UNDERGRADUATE RESEARCH IN NATURAL AND CLINICAL SCIENCE AND TECHNOLOGY (URNCST) JOURNAL
Read more URNCST Journal articles and submit your own today at: https://www.urncst.com

REVIEW OPEN ACCESS

The Effect of COVID-19 on the Mental Health of Breast Cancer Patients Undergoing Treatment: A Scoping Review

Sarah J. Shannon, BSc Student [1]*

[1] Department of Kinesiology, University of Guelph-Humber, Toronto, Ontario, Canada M9W 5L7

*Corresponding Author: sshann01@guelphhumber.ca

Abstract

Introduction: Patients with breast cancer experienced difficulties making appointments, treatment delays, and delayed screening during the COVID-19 pandemic. As a result of these challenges for individuals with breast cancer diagnoses, it is believed that the COVID-19 pandemic had a detrimental effect on these patients' mental health. The purpose of this review was to examine the effect of COVID-19 on the mental health of breast cancer patients undergoing treatment through a scoping review.

Methods: The methods were guided by the Arksey and O'Malley framework, described in the Joanna Briggs Institute guidelines, and the reporting is compliant with PRISMA-ScR Checklist. Searches were conducted in the databases Medline via OVID and CINAHL from February 2023 to March 2023, with studies being published only from January 2020 to present. Inclusion criteria were breast cancer patients receiving breast cancer treatment such as surgery or chemotherapy, observational studies such as cross-sectional, and studies that measured the impact on mental health during the COVID-19 pandemic. Data were then extracted using a charting form.

Results: A total of 21 studies were included. Either depression, anxiety or stress or a combination of them were examined in all the studies that were included. Thirteen of the studies included used the Hospital Anxiety Depression Scale (HADS) and/or the Generalized Anxiety Disorder (GAD-7) for their measures. Seventeen studies showed that while undergoing active treatment during COVID-19, there were increased levels of depression, anxiety, and stress. Four studies that were included did not see a difference in these mental health outcomes during the pandemic.

Discussion: Many studies stated the importance of how mental health interventions can be key to preventing higher rates of depression and anxiety. As such, the mental health of breast cancer patients must be prioritized by introducing changes to health care distribution and through providing psychological interventions to these patients.

Conclusion: This scoping review demonstrated that breast cancer patients had increased rates of depression, anxiety, stress, and other mental health outcomes during the pandemic. Future research should be conducted to examine the effects on psychological interventions that focus on improving mental health in breast cancer patients.

Keywords: mental health; breast cancer; cancer; depression; anxiety; scoping review

Introduction

Breast cancer is the most common cancer in women in Canada [1]. It is estimated that about 1 in 8 Canadian women will develop breast cancer during their lifetime, affecting 13% of women [1]. Over the last decade, the increase in awareness of breast cancer has become important in early detection. Through regular screening such as mammograms, breast cancer can be caught at earlier stages and have a better prognosis because of accessing treatment [1]. The COVID-19 pandemic impacted the medical field remarkably, including but not limited to preventative measures. There is a considerable amount of data that demonstrates that there was an impact on women undergoing breast cancer treatment in Ontario due to the delays in treatment, lack in quality of treatment and overall stress from the pandemic [1]. During the pandemic, individuals that were immunocompromised, had pre-existing conditions or were undergoing cancer treatment, were advised to self-isolate from others to avoid having complications to their condition [2]. Research has suggested that during the COVID-19 pandemic many cancer patients have reported increased loneliness, depression, and anxiety and this is believed to have a detrimental effect on women's mental health [2]. As a result of the effects of the pandemic, medical practitioners are now compelled to modify their recommendations for patient care and management to guarantee that patients can be treated safely without also running the danger of infection [3]. For example, a lot of health care centers, hospitals and clinics are using an increased number of

virtual appointments and directing patients to using Telehealth if they have questions or concerns about their condition [3]. Due to the potential increased susceptibility to infection and illness development in breast cancer patients, these individuals may be even more affected by these changes in therapies and in-person interactions [3].

The pandemic also caused challenges with resources and equipment in the healthcare industry. There were shortages of ventilators, beds, and respiratory devices [4]. There were also shortages in personal protective equipment [4] such as masks, gowns, gloves, and face shields [4]. There was an increase stress put on healthcare workers during the pandemic and caused mental and emotional distress among them. The health care workers were also working long hours with an increase in workload during their shifts [4]. This may have ultimately led to burnout, stress, and mental suffering in the workers and as a result, may have caused poorer patient care.

Due to the large proportion of breast cancer patients that make up the overall cancer population (30% of all female cancers each year), it is important to understand how breast cancer patients have been affected emotionally, psychologically, and mentally during the COVID-19 pandemic. As such, the purpose of this scoping review was to analyze and explore the effects of the COVID-19 pandemic on the emotional and mental wellbeing on breast cancer patients.

Methods

This scoping review aimed to analyze and identify the current literature published on this topic, assess the methodology used for the studies, crucial elements related to this topic and identify gaps in the literature. The scoping review framework of Arksey and O'Malley framework [5] was used to guide the current study. The five stages to this framework were employed: (1) identifying the research question; (2) discovering recognized research studies; (3) selecting studies; (4) data extraction; (5) reporting and summarizing the findings.

Identifying The Research Question

The research question aimed to describe the nature, quantity, and extent of research publications that have been published regarding the topic of the effect of COVID-19 on the mental health of breast cancer patients.

Search Strategy

A systematic literature search of the databases, Medline via OVID and CINAHL, was conducted of all articles published between 01/01/2020 and present day. The electronic search strategy included headings, key words, and their derivatives "breast cancer, neoplasm, breast" to name a few (see Table 1). All articles were downloaded as RIS files and uploaded into "Covidence" to begin the review process to include or exclude studies from this scoping review.

