BREAST CANCER SURVIVORS’ CONCERNS, SYMPTOMS, AND UNMET NEEDS
DURING THE COVID-19 PANDEMIC

by

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As members of the DNP Project Committee, we certify that we have read the DNP project prepared by Sarah Elizabeth Bottles, titled Breast Cancer Survivors’ Concerns, Symptoms, and Unmet Needs During the COVID-19 Pandemic and recommend that it be accepted as fulfilling the DNP project requirement for the Degree of Doctor of Nursing Practice.

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Final approval and acceptance of this DNP project is contingent upon the candidate’s submission of the final copies of the DNP project to the Graduate College.

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DEDICATION

I would like to dedicate this DNP project to all those affected by cancer. As someone whose family has been impacted by cancer, I have admired your strength, determination, courage, and will to fight.
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ABSTRACT

Purpose: The purpose of this DNP project is to increase knowledge of the concerns, symptoms, and unmet needs of breast cancer survivors during the COVID-19 pandemic.

Background: Breast cancer is one of the most common cancers in the United States and has a high survival rate. There is little knowledge regarding the concerns, symptoms, and unmet needs of breast cancer survivors during the COVID-19 pandemic.

Methods: Secondary data analysis of breast cancer survivor interview transcripts from a primary experimental study

Results: Analysis of the demographic data showed the average participant age was 56.75 years, three-fourths of the participants were married, half the participants had completed vocational school, half the participants had completed post graduate schooling, all participants were employed, and three-fourths of participants made between $40,000-$69,000. Symptom distress was measured for 18 individual symptoms. Participants on average experienced 10 symptoms. The combined symptom distress score averaged across all four participants was 4.625 indicating moderate distress. Twelve themes were identified through content analysis of the four participant interview transcripts. The 13 themes were: (1) symptoms of depression, (2) resilience, (3) communication with the healthcare team, (4) negative consequences of treatment, (5) social support, (6) self-care, (7) COVID-19, (8) life stressors, (9) processing the cancer experience, (10) uncertainty about the future, (11) desire for knowledge, and (12) anxiety.

Conclusions: While data saturation was not achieved, this DNP project provided valuable insight into breast cancer survivors’ concerns, symptoms, and unmet needs during the COVID-19 pandemic.
INTRODUCTION

Breast cancer is a significant health problem in the United States (US) and around the world. One in eight women will be diagnosed with invasive breast cancer in their lifetime (Siegal et al., 2020). For all breast cancer stages combined, the five-year survival rate is 90% (Siegal et al., 2020). As of January 1, 2019, there were more than 3.8 million breast cancer survivors in the US (Miller et al., 2019). The number of breast cancer survivors is expected to increase over the next decade due to organized detection programs and advances in treatment techniques (Tremblay et al., 2019). Research suggests there are significant psychological, physical, and social challenges faced by breast cancer survivors (Vuksanovic et al., 2021).

The COVID-19 pandemic, beginning in March 2020, created an unprecedented environment for all individuals. There is little knowledge regarding the concerns, symptoms, and unmet needs of breast cancer survivors during the COVID-19 pandemic. A small amount of literature is available regarding physical health, emotional/spiritual health, and perception of care in breast cancer survivors during the COVID-19 pandemic. This Doctor of Nursing Practice (DNP) project aimed to fill the gap in the literature by performing content analysis of interviews with breast cancer survivors to determine specific concerns, symptoms, and unmet needs experienced during the COVID-19 pandemic. It was hoped that identifying specific concerns, symptoms, and unmet needs of breast cancer survivors would allow providers to be better informed on the specific needs of this patient population.

Background Knowledge and Significance

Breast cancer is one of the most common cancers in women, second to only skin cancer (DeSantis et al., 2019). Breast cancer affects women of all ages and ethnicities (DeSantis et al.,
Treatment for breast cancer includes therapies, surgical procedures, and pharmacotherapy (Waks & Winer, 2019). Procedures include radiation therapy, lumpectomies, and mastectomies (Waks & Winer, 2019). Pharmacologic therapy includes chemotherapy and hormone therapy (Waks & Winer, 2019). Breast cancer has one of the highest five-year survival rates among cancers (DeSantis et al., 2019). Survival rates vary based on the stage of breast cancer. Stage I, cancer that has not spread, has a five-year survival rate of 98% (DeSantis et al., 2019). Stage II, cancer that has extended to nearby lymph nodes, has a five-year survival rate of 92% (DeSantis et al., 2019). Stage III, cancer that has spread to nearby lymph nodes and muscle but not distant organs, has a five-year survival rate of 75% (DeSantis et al., 2019). Stage IV, cancer that has spread to other areas of the body, including distant organs, has a five-year survival of 27% (DeSantis et al., 2019). Due to these high survival rates, there are more breast cancer survivors than active breast cancer patients (Vuksanovic et al., 2021).

The National Cancer Institute (2020) considers an individual to be a cancer survivor from the time of cancer diagnosis through the course of the individual’s life. A cancer survivor includes those currently living with cancer and those who are free of cancer (National Cancer Institute [NCI], 2020). Cancer survivorship can be classified into three stages. The first stage, acute survivorship, begins at diagnosis and extends to two years after diagnosis (Shih et al., 2020). The second stage, extended survivorship, is between two and five years after diagnosis (Shih et al., 2020). The third stage, permanent survivorship, is more than five years after survivorship (Shih et al., 2020).

Breast cancer survivors can experience concerns, symptoms, and unmet needs in all three stages of survivorship. Concerns are defined as “a matter that causes feelings of unease,
uncertainty, or apprehension” (Merriam-Webster, n.d.a). Common concerns include fear of cancer reoccurrence, cognitive functioning, body image disturbances, and reproductive and sexual health (Black et al., 2020; Chua et al., 2020; Lovelace et al., 2019; Moore, 2020). Symptoms are defined as “subjective evidence of disease or physical disturbance” (Merriam-Webster, n.d.b). Common symptoms in breast cancer survivors include menopausal symptoms, fatigue, depression, sleep disturbance, and cognitive dysfunction (Cheng et al., 2016). Unmet needs in cancer patients are the ongoing issues and services needed by survivors that are not currently being addressed (Mayer et al., 2017). Vuksanovic et al. (2021) found that breast cancer survivors reported on average 4.9 unmet survivorship needs. Additional information on concerns, symptoms, and unmet needs is discussed in the literature synthesis. Concerns, symptoms, and unmet needs must be addressed to improve survivor quality of life and health outcomes.

There are significant psychological, physical, and social challenges associated with being a breast cancer survivor (Tremblay et al., 2019). In addition, psychological, physiological, functional, and social issues can arise due to the cancer process, cancer treatments, or existing health conditions exacerbated by cancer (Tremblay et al., 2019). Challenges include risk of reoccurrence, increased risk of developing a second cancer, treatment side effects, psychological distress, loss of fertility, difficulty finding or maintaining employment, financial toxicity, and difficulty obtaining health or life insurance (NCI, 2020). Survivors also face healthcare barriers such as high insurance costs, high out-of-pocket health care expenses, lack of care coordination, and limited access to specialist care (NCI, 2020). The challenges faced by breast cancer survivors can affect survivors' quality of life, activities of daily living, and ability to work (Moore et al., 2020; Tremblay et al., 2019). Research has primarily focused on acute anticancer
interventions that focus on immediate patient survival rather than survivorship care (Tisnado et al., 2017). This difference in research focus has led to a lack of information regarding breast cancer survivors’ concerns, symptoms, and unmet needs.

**COVID-19 Pandemic**

The COVID-19 pandemic has had significant impacts on the general population. In the general population, it is believed that the COVID-19 pandemic has led to increased mental health disorders such as depression, anxiety, and post-traumatic stress disorder (Xiong et al., 2020). Research is emerging regarding cancer patient and cancer survivor experiences during the COVID-19 pandemic. There is little literature specifically related to breast cancer survivor experience during the COVID-19 pandemic. Research has shown that cancer patients and survivors have been utilizing social media platforms to seek out information and emotional support during the pandemic (Moraliyage et al., 2021). Cancer patients reported feeling distressed at being separated from the healthcare settings that were important in their treatment (Moraliyage et al., 2021).

**Significance to Healthcare**

Survivors of breast cancer have frequent interactions with the healthcare system (Vachon et al., 2021). Breast cancer survivors’ frequent interactions with healthcare may provide an opportunity to improve survivorship care (Vachon et al., 2021). A better understanding of breast cancer survivors’ concerns, symptoms, and unmet needs will allow providers to deliver high-quality, evidence-based, and effective care. Research has shown that fear of cancer recurrence leads to increased healthcare utilization in both early-stage and long-term breast cancer survivors (Otto et al., 2018; Vachon et al., 2021). Researchers suggest interventions to help address fears
of cancer recurrence will lead to improved utilization of healthcare services (Otto et al., 2018; Vachon et al., 2021). Unmet needs are associated with increased healthcare costs, increased healthcare utilization, and risk of cancer progression and mortality (Moreno et al., 2017).

