Original Article

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Post-discharge Unmet Supportive Care Needs of Breast Cancer Patients: a Systematic Review

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Abstract:

Objective: This review was conducted to identify the post-discharge unmet supportive care needs of breast cancer patients, and to collect related factors that affected those unmet needs.

Material and Methods: Three electronic databases; including, PubMed, Wiley Online Library, and Science Direct were used to identify studies published between 2011 and 2021. Articles were identified from these databases with predefined keywords; such as, 'post-discharge', 'unmet supportive care needs' and 'breast cancer'. Of the 455 articles found initially, 107 studies were reviewed by title and abstract before full-text screening, and 17 studies were finally included. The study appraisal process was conducted independently by the research team to reach a final agreement.

Results: In total 84% participants indicated at least one post-discharge unmet supportive care need; specifically, psychological (4.0-78.8%), and health system and information (4.0-69.6%) were two domains that stood out on top. However, young age (p-value<0.001), a higher education level (p-value=0.002), married patients (p-value<0.001); and breast cancer participants living with a high level of anxiety (p-value<0.001), depression (p-value<0.001), and low quality of life (p-value<0.001-0.05) showed a significant correlation with post-discharge unmet supportive care needs.

Conclusion: Most breast cancer patients expressed at least one post-discharge unmet supportive care need. This result review will support improving health care service quality and raising awareness of nursing when providing care for cancer patients within the community.

Keywords: breast neoplasm, patient discharge, systematic review, unmet supportive care needs

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Introduction

Cancer is the leading cause of disease burden around the world, placing enormous physical, emotional, and financial strain on individuals, families, communities, and health systems. Breast cancers occur in every country around the world at all ages after puberty, but increase in incidence later in life. 'As of the end of 2020, almost eight million women were diagnosed with breast cancer (15.4%), making it the most common cancer in the world'.[1]

Along with the increasing incidence of breast cancer diagnosis as well as number of survivors nowadays, there has also been a significant change in the treatments and care regimens for this population. Most cancer patients were discharged promptly from the hospital before full recovery, and carry some physical problems (e.g. pain, side effects of chemotherapy/radiotherapy) and psychological trauma back home.[2] Transferring from hospital to home is stressful for patients and their families, and if this transfer fails it can result in adverse outcomes; such as, hospitalization, as well as an additional financial burden for the patients and their families, and health care systems.[3] Hence, the provision of effective and high-quality care for breast cancer patients is not only considered a key point at the time of hospital treatment, but also followed up at the time of hospital discharge, so as to improve quality of life (QoL).[4]

To understand these problems, two authors; named Hubbard and Wang, defined them as: "unmet supportive care needs". This was the gap between a person's experience of services and the actual services either required or desired.[5,6] Regarding the viewpoint of health care services, unmet supportive care needs are the disparity between a patient's expectation from the provided medical service and the real experience of the patient when using it.[7]

In recent years, post-discharge cancer management has gradually shifted its focus to the duties of general practice/primary health care systems and nursing practitioners; including some activities such as, coordination of care between health care facilities, as well as the provision of advice, information, and psychosocial consultancy to patients and their families.[8] Therefore, primary nurses play a pivotal role in the caring process for post-discharge cancer patients by providing support to meet the needs of outpatients.[9,10]

Although, there have been several systematic/documented reviews previously undertaken to identify unmet care needs of people with breast cancer, most of the previous literature/systematic reviews have mainly focused on the unmet supportive care needs of cancer patients at the time of diagnosis, during treatment or at the end stage[11,12]; with these needs having shown a huge difference compared to discharge time. Additionally, other studies have preferred to focus on all people with cancer, regardless of the type of cancer[13], or have only been conducted within a specific area[11]; rather than on people with breast cancer.

To understand the overall problem, this systematic review was conducted on breast cancer patients after they left the hospital, with two main objectives: 1) to identify the post-discharge unmet supportive care needs of breast cancer patients; 2) to collect related factors that affect unmet supportive care needs of breast cancer patients. Furthermore, the author also wanted to help nurses gain a deeper understanding of their post-discharge patients' needs, so as to create an opportunity to provide valuable and effective care. This strategy may reduce the cost of health services, contribute to more effective care of patients, its longevity, and improve the QoL of patients and their families.

