry et al. 2017).

These acts of kindness can improve the emotional experience of patients. However, some patients have indicated that emotional support should not be limited only to the course of breast cancer treatment but also aftermath. The negative effect of nurses providing emotional support to patients during treatment but leaving patients' to their fate in post treatment is that it can reveal a big vacuum in a patient's life in post treatment period, as they will feel they have nobody to turn to for emotional support (Llewellyn, Howard, & McCabe 2019).

Breast cancer treatment involves a chain of physical navigation and coordination of various services by nurses at the hospital. In a cross-sectional study of nurse

navigation program: outcomes from a breast cancer center in Brazil, Rohsig et al. (2019) showed that patients experience of the nurse navigation through their treatment pathways was highly satisfied at a rate of 97 percent. While nurses also expressed satisfaction with the feedback and their achievement, they also mentioned a certain degree of challenge from impatience of patients; however, they attributed such behaviours mostly to patients' conditions, which is already difficult for them to bear (ibid. 27.) Day (2013) states that patients' involvement and influence in prescription of drugs for treatment is an important aspect in the patient's experience that can build trust for using a drug. In a qualitative study, Ferrari et al, (2018) confirmed how nurses effectively responded to complaints of breast cancer patients' relating to physical changes such as baldness, nausea, vomiting, lost of appetite, changes in the skin, nails and mucous membranes, mucositis, changes in gastrointestinal system, and peripheral neuropathy.

Finally, it is worth emphasizing that positive patient experience impacts the overall health of the patient and also boost the breast nurse morale to provide high standard of health care at all times. And a good patient experience also comes from positive interactions with the unbroken chain of the healthcare service environment, which does not only involve nurses but other team players (Gerlach, Phalak, & Parikh 2020).

# 3 Aim, purpose and research question

The aim of this study is to identify the various critical roles nurses play to support women with breast cancer during treatment.

The purpose is to review existing literature and provide information on how professional nurses play positive role to support women with breast cancer

undergoing treatment. The information could serve as educational resource for nursing students aspiring to become breast care nurses as well as existing ones. Further, it would help broaden the understanding of the scope of the role as a breast care nurse.

Research question:

- How do nurses holistically assist women with breast cancer during treatment?

# 4 Methodology

## 4.1 Literature review

A literature review engages an examination of a particular field and or community, which is important to a specific study and a further interpretation of the field by the reviewer. In fact, it is a map of a certain area and not the area itself and as such also lends itself to exclusivity that highlights certain areas as more important at the expense of others (Montuori 2005). Fink (2014) also consider a literature review to be a systematic and reproductive approach by which we acquire, measure and comprehend existing knowledge produced by other scholars. This is to allow analytical presentation of conclusions on broad knowledge on the topic under study.

Literature review was employed for this study in order to highlight some of the key competences that are necessary for nurses in dealing with patients' and breast cancer treatment.

## 4.2 Literature search

The literature search process involved an exploration into EBSCOhost research platform. In EBSCOhost, three databases CINAHL, CINAHL Plus with full text, and MEDLINE were selected for the literature search. These databases provide authoritative medical information on medicine and evidence-based nursing for students, researchers and educators at large, hence, their suitability for this study. Using Boolean logic, search terms and or keywords for finding appropriate literature included “Nurses role” AND “breast cancer” AND “treatment” OR “care”. The initial hit count produced overwhelming 4,843,909 data between 1799 and 2020. The search was then limited to date between 2000 and 2020, which reduced the data to 3,885, 400. This was still huge, so language limiter was used, and English language was selected, which then brought the search results to 3,547, 150. To bring the numbers down further, the search was limited to “Linked Full Text” which yielded 547, 605. To narrow down the search, the synonym “care” was removed leaving “Nurses role” AND “breast cancer” AND “treatment” which is specific to the study topic. This was the final search in EBSCOhost, which generated 421 articles. This number was further taken through rigorous selection process to obtain the inclusion articles (see figure 1 for PRISMA Flow Chart and appendix 1 for excerpts from literature search).

### 4.2.1 Inclusion and exclusion criteria

A predetermined inclusion criterion was set to include articles with date between 2000 and 2020 only. Language parameters was also set to include articles written in English language and only those directly related to the study topic. Scientific and peer reviewed articles only were considered eligible for inclusion. Studies conducting in qualitative method were considered more suitable for inclusion

taking into account the focus of this study. The study only included studies relating to nurses and breast cancer treatment in women. The inclusion criteria did not specifically place limit on study sample size, as various study samples were considered as potentially relevant for the review. Free full text article were considered. All studies that did not satisfy the inclusion criteria were automatically excluded. Table 1 shows the inclusion criteria. In figure 1 selection of articles for inclusion is presented using the PRISMA flow chart.

Table 1. Study inclusion criteria

| |
|---|
| 1. Articles date between 2000 and 2020 |
| 2. Studies published in English Language |
| 3. Scientific and peer reviewed |
| 4. Qualitative studies |
| 5. Studies relevant to study topic |
| 6. No limitation on study sample size |
| 7. Free full-text articles for JAMK students |

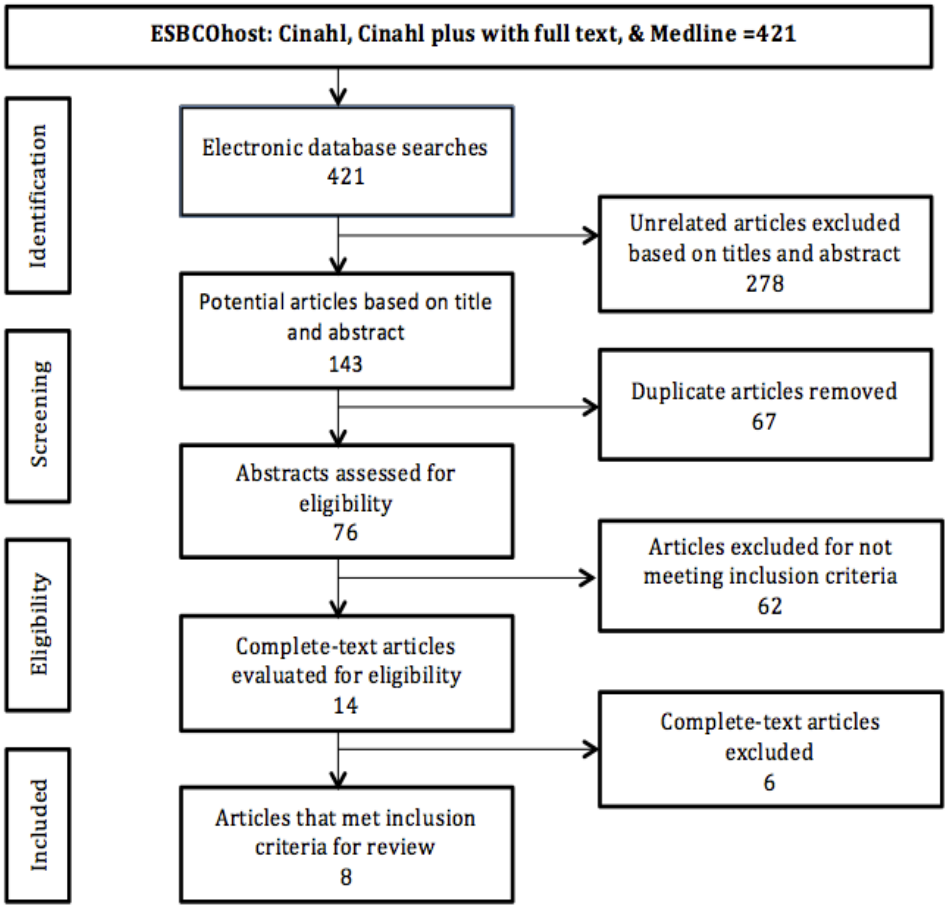


Figure 1. PRISMA Flow Chart of detailed selection procedure for included articles/studies (Moher et al. (2009).