To improve breast cancer survivorship outcomes, services and resources need to be matched to specific patient concerns and needs and be integrated across all levels of care (Vuksanovic et al., 2021). Lack of knowledge reduces advance practice registered nurses (APRNs) and other healthcare providers’ ability to provide effective, evidence-based care. Research has shown discordance between providers’ and breast cancer survivors’ perceptions of unmet needs (Lee et al., 2021). APRNs and other healthcare providers need to understand the concerns, symptoms, and unmet needs of this patient population to improve health care delivery and patient quality of life. Research has shown that provider awareness of survivors’ unmet needs is crucial to effective treatment, increases communication, and enhances care through empathy (Lee et al., 2021). Knowledge regarding concerns, symptoms, and unmet needs of breast cancer survivors allows providers to prioritize and target education, information provision, and support programs for breast cancer survivors (Chua et al., 2020). It is thought that the earlier breast cancer survivors’ concerns, symptoms, and unmet needs are addressed, the better the quality of life and health outcomes (Edib et al., 2016).

**Local Problem**

Breast cancer is the most common cancer in females in Arizona, excluding skin cancer (Arizona Department of Health Services [AZDHS], 2020). There were an estimated 5,630 new cases of female breast cancer in Arizona in 2020 (Siegel et al., 2020). In Arizona, 71% of the new breast cancer cases are detected early, and 24% are detected late (AZDHS, 2020).
Identifying and treating breast cancer in the early stages increases an individual’s likelihood of survival (DeSantis et al., 2019). The exact number of breast cancer survivors in Arizona is unknown but is likely high due to the prevalence of breast cancer and the early detection and treatment.

The COVID-19 pandemic has been an unprecedented situation, and despite many breast cancer survivors in Arizona and the US, little is known about their experience. In addition, previous studies found that cancer survivors had specific concerns, symptoms, and unmet needs (Dorros et al., 2017). This research had been carried out before the COVID-19 pandemic, and it is unknown how the pandemic has impacted the concerns, symptoms, and unmet needs in this patient population. In addition, previous breast cancer research has mainly focused on immediate breast cancer patient care and not on survivorship care (Tisnado et al, 2017).

Significant stakeholders include breast cancer survivors and healthcare providers. Breast cancer survivors may provide invaluable information regarding concerns, symptoms, and unmet needs during the COVID-19 pandemic. Healthcare providers are essential stakeholders in helping to address the concerns, symptoms, and unmet needs of breast cancer survivors during the COVID-19 pandemic.

**Intended Improvement**

**Project Purpose**

The purpose of this DNP project is to increase knowledge of the concerns, symptoms, and unmet needs of breast cancer survivors during the COVID-19 pandemic. This information will be obtained through a secondary content analysis of interviews with breast cancer survivors.
Theoretical Perspective

To better understand breast cancer survivors’ concerns, symptoms, and unmet needs during the COVID-19 pandemic, the Social Determinants of Health (SDH) framework will be utilized as a lens for the content analysis conducted in this DNP project.

Social Determinants of Health Framework

The concept of social determinants of health (SDH) was first brought to attention in 2008 by the World Health Organization Commission on Social Determinants of Health (WHO, CSDH) report *Closing the gap in a generation: Health equity through action on the social determinants of health*. In 2010, the United States Office of Disease Prevention and Health Promotion developed the SDH framework that reflected five critical areas of social determinants of health (Secretary’s Advisory Committee on National Health Promotion and Disease Prevention Objectives for 2020, 2010). These five key areas were economic stability, education, neighborhood, and built environment, health and healthcare, and social and community context (Secretary's Advisory Committee on National Health Promotion and Disease Prevention Objectives for 2020, 2010). The SDH framework posits that social and economic factors affect individual and community health (Asare et al., 2017). These social and economic factors also interact with an individual’s biological factors such as age, gender, and genetics to influence overall health (Asare et al., 2017). This DNP project will utilize the SDH framework when analyzing participant interviews to identify the key social determinants of health in breast cancer survivors. This information can then be used in the future to address cancer health disparities experienced by breast cancer survivors.
**Figure 1**

*Social Determinants of Health Key Constructs Integrated into Studying Breast Cancer Survivor Experience During the COVID-19 Pandemic*


**Definitions**

**Social Determinants of Health**

The United States Office of Disease Prevention and Health Promotion (ODPHP, 2021) defines social determinants of health as “the social factors and physical conditions of the environment in which people are born, live, learn, play, work, and age.”
Cancer Health Disparities

The National Cancer Institute (2020) defines cancer health disparities as “differences in cancer measures such as incidence, prevalence, mortality, survival, morbidity, survivorship, financial burden of cancer, screening rates, and stage at diagnosis.”

Constructs

The SDH framework identifies five primary social and economic constructs that influence health outcomes. These five constructs are (1) economic stability, (2) education, (3) neighborhood and built environment, (4) health and health care, and (5) social and community construct. The content analysis will analyze each construct to provide a better understanding of the concerns, symptoms, and unmet needs of breast cancer survivors during the COVID-19 pandemic.

Economic Stability

The construct of economic stability includes income, employment, expenses, and debt (Asare et al., 2017). Individuals with a low socioeconomic status might have poor living conditions that can increase their risk of adverse health outcomes (Asare et al., 2017). Individuals with a low income may be unable to afford adequate healthcare (Asare et al., 2017). The construct of economic stability will be considered in this DNP project to determine if it impacted the concerns, symptoms, and unmet needs of breast cancer survivors during the COVID-19 pandemic.

Education

The construct of education includes literacy, linguistic fluency, vocational training, education level, and higher education (Asare et al., 2017). A low level of education can lead to
low health literacy. This can make it difficult for individuals to understand health information, communicate with their healthcare team, and participate in making health care decisions (Asare et al., 2017). The construct of education will be considered in this DNP project to determine if it impacted the concerns, symptoms, and unmet needs of breast cancer survivors during the COVID-19 pandemic.

**Neighborhood and Built Environment**

The construct of neighborhood and built environment includes the availability of transportation, housing, and neighborhood infrastructure (Asare et al., 2017). Regarding cancer, individuals who live in neighborhoods with a lack of affordable healthy food or safe areas to exercise are more likely to have risk factors for cancer, such as poor diet, physical inactivity, and obesity (Coughlin, 2019). The construct of neighborhood and built environment will be considered in this DNP project to determine if it impacted the concerns, symptoms, and unmet needs of breast cancer survivors during the COVID-19 pandemic.

**Health and Healthcare**

The construct of health and healthcare includes the ability of health coverage, the availability of specialist healthcare providers, the cultural competence of healthcare providers, and the quality of healthcare (Asare et al., 2017). Regarding cancer, individuals who lack reliable access to health care are more likely to be diagnosed with late-stage cancer (NCI, 2020). The construct of health and healthcare will be considered in this DNP project to determine if it impacted the concerns, symptoms, and unmet needs of breast cancer survivors during the COVID-19 pandemic.
Social and Community Context

This construct includes the community’s psychological aspects, such as social integration, community engagement, social support, and trust (Asare et al., 2017). The presence of social support and social connectedness has been shown to play a vital role in an individual’s ability to navigate the healthcare system (Coughlin et al., 2019). The construct of social and community context will be considered in this DNP project to determine if it impacted the concerns, symptoms, and unmet needs of breast cancer survivors during the COVID-19 pandemic.

Literature Synthesis

Evidence Search

An extensive literature search was conducted to better understand breast cancer survivors’ concerns, symptoms, and unmet needs.

A PubMed search was conducted utilizing the terms “breast cancer survivors” AND “concerns.” Filters were placed to only include articles published in the last five years and only full-text articles. One hundred fifty-four articles were found. Ninety-eight articles were excluded because they did not relate to breast cancer survivor-specific concerns. Fifteen articles were excluded due to the patient population having secondary cancer, other types of cancer, or other medical conditions. Forty-one relevant articles from the search were included in the literature synthesis (Appendix B). Eleven additional relevant articles were located from the “breast cancer survivors” and “unmet needs” search (Appendix E).

A second PubMed search was conducted utilizing the terms “breast cancer survivors” AND “symptom burden.” Filters were placed to only include articles published in the last five
years and only full-text articles. Twenty-five articles were found. Nine articles were excluded because they did not relate to symptoms in breast cancer survivors. Two articles were excluded because patient symptoms were related to another disease process. Eleven relevant articles from the search were included in the literature synthesis. One article was a duplicate from the “breast cancer survivors” AND “concerns” search. Fifteen additional relevant articles were located from the “breast cancer survivors” AND “concerns” search. Eight additional relevant articles were located from the “breast cancer survivors” and “unmet needs” search. Two additional relevant articles were included based on committee member's recommendations. See Appendix D for the flow diagram of this literature search.

A third PubMed search was conducted utilizing the terms “breast cancer survivors” and “unmet needs.” Filters were placed to only include articles published in the last five years and only full-text articles. Forty-three articles were found. Twenty-three articles were excluded because they did not relate to unmet needs in breast cancer survivors. Twenty relevant articles from the search were included in the literature synthesis. Four articles were duplicates from the “breast cancer survivors” AND “concerns” search. One article was a duplicate from the “breast cancer survivors” AND “symptom burden” search. Sixteen additional relevant articles were located from the “breast cancer survivors” AND “concerns” search. One additional relevant article was located “breast cancer survivors” AND “symptom burden” search. See Appendix E for a flow diagram of this literature search.