Material and Methods

Search strategy

A literature search of electronic bibliography studies was conducted from June 2021 to September 2021. PubMed, Wiley Online Library, and Science Direct were the three main databases used to collect relevant articles for review. The researcher found articles by using Boolean logic, and the terms following the PICo process (Table 1).[14]

Study selection

In the first round, a total of 455 articles were imported and processed in Endnote. The researcher then removed 16 articles that were duplicated in three databases. From this, 107 studies were reviewed by title and abstract, before retrieval and full-text screening. To minimize bias during the time of study selection, an author and two supervisors independently evaluated the research papers for further consideration; according to the eligibility criteria. Finally, 17 studies were included in the review (Figure 1).

Eligibility criteria

Studies that conformed with the following criteria were included in this review: 1) studies conducted on breast cancer patients; regardless of disease stage and treatment protocol; 2) participants were adults, aged ≥18, who were discharged from the hospital to their home with or without having an appointment in an outpatient clinic; 3) were primary/original research studies; 4) were published in English with available full-text.

Studies were excluded if they: 1) were grey literature (e.g., conference abstracts, dissertations, or protocol papers); 2) had irrelevant or non-acceptable study designs; including a systematic review, or meta-analysis that were considered as secondary sources; 3) were studies conducted before 2011.

Quality evaluation

The Centre for Evidence-Based Management Critical Appraisal of a cross-sectional study with twelve issues, were used to assess the methodological quality of 15 cross-sectional studies, so as to determine to what extent these studies addressed the possibility of bias in their design, conduct, and analysis.[15] The studies were included in the review if six or more out of 12 quality criteria were met.

In addition, this review also applied the Critical appraisal checklist for Cohort study, developed by the Joanna Briggs Institute (JBI), with eleven contents to assess the methodological quality of two studies[16,17] and to determine the extent to which both studies have addressed the potential for bias in their design, conduct, and analysis.[18] The analysis process was conducted independently by the author as well as two supervisors to reach an agreement; any discrepancies were further discussed.

Table 1 Search strategy (following PICo process)

	Inclusion criteria	Exclusion criteria	Derived search terms
P “Population”	Post-discharge breast cancer	All types of cancer; breast cancer hospitalization; cancer in end-of-life stage; cancer patients who receiving palliative care	((breast cancer) OR (breast neoplasm))
I “Interest”	Unmet supportive care needs (including information; psychological; physical; social domains seperately)	Quality of life; cancer distress (anxiety and depression)	((unmet supportive care needs) OR (supportive care needs) OR (care needs))
Co “Context”	Community or outpatient clinics	Hospital	((post-discharge) OR (community dwelling))

PICo process included: P (population); I (Interest); Co (Context)