Table 1. Derivatives used for search strategy in the OVID MEDLINE database

# ▲	Searches	Results	Type
1	Breast Neoplasms/	329988	Advanced
2	("breast cancer" or "breast disease" or breast).mp.	590641	Advanced
3	1 or 2	590641	Advanced
4	women/	15181	Advanced
5	female/	9603947	Advanced
6	4 or 5	9607315	Advanced
7	loneliness/	6263	Advanced
8	mental health/	61276	Advanced
9	depression/ or sadness/	150796	Advanced
10	Anxiety/ or Anxiety disorders/	138079	Advanced
11	7 or 8 or 9 or 10	305452	Advanced
12	COVID-19/	229190	Advanced
13	COVID/	0	Advanced
14	coronavirus/	5270	Advanced
15	SARS-CoV-2/	155509	Advanced
16	12 or 13 or 14 or 15	237202	Advanced
17	3 and 6 and 11 and 16	64	Advanced

Table 2. Derivatives used for search strategy in the CINAHL databases

Search ID#	**Search Terms**
S1	AB ("Breast neoplasms" OR "Breast Cancer") AND AB (Female OR Women) AND AB (Loneliness OR Anxiety OR Depression OR Sadness) AND AB COVID-19
Search Options	**Actions**
Expanders - Apply related words; Apply equivalent subjects **Search modes** - Boolean/Phrase	**View Results (12)** **View Details** **Edit**

Table 3. Abstract and full text inclusion and exclusion criteria for this scoping review

Study characteristics	**Inclusion criteria**	**Exclusion criteria**
Abstract Criteria		
Participants	Breast cancer patients and are receiving breast cancer treatment (surgery, chemotherapy and/or radiation therapy, immunotherapy, targeted therapy, hormone treatment, endocrine treatment).	Have already survived breast cancer and are not currently undergoing treatment.
Study Design	Observational studies such as retrospective or prospective, cohort studies or cross-sectional studies	Systematic reviews, randomized control trials or treatment studies.
Outcome Measure (quality of life)	Impact on mental health from the COVID-19 pandemic	Physical health or wellbeing
Publication	Peer-Reviewed journal published since 2020	Studies that were not written in English
Full Text Criteria		
Population	Adults aged 18+ Breast cancer patient Currently receiving or undergoing treatment	Have already survived breast cancer Been diagnosed but not currently undergoing treatment Pre-cancer treatment Participants of a clinical trial
Outcome Measure	Impact on mental health from the COVID-19 pandemic	Physical health, wellbeing
Publication	Peer-Reviewed journal published since 2020	Studies that were not written in English

Study Selection

The titles, abstracts and key words of all identified research studies were screened by the independent researcher. The researcher compared the inclusion criteria (Table 3) to each abstract to identify papers that could be included. Articles were screened in duplicate to ensure robust methodology.

The full text review procedure inclusion criteria were then improved, and a more thorough set of criteria was created. The inclusion criteria were refined, and a more specific set of criteria was created for the full text review process (Table 3).

Data Extraction

The researcher independently gathered the following information after reading the full texts of each study: the author and year, the sample and size, the country the study was completed in, the form of treatment that was being used, the mental health outcomes (anxiety, depression, loneliness etc.), how they measured it, interventions that took place, and finally the main results and outcomes. Sample size, form of treatment, mental health outcomes, measurement scales and main results and outcomes were extracted from the scoping review's articles because it allowed the researcher to interpret key findings regarding the COVID-19 pandemic and breast cancer patients' mental health.

Summarizing The Data

Studies were selected from inclusion criteria as shown in Table 3 to be included in this scoping review. The data from the included studies was collated by mental health characteristics to describe a summary of the findings.

Results

Table 4. Results from studies that are included in this scoping review

Study	Sample Size	Country	Treatment (Chemo, Surgery, Radiation)	Mental Health Outcomes (anxiety, depression, stress, loneliness)	How did they measure it?	Main Results / Outcomes
Bafunno et al., 2021 [6]	Patients over 18 having either lymphoproliferative neoplasm, breast cancer, or colon cancer. N=178	Italy	- Chemotherapy - Immunotherapy	- Depression - Anxiety	- Hospital anxiety and depression scale (HADs) - Impact of event scale- revised (IES-R)	- The spread of COVID-19 increased the anxiety levels in patients but did not affect the levels of depression - Interventions to improve mental health need to be implemented in this period of COVID-19
Bargon et al., 2021 [7]	Patients with breast cancer or ductal carcinoma. N= 1051	Netherlands	Radiation, chemotherapy, surgery, endocrine therapy, immunotherapy, or not actively undergoing treatment	- Anxiety - Depression - Loneliness	- HADs - The 6-item De Jong-Gierveld Loneliness Scale	- Loneliness was reported by almost half of the patients and survivors - Patients or survivors not actively undergoing treatment showed reduction in emotional functioning (anxiety, depression, distress)

Study	Sample Size	Country	Treatment (Chemo, Surgery, Radiation)	Mental Health Outcomes (anxiety, depression, stress, loneliness)	How did they measure it?	Main Results / Outcomes
Budisavljevic et al., 2021 [8]	Females with breast cancer with disease stages ranging from 1-4 N= 201	Croatia	- Chemotherapy - Other therapies	- Distress Also identified: sadness, depression, and nervousness	Distress was measured with the Distress thermometer, a visual analog scale from 0-10. (0= no distress at all, 10= extreme distress)	- 54% of patients with breast cancer reported a high level of distress - The most significant problems reported by the participants affected emotions, causing worry, sadness, depression, fear, and nervousness During the COVID- 19 pandemic, distress should be evaluated, and psychological and social support targeting emotional and specific practical problems should be provided to ease the burden and reduce the perceived level of distress in patients with breast cancer.
Chen et al., 2021 [9]	Patients with breast cancer N= 834	China	- Surgery - Chemotherapy - Endocrine therapy - Targeted therapy - Radiotherapy or undergoing re-examination	- Depression - Anxiety - Insomnia	They were all assessed using the Chinese translation of the Patient Health Questionnaire (PHQ-9), Generalized anxiety disorder scale (GAD-7), and the Insomnia severity index (ISI)	Depression was estimated to affect 12.6% of patients with breast cancer before COVID-19, lower than this study. -Elevated symptoms of anxiety in this study - Increased risk of psychological distress in patients living alone and whose treatment was affected. - Need effective interventions to improve anxiety and psychological distress in breast cancer patients.