A fourth PubMed search was conducted utilizing the terms “breast cancer survivors” AND “COVID-19.” The date was filtered to include articles published within the last two years as the COVID-19 pandemic was declared in March 2020. An additional filter was placed to
include articles published in English language and full text. Nine articles were found. Five articles were included that specifically discussed breast cancer survivor experience during the COVID-19 pandemic. Three studies were excluded as they focused on active breast cancer treatment during the COVID-19 pandemic. One study was excluded as it focused on healthcare outcomes of breast cancer survivors with COVID-19. See Appendix F for a flow diagram of this literature search.

**Comprehensive Appraisal of Evidence**

*Breast Cancer Survivors’ Concerns, Symptoms, and Unmet Needs*

**Concerns.** One common concern identified was cognitive function. Cognitive issues experienced by breast cancer survivors include attention, processing speed, executive function skills, learning, and memory (Apple et al., 2017). Cognitive functioning was a common concern in breast cancer survivors of all ages (Apple et al., 2017; Bernstein et al., 2018; Nolan et al., 2018; Skandarajah et al., 2021; Vuksanovic et al., 2021). Cognitive issues were of particular concern regarding returning to work (Luo et al., 2019). Cognitive issues were also of particular concern regarding specific task-based functions such as managing finances, following complex instructions, and learning new tasks (Apple et al., 2018).

A second common concern identified in the literature search was fertility, reproduction, and sexual health. Concerns about sexual health are prevalent in breast cancer survivors, including both those that are post-menopausal and those of reproductive age (Black et al., 2020; Gorman et al., 2020; Lovelace et al., 2019; McDonough et al., 2021; Moore, 2020; Nolan et al., 2018; Reese et al., 2019; Tat et al., 2018; Vuksanovic et al., 2021). Survivors have concerns regarding intimacy due to physical and emotional changes following breast cancer (Adams et al.,
Breast cancer survivors of reproductive age face fertility concerns due to anticancer treatments increasing the risk of reduced ovarian function (Bártolo et al., 2020; Black et al., 2020; Hubbeling et al., 2018; Lambertini et al., 2017). Other breast cancer survivors who continue treatment have concerns regarding an unintended pregnancy (Mody et al., 2017). Pregnancy while receiving treatment for breast cancer can be detrimental to both the health of the mother and fetus (Mody et al., 2017). Research has found that breast cancer survivors with fertility and reproductive concerns have a more inferior quality of life and are at risk for emotional distress (Bártolo et al., 2020; Gorman et al., 2020; Li et al., 2018; Nolan et al., 2018; Vuksanovic et al., 2021). Breast cancer survivors with fertility concerns had an increased risk of developing depression and anxiety (Bártolo et al., 2020; Gorman et al., 2020; Lambertini et al., 2017; Moore, 2020). Understanding fertility intentions and managing fertility preservation is important when providing care to breast cancer survivors (Li et al., 2018; Moore, 2020).

A third common concern identified was body image disturbances. Body image disturbances were found to be a common concern across all breast cancer survivors (Adams et al., 2017; Black et al., 2020; Davis et al., 2020; Gorman et al., 2020; Hubbeling et al., 2018; Lewis-Smith et al., 2020; Lovelace et al., 2019; Moore, 2020; Paterson et al., 2016; Pembroke et al., 2020; Rosenberg et al., 2016; Skandarajah et al., 2021; Vuksanovic et al., 2021). The loss of one or both breasts from mastectomies, scarring, hair loss, and weight gain lead to body image disturbances (Buki et al., 2016). Body image disturbances are widespread in younger breast cancer survivors (Black et al., 2020; Gorman et al., 2020; Hubbeling et al., 2018; Paterson et al.,
Research has also found that body image disturbances increase the risk of psychological distress and more inferior quality of life (Buki et al., 2016; Davis et al., 2020; Lewis-Smith et al., 2020; Moore, 2020; Skandarajah et al., 2021; Todorov et al., 2019). Body image disturbances also negatively impact intimacy and relationships in breast cancer survivors (Buki et al., 2016; Davis et al., 2020; Gorman et al., 2020; Lewis-Smith et al., 2020; Moore, 2020; Pembroke et al., 2020). Interventions emphasizing hope and self-compassion can improve body image disturbance in breast cancer survivors (Buki et al., 2016; Todorov et al., 2019). Interventions for body image disturbance are needed for breast cancer survivors of all ages (Davis et al., 2020; Lewis-Smith et al., 2020).

A fourth common concern identified was cancer reoccurrence and cancer spreading. Cancer reoccurrence and cancer spreading were one of the most common key survivorship issues (Akechi et al., 2018; Chae et al., 2019; Cheng et al., 2018; Chua et al., 2021; Dawson et al., 2016; Edib et al., 2016; Ellegaard et al., 2017; Fang et al., 2018; Fong & Cheah, 2016; Freeman-Gibb et al., 2017; Lee et al., 2021; McDonough et al., 2021; Nápoles et al., 2017; Nolan et al., 2018; Otto et al., 2016; Otto et al., 2018; Pembroke et al., 2020; Rosenberg et al., 2018; Shih et al., 2020; Skandarajah et al., 2021; Sleight et al., 2018; Starreveld et al., 2018; Vachon et al., 2021; Vuksanovic et al., 2021). Fear of cancer reoccurrence can lead to increased psychological distress and decreased quality of life (Chae et al., 2019; Dawson et al., 2016; Fang et al., 2018; Fong & Cheah, 2016; Freeman-Gibb et al., 2017; Otto et al., 2016; Otto et al., 2018; Skandarajah et al., 2021; Starreveld et al., 2018). Fear of cancer reoccurrence also increases health care utilization by breast cancer survivors (Otto et al., 2016; Otto et al., 2018; Vachon et al., 2021). Fear of reoccurrence is one factor that influences breast cancer survivors to seek surgical
interventions such as mastectomies (Rosenberg et al., 2018). Fear of cancer reoccurrence was found to be more common in younger breast cancer survivors (Dawson et al., 2016; McDonough et al., 2021; Starreveld et al., 2018; Vachon et al., 2021). Fear of cancer reoccurrence was also more common in those with a lower level of education, increased psychological distress, and those with increased symptom burden (Dawson et al., 2016).

A fifth common concern identified was future plans, including the ability to return to work. Return to work is an essential concern due to the financial burden many breast cancer survivors experience related to the cost of treatment (Chebli et al., 2020; Dugan et al., 2021; Nolan et al., 2018; Tisnado et al., 2017). Breast cancer survivors had concerns regarding returning to work with their current symptom burden (Luo et al., 2019; Moore et al., 2020; Pembroke et al., 2020). Breast cancer survivors were also concerned about treatment from colleagues and supervisors (Luo et al., 2019; Pembroke et al., 2020). An additional concern was managing follow-up care when a survivor returned to work (Cheng et al., 2018; Nichols et al., 2018).

A sixth common concern was finances. Financial concerns were related to treatment costs, loss of employment, and changes in relationships (Cheng et al., 2018; McDonough et al., 2021; Moore, 2020; Pembroke et al., 2020; Tisnado et al., 2017). Financial concerns can limit a survivors’ ability to adhere to recommended follow-up care and seek treatment for symptom burden (Tisnado et al., 2017). Financial concerns were increased in breast cancer survivors who were younger, unmarried, and without a college education (Moore, 2020).

Certain cultures exhibit specific concerns regarding breast cancer survivorship. Chinese breast cancer survivors report concern surrounding the stigma of having a breast cancer
diagnosis (Chu et al., 2021; Warmoth et al., 2017). Cancer in the Chinese culture is believed to be a death sentence for immoral behavior (Chu et al., 2021). Asian breast cancer survivors concerned about this stigma experience increased emotional distress and worse quality of life than non-Chinese breast cancer survivors (Acquati et al., 2019; Chu et al., 2021; Warmoth et al., 2017). Providing care for this population requires significant cultural awareness and the implementation of psychosocial interventions (Acquati et al., 2019; Chu et al., 2021; Warmoth et al., 2017).

**Symptoms.** Breast cancer survivors experience a significant symptom burden (Cheng et al., 2016). Higher symptom burden is associated with a lower quality of life (Avis et al., 2017). Psychological symptoms were one of the common symptoms identified. Both anxiety and depression were common psychological symptoms in breast cancer survivors (Acquati et al., Adams et al., 2017; 2019; Avis et al., 2017; Cheng et al., 2016; Edib et al., 2016; Fong & Cheah, 2016; Lee et al., 2020; Lovelace et al., 2019; Mandelblatt et al., 2020; Marshall et al., 2016; McDonough et al., 2021; Moreno et al., 2017; Peate et al., 2021; Skandarajah et al., 2021; Sleight et al., 2018; Tisnado et al., 2017; Vuksanovic et al., 2021). Psychological distress is significant as it can result in lower quality of life, lower physical activity levels, increased fatigue, and more pain (Avis et al., 2017; Moore, 2020). Avis et al. (2017) found that breast cancer survivors experiencing psychological symptoms had a lower quality of life than breast cancer survivors experiencing pain symptoms. Psychological distress has been linked to decreased immune function, adverse effects and poor response to chemotherapy, and early mortality in breast cancer survivors (Segrin et al., 2018).
Another common symptom was fatigue (Adams et al., 2017; Avis et al., 2017; Cheng et al., 2016; Doege et al., 2019; Fong & Cheah, 2016; Marshall et al., 2016; McDonough et al., 2021; Moore, 2020; Nápoles et al., 2017; Schmidt et al., 2018; Shih et al., 2020; Skandarajah et al., 2021; Sleight et al., 2018; Tisnado et al., 2017; Vuksanovic et al., 2021).