Figure 2 displays 421 search data underwent rigorous selection process to reach the final 8 included articles. Primarily, the screening phase scrutinized titles and abstracts for the 421 articles identified and excluded 278 articles for their irrelevance to the population, intervention, counter intervention and outcome. 143 articles were measured as potential studies for the literature review. Out of this number, 67 articles showed up as duplicates, justifying their removal, leaving the remaining 76 articles to be assessed for eligibility. Further, 61 articles did not meet the inclusion criteria. Completed text articles assessed for eligibility was 15 while 7 articles excluded for their inadequate information for the topic. Finally, 8

complete text articles were selected for inclusion (see appendix 2 for included studies characteristics).

### 4.2.2 Data extraction and quality appraisal

The process of data extraction started with screening and categorization of titles of the articles the search yielded. Titles of articles that met pre-determined inclusion criteria were marked down and the abstract read individually in the subsequent phase. Abstracts that offered information relevant to the study were downloaded and saved for full reading. Characteristics of each article were imported simultaneously unto a spreadsheet while reading the full text.

The study employed the Critical Appraisal Skills Programme (CASP, qualitative tool) to appraise the quality of the included studies in the review (see appendix 3). CASP is a checklist tool, which is founded on 10 study quality checklist questions that assist a researcher to think systematically on the included articles or studies and justification of inclusion in the review (CASP 2018). CASP provides the first two questions as screening questions and if the answer to both is “yes”, then a researcher and or reviewer can proceed to appraise the quality of the study with the rest of questions. This process was applied to all the 8 included studies.

## 4.3 Data analysis and synthesis

To make a meaning of the secondary data gathered, the researcher utilized inductive qualitative content analyses to restructure, summarize, and classified the data into logical representation of the essential information embedded in the data (Miles & Huberman 1994; Elo & Kyngäs 2008, 109). The research question

guided the content analyzes process. Firstly, the selected articles were read thoroughly several times as a way of familiarizing with the entire data in the articles (ibid, 109).

The inductive content analysis approach allows a researcher to begin with coding the data into categories (Elo & Kyngäs 2008, 109). Therefore, as a second step, manual and or open coding was initiated to structure the material into categories and abstractions, while making notes and headings in the text in the process of reading (ibid, 109). Shreier (2012, 61) suggest that coding should indicate key aspects in the written text relevant to the research question. Further, similar codes were grouped together to form sub-bcategory and main category (Gilbert 2008, 295). Finally, the main categories were synthesized and terms and or names were developed to reflect the general contents of the text (Elo & Kyngäs 2008, 111). Figure 2 shows the process of data analysis (see appendix 4 Excel spreadsheet raw analysis)

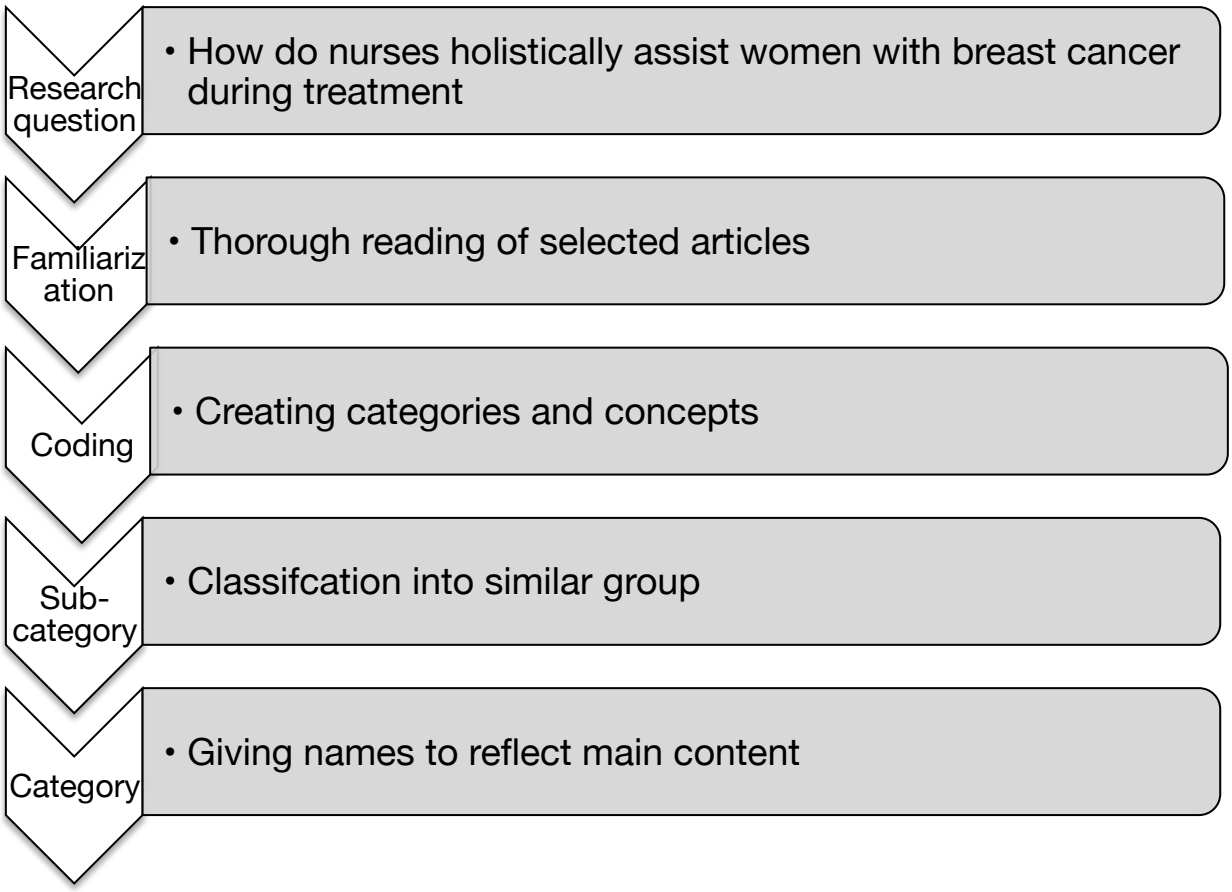


Figure 2. Process of data analysis.

# 5 Findings

The findings identified three main categories of the role of nurses in breast cancer treatment, which are; physical support role, psychological support role, and social support role with different levels of roles played by nurses classified as themes under each category. Figure 3 illustrates the main categories and corresponding themes. The findings are presented below with excerpts highlighted .