Study	Sample Size	Country	Treatment (Chemo, Surgery, Radiation)	Mental Health Outcomes (anxiety, depression, stress, loneliness)	How did they measure it?	Main Results / Outcomes
Forner et al., 2021 [10]	Patients with kidney, breast, thyroid, prostate, and gynecological disorder. N=14	Canada	- Surgery	- Anxiety - Depression - Stress	- Semi-structured phone interviews with a member of the research team. - 2 questionnaires were administered via the phone: HADs and the Perceived Stress Scale (PSS).	- Participants were found to have substantial levels of psychological distress. - Coping strategies and communication with their healthcare team were able to help some of these feelings. But symptoms of depression, anxiety and stress remained high. - Delays in surgery for patients with cancer during the COVID-19 pandemic resulted in psychosocial distress.
Iscan et al., 2022 [11]	Female cancer patients Main diagnosis was breast cancer. N=497	Germany	- Chemotherapy - Targeted therapy - Hormonal therapy - Immunotherapy	- Anxiety	- Spielberger State-Trait Anxiety Inventory - Anxiety sensitivity index-3	- Women had higher mean state anxiety and Anxiety Sensitivity Index-3 scores than men - The STAI-S scores were the highest among illiterates and lowest among university graduates - Main concerns expressed by patients about the COVID-19 vaccine were worries about how it would affect their treatment and lack of knowledge.
Juanjuan et al., 2020 [12]	Patients with breast cancer N= 658	China	- Endocrine therapy - Chemotherapy - Targeted therapy - Radiotherapy - Chinese medicine	- Anxiety - Depression - Insomnia	- GAD-7 - PHQ-9 - ISI - IES-R; PTSD	- Almost half had to modify their cancer treatment due to the pandemic - Severe anxiety and depression were reported by 8-9% of patients - High rates of depression, anxiety and insomnia were reported in patients in BC

Study	Sample Size	Country	Treatment (Chemo, Surgery, Radiation)	Mental Health Outcomes (anxiety, depression, stress, loneliness)	How did they measure it?	Main Results / Outcomes
Li et al., 2022 [13]	Patients with breast cancer during the pandemic N=218	China	- Surgery	- Anxiety - Depression	- GAD-7 - Chinese version of the 9-item depression module from the PHQ-9	- Patients with breast cancer were more likely to experience symptoms of anxiety and depression
Massicotte et al., 2021 [14]	Female breast cancer patients (non-metastatic) N=36	Canada	- Chemotherapy	- Insomnia - Depression - Anxiety	- HADS - ISI	- Breast cancer patients experience several stressors related to COVID-19 pandemic and associated with increased psychological symptoms. - Patients show clinical levels of anxiety and insomnia
Peng et al., 2022 [15]	Patients with lymphedema before start of the pandemic N= 228	China	- Radiotherapy - Hormone therapy - Surgery	- Depression - Anxiety	- HADS	- During the pandemic, patients with severe lymphedema experienced higher levels of psychological distress.
Savard et al., 2022 [16]	Female breast cancer patients N= 23	Canada	- Chemotherapy	- Anxiety	- Phone interviews	- Some patients experienced a great deal of anxiety because of hospital offloading, resulting in treatment delays.
Stanizzo et al., 2022 [17]	Female breast cancer patients N= 65	Italy	- Most were not receiving treatment. - Others included chemotherapy and hormone therapy	- Depression - Anxiety	- HADS - IES-R	- More than half of the 2020 patients had a higher measure of anxiety symptoms - High stress caused by COVID-19 pandemic in breast cancer patients - No significant difference for depression symptoms - More psychological support needed in lockdown situations

DOI Link: https://doi.org/10.26685/urncst.479

Study	Sample Size	Country	Treatment (Chemo, Surgery, Radiation)	Mental Health Outcomes (anxiety, depression, stress, loneliness)	How did they measure it?	Main Results / Outcomes
Turgeman et al., 2022 [18]	Cancer patients undergoing antineoplastic therapy. N= 164	Israel	Antineoplastic therapy: - Chemotherapy - Biological therapy - Immunotherapy	- Anxiety - Depression - Loneliness	- HADS	- Patients with cancer undergoing intravenous treatment could be more at risk of high levels of anxiety. - Appear unrelated to patient age or disease stage.
Yasin et al., 2021 [19]	Breast cancer patients during COVID-19 pandemic N= 298	Turkey	- Chemotherapy - Hormonotherapy - Surveillance	- Anxiety	- The visual Analogue Scale for Anxiety (VAS) - VAS for Anxiety in COVID-19	- The COVID-19 pandemic is related to high anxiety levels in breast cancer patients
Yildirim et al., 2021 [20]	Cancer patients who are undergoing treatment (breast, ovarian, colorectal, gastro-esophageal) N= 595	Switzerland	- Chemotherapy - Targeted therapy - Multi-drug and single drug chemotherapy - Endocrine therapy	- Anxiety	- The Beck Anxiety Inventory	- The depression and anxiety levels in cancer patients who have been receiving active treatment have progressed in the pandemic
Yousefi Afrashteh et al., 2021 [21]	Females with breast cancer patients N= 210	Iran	- Chemotherapy - Radiotherapy - Mastectomy - Lumpectomy	- Depression - Anxiety	- Templer's death anxiety scale - Beck Depression inventory-II - Beck anxiety inventory - Self-compassion scale (SCS)	- Self compassion may be considered as a treatment strategy to improve psychological well-being of cancer patients - Women with breast cancer who practiced self-compassion had less depression and anxiety