Also common were menopause symptoms, including hot flashes, night sweats, and vaginal dryness (Adams et al., 2017; Ali et al., 2017; Black et al., 2020; Cheng et al., 2016; Cheng et al., 2018; Marshall et al., 2016; McDonough et al., 2021; Moore, 2020; Nápoles et al., 2017; Peate et al., 2021; Schmidt et al., 2018; Shih et al., 2020; Vuksanovic et al., 2021). Menopausal symptoms led to difficulties with intimacy in breast cancer survivors (Peate et al., 2021; Shih et al., 2020).

A fourth common symptom was sleep disturbances (Adams et al., 2017; Lee et al., 2020; Lowery-Allison et al., 2018; Marshall et al., 2016; McDonough et al., 2021; Moore, 2020; Peate et al., 2021; Schmidt et al., 2018; Shih et al., 2020; Skandarajah et al., 2021; Tisnado et al., 2017; Vuksanovic et al., 2021).

A fifth common symptom was neuropathy (Ali et al., 2017; Cheng et al., 2018; Lovelace et al., 2019; Mandelblatt et al., 2020; McDonough et al., 2021; Moore, 2020; Nápoles et al., 2017; Schmidt et al., 2018; Shih et al., 2020). Neuropathy was more common in overweight patients and those who did not exercise (Moore, 2020).

A sixth common symptom was pain (Avis et al., 2017; Cheng et al., 2018; Fong & Cheah, 2016; Lee et al., 2020; Lovelace et al., 2019; Marshall et al., 2016; McDonough et al., 2021; Moore, 2020; Nápoles et al., 2017; Schmidt et al., 2018; Skandarajah et al., 2021; Sleight et al., 2018; Tisnado et al., 2017; Vuksanovic et al., 2021). Pain was a significant symptom, as
myalgias and arthralgias were the main reason survivors discontinued aromatase inhibitor therapy (McDonough et al., 2021).

A seventh common symptom was cognitive dysfunction (Acquati et al., 2019; Adams et al., 2017; Apple et al., 2017; Apple et al., 2018; Bernstein et al., 2018; Cheng et al., 2016; Doege et al., 2019; Fong & Cheah, 2016; Lee et al., 2020; McDonough et al., 2021; Moore, 2020; Schmidt et al., 2018; Shih et al., 2020; Skandarajah et al., 2021; Vuksanovic et al., 2021). The cognitive domains most frequently impaired were working and long-term memory, executive functioning, processing speed, and attention (Apple et al., 2018). Cognitive issues were more common in breast cancer survivors who received adjuvant chemotherapy or hormonal therapy (Apple et al., 2017; Moore, 2020). Chemotherapy and hormone therapy impair cognition by altering brain structure and impairing connections between brain regions (Apple et al., 2018).

Breast cancer survivors that received chemotherapy were more likely to have a higher symptom burden (Ali et al., 2017; Avis et al., 2017; Doege et al., 2019; Ellegaard et al., 2017; Mandelblatt et al., 2017; Skandarajah et al., 2021). Breast cancer survivors who received hormone therapy were second-most likely to have a higher symptom burden (Mandelblatt et al., 2017). Breast cancer survivors that were overweight or obese were also more likely to have a higher symptom burden (Ali et al., 2017). Research also demonstrates that Latina breast cancer survivors report a higher symptom burden than non-Latina breast cancer survivors (Baik et al., 2020; Chebli et al., 2020; Nápoles et al., 2017; Yanez et al., 2020). Research also suggests that breast cancer survivors living in rural areas experienced a lower symptom burden than those living in urban areas (Cahir et al., 2017). Breast cancer survivors in rural areas also had a higher overall quality of life and higher emotional quality of life than urban survivors (Cahir et al.,
Older breast cancer survivors are more likely to have a higher physiological and psychological symptom burden (Vuksanovic et al., 2021). A higher symptom burden also increased concerns regarding return to work and fear of cancer reoccurrence (Ellegaard et al., 2017; Luo et al., 2019).

**Unmet Needs.** One commonly identified unmet need in breast cancer survivors is supportive care. Supportive care is any service that assists an individual with coping with cancer and any related physical and psychological symptoms (Sleight et al., 2018). Unmet supportive care needs lead to increased symptom burden, decreased physical functioning, and increased psychological distress (Moreno et al., 2017). Psychological and counseling was one supportive care service breast cancer survivors felt was unmet (Chae et al., 2019; Cheng et al., 2018; Edib et al., 2016; Ellegaard et al., 2017; Fang et al., 2018; Fong & Cheah, 2016; Hubbeling et al., 2018; Nolan et al., 2018; Peate et al., 2021; Pembroke et al., 2020; Schmidt et al., 2018; Shih et al., 2020; Skandarajah et al., 2021; Sleight et al., 2018; Vuksanovic et al., 2021). There is currently no standard intervention available to address the fear of cancer reoccurrence, and few available interventions are evidence-based (Akechi et al., 2018; Dawson et al., 2016). Interventions available for fear of cancer reoccurrence require significant resources for delivery and thus limit the number of breast cancer survivors that could potentially benefit (Otto et al., 2016). Breast cancer survivors also reported a desire for more support regarding symptom burden (Ellegaard et al., 2017; Peate et al., 2021; Schmidt et al., 2018; Shih et al., 2020; Tisnado et al., 2017). Breast cancer survivors also reported experiencing limited social support, which negatively impacted their quality of life (Adams et al., 2017; Chae et al., 2019; Nápoles et al., 2017; Rosenberg et al., 2018; Shih et al., 2020). Culturally sensitive supportive care is another unmet need in breast
cancer survivors. Chinese breast cancer survivors report a need for counseling services addressing their unique cultural concerns (Warmoth et al., 2017). Latina breast cancer survivors report a need for culturally tailored counseling services related to body image disturbance (Buki et al., 2016). Increasing supportive care is thought to help decrease inappropriate utilization of healthcare resources and improve quality of life (Edib et al., 2016; Vachon et al., 2021).

Another commonly identified unmet need in breast cancer survivors is health-related information. Breast cancer survivors commonly reported an increased need for health-related information (Chae et al., 2019; Cheng et al., 2018; Dugan et al., 2021; Fong & Cheah, 2016; Gorman et al., 2020; Hubbeling et al., 2018; Lee et al., 2021; Moreno et al., 2017; Nolan et al., 2018; Peate et al., 2021; Pembroke et al., 2020; Skandarajah et al., 2021; Sleight et al., 2018; Tisnado et al., 2017; Tompkins et al., 2016). Providers often do not have the time to provide patient education or lack the knowledge to provide adequate patient education (Chae et al., 2019; Cheng et al., 2018; Gorman et al., 2020; Hubbeling et al., 2018; Nolan et al., 2018; Pembroke et al., 2020).

Breast cancer survivors also reported a lack of communication with the healthcare team when seeking health-related information (Ellegaard et al., 2017; Fong & Cheah, 2016; Nápoles et al., 2017; Peate et al., 2021; Rosenberg et al., 2018; Tisnado et al., 2017). Breast cancer survivors also reported that health-related information needed to be relayed at their educational level and personalized to their individual concerns and needs (Cheng et al., 2018; Ellegaard et al., 2017; McRoy et al., 2018; Pembroke et al., 2020; Shih et al., 2020; Tisnado et al., 2017).

One specific area where survivors reported a lack of information was reproductive and sexual health (Black et al., 2020; Gorman et al., 2020; Hubbeling et al., 2018; Mody et al., 2017;
Latina and African American breast cancer survivors report a large discrepancy between desired cancer treatment information and treatment information received (Adams et al., 2017; Baik et al., 2020; Moreno et al., 2017; Nápoles et al., 2017; Tisnado et al., 2017). Lack of health-related information has been shown to lead to an inferior health-related quality of life (Baik et al., 2020; Chae et al., 2019; Skandarajah et al., 2021). Fang et al. (2018) found that breast cancer survivors reported an ongoing case manager as an unmet need. Breast cancer survivors felt that an ongoing case manager would assist in answering questions and providing health-related information (Fang et al., 2018).

Another commonly identified unmet need was multidisciplinary and integrated care. Research has found that breast cancer survivors lacked access to multidisciplinary care (Vuksanovic et al., 2021). Breast cancer survivors' transition from active treatment to follow-up care was complex (Nápoles et al., 2017; Pembroke et al., 2020; Tisnado et al., 2017; Tompkins et al., 2016). Breast cancer survivors found it challenging to keep primary care providers informed regarding their cancer diagnosis and desired more collaboration between providers (Chua et al., 2020; Ellegaard et al., 2017; Peate et al., 2021; Tompkins et al., 2016). Fragmented service increased symptom burden and concerns (Peate et al., 2021). Survivorship care requires patients receive ongoing management from oncologists, mid-level providers, and primary care providers (Moore, 2020). Breast cancer survivors also reported a desire for integrated modes of care such as home-based and telehealth options (Cheng et al., 2018).
Breast Cancer Survivors and COVID-19 Pandemic

Five articles were found exploring breast cancer survivors' experience during the COVID-19 pandemic (Gurgel et al., 2021; Hamilton et al., 2021; Hamlish & Papautsky, 2021; Merz et al., 2021; Papautsky & Hamlish, 2021). The articles covered the domains of physical health, emotional and spiritual health, and perceptions of care.