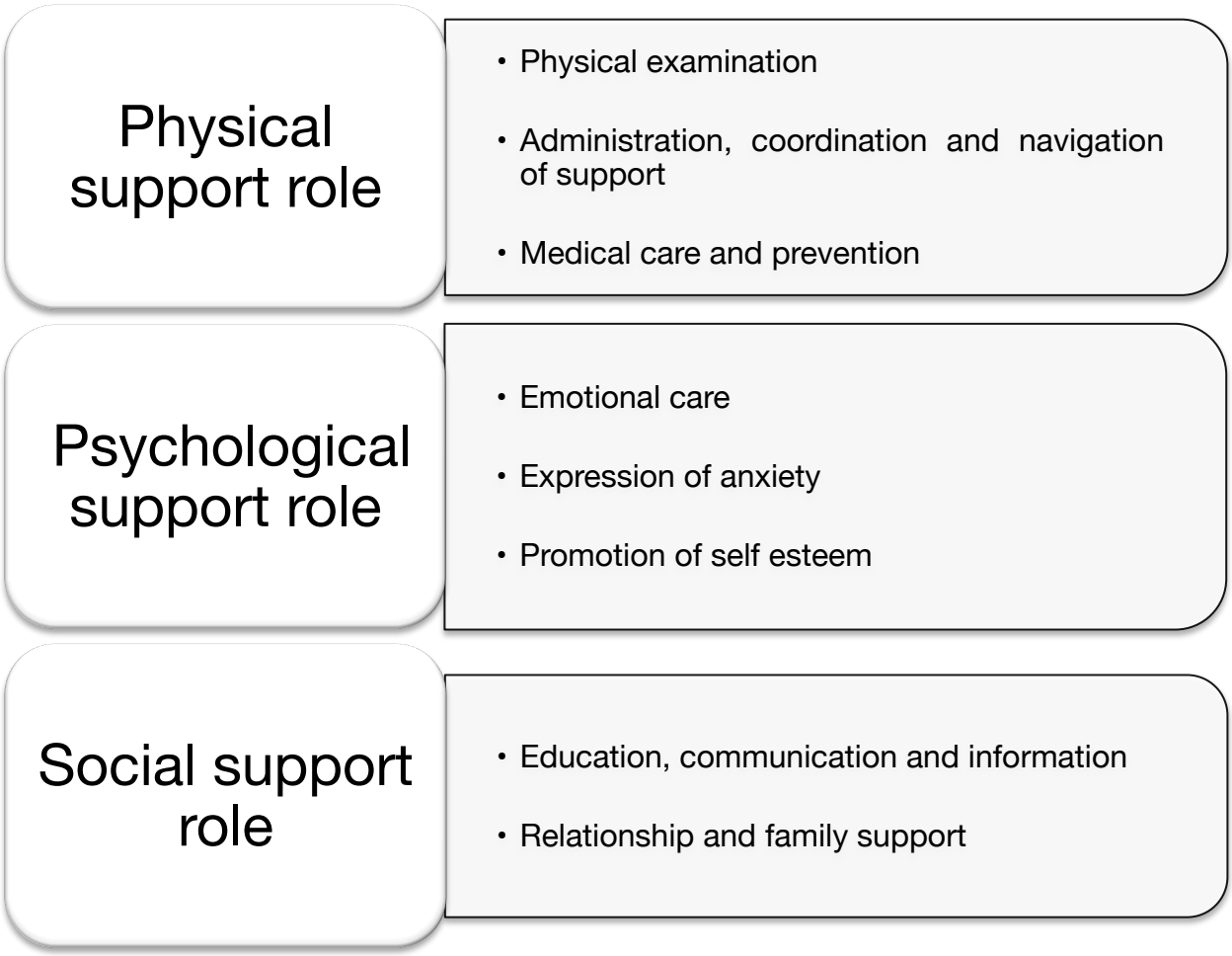


Figure 3. Categories and sub-categories

## 5.1 Physical support role

Women diagnosed with breast cancer need various kinds of support to cope with the disease and treatment. Physical support is one of the roles nurses play to help breast cancer patients to cope with the disease throughout treatment and recovery (Jones, Leach, Chambers, & Occhipinti 2010, 323). The following physical roles emerged as what nurses do in breast cancer treatment: (1) physical examination; (2) administration, coordination and navigation of support; (3) medical care and prevention which are expanded further.

### 5.1.1 Physical examination

Nurses perform physical examination of a patient's breast to diagnose breast cancer in a woman. The findings show that physical examination begins with nurses demonstrating respect for patients by explaining to them the checks they intend to carry out on their body including the breast. Nurses undertake basics of height and weight measurement, eyes, pulses in the neck, groin, feet, mouth, throat and ear checks, listens to heart and lungs, and checks body reflexes (Halkett, Arbon, Scutter, & Borg 2006, 51) in the examination. Nurses also perform physical examination in order to identify visible lump development. During the examination, the nurse look for signs such as differences in breast size and shape, redness or retraction of the nipple and or skin, lymphatic invasion or inflammation of the breast that result in dimpling of the skin (ibid, 52.)

It was established that nurses perform three forms of exploration when searching for a lump during breast cancer examination which involves: 1) radial spoke = examining sections of tissues beginning at the edges and running in to the nipple in a circular pattern; 2) concentric circle method in which nurses examine in increasing or shrinking concentric spheres; and 3) vertical strip approach in which nurses inspects the breast in intersecting perpendicular bits moving throughout the chest. Nurses carry out these examinations in cooperation with the patient by asking the patient to show where they feel a lump. For clinical purposes, any distinct mass identified on the breast during the examination must be described in detail showing the location, size, mobility, and texture on both breasts.

The nurse also examines the patient from the clavicle medially to the mid-sternum, horizontally to the mid-axillary line through to the lower parts of the breast and also to the axillary end of the breast tissue.

The physical examination becomes a standard routine role for nurses throughout the treatment process and must be comprehensive to capture all the necessary indicators that help in diagnosis.

### 5.1.2 Administration, coordination and navigation of support

Nurses, provide administration, coordination and navigation support of breast cancer patients. This role involves nurses carrying out various paperwork, documentation, and organization of all the necessary navigations such as local direction between patients' wards and departments, referrals to and from different facilities and treatment centres, appointments with other health professionals through the treatment journey (Jones et al. 2010, 324; Halkett et al. 2006, 50). A nurse responded in this way:

> "*Well if I'm doing something in relation to a patient I have to document it. So if it's appropriate I will get their notes. I've actually telephone record here for me in my office… Then I file it in a folder under the appropriate name"*

The nurse plays the role of a facilitator in the treatment process so that patients are put into contact with the appropriate departments and health professionals to receive the right support (Jiwa et al. 2010, 146; Jones et al. 2010, 324). This could be expressed simply as direct liaison and advocacy with other colleagues on behalf of a patient. The administrative role also includes joining multi-disciplinary meetings to deliberate over their client (breast cancer patient) care as well as data collection analysis regarding their patient.

> *“She may be attending meetings in regard to multi-disciplinary meetings to discuss the care of ladies, her clients.”* (Ibid. 324.)