Study	Sample Size	Country	Treatment (Chemo, Surgery, Radiation)	Mental Health Outcomes (anxiety, depression, stress, loneliness)	How did they measure it?	Main Results / Outcomes
Zhao et al., 2022 [22]	Females with stage 1-3 breast cancer N=152	USA	- Chemotherapy	- Anxiety - PTSD symptoms - Distress	- GAD-7 - IES revised (R); PTSD	- A high prevalence of PTSD symptoms and anxiety were noted at both time points. - The scores in this study were significantly higher than patients with breast cancer in studies conducted pre pandemic - More stress among those undergoing chemotherapy
Baffert et al., 2021 [23]	Patients with cancer (breast, colon and lung were main ones) and over the age of 18. N= 267	France	- Oral and intravenous treatments	- Anxiety	- Anxiety assessed by GAD-7	- Anxiety rate in patients with cancer remained low post-lockdown in areas minimally affected by COVID-19 where patients had a preserved quality of life - Changes in management were a positive effect on patients
Hulbert-Williams et al., 2021 [24]	Patients with various types of cancer. Most prevalent cancer was breast cancer. Mostly female N= 144	United Kingdom	- Anti-cancer treatment - Hormone therapy - Some already completed treatment	- Anxiety - Depression - Stress	- Functional assessment of Cancer therapy-general - A 33-item assessment of physical, social/family, emotional and functional cancer-related well-being	- Unmet needs across diverse domains psychosocial well-being - Did not find greater distress among cancer patients - Need to implement interventions to help cancer patients

Study	Sample Size	Country	Treatment (Chemo, Surgery, Radiation)	Mental Health Outcomes (anxiety, depression, stress, loneliness)	How did they measure it?	Main Results / Outcomes
Kassianos et al., 2021 [25]	Mental health Comparison of cancer and non-cancer patients - Majority of cancer patients were female N= 9565, (264 are cancer patients)	Switzerland	- 12% having active therapy for their disease	- Perceived stress - Depressive symptomatology	- PSS - Depressive symptomatology i.e., Multidimensional State Boredom Scale (MSBS)	- Cancer patients were less stressed than non-cancer patients - Female cancer patients more stressed than male patients- most likely due to increased perceived susceptibility to COVID-19 - Study suggests that cancer patients were able to handle the first wave of the pandemic but as it goes on and treatment may be affected, this could cause higher stress levels
Nieder et al., 2021 [26]	Cancer patient treated with radiotherapy (breast cancer, prostate cancer) N=102	Norway	- Radiotherapy	- Anxiety - Depression or sadness	- Generalized anxiety disorder screener	- Patients who went to their radiation therapy, the suspected increase in anxiety and depression was not demonstrable. - Not known if patients with a lot of worries chose to decline radiation therapy.

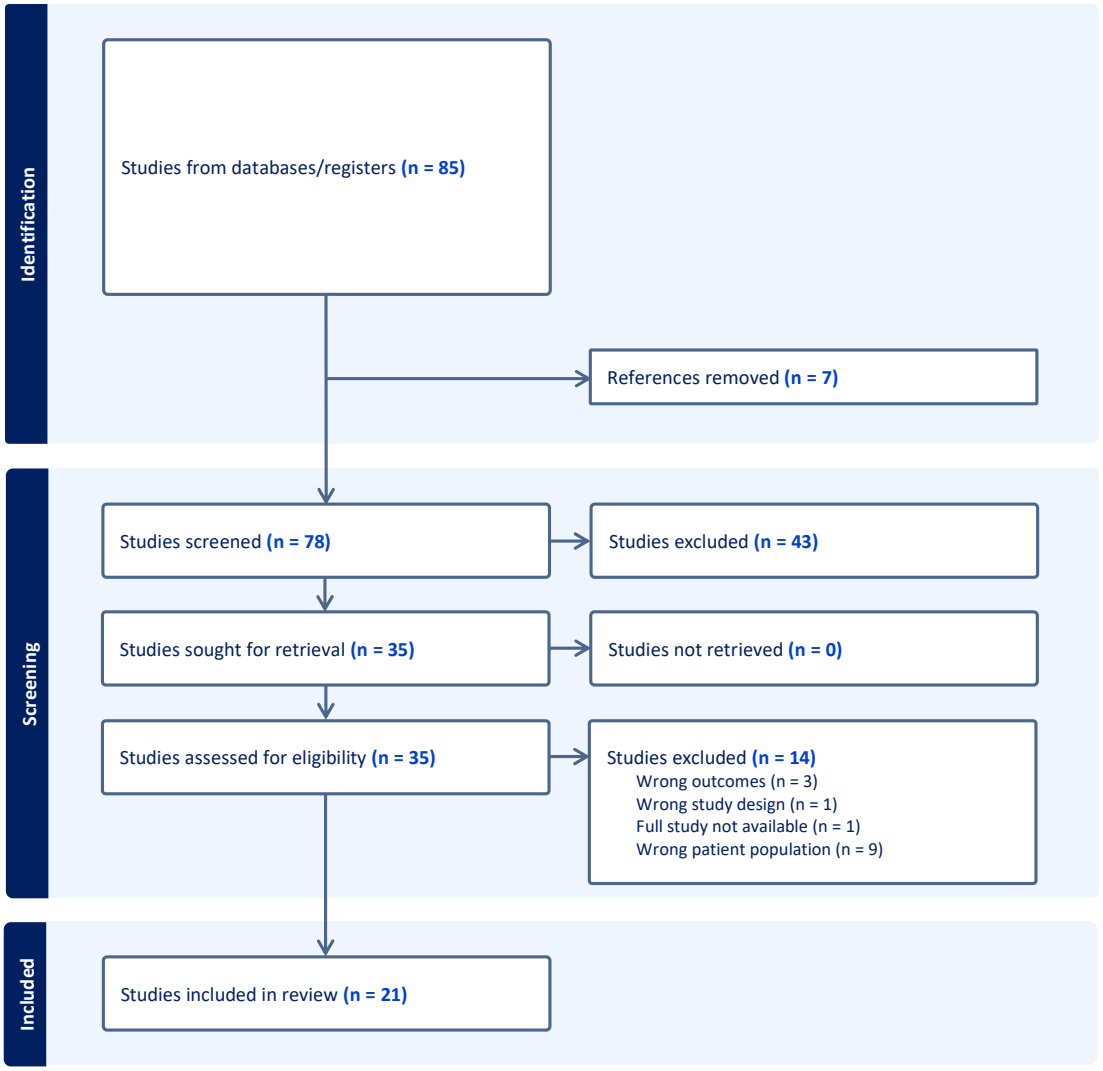

Figure 1. PRISMA diagram of selection of studies (created on Covidence).