Physical Health. Gurgel et al. (2021) evaluated physical activity in breast cancer survivors during the COVID-19 pandemic. An additional aim was to determine barriers associated with participating in and maintaining recommended physical activity (Gurgel et al., 2021). Gurgel et al. (2021) found that during the COVID-19 pandemic, breast cancer survivors had a decrease in physical activity, increased weight gain, and increased sedentary behavior. The only barrier to physical activity was having previously had more than three cancer treatments (Gurgel et al., 2021). A strength of the study was statistical analysis to determine the statistical significance of the findings (Gurgel et al., 2021). One limitation was that physical activity was self-reported and may provide inaccurate data (Gurgel et al., 2021). A second limitation of this study was the small sample size which limits generalizability (Gurgel et al., 2021).

Emotional and Spiritual Health. Hamlish and Papautsky (2021) examined the emotional distress among black and white breast cancer survivors during the COVID-19 pandemic. Hamlish and Papautsky (2021) found that white breast cancer survivors reported a statistically significant higher emotional distress level than black breast cancer survivors.

Hamilton et al. (2021) conducted a content analysis of African American breast cancer survivor experience during the COVID-19 pandemic. Hamilton et al. (2021) found that African American breast cancer survivors managed psychological distress through engagement in
religious activities, reliance on God, listening to gospel music, reading scripture, and finding meaning in spirituality. One strength of this study was that it was conducted early in the pandemic and, therefore, reflected adaptations regarding abrupt closures of faith-based institutions and social distancing mandates (Hamilton et al., 2021). One study limitation was that interviews had to be conducted via telephone or videoconferencing due to social distancing requirements (Hamilton et al., 2021). Researchers were unsure if utilizing telephone or videoconferencing to collect data provided the same level of ease as a traditional person-to-person format (Hamilton et al., 2021). A second study limitation was limited generalizability due to the small sample size and qualitative methodology (Hamilton et al., 2021).

Papautsky and Hamlish (2021) examined the extent of health-related worry compared to breast cancer survivors’ vulnerability (Papautsky & Hamlish, 2021). An additional aim was to examine the role of the cancer care team relationship in vulnerability and worry (Papautsky & Hamlish, 2021). Papatusky and Hamlish (2021) found that the COVID-19 pandemic resulted in more worry for vulnerable breast cancer survivors than less vulnerable breast cancer survivors. Papautsky and Hamlish (2021) also found a positive correlation between trust in the cancer care team and improved worry among breast cancer survivors. One strength of this study is that it was a quantitative study that utilized descriptive statistics, Pearson correlations, and analyses of covariance to analyze results (Papautsky & Hamlish, 2021). One limitation of this study was that there is no validated questionnaire to assess health-related worry in the context of a global pandemic (Papautsky & Hamlish, 2021). A second limitation was that study subjects were recruited through social media and might not represent all breast cancer survivors, potentially resulting in selection bias (Papautsky & Hamlish, 2021).
**Perceptions of Care.** Merz et al. (2021) assessed how breast cancer survivors perceived electronic medical record-assisted telephone follow-up (E-TFU) during the COVID-19 pandemic. Merz et al. (2021) found that 80% of breast cancer survivors were satisfied with E-TFU. Merz et al. (2021) found that 97.1% of patients felt they understood medical advice, and 93.4% felt that providers had understood their needs. Merz et al. (2021) also found that 64% of breast cancer survivors were experiencing COVID-19-related anxiety regarding their health.

**Gaps and Limitations of Synthesized Evidence**

There was limited literature discussing the unmet needs, symptoms, and concerns of breast cancer survivors during the COVID-19 pandemic. Only one study examined the physical activity needs of breast cancer survivors during the COVID-19 pandemic (Gurgel et al., 2012). Only three studies looked at breast cancer survivors’ emotional and spiritual needs during the COVID-19 pandemic (Hamlish & Papautsky, 2021; Hamilton et al., 2021; Papautsky & Hamlish, 2021). Only one study looked at breast cancer survivors' perception of care during the COVID-19 pandemic (Merz et al., 2021). These gaps in the literature provide an example of why more research needs to be conducted to better understand the unmet needs, symptom burden, and concerns of breast cancer survivors during the COVID-19 pandemic.

**METHODS**

**Project Design**

This DNP project was a secondary data analysis from a primary experimental study implementing two psychosocial interventions in cancer survivors and their caregivers. Only breast cancer survivor interview data was used in this secondary analysis.
Description of Primary Study

The primary study, Improving Informal Caregivers’ and Cancer Survivors’ Psychological Distress, Symptom Management and Health Care Use, was conducted by Dr. Terry Badger and her research team. The primary study was an experimental study implementing two psychosocial interventions in cancer survivors and their caregivers. Participants were recruited through purposive sampling at The University of Arizona Cancer Center, community sites throughout Arizona, and social media.

Setting and Stakeholders

This DNP project took place at the University of Arizona College of Nursing. Critical stakeholders for this DNP project were breast cancer survivors and their families. The primary stakeholders were breast cancer survivors as they provided the interviews from which data were extracted. Family members are key stakeholders as they have provided breast cancer survivors with support on their cancer survivorship journey.

Sampling

The sample for this DNP project included four breast cancer survivors from the primary study. Inclusion criteria for this secondary analysis included breast cancer survivors, English speaking, and transcripts of baseline interviews that occurred during Summer 2020.

Consent and Ethical Considerations

Ethical principles must be considered for any study utilizing human subjects to protect individual’s rights and reduce the risk of harm (Polit & Beck, 2017). The Institutional Review Board (IRB) approved the intended project to ensure it aligned with ethical guidelines. The project was identified and reviewed as research and approved by the IRB (Appendix A).
No physical or mental health risks or consequences for participants were anticipated in this DNP project as it was a secondary content analysis of a primary study. The benefits of providing information regarding breast cancer survivors’ concerns, symptoms, and unmet needs outweighed any potential risks to participants.

**Data Collection and Data Management**

Four transcribed and de-identified first session transcripts were provided to the DNP project student for this project.

**Data Analysis**

Data were analyzed using the thematic analysis framework developed by Nowell et al. (2017). Phase One involved becoming familiar with the data (Nowell et al., 2017). This involved reviewing the interviews and extracted data to become familiar with the depth and breadth of the content. Data was repeatedly reviewed to search for meanings and patterns before the coding phase. Phase Two involved generating initial codes (Nowell et al., 2017). This phase allowed for simplification and focused on specific data characteristics. Codes were developed with explicit boundaries to ensure they were not interchangeable or redundant. Phase Three involved searching for themes (Nowell et al., 2017). Phase Four involved reviewing the themes (Nowell et al., 2017). Phase Five involved defining and naming the identified themes (Nowell et al., 2017). Phase Six, the final phase, involved producing a report on the final analysis (Nowell et al., 2017). Direct quotes from the interviews were included to assist in the understanding of the data interpretation and to demonstrate the importance of the identified themes (Nowell et al., 2017).
RESULTS

Outcomes

Demographics

Based on the inclusion and exclusion criteria, four participant interview transcripts were obtained and analyzed. Table 1 displays participants’ age, marital status, education, employment, and income. The average age of participants was 56.75 years. Three participants were married. One participant was unmarried. Two participants had a vocational education. Two participants had a postgraduate education. All four participants were employed. One participant made between $70,000-$99,999 a year. Three participants made between $40,000-69,999 a year.

Table 1

Demographics of Participants

<table>
<thead>
<tr>
<th></th>
<th>Participant #1</th>
<th>Participant #2</th>
<th>Participant #3</th>
<th>Participant #4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>41</td>
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<td>69</td>
<td>51</td>
</tr>
<tr>
<td>Married</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Income</td>
<td>$70,000-$99,999</td>
<td>$40,000-$69,999</td>
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</tr>
</tbody>
</table>

Symptom Burden

Participants were interviewed regarding 18 individual symptoms. Participants were asked to score symptom distress on a scale of ‘0’ to ’10.’ Zero meant the participant did not experience the symptom and 10 was that the symptom was extremely distressing. Individual participant distress scores for each symptom are displayed in Table 2. The first symptom was fatigue. All four participants experienced fatigue. The average distress score was five. All four participants experienced the second symptom sleep difficulties. The average sleep difficulties distress score
was 4.75. Three of the four participants experienced the third symptom, pain. The average distress score was 4.375. Headache was the fourth symptom. Three of the four participants experienced headache. The average distress score was 2.375.

All four of the participants experienced the fifth symptom, anxiety. The average distress score was 5.75. The sixth symptom was depression. All four participants experienced depression. The average distress score was 3.3375. Three of the four participants experienced the seventh symptom, difficulty concentrating or remembering things. The average distress score was 2.5. Two of the four participants experienced the eighth symptom, lack of appetite. The average distress score was 2.5.

Nausea was the ninth symptom. Only one of the four participants experienced nausea. The average distress score was 1.25. None of the four participants experienced the tenth symptom, vomiting. One of the four participants experienced constipation, the 11th symptom. The average distress score was one. The twelfth symptom was diarrhea. Three of the four participants experienced diarrhea. The average distress score was 1.25.