### 5.1.3 Medical care and prevention

Medical care and prevention of further recurrence of the same or other diseases is an important aspect of health care and in particular breast cancer treatment. Nurses provide these services to their breast cancer patients in the course of their treatment. The process of medical care for breast cancer patients begins with nurses providing counseling on patient medication, thus, how to go about dosage, possible side effects if a patient skips or abuse the drugs and treatment burden associated with some medications (Raphael, ter Stege, Russell, & Boersma 2020, 153).

The nurse implements patient drug administration by ensuring that patients follow drug prescription and daily dose intake. They following up with side effects of prescribed drugs with the patients and identify anomalies, and if necessary effect changes quickly to prevent further harm to the patient (Kadmon et al. 2015, 40).

For example, nurses take control and care for issues such as soreness, blood pressure spikes, swelling, breast pain, trouble swallowing, bowel problems, and even hair loss, which tend to be a major concern for women undergoing breast cancer treatment. Moreover, they also engage in physical therapy and teach patients strategies for preventing possible recurrence and how best to manage treatment side effects (Jiwa et al (2010, 148.)  Clinical example is demonstrated in the following except.

*"I check on the progress of wounds healing, development of complications that sort of thing*" (Jones et al. 2010, 324).

## 5.2 Psychological support role

The study findings indicate that psychological impact on breast cancer patients evolves for a long period of time, which require that nursing care should also meet the emotional needs of the breast cancer patients at every stage of the treatment trajectories. The following themes emerged in nursing role in psychological support.

### 5.2.1 Emotional care

The review showed that the role of nurses in emotional care for breast cancer patients encompasses open interaction with patients that offer friendship, love, trust, respect, and solidarity. Nurses demonstrate this to show patients that they understand their pains and feelings (Halkett et al. 2006, 48) in emotional struggle. Patients' needs for emotional support arise from the fear of breast cancer recurrence that they perceive as an unending battle and nurses play a role to stabilize this emotional stress.

The role of trust establishes emotional attachment for patients to confide in nurses in matters concerning their emotional wellbeing. For example, in the study of the role of the breast care nurse during treatment for early breast cancer: the patient's perspective, Halkett et al. (2006, 50) indicated that breast cancer patients felt the trust to discuss their emotional concerns regarding their diseases

and treatments with their breast care nurses because the nurses also showed genuine interest in their entire lives and conditions.

Another revealing aspect of nurses' role in emotional care was that in the course of treatment nurses make themselves available to patients just to convey the feeling of both physical presence and emotional shield. Remmers, Holtgräwe, and Pinkert (2010, 13) discovered that patients expected nurses to stay by them in times of difficulties and also accompany them through horrifying examinations or to console them with encouraging words.

The nurse also plays the role of calming and normalizing. At a point, they professionally redirect patients' attention from negativity to positive reflections by engaging patients on their life achievements and the possibility to achieve more when thy recover from the disease. Diverting the attention of patients whose world may seem to have been shattered by a deadly disease from negativity places the nurse in a critical position in the life of a patient. A patient had this to say:

> *"the entire station is so cheerful. They laugh far into the evening and that gives you the feeling, oh, yes that you're not ill then. And I think that's fantastic, then you jus want to keep on living. I always tell myself"*

Halkett et al (2006, 50) indicated the usefulness of nurses when they demonstrate their individual strength to patients so that patients could build on such strength to uplift their own emotional resolve. As Kadmon et al. (2015, 41) puts it, the nurse is perceived as a key figure in the coping process when confronting the disease and its treatment. This is the way a patient described the role of the nurse in the breast cancer treatment:

> *"She is the most important factor in the process because she incorporates professional knowledge in the process of dealing with the emotional distress. She is the patient's pillar of support"* (ibid. 41).

Normalizing in emotional care is when nurses reshape patients' thinking and assure them that certain experiences and feelings in the course of treatment are absolutely natural with the body, which has nothing to do with their condition.
For example, a nurse changed the perception and response of a patient towards the appearance of swelling or lumps as part of ageing or degeneration rather than a sign of recurrent cancer (Jiwa, et al. 2010, 147). Except below shows conversation between a patient and a nurse on normalizing.

> *"Nurse: It doesn't feel abnormal.*
> *Patient: You think it's normal?*
> *Nurse: I think it feels ok, like breast tissue. See I feel the same here. And also remember when we feel the breast we're supposed to use the flat of our hand not the finger tips. If we dig in anywhere we will find ridges. The mammogram will take in the picture all the way from here up to the armpit. So it'll check, see even here, when I feel here, if I do it with my fingers, I can feel all the ridges which is your normal breast tissue there's nothing specific to feel there" (Jiwa et al. 2010, 147.)*

Kadmon et al. (2015, 41) concluded that the breast care nurse is considered as having conventional feminine mannerisms, which involves: compassion in times of emotional distress, gentleness, support, caring, and radiating calm as well as empathy.

### 5.2.2 Expression of anxiety

The findings indicated that nurses allow patients to pour out their anxiety and pain in order to get some relief from their anxiety. This role reveals nurses kindness through patience and deep listening. Kadmon et al. (2015, 41) shows examples below.

> *"I was emotionally and morally broken and she was there for me. She was empathetic, has a calming effect, provides guidance and puts things in proportion. I didn't feel as though I was alone in my battle with the disease. I always felt that I was very important and first and foremost among patients"*

> *"She provided me with emotional support and was someone I could turn to and a shoulder to cry on throughout the stages of the coping process. The nurse spoke with me for a long time. I was convinced that my disease was curable and that I would achieve full recovery, which put me at ease throughout the entire difficult period" (ibid. 41.)*

Remmers et al. (2010, 13) also identified a case in which a patient expressed anxiety prior to an operation.

> *"And then I'm constantly thinking about the operation, hopefully everything will turn out well, and what if something happens, or maybe I need to be operated on again, a thousand things go through my head"*

In conclusion, Halkett et al. (2006, 51) learnt that nurses gave opportunity to their patients' to express their feelings openly and at length in order to feel relieved of

any anxieties that disturbed them. This shows the level of tolerance nurses can get with breast cancer patients in performing their role in the treatment process.

### 5.2.3 Promotion of self-esteem and proactive attitude

Nurses promote self-esteem and proactive attitude to help breast cancer patients to rise above their conditions psychologically. This embraces a holistic approach of the nursing role, as it does not only provide medical healthcare but also psychological empowerment that can help patients to realize their inner potentials to overcome their predicaments.

In relation to this finding, Jiwa et al. (2010, 147) disclosed that nurses promoted self-esteem and proactive attitude in breast cancer patients' during treatment in order to inspire a pristine consciousness of control over the disease. By focusing on the positive progression of patients' treatment, nurses' help to promote self-esteem in patients. The following except between breasts care nurse and a patient provides material insight:

> *"BCN: Oh well things are all good aren't they?*
> *P: Yeah, yeah, yeah I don't want to jinx anything though.*
> *BCN: I'll only say quietly with fingers cross.*
> *P: Yeah, yeah.*
> *BCN: But no don't think like that. Isn't it strange how we're all conditioned to think don't get too happy?*
> *P: No, well that's how I was before the diagnosis of cancer.*
> *BCN: You've done a good job"* (ibid. 147.)