Study Population

The study selection process is outlined in Table 1 and Table 2. The two data bases yielded 84 research studies and this number was reduced to 78 after removing duplicates. After this process, 35 were found to be potentially eligible based off their abstract and titles and were then reviewed in full text. Of these, 21 studies were eligible for inclusion in this scoping review. 8 of the studies that were included in this review were just using breast cancer patients and were 7 done using female participants. There were 7 studies included that were examining the effects of COVID-19 on the mental health different types of cancer patients, these types of cancers included prostate, colon, or lung cancer to name a few. The countries with the most studies included in this scoping review were Canada and China, there were 7. The rest of the studies were a diverse range of different countries from around the world, each had different COVID-19 severity and prevalence.

Mental Health Outcomes

The eligible studies reported on 7 different mental health outcomes (anxiety, depression, loneliness, insomnia, PTSD, stress, and distress). The most prevalent mental health outcome that was discussed and measured was anxiety but most often anxiety and depression were studied together. Anxiety was measured in 19 (%) of the included studies and of those 13 (61.9%) of them included depression being measured as well. Some studies also studied the effects of insomnia among breast cancer patients during COVID-19 (n=3, %). Stress was also another mental health outcome that was examined in different studies. There were two different types of stress that were noted to being used: perceived stress and distress. Loneliness was also a mental health outcome that was measured in two studies (9.5%). And finally, PTSD symptoms were measured in one study (4.7%).

Measures

Several different measures were used in the studies. 16 (76.1%) of the studies used a combination of measures instead of just one. The most common measure used was the Hospital Anxiety and Depression Scale (HADS). This measure was used in seven of the studies that were included in this scoping review. Six studies applied the Generalized Anxiety Disorder-7 (GAD-7). Four studies (19%) used the Impact of Event Scale-Revised. Three studies (14.2%) used the insomnia severity index (ISI) Two studies (9.5%) used the Beck Anxiety inventory, and one (4.7%) of those studies also applied the Beck Depression Inventory-II and the Templer's death anxiety scale. Two studies (9.5%) also applied the Perceived Stress Scale (PSS) to participants in their study. Two studies (9.5%) also used phone calls and phone interviews to gain an understanding of certain mental health outcomes in patients or to administer questionnaires regarding specific measures, such as the HADS or PSS. The remaining measures were used less frequently (< 2 studies).

Main Results, Summaries, Level of Evidence

Of the studies that were included in this scoping review, majority of them reported that breast cancer patients had higher levels of depression, anxiety, and other psychosocial outcomes during the COVID-19 pandemic [6-22]. Most of the studies that were included, were observing just the effects of the pandemic on female breast cancer patients, but a few were included where there were a couple or several different types of cancers that were being studied such as colon, prostate, and lung. It was made clear in many of the studies that more interventions need to be implemented throughout hospitals, cancer treatment centers and other patient care facilities to improve the mental health of breast cancer patients throughout the pandemic. These studies reported that the interventions should focus on psychological support and reducing anxiety in patients to hopefully prevent higher levels of depression, anxiety, and stress. Among the studies that were included, only one went in depth on practices or activities that could be done to help improve the mental health of breast cancer patients. Afrashteh et al., 2021 [21] reported that patients who practiced self-compassion had less depression and anxiety.

Effects of Treatment on Mental Health Outcomes

When examining the effects of treatment on mental health outcomes, some studies observed important findings regarding the COVID-19 vaccine. Iscan et al., 2022 [11] reported that patients expressed concerns and worries about the COVID-19 vaccine. The types of concerns these patients had been about how it could affect their treatment, and the supply of the vaccines. Bargon et al, 2021 [7] also reported that patients or survivors not actively undergoing treatment showed a decrease in their emotional functioning (higher rates anxiety, depression, distress). One study also discusses the effects of treatment delays on the mental health of patients. Forner et al., 2021 [10] reported that delays in surgery for patients during the pandemic resulted in psychological distress in patients (64% had at least moderate stress due to these delays and 14% had high stress)

Research Studies where Mental Health Outcomes were Not Affected by COVID-19

Four studies (19%) showed that anxiety and depression levels did not change in breast cancer patients during the COVID-19 pandemic [23-26]. Nieder et al., 2021 [26] conducted a study using cancer patients (mainly breast and prostate cancer) who were currently being treated with radiation therapy and examined the symptom burden that was being experienced by patients during the COVID-19 pandemic. They observed that patients who went to their radiation therapy had no demonstratable increase in anxiety or depression. Kassianos et al., 2021 [25] conducted a study examining the mental health of and adherence to COVID-19 protective behaviours among breast cancer patients during the COVID-19 pandemic. In this study they compared non-cancer patients to the breast cancer patients and concluded that the cancer patients in fact were less stressed compared to the non-cancer patients. Hulburt et al., [24] designed a study evaluating the impact of COVID-19 on psychological distress in UK cancer survivors. They examined anxiety, depression, and stress levels in cancer patients (mostly breast), and they concluded that there was not a greater amount of distress among cancer patients. Baffert et al. also conducted a study evaluating the quality of life of patients with cancer during the pandemic. The patients in their study were actively undergoing oral and intravenous treatments and they concluded that the anxiety rate in patients remained low post-lockdown.

Although these four studies go against the other 18 studies that reported that mental health (depression, anxiety, stress) determinates during COVID-19, many of them also report on the importance of implementing psychological interventions and changes in management in patient care settings. These interventions and changes will aim to help improve the mental health of breast cancer patients.