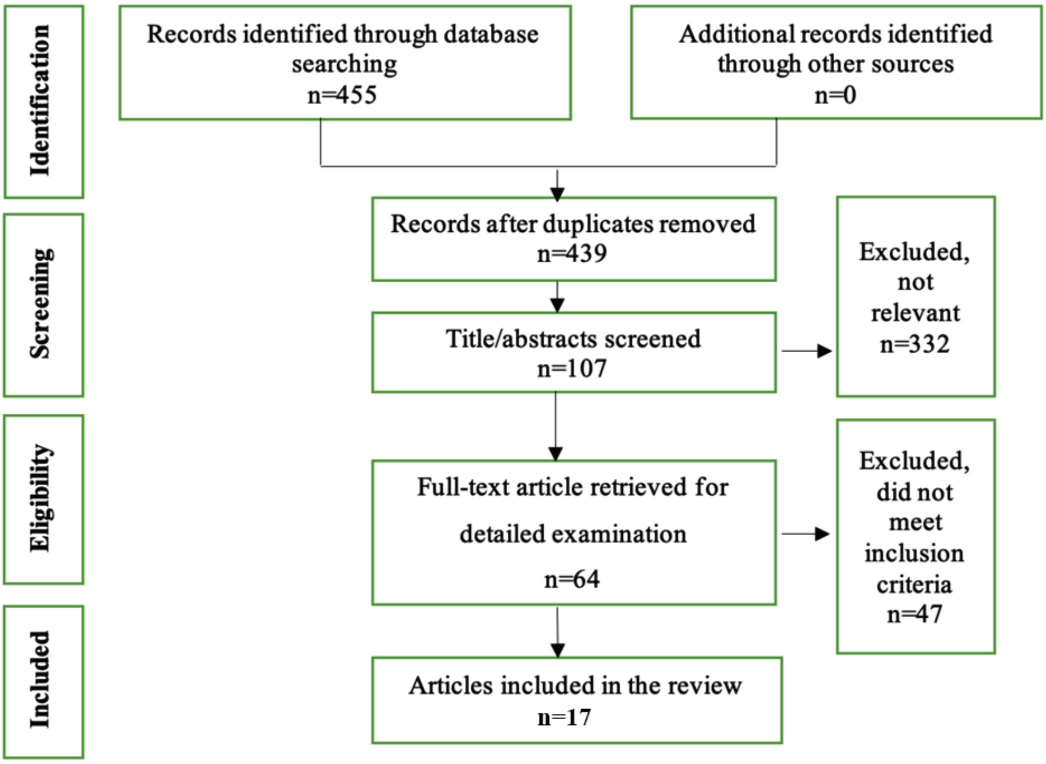

Figure 1 Study selection flow diagram

Data synthesis

Within 17 articles, some main differences; such as, study populations; which were diverse by age and marital status, education level, employed status, cancer stages, long time after discharge, and data collection measures were used.

The top ten unmet supportive care needs of breast cancer participants after discharge from the hospital were then tabulated. The purpose of this synthesis was to create an accessible and evidence-based shortlist of post-discharge unmet supportive care needs frequently reported by patients with breast cancer. When synthesizing each issue, items of a different questionnaire that was used to measure the common contents could be consolidated. For example,: "I need local health care services that are available when I require them" (from Cancer Survivors Unmet Needs – CaSUN) and: "Having access to professional counseling (e.g., psychologist, social worker, counselor, nurse specialist) if you, family or friends need it" (from Supportive Care Needs Survey – Short Form 34 – SCNS-SF34) were put into one item labeled: "need to get medical care". However, some items within the scale were consolidated; for example: "being given written information about the important aspects of your care": "being given information (written, diagrams, drawings) about aspects of managing your illness and side-effects at home": "being given explanations of those tests for which you would like explanations" (SCNS-SF34) were a group in information needed. Items were organized into 5 domains: patient and care support, health systems and information, physical and daily living, psychological, and sexuality.

Correlate factors: the review concentrated on relationships between post-discharge unmet supportive care needs of breast cancer patients and a range of variables;

including, demography; physical group, disease/treatment-related, and psychosocial issues. Each significant, statistical correlation between variables and unmet supportive care needs was extracted and shown in a table; with each correlation responsible for one "point".

Results

Characteristics of included studies

Fourteen cross-sectional studies (82.3%), one longitudinal study (5.9%), one retrospective (5.9%) and one prospective (5.9%) study were admitted into the review (see Table 2). However, 11 Asian, 4 European (among these, one study included cooperation conducted between Asian and European countries)[19], one British, and one North American study conducted in post-discharge breast cancer patients. In regard to the study sample characteristics, the mean age ranged from 43.0 to 59.1 years, S.D.=12.1. The percentage of breast cancer participants who were already married ranged from 63.3% to 92.3%. Between 22.6% and 48.4% of participants were employed, with the lowest rate being in Uchida's study[20], and the highest rate in the articles of Wang and Cheng.[21,22] Regarding the highest education level that women with breast cancer overall achieved, the range fluctuated from 14.2% to 92.2%. Additionally, almost 70% of breast cancer participants were in stage I and II of their diagnosis period; over 90% received surgery and 100% were administered more than two treatment method before discharge (e.g., surgery and radiology, surgery, and chemotherapy, etc.).