Jones et al. (2010, 323) buttress self-esteem and proactive attitude by relating in their study findings that nurses provided psychological support to patients that sought to uplift patients' self-image and a challenge to encourage regular exercises.

## 5.3 Social support role

The role of the nurse in relation to social support in breast cancer treatment according to the study findings involves education, communication, and provision of relevant and reliable information, as well as relationship and family support.

### 5.3.1 Education, communication and information

Education, information and communication were identified as a key role of nurses in breast cancer treatment. Nurses educate, communicate and provide a wide range of information to patients to keep patients well-informed in order to maintain the treatment process in information flow. With this patients can follow and make informed decisions that impacts positively on their treatment and health in general.

In relation to this, The findings showed that nurses communicates and provides clear information to patients about the risk of breast cancer recurrence, side effects; and treatment burden and the steps patients needed to take in order to minimize or prevent further effects (Jiwa et al. (2010, 148; Raphael et al. 2020, 1521). Some of the steps involved adaptation to a new normal and behavioural change. The education, communication and information encompassed skin reaction or burn lesion, pain and tiredness, fibrosis, heart, and lungs.

Nurses also communicate with patients to manage the side effects of breast cancer by maintaining healthy diet, regular exercises, as well as a positive frame of mindset. Nurses emphasize the importance of planning annual mammogram, keeping clinical breast examination appointments recommended by oncologist and carrying out regular breast self-examination on individual basis. In this way, patients can quickly notice changes in their body and condition. Nurses advise patients to look for changes and symptoms such as nipple pain and discharge, redness, swelling breast or beneath the arm, skin irritation, lumps, hard knots, appearance of orange-like peel of a skin, thickening of the skin, and a lot of other body changes (Kadmon et al. (2015.) and report them. Halkett et al. (2006, 50) described an example from a patient.

> *"She gave me a lot of information and emotional support and practical support"*

In a dynamic role of the nurse in breast cancer treatment, Amir, Scully, and Borrill (2004, 311) referred to the nurse social role as a professional counselor who provides expert advice and guidance to both patients and other members of multidisciplinary teams involved in the treatment process. In this way, nurses present patients concerns that do not always appear obvious to other members of the team so that treatment can be expedited where necessary. This is to say the nurse assists patients by serving as a negotiator during communication with colleague physicians (Kadmon et al. 2015, 41).

Montagna et al. (2019) studied how to become a breast cancer specialist in 2018: the point of view of the second cohort of the certificate of competence in breast cancer. They emphasized the certificate of Competence in Breast Cancer Program (CCB). The study showed the readiness of nurses to improve their

competence in order to serve breast cancer patients with the right information, education and communication in their regular role.

### 5.3.2 Relationship and family support

Breast cancer treatment has a social dimension that seeks to include family members and relationships of a patient into the treatment process. Nurses perform this role to care for the feelings and wellbeing of relationships of the affected patient.

Jones et al. (2010, 323) identified that through patient consent nurses walk family member through the entire process of treatment. Again nurses encourage family members to be strong and always make themselves readily available to help in order to the patient avoid loneliness and stress. Nurses' assistance as revealed in the study was demonstrated in guiding family members on how to cope with the disease and understanding what is happening around their family.

Another role of nurses in family support was identified as provision of information on causes and effects of breast cancer so that family members and relations become fully aware of the disease and what to expect going forward in the treatment. Nurses also educate families on patients' medication and how to go about it, especially helping their loved one to adhere to regular medication intake in order to keep the flow of the treatment and recovery process smooth.

While, many patients would avoid overburdening their family members with their diseases, nurses encourage family members to take initiatives in assisting their patient and if possible accompany the sick family member to check ups, tests, and scan appointments. In the case of a mother, nurses direct both the patient and family members to the appropriate institution where the children would

receive assistance and proper care so that the patient can fully concentrate on their treatment (Kadmon et al. 2015, 41).

# 6 Discussion

## 6.1 Ethical considerations,

This study has been conducted in the most ethical manner following all the requirement and steps that ensure integrity and avoidance of misconduct or bias in scientific writing. Ethics in research upholds the principles of informed consent, confidentiality, deception (in other words, honesty), rights to privacy, as well as protecting human subjects from harm (Ellis 2007, 4). The study process followed the project reporting instructions and ethical principles of JAMK University of Applied Sciences (JAMK 2018, 11).

Moreover, this study was conducted utilizing literature review as a study method and as literature review rely on secondary data, there was no need to obtain formal consent from the existing studies participants as the objectives of this study was similar to that of the included studies in this review. Besides, primary authors had fulfilled all ethics regarding participants' consent (Vergnes, Marchal-Sixou, Nabet, Maret, & Hamel 2010, 772.)

## 6.2 Validity and reliability

Validity and reliability are concepts used to measure the quality of a research, which refers to the consistency and accuracy of how study method in measures its outcome (Middleton 2019). The study outlined a systematic approach for data search, assessment and analysis of all included studies, which can be replicated in another research and produce the same results. The broader background of the included studies gives a broader perspective to the study findings.

The inclusion criteria and CASP (see appendix 3) set the standard for quality and reliability of the studies as only peer-reviewed articles are used. In order to avoid plagiarism and falsification of information, the author adhered to correct referencing of all studies and authors ideas that have been used in this study. Further scrutiny and guidance from the study supervisor ensured that bias, plagiarism, and falsification of information were avoided to provide assurance for validity and reliability. Also the appendices provide further honesty, avoiding any engagement in deceptive practices.

The limitation in this study is that one person undertook the study and there can be possibility of oversight for thorough assessment of reliability of the included studies in one person conducting a literature review, as there is only one opinion involved in the assessment of several studies.

## 6.3 Discussion of findings

The current study has reviewed the role of nurses in breast cancer treatment. The findings of the study have indicated various areas as well as stages in which nurses play a role in the management and treatment of breast cancer.

In relation to physical role, the findings supports the theoretical background of this study, in that preliminary physical examinations are inevitable and as such nurses conduct this to ascertain diagnosis of breast cancer in a woman (Cancer Research UK, 2017; Nounou et al 2015; National Breast Cancer Foundation, 2016; Dhankhar et al 2017). Physical examination does not only end after initial diagnosis but continues throughout the treatment course as a way of monitoring the patient's response to treatment in order to determine the rate of improvement or deterioration (Halkett et al. 2006, 48). Raphael et al. (2020) study throws light on the effectiveness of physical examination and what it can reveal in terms of side effects. Even as physical examination is important, Hall-Alston (2015) also highlights the need for breast cancer nurses to encourage patients to engage in exercises that have high potential to reduce some of the side effects of breast cancer. Jiwa et al. (2010, 148) states the importance of maintaining regular exercise cannot be overemphasized as it helps prevent recurrence of cancer.

What the studies failed to address in relation to exercise is that the rate of effect and the psychological state of the patient plays a major role in whether a patient would adhere to exercise or not.