Numbness or tingling was the thirteenth symptom. Two of the four participants experienced numbness or tingling. The average distress score was 1.75. None of the four participants experienced skin rashes or sores, listed as the fourteenth symptom. The fifteenth symptom was swelling in arms, legs, hands, or feet. Two of the four participants experienced swelling in arms, legs, hands, or feet. The average distress score was 0.75.

The sixteenth symptom was weakness. One participant experienced weakness. One participant was not asked about weakness. The average distress score was 1.333. One of the four participants experienced shortness of breath, listed as the seventeenth symptom. The average
distress score was 0.75. The eighteenth symptom was cough. One participant experienced cough. One participant was not asked about weakness. The average distress score was 1.666.

Participants were asked about other symptoms they were experiencing. Participant 3 reported an additional symptom of a stomach virus. Participant 4 reported an additional symptom of eating too much. The average other distress score was 3.5.

Participants were asked to combine distress of all their symptoms on a scale of 1 to 10. One meaning not at all distressing and ten meaning extremely distressing. Individual participant combined distress scores for are displayed in Table 3. The average combined distress of all symptoms was 4.625.

The number of symptoms each participant experienced was assessed. Individual participant average number of symptoms are displayed in Table 4. Participants, on average, experienced 10.25 symptoms.

Table 2

*Individual Symptom Distress*

<table>
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<tr>
<th>Symptom</th>
<th>Participant #1</th>
<th>Participant #2</th>
<th>Participant #3</th>
<th>Participant #4</th>
<th>Average</th>
</tr>
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<tr>
<td>Fatigue</td>
<td>5</td>
<td>9</td>
<td>5</td>
<td>1</td>
<td>5</td>
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<tr>
<td>Sleep Difficulties</td>
<td>10</td>
<td>3</td>
<td>5</td>
<td>1</td>
<td>4.75</td>
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<tr>
<td>Pain</td>
<td>6</td>
<td>5</td>
<td>6/7</td>
<td>0</td>
<td>4.75</td>
</tr>
<tr>
<td>Headache</td>
<td>1</td>
<td>2</td>
<td>6/7</td>
<td>0</td>
<td>2.375</td>
</tr>
<tr>
<td>Anxiety</td>
<td>7</td>
<td>6</td>
<td>8</td>
<td>2</td>
<td>5.75</td>
</tr>
<tr>
<td>Depression</td>
<td>7</td>
<td>4</td>
<td>2</td>
<td>0/1</td>
<td>3.375</td>
</tr>
<tr>
<td>Difficulty concentrating or remembering</td>
<td>4</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>2.5</td>
</tr>
<tr>
<td>Lack of appetite</td>
<td>6</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>2.25</td>
</tr>
<tr>
<td>Nausea</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>1.25</td>
</tr>
<tr>
<td>Vomiting</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Constipation</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>1.25</td>
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Table 2 – Continued

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<tr>
<th></th>
<th>Participant #1</th>
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<th>Participant #3</th>
<th>Participant #4</th>
<th>Average</th>
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</thead>
<tbody>
<tr>
<td>Numbness or tingling</td>
<td>2</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>1.75</td>
</tr>
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<td>Skin rashes or sores</td>
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<td>0</td>
<td>0</td>
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<td>0</td>
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<tr>
<td>Swelling in arms, legs,</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0.75</td>
</tr>
<tr>
<td>hands, or feet</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weakness</td>
<td>4</td>
<td>0</td>
<td>*</td>
<td>0</td>
<td>1.333</td>
</tr>
<tr>
<td>Shortness of breath</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0.75</td>
</tr>
<tr>
<td>Cough</td>
<td>0</td>
<td>*</td>
<td>5</td>
<td>0</td>
<td>1.666</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>0</td>
<td>7 (stomach</td>
<td>7 (eating too much)</td>
<td>3.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>virus)</td>
<td></td>
<td></td>
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</table>

* - missing data point

Table 3

Combined Symptom Distress

<table>
<thead>
<tr>
<th></th>
<th>Participant #1</th>
<th>Participant #2</th>
<th>Participant #3</th>
<th>Participant #4</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symptom distress</td>
<td>6</td>
<td>5</td>
<td>5</td>
<td>2/3</td>
<td>4.625</td>
</tr>
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</table>

Table 4

Number of Symptoms Experienced

<table>
<thead>
<tr>
<th></th>
<th>Participant #1</th>
<th>Participant #2</th>
<th>Participant #3</th>
<th>Participant #4</th>
<th>Average</th>
</tr>
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<tbody>
<tr>
<td>Number of symptoms</td>
<td>13</td>
<td>9</td>
<td>12</td>
<td>7</td>
<td>10.25</td>
</tr>
<tr>
<td>experienced</td>
<td></td>
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<td></td>
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Themes

Twelve themes were identified through content analysis of the four participant interview transcripts. Themes and definitions are presented in Table 5.
Table 5

*Themes and Associated Definitions*

<table>
<thead>
<tr>
<th>Theme</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Symptoms of depression</td>
<td>Symptoms of major depressive disorder per the DSM-5; including depressed mood, diminished interest or pleasure in activities, changes in appetite, insomnia/hypersomnia, psychomotor agitation or retardation, fatigue, feelings of worthlessness, feelings of guilt, difficulty concentrating, indecisiveness, and thoughts of death (American Psychological Association, 2013).</td>
</tr>
<tr>
<td>Resilience</td>
<td>Participant efforts to re-engage in life despite experiencing stressors</td>
</tr>
<tr>
<td>Communication with healthcare team</td>
<td>Participant perception of communication with their healthcare team</td>
</tr>
<tr>
<td>Negative consequences of treatment</td>
<td>Participant-perceived negative physical or mental impacts that were the result of treatment for breast cancer</td>
</tr>
<tr>
<td>Social support</td>
<td>Support from family, friends, and peers</td>
</tr>
<tr>
<td>Self-care</td>
<td>Actions by an individual to improve or maintain their physical and mental well-being</td>
</tr>
<tr>
<td>COVID-19</td>
<td>Participant perception of COVID-19 pandemic, including the impact of COVID-19 on participant daily lives</td>
</tr>
<tr>
<td>Life stressors</td>
<td>Circumstances in participants’ lives that have caused increased stress</td>
</tr>
<tr>
<td>Processing the cancer experience</td>
<td>Participant perception of the cancer experience including diagnosis, treatment, and impact on life</td>
</tr>
<tr>
<td>Uncertainty about the future</td>
<td>Participant concerns about the future and fear of the unknown</td>
</tr>
<tr>
<td>Desire for knowledge</td>
<td>Participant desire to be informed about their health</td>
</tr>
<tr>
<td>Anxiety</td>
<td>Excessive fear or worry</td>
</tr>
</tbody>
</table>

**Symptoms of Depression**

Symptoms of depression were defined as the symptoms of major depressive disorder as outlined in the DSM-5. These symptoms included depressed mood, diminished interest or pleasure in activities, changes in appetite, insomnia/hypersomnia, psychomotor agitation or
retardation, fatigue, feelings of worthlessness, feelings of guilt, difficulty concentrating, indecisiveness, and thoughts of death (American Psychological Association, 2013). Two participants discussed symptoms of depression. Participant 1 stated “Just no desire to do really do anything like I can just sit on the couch all day and do nothing, procrastinate, don’t want to get my homework done. I wait until the last minute to do it. Real bad trouble sleeping. It’s just pretty much no enjoyment in life.” Participant 3 stated regarding her use of antidepressants “I have decided not to avail myself of chemical help here, uh you know, since the cancer diagnosis.”

**Resilience**

Resilience was defined as participant efforts to re-engage in life despite experiencing stressors. Three participants discussed resilience. Participant 1 stated, “I’m taking a so, food nutrition class. I was working on my nursing degree very slowly. I’d be a lot further along right now with my last year hasn’t been devoted to not dying so.” Participant 3 stated “It’s okay, but I often don’t feel good, but I look forward to this because I’m really hoping to get through all of this you know better than before.”

**Communication with the Healthcare Team**

Communication with the healthcare team, a third theme, was defined as participant perception of communication with their healthcare team. Three participants discussed communication with the healthcare team. Participant 2 stated, “So this is how I found out. The next morning the doctor who operated on me, his partner in his practice, came through and she said to me ‘So you heard about the findings?’ I said no I haven’t heard anything. She said, ‘well we found cancer in there’ and walked out of the room.”
Participant 3 stated, “All of me hurt and I finally told my oncologist’s PA that month and she said to my NP, and she said why didn’t you tell us they said I just thought this was going to be how it was.”

**Negative Consequences of Treatment**

Negative consequences of treatment were defined as participant-perceived negative physical or mental impacts that were the result of treatment for breast cancer. Three participants discussed negative consequences of treatment. Participant 1 stated, “My doctor read it and she told me there was heart damage from the chemo that I had to do in order to live.”

Participant 2 stated, “The what’s injection gives me a fever the injections just make me feel kind of lousy for a couple of days afterwards, so I am just dealing with that and yesterday I am paying at the injection site and fever and today is, today, is more just not feeling real well, feeling awfully worn out from the whole process.”