Table 2 Characteristics of included studies

No.	Reference and published year; study types	Location	Participant characteristics	Unmet supportive care needs assessment	No. of cites
1	Cheng et al.[9] (2014) Cross-sectional	Singapore	150 breast cancer survivors, aged ≥21, 6 months – 5 years post-discharge	SCNS-SF34[a]	60
2	So et al.[24] (2014) Cross-sectional	China	163 breast cancer women, aged ≥18, finished treatment within a year	SCNS-SF34[a]	44
3	Akechi et al.[27] (2011) Cross-sectional	Japan	408 participants aged >20	SCNS-SF34[a]	38
4	Pauwels et al.[7] (2013) Cross-sectional	Belgium	465 participants (account 68.2%); aged 18-65; non-metastatic breast cancer; 3 weeks – 6 months post-discharge	The care need questionnaire	33
5	Lam et al.[19] (2011) Cross-sectional	Hong Kong and Germany	384 Chinese women and 292 German women; aged ≥18; having follow-up appointment in outpatient clinic	SCNS-SF34[a]	33
6	Uchida et al.[20] (2011) Cross-sectional	Japan	87 participants; aged ≥20	SCNS-SF34[a]	26
7	Cheng et al.[25] (2016) Cross-sectional	Singapore	250 patients aged 21 or above and had completed primary cancer treatment from 6 months to 5 years previously	SCNS-SF34[a]	25
8	Park & Hwang[23] (2012) Cross-sectional	South Korea	1080 participants with stages I-III; age range 20-80; no metastasis evidence; no recurrence	SCNS-LF59[b]	21
9	Edib et al.[28] (2016) Cross-sectional	Malaysia	117 breast cancer patients in all ages and stages; ≥1 year after treatment	SCNS-SF34[a]	19

Table 2 (continued)

No.	Reference and published year; study types	Location	Participant characteristics	Unmet supportive care needs assessment	No. of cites
10	Hubbard et al.[5] (2015) (Cross-sectional + Interview)	UK	44 participants; post-discharge breast cancer and living in rural area	SCNS-SF34[a]	11
11	Fong & Cheah[29] (2016) Cross-sectional	Malaysia	101 females aged ≥18; post-treatment breast cancer with any stages	SCNS-SF34[a]	7
12	Lo-Fo-Wong et al.[17] (2020) Prospective design	Netherlands	746 breast cancer patients; ≥15 months after diagnosis	SCNS-SF34[a]	6
13	Burris et al.[16] (2015) Longitudinal study	USA	90 participants with I-III stages; 3-10 weeks post-discharge	CaSUN[c]	6
14	Martínez Arroyo et al.[26] (2019) Cross-sectional	Spain	450 breast cancer patients completed primary treatment at least 1 month	CaSUN[c]	4
15	Wang et al.[21] (2018) Cross-sectional	China	264 breast cancer patients aged 18 or more	SCNS-SF34[a] (Chinese version)	4
16	Cheng et al.[22] (2018) Cross-sectional	Singapore	113 and 137 cancer survivors post-discharge after 2 periods, including: 6 months to 2 years, and 2 years to 5 years, respectively	SCNS-SF34[a]	5
17	Shih et al.[10] (2020) Cross-sectional	China	350 participants living over 2 years, aged >20; and be currently disease-free without any recurrence or metastasis	CaSUN[c] (Chinese version)	1

[a]SCNS-SF34=Supportive Care Needs Survey Short Form 34, [b]SCNS-LF59=Supportive Care Needs Survey – Long Form 59, [c]CaSUN=Cancer Survivors' Unmet Needs

According to the data collecting procedure, seven studies gathered patient information via mail, telephone, or home in-depth interviews, while ten articles gathered data through in-person contacting with cancer patients in outpatient clinics, for which they regularly visited for check-ups. The most common study-specific measure/questionnaire to assess unmet supportive care needs was the SCNS-SF34 (with twelve studies), and the second was the CaSUN (three studies). Some other studies collected data by using specific measures; such as, the Care Need, or SCNS-SF59 tools.[7,23]

Unmet supportive care needs of post-discharge breast cancer patients

Approximately 32.4% to 84.0% of breast cancer participants reported that they experienced at least one unmet supportive care need after leaving the hospital. The study that kept the highest proportion was conducted by So et al.[24], and the lowest percentage was by Cheng et al.[25], respectively.