The administrative, coordination and navigation support facilitates the healthcare process in a smooth manner. However, a high number of cases would require a nurse to spend more time attending to administrative work, referrals, coordination with other healthcare workers and so on. This is likely to happen in big urban cities. The knock-on effect of this is that nurses would have less time to spend one-to-one with patients (Jones et al. 2010), which is the core of nursing care in breast cancer treatment.

It is appropriate that nurses assist breast cancer patients with medication and prevention matters as many patients can be overwhelmed by the disease itself and many medications and therapies they have to take daily. A Wall Street Journal

article published a study by the Center for Disease Control and Prevention (CDCP) that reported that almost 9 out of 10 adults encounter difficulty in following routine medical advice, mainly because it is often incomprehensible to average people. This is true as Doctors' jargons, instructions and complex medical phrases are just enough to confuse patients' and let them skip taking their medications on regular basis (Landro 2010.) Studies have proven that patients who do not completely understand doctor's instructions for a medication are likely to skip them or fail to take them properly (Citrin 2014; Citrin & Kapustin 2016). This is the more reason why nurses role involve assisting breast cancer patients in medication and prevention in such a crucial time when the patient can easily skip or forget entirely to take their medication.

Significant amount of effort has been spent on curing and preventing breast cancer over the last five decades, which are mostly based on biological and clinical interventions (Landro 2010). Again, research evidence seems to propose that a good proportion of the nursing role in supporting breast cancer patients focuses on the clinical aspect of the disease (Mansour 2015, 31). However, cancer is more than a physical disease and several efforts can sometimes be ineffective as the disease appears to grow more rapidly as a result of intense psychological and emotional depression and anxiety that patients' may be going through (ScienceDaily 2019).

Different phases of breast cancer diagnosis may require different psychological and emotional care. Nurses' ability to recognize these variations in phases of the disease and application of appropriate psychological support can be instrumental in sustaining the emotional effects on breast cancer patients. For example psychological and emotional impacts of women diagnosed with early breast cancer and metastatic breast cancer varies immensely as metastatic patients are known to have distinctive psychological and emotional needs than patients with early breast cancer (Johnston 2010).

Nurses should demonstrate inclusive compassion for patients as almost all the studies emphasize the importance of this aspect in meeting psychological needs of breast cancer patients while taking care of patients' physical condition through biological and clinical approaches. When nurses accomplish this expectation, patients get a feeling that somebody is taking care of them, and that they in a safe hands.

However, Blows et al. (2015) observed contrarily that older patients who just wanted to carry on as normal declined to discuss the emotional impact of breast cancer on their health. The patients felt reluctant to discuss their emotional support needs and pretended that they had no unmet needs. The study concluded that some patients simply ignore the emotional impact and concentrate on coping strategies since they consider managing their physical needs more important than their emotional and psychological needs, thereby giving more attention to coping mechanisms with their daily physical needs and less attention to their psychological and emotional health. Similarly, Chui Ping Lei, Yip Cheng Har, and Abdullah (2011, 799) found that breast cancer patients normally become apprehensive about the cancer itself and how successful treatment can go in order to combat the disease; hence, they focus completely on the treatment trajectory more than other things. The result in such a situation is that it would restrict both patients and nurses to engage in meaningful communication regarding patients' psychological and emotional needs.

To be able to support women with breast cancer to achieve a sound psychological relief and stability, Remmers, Holtgräwe, and Pinkert (2010, 13) suggest that nurses should be intuitive about the ways patients feels and what kind of support may be needed at different times without having to talk or enquire about it. This does not also mean nurses should leave patients to their fate, but it requires the nurse to demonstrate a genuine sympathy to patients without denial.

Social support involving education, communication and information, relationship and family is crucial in health care provision for breast cancer treatment. Studies have shown that poor health literacy drives up costs to the health care system and worsens patients' outcomes (Landro 2010; Berkman et al., 2011; Jones, Treiber, & Jones 2014). In general, individuals who have limited access to health information and ability to understand their choices in health care are most likely to encounter severe health problems and inadvertently have their treatment delayed in most cases, which can result in higher cost for both the individual and the health system (Landro 2010). Nurses should provide appropriate patient education in the event of dealing with a chronic and a life-threatening disease as breast cancer in which best treatment can require the interaction and effort of multidisciplinary health care professionals over an extended period of time (Citrin 2016).

O'Riordan (2017 2) contends that the medical profession is largely not good at signposting patients to the right information they need as they literally push information to patients without reading or knowing the exact content of the information. Nurses should avoid this during breast cancer treatment as the disease already overwhelms the patients and piling voluminous information to patients without being selective can cause additional stress for patients' condition. However, constant education and intimate communication as indicated in the findings is something that the patient always expects to receive from the nurse; therefore nurses can do their best and make themselves available to patients in this respect.

Providing support for relationships and families of breast cancer patient is as important as taking care of the same patient since complete patient care does not

only care about the patient alone but also people close to the patient. Nurses' role in breast cancer treatment also extends to the needs of patient's family members.

The various support needs of the breast cancer patient during treatment can certainly put pressure on the breast cancer nurse under limited skills and experience. For this reason, Montagna et al. (2019) emphasizes on the education and training of nurses as a way of strengthening the certificate of competence and upgrade of knowledge in breast cancer treatment.

## 6.4 Conclusions and recommendations for future research

The present study has reviewed 8 peer reviewed study publications in relation to the role of nurses in breast cancer treatment. The study supports existing literature that breast cancer is one of the most common cancers among women that affects a patient's physical, psychological and, social conditions. The findings disclosed that nurses play three major roles in breast cancer treatment, which involves physical, psychological, and social support that ensures a comprehensive health care provision for women suffering from breast cancer.

In all of the roles, a key aspect to underscore is that positive patient experience goes a long way to improve and impact positively on treatment response rate and the general health condition of the patient. The overall expectation of women with breast cancer is intricately interwoven in intimacy and selfless care that they hope to receive from nurses. This put the nurse in a sensitive position than any other health professional involved in the treatment process to go extra mile and play a role that meets the overall expectations of the patient.

The study concludes that breast cancer can be demoralizing for women who suffer from it and nurses should be intuitive and altruistic in playing their role to support patients who

undergo breast cancer treatment. Additionally, quality education and continuous on the job training for nurses on breast cancer would improve nurses knowledge and skills to play a better role in supporting women undergoing breast cancer treatment.

The study recommends that future research could be conducted as empirical study to discover more aspects in a real life situation in order to broaden knowledge. Also the role of nurses in breast cancer treatment and patients' experiences can be explored. As this study looked at the broader perspective of the role of nurses in breast cancer treatment, future study could focus on a single treatment option, for example, chemotherapy treatment and the role of nurses in managing its impacts on patients.