**Social Support**

Social support, a fifth theme, was defined as support from family, friends, and peers. All four participants discussed social support. Participant 1 stated regarding attending Alcoholics Anonymous meetings, “I feel a little bit better knowing that there’s you know, I’m not the only one that feels like my life has been napalmed and that other people you know to depend on stuff too, but you know I’m not the only hurt my family or hurt my own body by drinking so that helps. It helps to see that people can get out.”

Participant 2 stated “I just let myself recuperate. John, John is very often helpful and cooperative and cuz I say things to him like oh I am so tired, and he says cuz your body’s fighting cancer and it’s all it needs to do right now so don’t worry about it.”
Self-Care

Self-care is defined as actions by an individual to improve or maintain their physical and mental well-being. Three participants discussed self-care. Participant 1 stated “Honestly just like showering daily and taking really good care of my skin. I like that is my things like I hate being ashy. I love lotion and I take a really nice long shower and shampoo what hair I have that’s grown back and you know I’ll just sit there and just take care of my sing. It’s my thing.”

Participant 4 stated “I always loved listening to audio books, and I find a great relaxing, so I do that all the time and sometimes I listen to audiobooks and clean. I love to sit out in my backyard with my dogs. My daughter and I usually will get into, you know, something on TV, some type of series or something.”

COVID-19

COVID-19 was the seventh theme. COVID-19 was defined as participant perception of COVID-19 pandemic, including the impact of COVID-19 on participant daily lives. Two participants discussed COVID-19. Participant 3 stated, “In fact the lockdown has been a wonderful thing for me in that I’m taking it as an introspective. I’m actually sort of unplugged from the you now social media and even my email, my work email even my home email.”

Participant 4 stated, “You know I am from New York, so you know obviously I was a little concerned about my family in New York, but they seem to be doing well. I do worry a little bit about my parents.”

Life Stressors

An eighth identified theme was life stressors. Life stressors was defined as circumstances in participants’ lives that have caused increased stress. All four participants discussed life
stressors. Participant 1 discussed two significant life stressors. Firstly, “My father-in-law passed away four months, four months and eight days before my diagnosis, so he died of prostate cancer and right after I was diagnosed.” Secondly, “Then the year before that my mom’s cancer came back, she has been in remission for thirty-two years It came back and she went through a bilateral mastectomy right before I did, so that was fun too.” Participant 4 stated regarding her son’s schooling, “It has been pretty hard for me to keep him motivated to do all his Zoom sessions.”

**Processing the Cancer Experience**

A ninth identified theme was processing the cancer experience. Processing the cancer experience was defined as participant perception of the cancer experience including diagnosis, treatment, and impact on life. All 4 participants discussed processing the cancer experience. Participant 2 stated, “He wanted to try chemo course and you know I got through the whole thing by saying well when it’s over it’ll be gone. I just have to put up with this thought it was about a year and half and then it came back.” Participant 3 stated, “You know people will kind of joke and say yep oh you know you got new boobs and yeah, they don’t sag anymore but at the same time I still have big scares you know that’s not thrilling but you know what can you do?”

**Uncertainty About the Future**

A tenth identified theme was uncertainty about the future. Uncertainty about the future was defined as participant concerns about the future and fear of the unknown. Three participants discussed uncertainty about the future. Participant 2 stated “We have been very careful not to talk about me dying mostly because we have no idea when that might happen, secondly we all
know it’s going to happen but because we don’t know when we don’t need to deal with it now.”

Participant 4 stated “I do still worry of course that it can come back.”

**Desire for Knowledge**

An eleventh identified theme was desire for knowledge. Desire for knowledge was defined as participant desire to be informed about their health. Two participants discussed a desire for knowledge. Participant 2 stated “I’ll go to a naturopath and see what he’s got to say, and he said, ‘Welly why didn’t they offer you immunotherapy?’ and I don’t know they just didn’t and so he sent me over to Banner and they had a trial bit I qualified for so here I am in the midst of the trial.” Participant 3 stated “I pick up almost all of the literature or whatever, always have since I was in you know a young adult when I went to the doctor.”

**Anxiety**

The final identified theme was anxiety. Anxiety was defined as excessive fear or worry.

One participant discussed anxiety. Participant 4 stated, Because I do tend to be anxious sometimes, I’ll feel like I, you know, it’s probably just scar tissue, but you know I’ll start to feel like oh here’s some lumps or something like that and I do worry about it.”

**Summary**

Demographic data and transcript interviews were obtained for four participants meeting the previously discussed inclusion and exclusion criteria. Analysis of the demographic data showed the average participant age was 56.75 years, three-fourths of the participants were married, half the participants had completed vocational school, half the participants had completed post graduate schooling, all participants were employed, and three-fourths of participants made between $40,000-$69,000.
Symptom distress was measured for eighteen individual symptoms. The participants on average experienced 10 symptoms. The combined symptom distress score averaged across all four participants was 4.625 indicating moderate distress.

Twelve themes were identified through content analysis of the four participant interview transcripts. The thirteen themes were: (1) symptoms of depression, (2) resilience, (3) communication with the healthcare team, (4) negative consequences of treatment, (5) social support, (6) self-care, (7) COVID-19, (8) life stressors, (9) processing the cancer experience, (10) uncertainty about the future, (11) desire for knowledge, and (12) anxiety. Each theme was defined, and examples were provided from participant transcripts.

**DISCUSSION**

**Summary**

The purpose of this DNP project was to increase knowledge of the concerns, symptoms, and unmet needs of breast cancer survivors during the COVID-19 pandemic. This project was designed to address the problem of limited knowledge regarding the concerns, symptoms, and unmet needs of breast cancer survivors during the COVID-19 pandemic. A review of the literature found there were only five articles discussing the concerns, symptoms, and unmet needs of breast cancer survivors during the COVID-19 pandemic. This DNP project, due to lack of data saturation, was not able to provide information to fill these gaps in the literature.

**Interpretation**

This DNP project provided valuable information regarding breast cancer survivors’ concerns, symptoms, and unmet needs during the COVID-19 pandemic. Although data saturation
was not achieved, the information found still provides important insight into breast cancer survivors’ experience during the COVID-19 pandemic.

**Symptoms**

One important insight was breast cancer survivors’ symptoms of depression and anxiety. All four participants experienced distress regarding both anxiety and depression. The average distress score for depression was 3.375 and the average distress score for anxiety was 5.75. Two participants specifically discussed their symptoms of depression in the interview transcript. One participant specifically discussed their anxiety in the interview transcript. This supports the findings from the literature review that psychological distress is common in breast cancer survivors. These findings suggest that it is important for healthcare providers to address mental health concerns in breast cancer survivors.

A second important insight was symptom burden in breast cancer survivors. The average number of symptoms experienced by participants was 10.25. The average combined distress of all symptoms was 4.625. This indicates that participants were experiencing a relatively large number of symptoms that were causing a moderate amount of distress. These findings suggest that it is important healthcare providers ask about breast cancer survivor symptoms and take action to minimize symptom distress.

**Concerns**

Uncertainty about the future was an identified concern amongst the participants. This aligned with the literature review findings that uncertainty about the future was a common concern among breast cancer survivors. Interventions to address uncertainty about the future may be beneficial in this population.
Unmet Needs

Analysis of participant transcripts provided limited insight into breast cancer survivor unmet needs. This might have been due to the patient’s being recruited through purposive sampling and likely were already receiving care quality care. In addition, the participants of the primary study were being interviewed weekly by a social worker and provided with resources to address the participant’s specific needs.

One unmet need identified from the literature was social support. This was not an unmet identified need among the four participants. All four participants reported receiving social support from family, friends, or peers. The experience of social support appears to be important to the breast cancer survivor experience.

A second unmet need identified from the literature was health-related knowledge. This was not an identified unmet need among the four participants. Two participants reported a desire for health-related knowledge. One participant was pleased with the patient education booklet provided as part of the primary study. Another participant actively sought health-related knowledge on their own and were able to obtain their desired knowledge. The availability of health-related knowledge appears to be important to breast cancer survivors.

A third unmet need identified from the literature was communication with the healthcare team. Three participants mentioned experiences regarding communication with the healthcare team. This emphasizes the need for effective patient-provider communication.

COVID-19

Two of the four participants discussed the COVID-19 pandemic. This might have been due to interviews being conducted in April 2020, one month after the pandemic officially began.
The pandemic may not have had significant impact on survivors at this point in time. One participant discussed the benefits of COVID-19 lockdown. Another participant discussed concerns about her family living in New York.

**Additional Findings**

Another finding from the study was the theme of resilience. Three participants discussed resilience. This demonstrates the will of breast cancer survivors to re-engage in life despite their cancer experience. Breast cancer survivors should be encouraged to be resilient and provided with support to enhance their resilience.

Negative consequences of treatment were another identified theme. One participant experienced cardiotoxicity as a result of her chemotherapy regimen. Another participant discussed the fever and fatigue she was experiencing as a result of infusions for her cancer. A third participant discussed significant pain related to her aromatase inhibitor. It is important that providers be aware of the negative consequences of cancer treatment. Providers should take steps to minimize negative consequences of cancer treatment and ensure that if negative consequences arise, that they are effectively managed.