By analyzing the overall studies, so as to identify each domain of post-discharge unmet supportive care needs of women with breast cancer; the psychological domain accounted for the highest percentage; with the rate ranging from 4.0 to 78.8%. Standing in the next positions included: health system and information (4.0-69.6%); patient and supportive care (4.0-56.5%); physical and daily living (9.7-55.6%); and sexuality domain (2.0-33.4%). This result shows that the percentage of unmet supportive care needs was quite high for most contents.

Extracted data showed a total item of unmet needs reported by at least 32.4% of participants using all unmet need measures from included studies. Each item was ranked based on the number of studies that addressed it (denoted by n) and then by the prevalence rate of breast cancer patients who experienced these unmet needs. Based on this rubric, the most frequently unmet supportive care needs identified by post-discharge breast cancer patients were defined; with the most frequent being within the psychological domain (Table 3).

Breast cancer patients expressed fear as to their cancer spreading or coming back; which was denoted in 12 articles (n=12) and accounted for 10.0-78.8%

The nine remaining unmet supported care needs in the list belonged to the health system and information domain. Up to 10.0% of participants required access to medical staff for discussions of all aspects of their condition, treatment, and follow-up (n=11); and for professional counseling, if they/family/friends required it (n=11). Breast cancer patients reported unmet supportive care needs for information related to disease and treatment time concerning the management of their illness and side effects occurring at home (n=10; 14.7-63.6%); about benefits and side effects

Table 3 Top ten unmet supportive care needs of post-discharge breast cancer patients

Unmet need	Domain	No. of endorsements	Prevalence range	References
Fears about the cancer spreading or coming back	Psychological	12	10.0-78.8%	[5],[9],[10],[16],[17],[19],[20],[22],[23],[24],[25],[27]
Having one member of hospital staff with whom you can talk to about all aspects of your condition, treatment, and follow-up	Health system and Information	11	10.4-74.3%	[5],[9],[19],[20],[23],[24],[25],[26],[27],[28],[29]
Being informed about things you can do to help yourself get well	Health system and Information	11	10.8-66.9%	[9],[10],[16],[17],[19],[20],[23],[24],[25],[26],[27]
Having access to professional counseling if you/family/friends need it	Health system and Information	11	11.6-57.6%	[5],[9],[10],[19],[20],[23],[24],[25],[26],[27],[29]
Being given information about managing your illness and side effects at home	Health system and Information	10	14.7-63.6%	[9],[10],[16],[19],[20],[23],[24],[26],[28],[29]
Being adequately informed about benefits and side effects of treatments before you choose to have them	Health system and Information	9	23.3-47.9%	[5],[10],[19],[20],[23],[24],[26],[28],[29]
Being informed about cancer which is under control or diminishing	Health system and Information	8	20.8-62.0%	[5],[19],[20],[23],[24],[26],[27],[29]
Being given written information about important aspects of your care	Health system and Information	8	11.3-54.7%	[5],[9],[19],[20],[23],[24],[26],[28]
Being informed about your test results as soon as feasible	Health system and Information	7	12.0-63.2%	[16],[19],[23],[24],[26],[28],[29]
Being given explanations of those tests for which you would like explanation	Health system and Information	5	29.7-49.5%	[19],[24],[26],[28],[29]

of treatments before they chose to have them (n=9; 23.3-47.9%); about test results received as soon as feasible (n=7; 12.0-63.2%); received written information about important aspects of their care (n=8; 11.3-54.7%); and explanations of tests, for which they would like an explanation (n=5; 29.7-49.5%). Between 10.8-66.9% reported unmet supportive care needs related to the things patients can do to help themselves get better (n=11); and between 20.8-62.0% of participants had a need to be informed in concerns to their cancer being either under control or diminishing (n=8).

Related factors with unmet supportive care needs of post-discharge breast cancer patients

The unmet supportive care needs of post-discharge breast cancer participants as well as some related factors were identified through the analysis of 14 study results[7,10,16-17,19-21,23-29], out of a total of 17 articles in the review (Table 4).