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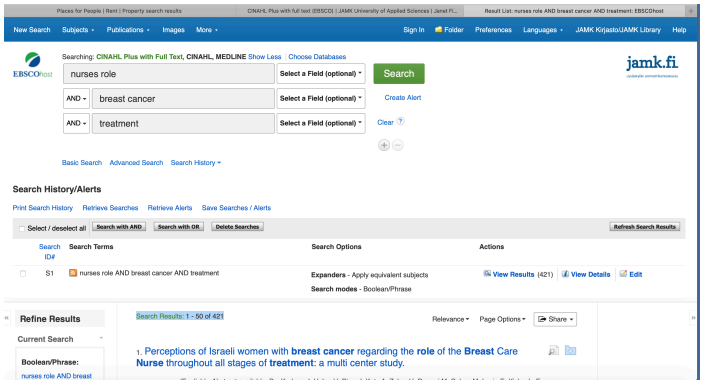
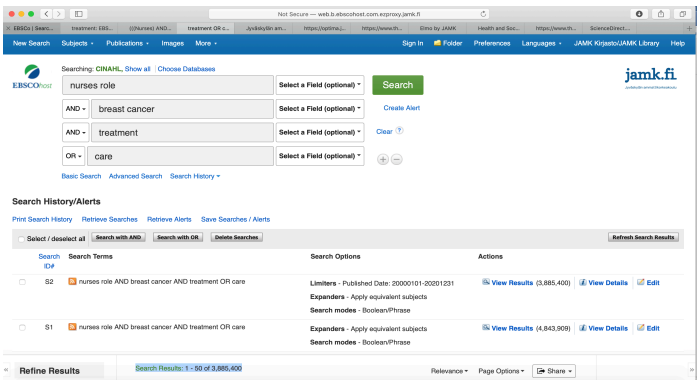
# Appendices

## Appendix 1. Excepts of literature search





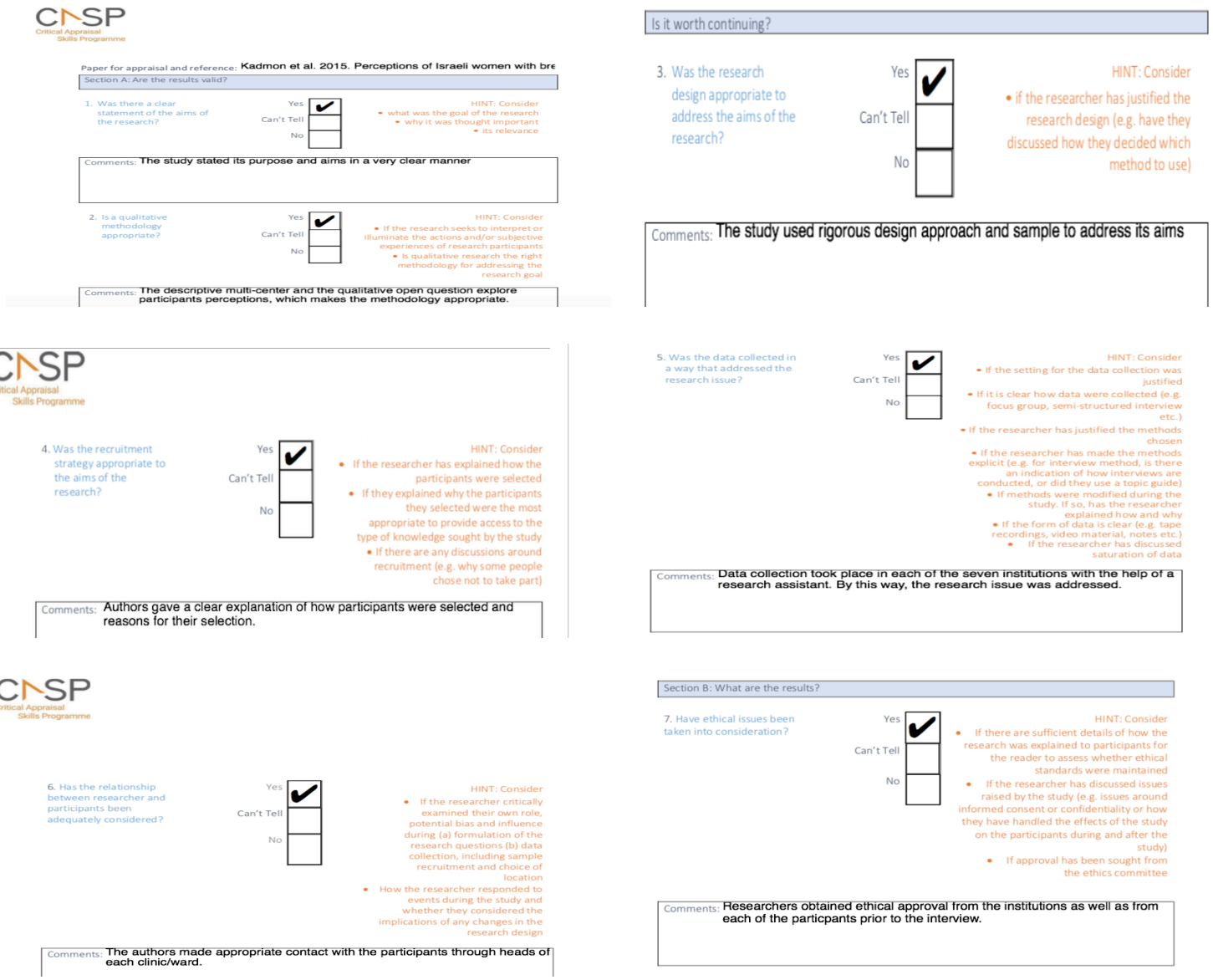

## Appendix 2. Characteristics of included studies

| Author(s) & Year of Publication | Title | Publication Journal & country | Methodology | Main findings |
|---|---|---|---|---|
| **Amir, Scully, & Borrill (2004)** | The professional role of breast cancer nurses in multi-disciplinary breast cancer care teams | European Journal of Oncology Nursing<br><br>UK | Qualitative Research: In-depth interview | 1. Informal leadership role: nurses' role in ensuring the co-ordination, communication and planning<br>2. Innovatory role: nurses' role in making the bureaucracy respond to patients and |

| | | | | |
|---|---|---|---|---|
| | | | | family<br>3. The professional counselor support role: the provision of expert advice<br>4. Confidence and humour |
| **Halkett, Arbon, Scutter, & Borg (2006)** | The role of the breast care nurse during treatment for early breast cancer: The patient's perspective | Contemporary Nurse<br><br>Australia | Qualitative Research: In-depth interviews | 1. Communication, rapport and an awareness of the women's needs<br>2. Availability<br>3. Reassurance<br>4. Practical information |
| **Jiwa et al. (2010)** | How do specialist breast nurses help breast cancer patients at follow-up? | Collegian<br><br>Australia | Qualitative Research: Interviews | 1. Prevention and facilitating access to services<br>2. Normalising<br>3. Encouraging a proactive approach<br>4. Promoting self-esteem |
| **Jones, Leach, Chambers, & Occhipinti (2010)** | Scope of the breast care nurse: A comparison of health professional perspectives | European Journal of Oncology Nursing<br><br>Australia | Qualitative Research: Semi-structured in-depth interviews | 1. Direct patient care = face-to-face<br>2. Direct patient care = diagnosis, treatment and post-treatment<br>3. Direct patient care = information, psychosocial, education, physical<br>4. Coordination of patient care |
| **Kadmon et al. (2015)** | Perceptions of Israeli women with breast cancer regarding the role of the breast care nurse throughout all stages of treatment: A multi-center study | European Journal of Oncology Nursing<br><br>Israel | Qualitative Research: Descriptive multi-center study | 1. Coordination and navigation of care<br>2. Practical support<br>3. Psychosocial support<br>4. Initial encounter or gateway<br>5. Information support<br>6. Emotional support |
| **Montagna et al. (2019)** | How to become a breast cancer specialist in 2018: The point of view of the second cohort of the Certificate of Competence in Breast Cancer (CCB2) | The Breast<br><br>Switzerland | Qualitative Research: Descriptive | 1. Need for academic training<br>2. Breast cancer training opportunities |
| **Raphael, ter Stege, Russell, Boersma, & van der** | What do patients and health care professionals view as important attributes in radiotherapy decision? Input for a breast cancer | The Breast<br><br>Netherlands | Qualitative Research: Semi-structured interviews | 1. Information on recurrence risk<br>2. Information on side effects<br>3. Information on treatment burden |