Discussion

Summary

This study showed that the main mental health outcomes that were observed during the COVID-19 pandemic in breast cancer patients were depression, anxiety, and stress using a variety of measures to understand the severity and levels of these outcomes in patients. These studies also conveyed that patients who were receiving active treatment during the pandemic had even higher levels of depression and anxiety. A common theme was observed in the studies included that explained why patients who were receiving active treatment during the pandemic (chemotherapy, radiation, surgery) would have higher rates of depression and anxiety. This may be because many patients had expressed feelings of worry about how COVID-19 or possible anti-COVID-19 treatments such as vaccines could affect their treatment. Finally, many of

the studies (including ones which did not have results that showed higher depression and anxiety) demonstrated that there needs to be more psychological interventions in place to help improve the mental health of breast cancer patients.

Significance of Findings in a Pandemic Setting

These findings are important to a healthcare and pandemic setting as it raises awareness to the potential serious side effects of having a chronic disease such as breast cancer during a pandemic. This scoping review helps us understand how the mental health of breast cancer and other cancer patients, as well as patients with chronic conditions and diseases can deteriorate during a widespread occurrence of infections where their treatments are affected, vaccines and other anti-infection treatments are introduced and reduced social interaction. This review teaches us that we need to prioritize the mental health of breast cancer patients by introducing changes to health care management (more staff, more equipment for example) and implement psychological interventions to help prevent increasing rates of depression, anxiety, insomnia, and other mental health outcomes [27-28]. To implement the majority of these changes there needs to be an increase in funding in the areas of breast cancer treatment and screening, as well as more funding to hire additional staff for a multidisciplinary team including mammographers, radiologists, oncology nurses and pathologists to name a few [27-28]. Eyler et at., 2011 evaluated the methods of generating revenue for breast cancer patients [29]. They concluded that revenue generating breast cancer initiatives can be used as successful ways of raising money for breast cancer prevention programs and early detection programs [29]. "Pink programs" are programs such as "The Pink Ribbon Project" that originated in the United Kingdom and are used in many areas to generate money for breast cancer advocacy [29-30]. This money for many years has been dedicated for breast cancer screening and treatment and has been an important part of improving the accessibility to care for patients. Increasing the awareness and advocacy of these programs are a huge way to generate more funding for treatment, screening, and more staff [30]. The findings of this review have also shown that throughout the pandemic, appointments were delayed causing a substantial backlog [31]. Decker et al., 2022 reported that in the province of Manitoba they were able to adapt their breast cancer screening programs to the COVID-19 pandemic [31]. By introducing screening units in distant and rural communities, prioritizing individuals who were due for screening, had never been screened or were more at risk, they were then able to return to full operations by September 2020 [31]. In preparation for another pandemic or crisis, hospitals and clinics should invest in various breast cancer screening approaches such as the one developed in Manitoba so there will not be a backlog (whereby in a pandemic or crisis it would not push back appointment after appointment). Future studies should examine the outcomes of interventions on the breast cancer patients during COVID-19 outbreaks as well as compare these outcomes to effects of mental health interventions of patients with other chronic diseases during COVID-19 [32]. There is currently a great deal of literature studying the effects of COVID-19 on many other chronic diseases such as diabetes and cardiovascular disease, and this may help develop programs or interventions that could also benefit breast cancer patients [32].

Effect of the COVID-19 Pandemic on Other Chronic Illnesses

There are many studies in the literature that have examined the effects from COVID-19 on mental health in children, older adults, and chronic disease patients [33-35]. Sayeed et al 2020., [34] examined the mental health outcomes of adults with chronic diseases. The found that patients with asthma, diabetes or had cardiovascular disease symptoms had higher likelihood of experiencing stress, anxiety and depression compared to healthy individuals. They also concluded that patients with chronic diseases need to have more resources available for mental health, similar to the findings in this review. Clearly there needs to be more psychological interventions for breast cancer patients. Another study by Tsras et al 2018., [35] examined the rates of depression and anxiety in breast cancer patients, prior to the pandemic. They studied participants who were receiving active treatment such as chemotherapy and radiation. They found that a large proportion of the breast cancer patients were classified as depressed and anxious and are at high risk for developing psychological disorders. This is an important finding because it shows how patients who were already at risk of developing depression or anxiety can be increased even more during the pandemic.

Limitations

Overall, this scoping review has several limitations, with only 21 studies meeting the inclusion criteria. Many of the 14 studies that were excluded were using a different study population that did not include breast cancer patients, or patients that were not undergoing active treatment at the time. Also, many of the studies that were included in this scoping review were cross sectional studies and could be prone to recall error or bias. Another limitation in this study was that only 2 data bases were searched for research studies and the grey/unpublished literature was not searched. To ensure that there are more studies included in the review, it would be optimal to search several data bases to make certain that we are getting an accurate representation of the literature and relevant papers are not missed. Another limitation is the abstracts and full-text reviews were only screened/reviewed by one person. Not having a duplicate screening is a limitation since it can lead to more studies being missed and may have an impact on the findings in this scoping review. An additional limitation in this scoping review is that only English language articles were included in this study, this will limit the number of studies that could be reviewed and possibly change the results of this study.

Conclusion

This review provides an overview of research examining the effects of COVID-19 on the mental health of breast cancer patients undergoing treatment. The findings of this scoping review show that there were higher rates of depression, anxiety, insomnia, and stress in breast cancer patients during the pandemic. Out of the studies that were included, only a small amount showed that anxiety and depression levels did not change during the pandemic. Although these studies had opposite results compared to the others, it was concluded that psychological interventions are needed for breast cancer patients to improve their mental health and reduced rates of depression and anxiety. Another important finding of this study is that the practice of wellness activities such as self-compassion as an intervention may alleviate some depression and anxiety [21]. Future comparative analyses are needed to assess the mental health of breast cancer patient's post-pandemic and compare to results found during the pandemic. Future prospective studies research should also focus on the results and benefits from psychological interventions as well as observe the effects of the pandemic on the mental health of other chronic diseases.