Only Lo-Fo-Wong reported a positive association between older age with unmet supportive care needs (ß=–0.18; p-value<0.05)[17], whilst other studies have shown

Table 4 Related factors with unmet supportive care needs of post-discharge breast cancer patients

Factors	No.reporting statistically significant correlation with unmet supportive care needs (n)	References
Demographic		
Age	++++++++	[7],[16],[17],[19],[20],[26],[27],[29]
Education level	+++	[19],[21],[29]
Employed/ Income	+++	[7],[27],[29]
Ethnic group	++	[19],[29]
Marital status	++	[19],[29]
Comorbidity	+	[17]
Living place	+	[20]
Psychosocial		
Depression (HADS[a])	++++++	[10],[19],[21],[23],[26],[27]
Anxiety (STAI[b], HADS[a])	++++	[19],[21],[26],[27]
Psychological distress (MSAF-SF[c], Distress Thermometer, FOR[d])	+++	[10],[17],[28]
Lower mental QoL (FACT-B[e], FACT-G[e])	+++	[23],[24],[25]
Physical		
Lower overall QoL (EORTC QLQ-C30[f])	+++	[21],[23],[28]
Lower physical QoL (FACT-B[e], FACT-G[e])	+++	[17],[23],[24]
Disease/treatment related		
Undergoing active treatment	+++	[17],[21],[29]
Symptom distress/severity	+++	[10],[16],[17]
Post-discharge duration	++	[23],[29]
Disease-related characteristic/stage of cancer	++	[20],[27]
Time of diagnosed	++	[21],[27]
Presence of symptom	+	[19]
Lower performent status	+	[27]

[a]HADS=Hospital Anxiety and Depression Scale, [b]STAI=The State-Trait Anxiety Inventory, [c]MSAF-SF=The Memorial Symptom Assessment Scale – Short Form, [d]FOR=Fear of recurrence, [e]FACT-G/B=Functional Assessment of Cancer Therapy (G General/ B Breast), [f]EORTC QLQ-C30=European Organization for Research and Treatment of Cancer Quality of Life Questionnaire, QoL=Quality of Life

that younger breast cancer women required more unmet supportive care needs than older patients.[7,16,19,20,26,27,29] Three articles reported the relationship between education level and unmet supportive care needs; in that; the higher the education level of the participants had, the greater the unmet supportive care needs they demanded (ß=0.12; p-value=0.002).[19,29] Contrary to the above statement was the research results of Wang et al, in that people who had not graduated from secondary school had higher unmet supportive care needs than others (95% CI=1.06-2.61).[24] However, patients who left the hospital after being treated with breast cancer expressed the significant effect of unemployed status (ß=–0.14; p-value=0.002)[27,29] or low income (p-value<0.001)[7], with higher unmet supportive care needs. Additionally, married patients also required more of the sexuality domain of unmet supportive care needs (p-value<0.001) than single/divorced and widowed women.[19,28]

The relationship between depression factors and unmet supportive care needs of breast cancer women when they were released from the hospital was performed by using the Hospital Anxiety and Depression Scale (HADS). Whilst 6 studies reported that cancer patients living with more depression were higher in the overall unmet supportive care need domains (p-value<0.001)[10,19,21,23,26,27], the study of Lam et al. indicated a high level of depression was associated with high physical and daily living needs (p-value=0.001), psychological needs (p-value=0.002); health system and information needs (p-value=0.049), and fell into the physical and daily living domain (p-value=0.006).[19]

Four articles showed the positive association of post-discharge unmet supportive care needs with an anxious feeling of breast cancer participants.[19,21,26,27] This confirmed that participants who stayed with a higher level of anxiety expressed higher unmet supportive care needs (p-value<0.001).