| | | | | |
|---|---|---|---|---|
| **Weijden (2020)** | patient decision aid | | | |
| **Remmers, Holtgräwe, & Pinkert (2010)** | Stress and nursing care needs of women with breast cancer during primary treatment: A qualitative study | European Journal of Oncology Nursing<br><br>Germany | Qualitative Research: Semi-structured interview | 1. Social competence<br>2. Emotional support<br>3. High professionalism<br>4. Trustworthiness<br>5. Friendly atmosphere |

Appendix 3. Example of CASP quality appraisal (Kadmon et al. 2015).



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Paper for appraisal and reference: Kadmon et al. 2015. Perceptions of Israeli women with bre

Section A: Are the results valid?

1. Was there a clear statement of the aims of the research? — Yes ✔ / Can't Tell / No

HINT: Consider
- what was the goal of the research
- why it was thought important
- its relevance

Comments: The study stated its purpose and aims in a very clear manner

2. Is a qualitative methodology appropriate? — Yes ✔ / Can't Tell / No

HINT: Consider
- If the research seeks to interpret or illuminate the actions and/or subjective experiences of research participants
- Is qualitative research the right methodology for addressing the research goal

Comments: The descriptive multi-center and the qualitative open question explore participants perceptions, which makes the methodology appropriate.

Is it worth continuing?

3. Was the research design appropriate to address the aims of the research? — Yes ✔ / Can't Tell / No

HINT: Consider
- if the researcher has justified the research design (e.g. have they discussed how they decided which method to use)

Comments: The study used rigorous design approach and sample to address its aims

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4. Was the recruitment strategy appropriate to the aims of the research? — Yes ✔ / Can't Tell / No

HINT: Consider
- If the researcher has explained how the participants were selected
- If they explained why the participants they selected were the most appropriate to provide access to the type of knowledge sought by the study
- If there are any discussions around recruitment (e.g. why some people chose not to take part)

Comments: Authors gave a clear explanation of how participants were selected and reasons for their selection.

5. Was the data collected in a way that addressed the research issue? — Yes ✔ / Can't Tell / No

HINT: Consider
- If the setting for the data collection was justified
- If it is clear how data were collected (e.g. focus group, semi-structured interview etc.)
- If the researcher has justified the methods chosen
- If the researcher has made the methods explicit (e.g. for interview method, is there an indication of how interviews are conducted, or did they use a topic guide)
- If methods were modified during the study. If so, has the researcher explained how and why
- If the form of data is clear (e.g. tape recordings, video material, notes etc.)
- If the researcher has discussed saturation of data

Comments: Data collection took place in each of the seven institutions with the help of a research assistant. By this way, the research issue was addressed.

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6. Has the relationship between researcher and participants been adequately considered? — Yes ✔ / Can't Tell / No

HINT: Consider
- If the researcher critically examined their own role, potential bias and influence during (a) formulation of the research questions (b) data collection, including sample recruitment and choice of location
- How the researcher responded to events during the study and whether they considered the implications of any changes in the research design

Comments: The authors made appropriate contact with the participants through heads of each clinic/ward.

Section B: What are the results?

7. Have ethical issues been taken into consideration? — Yes ✔ / Can't Tell / No

HINT: Consider
- If there are sufficient details of how the research was explained to participants for the reader to assess whether ethical standards were maintained
- If the researcher has discussed issues raised by the study (e.g. issues around informed consent or confidentiality or how they have handled the effects of the study on the participants during and after the study)
- If approval has been sought from the ethics committee

Comments: Researchers obtained ethical approval from the institutions as well as from each of the particpants prior to the interview.

CASP Critical Appraisal Skills Programme

8. Was the data analysis sufficiently rigorous?

Yes ✔ | Can't Tell | No

HINT: Consider
- If there is an in-depth description of the analysis process
- If thematic analysis is used. If so, is it clear how the categories/themes were derived from the data
- Whether the researcher explains how the data presented were selected from the original sample to demonstrate the analysis process
- If sufficient data are presented to support the findings
- To what extent contradictory data are taken into account
- Whether the researcher critically examined their own role, potential bias and influence during analysis and selection of data for presentation

Comments: Authors described using qualitative content analysis to analyze the data.

9. Is there a clear statement of findings?

Yes ✔ | Can't Tell | No

HINT: Consider whether
- If the findings are explicit
- If there is adequate discussion of the evidence both for and against the researcher's arguments
- If the researcher has discussed the credibility of their findings (e.g. triangulation, respondent validation, more than one analyst)
- If the findings are discussed in relation to the original research question

Comments: Findings are explicit and there is a detailed discussion of every theme

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Section C: Will the results help locally?

10. How valuable is the research?

HINT: Consider
- If the researcher discusses the contribution the study makes to existing knowledge or understanding (e.g. do they consider the findings in relation to current practice or policy, or relevant research-based literature
- If they identify new areas where research is necessary
- If the researchers have discussed whether or how the findings can be transferred to other populations or considered other ways the research may be used

Comments: Yes. The study contributes to existing literature, states its relevance in breast cancer treatment suggests new areas of research. The findings can be transfer into other population of intellectual discourse.

Appendix 4. Data analysis spreadsheet.

**Analysis**

| Sub-categories | Category | Study | Sub-categories | Category | Study | Sub-categories | Category | Study |
|---|---|---|---|---|---|---|---|---|
| Physical examination | Physical Support Role | Halkett et al. (2006) Jones et al, (2010) | Emotional care | Psychological Support Role | Remmers, Holtgräwe, &Pinkert (2010). Kadmon et al., (2015, 41),Halkett et al. (2006), Jiwa et al (2010, 146-147) | Education, communication, and information | Social Support Role | Jones et al, (2010) Jiwa et al (2010). Raphael et al, (2020). Montagna et al. (2019), Halkett et al. (2006), Amir, et al. (2004, 311), Kadmon et al. (2015) |
| Administration, coordination & navigation of support | | Jones et al, (2010) | Expression of anxiety | | Jiwa et al (2010) Halkett et al. (2006) | Relationship and family support | | Jones et al, (2010, 324). Remmers, Holtgräwe, &Pinkert (2010) |
| Medical care and prevention | | Jiwa et al (2010, 148) Kadmon et al., (2015) Jones et al, (2010) | Promotion of self- esteem and proactive attitude | | Jiwa et al (2010), Kadmon et al., (2015, 41), Jones et al, (2010) | | | |