List of Abbreviations Used

COVID-19: 2019 novel coronavirus
GAD-7: generalized anxiety disorder-7
HADS: hospital anxiety and depression scale
PSS: perceived stress scale
ISI: insomnia severity index
PTSD: post-traumatic stress disorder
PPE: personal protective equipment
RIS: research information systems

Conflicts of Interest

The author declares that they have no conflict of interests.

Ethics Approval and/or Participant Consent

Not applicable for this study. This scoping review does not require ethical approval. The results of this scoping review will come from peer-reviewed publications.

Authors' Contributions

SJS: made substantial contributions to the design of the study, the collection of data as well as interpretation and analysis of the data, revised the manuscript critically, and gave final approval of the version to be published.

Acknowledgements

I would like to thank my mentor, Isabella, for her encouragement, guidance, and support throughout this study.

Funding

This study was not funded.

References

[1] Kripalani S, Kulshreshta S, Saracco B, Meterissian S. The effect of COVID-19 on breast cancer care and treatment in North America: A scoping review. The American Journal of Surgery. 2022;224(5):1222–8. https://doi.org/10.1016/j.amjsurg.2022.07.015
[2] Rentscher KE, Zhou X, Small BJ, Cohen HJ, Dilawari AA, Patel SK, et al. Loneliness and mental health during the COVID-19 pandemic in older breast cancer survivors and noncancer controls. 2022;127(19):3671-9. https://doi.org/10.1002/cncr.33687
[3] Kichloo A, Albosta M, Dettloff K, Wani F, El-Amir Z, Singh J, et al. Telemedicine, the current COVID-19 pandemic and the future: A narrative review and perspectives moving forward in the USA. Family medicine and community health. 2020;8(3):e000530 https://doi.org/10.1136/fmch-2020-000530
[4] Dar M, Swamy L, Gavin D, Theodore A. Mechanical-ventilation supply and options for the COVID-19 pandemic. Leveraging all available resources for a limited resource in a crisis. Annals of the American Thoracic Society. 2020;18(3):408–16. https://doi.org/10.1513/AnnalsATS.202004-317CME
[5] Arksey H, O'Malley L. Scoping studies: Towards a methodological framework. International Journal of Social Research Methodology: Theory & Practice. 2005;8(1):19–32. https://doi.org/10.1080/1364557032000119616
[6] Bafunno D, Romito F, Lagattolla F, Delvino VA, Minoia C, Loseto G, et al. Psychological well-being in cancer outpatients during COVID-19. J BUON. 2021;26(3):1127–34. https://pubmed.ncbi.nlm.nih.gov/34268981/
[7] Bargon CA, Batenburg MCT, van Stam LE, Mink van der Molen DR, van Dam IE, van der Leij F, et al. Impact of the COVID-19 pandemic on patient-reported outcomes of breast cancer patients and survivors. JNCI Cancer Spectrum. 2020;5(1):pkaa104. https://doi.org/10.1093/jncics/pkaa104
[8] Budisavljevic A, Kelemenic-Drazin R, Plavetic ND, Fucak IK, Silovski T, Dobric VT, et al. The first wave of the COVID-19 pandemic and its impact on the level of distress in patients with breast cancer, a multicentric study. Psychiatr Danub. 2021 Dec;33(Suppl 13):341–9. https://pubmed.ncbi.nlm.nih.gov/35150507/
[9] Chen X, Wang L, Liu L, Jiang M, Wang W, Zhou X, et al. Factors associated with psychological distress among patients with breast cancer during the COVID-19 pandemic: A cross-sectional study in Wuhan, China. Support Care Cancer. 2021;29(8):4773–82. https://doi.org/10.1007/s00520-021-05994-4
[10] Forner D, Murnaghan S, Porter G, Mason RJ, Hong P, Taylor S, et al. Psychosocial distress in adult patients awaiting cancer surgery during the COVID-19 pandemic. Current Oncology. 2021;28(3):1867–78. https://doi.org/10.3390/curroncol28030173

[11] Iscan G, Cetin B, Kilic F, Kalayci H, Kalayci A, Iscan SC. Investigation of anxiety sensitivity levels of cancer patients in terms of COVID-19 vaccine: A cross-sectional study. Support Care Cancer. 2022;30(5): 4139–47. https://doi.org/10.1007/s00520-021-06750-4

[12] Juanjuan L, Santa-Maria CA, Hongfang F, Lingcheng W, Pengcheng Z, Yuanbing X, et al. Patient-reported outcomes of patients with breast cancer during the COVID-19 outbreak in the epicenter of China: A cross-sectional survey study. Clinical Breast Cancer. 2020;20(5):e651–62. https://doi.org/10.1016/j.clbc.2020.06.003

[13] Li J, Zhu S, Gao W. The psychological impact of COVID-19 among newly diagnosed patients with breast cancer when cancer care was returning to normal. European Journal of Cancer Care. 2022;31(6): e13762. https://doi.org/10.1111/ecc.13762

[14] Massicotte V, Ivers H, Savard J. COVID-19 pandemic stressors and psychological symptoms in breast cancer patients. Current Oncology. 2021;28(1):294–300. https://doi.org/10.3390/curroncol28010034

[15] Peng X, Chen R, Rao Z, Yang Y, Yan Y, Xia Y, et al. High recurrence of lymphedema and influencing factors in discharged breast cancer patients during the COVID-19 pandemic: A multicenter, cross-sectional survey. Cancer Medicine. 2022;11(19):3572–80. https://doi.org/10.1002/cam4.4737

[16] Savard J, Jobin-Théberge A, Massicotte V, Banville C. How did women with breast cancer experience the first wave of the COVID-19 pandemic? A qualitative study. Support Care Cancer. 2021;29(10):5721–7. https://doi.org/10.1007/s00520-021-06089-w

[17] Stanizzo MR, Castelli L, Di Nardo C, Brunetti M, De Sanctis C, Ghiggia A. Psychological distress in breast cancer patients during the Italian COVID-19 pandemic. International Journal of Environmental Research and Public Health. 2022;19(18):11433. https://doi.org/10.3390/ijerph191811433