Correlation between post-discharge unmet supportive care needs of breast cancer participants and physical groups with lower overall QoL[21,25,28], and lower physical QoL[23-25] were found. While participants had a minor QoL-related to all aspects, they expressed higher unmet supportive care needs for all domains (e.g., r= –0.52, p-value<0.001[28]; p-value<0.05[17] or p-value<0.01[21]). Besides, coping with the lessening in QoL of physical issues, cancer participants showed a high level of unmet supportive care needs for only the physical and daily living domain.[23-25]

The data from three articles demonstrated that breast cancer participants who suffered treatment therapy showed great unmet supportive care needs.[17,21,29] There was a positive correlation between unmet supportive care needs and symptom distress/severity among three different articles.[10,16,25] These authors reported that patients have more symptom distress or suffered a severity of symptoms, for which they required more supported care needs from medical staff. Additionally, during the period for which breast cancer patients were moving from out of hospital also related to unmet supportive care needs to be shown in two articles.[23,29] In the study of Fong & Cheat, participants discharged within 5 years expressed higher needs in the physical and daily living (p-value<0.001), psychological (p-value<0.001), and sexuality domain (p-value=0.019).[29] Park & Hwang also indicated the association between a time of under one year; wherein breast cancer patients were moving out of the hospital, and the overall domains of unmet supportive care needs (p-value<0.001).[23] Whereas, breast cancer patients who were diagnosed with II, III, or IV stage, and diagnosed over one year had more post-discharge unmet supportive care needs (p-value<0.01)[20], in Akechi's study, patients being diagnosed under 6 months and in an advanced stage required more supportive care needs (p-value<0.001).[27] Three issues included the presence of symptoms (p-value<0.001), and lower performance status (p-value<0.001) being reported as having great significance with unmet supportive care needs of breast cancer patients after discharging.[14,27]

Discussion

This systematic review highlighted a large proportion of participants who presented at least one unmet supportive care need after they left the hospital; as almost 32.4-84.0%. This result was similar to the research of Wabula, with over 50.0% of supportive care needs of breast cancer patients being unmet after discharge.[30] The selection of study subjects, with diverse clinical and demographic characteristics, allows us to explore the needs of this entire patient population.

Discharge from the hospital is a very difficult process for people with breast cancer, because the sudden and/or forewarned end of medical care can leave them feeling anxious, stressed, and abandoned. Therefore, many studies conducted on participants living with breast cancer showed that the psychological needs were the most prominent unmet supportive care needs, overall, during the post-discharge period; accounting for 4.0-78.8%.[9-10,22-25] Conversely, sexual need held the lowest position, with the range from 2.0-33.4%; this could be explained by the age of all breast cancer patients being older (from 43 to 59.1 years, S.D.=12.1). This finding was the same results in some previous systematic reviews conducted on overall cancers by Harrison et al., and Lisy et al.[11,13]

There was an association between people with breast cancer having symptoms of distress, anxiety, and low QoL with post-discharge unmet supportive care needs. However, this conclusion must be interpreted with caution, as that of the recommendation of some former studies from the authors Wang and colleagues.[21] Because most of the included studies were of a cross-sectional descriptive design, this meant that other variables related to participants had inconsistent results, (e.g., marital background, education level, stage of illness, and depression-anxiety), which might be caused by cultural differences and/or methodological errors (e.g. insufficient sample sizes to explore the relationship between two factors), so it was difficult to determine the exact cause-and-effect relationship. Our research also shows correlations between several factors caused by cancer pathology (e.g., stage of disease, treatment methods before discharge, symptoms presence) and the unmet supportive care needs of breast cancer patients after they were discharged from the hospital. This result was similar to the results of Lisy et al.; however, Lisy's study was performed on all cancer patients; not distinguishing those with breast cancer as in our research.[11]

A challenge for both health services and systems is how to care for the breast cancer population, and how to meet their unmet supportive care needs after discharge, as described in this review. The top psychological need of breast cancer patients was to receive reassurance and emotional support from medical staff and relatives; especially, on whether their cancer might or might not come back. (78.8%). In recent years, Ohlsson-Nevo and Simard have experimented with a few psycho-educational interventions for cancer patients to reduce the fear as well as improve emotional enhancement; however, these supportive activities have not yet shown a clear effect.[31,32]

Similar to studies on the unmet supportive care needs of cancer patients in general, most of the studies we used in this review showed a great need for providing the most comprehensive and effective source of the health system and information domain.[6,13] Providing enough pieces of information about things medical staff can do to help them get well, and having one member of hospital staff with whom they can talk about all aspects of their condition, treatment, and follow-up were also important areas where information provision was found to be inadequate. Providing information on self-care solutions and strategies for post-discharged cancer patients and their family members by telephone is becoming a trend to help maintain a high QoL and reduce psychological distress for them.[33] However, the biggest challenge is still the process of integrating systematic self-care training, providing updated information, and implementing care for patients continuously/daily.