[18] Turgeman I, Goshen-Lago T, Waldhorn I, Karov K, Groisman L, Benaim AR, Almog R, Halberthal M, Ben-Aharon I. Psychosocial perspectives among cancer patients during the coronavirus disease 2019 (COVID-19) crisis: An observational longitudinal study. Cancer Reports. 2022;5(5):e1506. https://doi.org/10.1002/cnr2.1506

[19] Yasin AI, Topcu A, Shbair AT, Isleyen ZS, Ozturk A, Besiroglu M, Türk HM. Anxiety levels of breast cancer patients in Turkey during the COVID-19 pandemic. Future Oncology. 2021;17(25):3373–81. https://doi.org/10.2217/fon-2020-1265

[20] Yildirim OA, Poyraz K, Erdur E. Depression and anxiety in cancer patients before and during the SARS-CoV-2 pandemic: Association with treatment delays. Quality of Life Research. 2021;30(7):1903–12. https://doi.org/10.1007/s11136-021-02795-4

[21] Yousefi Afrashteh M, Masoumi S. Psychological well-being and death anxiety among breast cancer survivors during the COVID-19 pandemic: The mediating role of self-compassion. BMC Women's Health. 2021;21(1): 387. https://doi.org/10.1186/s12905-021-01533-9

[22] Zhao J, Mazanec SR, Rosenzweig M. Anxiety and PTSD symptoms during the COVID-19 pandemic in women with breast cancer. Oncology Nursing Forum. 2022;49(3):201–5. https://doi.org/10.1188/22.ONF.201-205

[23] Baffert KA, Farbas T, Lebrun-Ly V, Pestre-Munier J, Peyramaure C, Descours C, et al. Quality of life of patients with cancer during the COVID-19 pandemic. In Vivo. 2021;35(1):663–70. https://doi.org/10.21873/invivo.12306

[24] Hulbert-Williams NJ, Leslie M, Hulbert-Williams L, Smith E, Howells L, Pinato DJ. Evaluating the impact of COVID-19 on supportive care needs, psychological distress and quality of life in UK cancer survivors and their support network. European Journal of Cancer Care. 2021;30(5):e13442. https://doi.org/10.1111/ecc.13442

[25] Kassianos AP, Georgiou A, Kyprianidou M, Lamnisos D, Ļubenko J, Presti G, et al. Mental health and adherence to COVID-19 protective behaviors among cancer patients during the COVID-19 pandemic: An international, multinational cross-sectional study. Cancers. 2021;13(24):6294. https://doi.org/10.3390/cancers13246294

[26] Nieder C, Johnsen SK, Winther AM. Symptom burden in patients treated with palliative radiotherapy before and during the COVID-19 pandemic. Anticancer Research. 2021;41(4):1971–4. https://doi.org/10.21873/anticanres.14964

[27] Pangarsa EA, Rizky D, Tandarto K, Setiawan B, Santosa D, Hadiyanto JN, et al. The effect of multidisciplinary team on survival rates of women with breast cancer: A systematic review and meta-analysis. Annals of Medicine and Surgery. 2012;85(6):2940–8. https://pubmed.ncbi.nlm.nih.gov/37363480/

[28] Levit L, Smith AP, Benz Jr EJ, Ferrell B. Ensuring quality cancer care through the oncology workforce: sustaining care in the 21st century: workshop summary. National Academies Press. 2009;6(1):7–11. https://doi.org/10.1200/jop.091067

[29] Eyler AA, Dodson EA, Chalifour S, Brownson RC. Methods of generating state revenue for breast cancer prevention and early detection: An analysis of pink dollars. Public Health Reports. 2011;126(5):733–40. https://doi.org/10.1177/003335491112600516

[30] Harvey JA, Strahilevitz MA. The power of pink: Cause-related marketing and the impact on breast cancer. Journal of the American College of Radiology. 2009;6(1):26–32. https://doi.org/10.1016/j.jacr.2008.07.010

[31] Decker KM, Feely A, Bucher O, Singh H, Turner D, Lambert P. Evaluating the impact of the COVID-19 pandemic on cancer screening in a central Canadian province. Preventive Medicine. 2022;155(1):106961. https://doi.org/10.1016/j.ypmed.2022.106961
[32] Kemp AH, Tree J, Gracey F, Fisher Z. Improving wellbeing in patients with chronic conditions: Theory, evidence, and opportunities. Frontiers in Psychology. 2022;13. https://doi.org/10.3389/978-2-88974-595-1
[33] Pinto M, Calafiore D, Piccirillo MC, Costa M, Taskiran OO, de Sire A. Breast cancer survivorship: The role of rehabilitation according to the international classification of functioning disability and health—A scoping review. Current Oncology Reports. 2022;24(9):1163–75. https://doi.org/10.1007/s11912-022-01262-8
[34] Sayeed A, Kundu S, Al Banna MH, Christopher E, Hasan MT, Begum MR, et al. Mental health outcomes of adults with comorbidity and chronic diseases during the COVID-19 pandemic: A matched case-control study. Psychiatria Danubina. 2020;32(3-4):491–8. https://doi.org/10.24869/psyd.2020.491
[35] Tsaras K, Papathanasiou IV, Mitsi D, Veneti A, Kelesi M, Zyga S, et al. Assessment of depression and anxiety in breast cancer patients: Prevalence and associated factors. Asian Pacific Journal of Cancer Prevention. 2018;19(6):1661–9. https://doi.org/10.22034/APJCP.2018.19.6.1661

Article Information
Managing Editor: Jeremy Y. Ng
Peer Reviewers: Isabella Churchill, Jeremy Y. Ng
Article Dates: Received Mar 31 23; Accepted Jul 09 23; Published Aug 04 23

Citation
Please cite this article as follows:
Shannon SJ. The effect of COVID-19 on the mental health of breast cancer patients undergoing treatment: A scoping review. URNCST Journal. 2023 Aug 04: 7(8). https://urncst.com/index.php/urncst/article/view/479
DOI Link: https://doi.org/10.26685/urncst.479