The importance of information and communication after discharge has been emphasized in the study of Harrison.[13] Our study, once again, reaffirmed this need; not only for the health system and information domain but also for all other post-discharge unmet supportive care needs of breast cancer patients. This is based on the Supportive Care Framework, serving as a guiding tool for cancer care and management professionals to understand what kind of help a patient may need and to build a plan for service delivery.[34]

Additionally, some research evidence shows that people with breast cancers wanted not only an effective, simple, and personalized way of providing information, they also wanted to experience interactions in a cautious, sensitive, and honest manner with health care professionals.[21,23] Although, the health system as well as the medical staff themselves always try to provide the most suitable and available care for patients after discharge, the research results reported that the health system and information needs of those participants still requires improvement. Better coordination among health care professionals is also key; especially, as patients transition from acute care to rehabilitation and primary/community care providers.

Similar to the results of previous reviews, our study also highlighted some factors that influence the need for supportive care for breast cancer participants.[13,30] Although, all studies have shown that age, educational status, marital status, and gender are associated with post-discharge unmet supportive care needs of participants living with breast cancer, there are reported inconsistencies in the results determining this correlation. For example, a study showed that older participants expressed higher supportive care needs[17], while most of the remaining studies reported that the younger the cancer patients, the higher the unmet supportive care needs they demanded.[14,16,20,26,29] In addition, participants who graduated from secondary school or higher and/or were married indicated higher care needs than the rest of the participants.

There was an association between people with breast cancer with symptoms of distress, anxiety, and low QoL with post-discharge unmet supportive care needs. However, this conclusion must be interpreted with caution, as recommended by Wang et al.[19] Because most of the included studies were of a cross-sectional descriptive design, this meant that other variables related to participants had inconsistent results, (e.g., gender, marital background, education level, stage of illness, and depression-anxiety), or might be caused by cultural differences and/or methodological errors (e.g., insufficient sample sizes to explore the relationship between two factors), so it was difficult to determine the exact cause-and-effect relationship. Therefore, longitudinal studies with rigorous study designs should be adopted. Furthermore, each study showed correlations in different ways; for example, some studies found correlations between age and all domains[14,16,21], whilst others showed age was only related to a few specific domains; such as, health systems and information.[17,26] This could lead to difficulties in synthesizing as well as distorting the overall research results.

The findings of this review must consider several limitations. First, concerning the problem related to a difference in sample sizes between studies; some studies were only performed on 87 participants[20] while other studies were conducted on over a thousand of breast cancer patients[23]. This makes comparisons of unmet supportive care needs between those participants less valuable. Second, most of the included studies were cross-sectional descriptive studies, conducted over a single time; only two studies collected data over two different consecutive time points, so it was nearly impossible to compare the changes in unmet supportive care needs over time. Third, the author could not rule out language bias as only articles published in English were included.

Through the above limitations, the author hopes that shortly there will be more studies assessing the post-discharge unmet supportive care needs of patients with breast cancer at different consecutively times. From there, medical staff can identify and provide efficiently and appropriate supportive care for these patient's post-discharge.

Conclusion

Most breast cancer patients expressed at least one post-discharge unmet supportive care need for fighting their fear concerning cancer recurrence/spreading, or for receiving support from primary medical staff to resolve their problems. Breast cancer patients at a young age or living with anxiety/depression status confirmed a great relationship with post-discharge unmet supportive care needs.

This review will contribute not only on a clinical perspective, but also to education applications. For nursing clinical intervention, the identification and management of unmet supportive care needs is an essential component of health care services for people with breast cancer to decrease readmission and reduce uncomfortable physiology and worrying feelings when they return to "normal life". The research results provide nurses with knowledge regarding breast cancer patients' post-discharge unmet supportive care needs, re-evaluates the effectiveness of the provided care services to breast cancer patients, and thereby can inform service planning/redesign primary care processes during the time of patients leaving a treatment place.

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Conflict of interest

No conflict of interest has been declared by the authors.

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