Self-care was an additional identified theme. Three participants had self-care regimens that they were utilizing to improve their quality of life. Self-care varied amongst participants. One participant focused on skin care, another participant enjoyed audiobooks and television, and a third participant unplugged from social media and enjoyed cleaning. Self-care should be recommended to all breast cancer survivors to improve quality of life.

Life stressors was another important identified theme among participants. Life stressors included recently losing a family member to cancer, family members discussing a participant’s
future death, online-schooling, and family mental health issues. It is important for providers to be aware that breast cancer survivors have additional stressors in their life besides cancer that can be impacting quality of life.

A final important theme was processing the cancer experience. The ability to discuss their diagnosis, treatment, and impact cancer has had on their life appeared to be a beneficial experience for participants. Recommending professional counseling or finding a trusted friend to process the cancer experience with might be beneficial for breast cancer survivors.

Implications

Practice and Education

This DNP project data provides some considerations for practice and education. Providers should be educated regarding common concerns, symptoms, and unmet needs of breast cancer survivors. Increased education regarding breast cancer survivor concerns, symptoms, and unmet needs can lead to improved provider practice by improving patient-centered care, enhancing provider-patient communication, and improving patient perception of care. Additionally, this DNP project highlights the need for a thorough patient assessment. It is important for providers to be able to differentiate psychological distress related to the cancer disease process from major depressive disorder and anxiety disorders. A thorough assessment of patient symptoms including the patient’s past psychiatric history, onset of symptoms, relationship to cancer diagnosis can help providers accurately diagnosis and treat patients. A patient’s psychological distress due to the cancer disease process may benefit more from interventions targeting the cancer disease process whereas a patient with major depressive disorder or generalized anxiety disorder may benefit more from mental health interventions. A
thorough assessment and understanding of the patient’s psychological distress will allow
providers to develop an individualized treatment plan.

It is also beneficial for providers to ask patients about their cancer experience. All four
participants discussed the benefit of processing the cancer experience. If a patient presents for an
office visit, it would be beneficial for providers to ask about the patient’s experience with
diagnosis, treatment, and survivorship. Patients can potentially be referred to psychotherapy or
support groups if the provider feels the patient might benefit from additional support processing
the cancer experience. Asking about the patient’s cancer experience will also likely benefit the
patient-provider therapeutic relationship.

Research and Policy

The DNP project presents opportunities for future breast cancer survivor research. The
information obtained from this study had limited generalizability. Future research has the
opportunity to obtain generalizable data regarding breast cancer survivors’ concerns, symptoms,
and unmet needs during the COVID-19 pandemic. Further research could also be conducted into
cancer health disparities. As this was a secondary data analysis from a primary experimental
study, no specific questions were asked regarding cancer health disparities. If future research
identified specific cancer health disparities among breast cancer survivors, policies could be
influenced to reflect identified cancer health disparities.

Limitations

The main limitation of this DNP project was the small number of participant interview
transcripts. This DNP project was only able to analyze four participant interview transcripts.
Therefore, no data saturation was achieved. More participant transcripts would be needed to increase the understanding of patients’ experiences.

Another limitation of this DNP project was that the data utilized was secondary data. The data utilized for this DNP project was collected as part of a primary study. Therefore, it was impossible to specifically ask participants about their concerns, symptoms, and unmet needs during the COVID-19 pandemic.

Another limitation of this DNP project was the short timeframe. Participant interviews were conducted in the April 2020 during the beginning of the COVID-19 pandemic. The COVID-19 pandemic is on-going and breast cancer survivors’ concerns, symptoms, and unmet needs might change as the pandemic continues.

**DNP Essentials Addressed**

The American Association of Colleges of Nursing (AACN) developed eight DNP essentials that address the fundamental competencies necessary for advanced nursing practice (American Association of Colleges of Nurses [AACN], 2006). These eight essentials are: 1) scientific underpinnings for practice, 2) organizational and systems leadership for quality improvement and systems thinking, 3) clinical scholarship and analytical methods for evidence-based practice, 4) information systems/technology and patient care technology for the improvement and transformation of health care, 5) health care policy for advocacy in health care, 6) interprofessional collaboration for improving patient and population health outcomes, 7) clinical prevention and population health for improving the nation’s health, and 8) advanced nursing practice. Three of these essentials were addressed in this DNP project.
DNP Essential I: Scientific Underpinnings for Practice

DNP Essential I emphasizes the use of science-based theories and concepts to determine the nature and significance of health phenomena (AACN, 2006). This DNP project utilized scientific underpinnings to better understand the nature and significance of the breast cancer survivor experience.

DNP Essential III: Clinical Scholarship and Analytical Methods for Evidence-Based Practice

DNP Essential III emphasizes knowledge application competencies that allow for the translation of new science and the generation of evidence to guide improvement in practice and outcomes of care (AACN, 2006). This DNP project utilized information technology and resource methods to examine patterns of behavior and outcomes and to identify gaps in evidence for practice. Literature was critically appraised to identify gaps in the literature regarding breast cancer survivors’ concerns, symptoms, and unmet needs during the COVID-19 pandemic. Transcripts from participant interviews were reviewed to better understand breast cancer survivor experience during the COVID-19 pandemic.

DNP Essential VII: Clinical Prevention and Population Health for Improving the Nation’s Health

DNP Essential VII emphasizes the DNP graduate’s role in analyzing population health data, synthesizing concepts to address health promotion/disease prevention, improve population health, and address gaps in care (AACN, 2006). This DNP project utilized the Social Determinants of Health framework as a lens to better understand the experience of breast cancer survivors’ during the COVID-19 pandemic. The goal of this DNP project was to provide more
knowledge regarding breast cancer survivors’ concerns, symptoms, and unmet needs during the COVID-19 pandemic to better educate healthcare providers and improve breast cancer survivor care.

Conclusions

Breast cancer is one of the most common cancers in the United States and has a high survival rate. This means that there are many breast cancer survivors in Arizona and the United States. The COVID-19 pandemic, beginning, in March 2020, has created an unknown environment for all individuals, including breast cancer survivors. This DNP project provided insight into breast cancer survivors’ concerns, symptoms, and unmet needs during the COVID-19 pandemic.

Plan for Sustainability

The plan for sustainability is to continue the analysis of breast cancer survivor interview transcripts after the conclusion of this DNP project. Once generalizable findings are obtained, a plan for implementing findings into care and sustaining changes could be discussed.

Plan for Dissemination

A formal presentation of the implementation and results of this DNP project will be given during November of 2021 to the DNP project committee and others interested in the project topic.
APPENDIX A:

THE UNIVERSITY OF ARIZONA INSTITUTIONAL REVIEW BOARD DECISION

LETTER
MINIMAL RISK APPROVAL

October 14, 2021

Sarah Butelles

Dear Sarah Butelles:

On 10/14/2021, the IRB reviewed the following submission:

<table>
<thead>
<tr>
<th>Type of Review:</th>
<th>Initial Study</th>
</tr>
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<tr>
<td>Title:</td>
<td>Breast Cancer Survivors’ Concerns, Symptoms, and Unmet Needs During the COVID-19 Pandemic</td>
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<tr>
<td>Investigator:</td>
<td>Sarah Butelles</td>
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<tr>
<td>IRB ID:</td>
<td>STUDY000000135</td>
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<tr>
<td>Sponsor:</td>
<td>None</td>
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<tr>
<td>Prime Sponsor:</td>
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<td>Documents Reviewed:</td>
<td>• 9 29 Butelles IRB Protocol for Human Subjects Research Retrospective Data Review.docx, Category: IRB Protocol; • Appendix for Waiver of Consent, Category: Other; • Badger CV, Category: Other; • Butelles Advisor Attestation.pdf, Category: Other; • Butelles CV, Category: Other; • Butelles DNP Permission from Badger.pdf, Category: Other; • Department Chair, Category: Other; • Edmund CV, Category: Other; • Gallagher CV, Category: Other; • Scientific/Scholarly Review, Category: Other;</td>
</tr>
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</table>

The IRB approved the protocol from 10/14/2021.

Regulatory determinations:
- Risk Level: No greater than minimal risk
- Pediatric Risk Level: None
- Review Level: Exempt; Minimal Risk 2018: The project is not federally funded or supported and has been deemed to be no more than minimal risk.
• **Special Determinations:** None
• This project has been reviewed and approved by the IRB or designee. All documents referenced in this submission have been reviewed and approved.
• The University of Arizona maintains a Federalwide Assurance (FWA) with the Office for Human Research Protections (OHRP) (FWA #00004218).
• This Institution assures that all of its activities related to human subjects research, regardless of the source of support, will be guided by the Belmont Report and applicable regulations according to 45 CFR 46.111 and/or 21 CFR Part 50.
• Modifications may be needed for Minimal Risk research. Please refer to the Guidance Minimal Risk Research for a list of changes that would require a Modification submission.
• All research procedures should be conducted according to the approved protocol and the policies and guidance of the IRB.
• The Principal Investigator should notify the IRB immediately of any proposed changes that affect the protocol and report any unanticipated problems involving risks to participants or others. Please refer to Guidance investigators Responsibility after IRB Approval, Reporting Local Information, and Minimal Risk Research.

We value your feedback and would appreciate you taking the time to complete our survey about your experience with the IRB staff: https://uarizona.co1.qualtrics.com/jfe/form/SV_dgQSVxqIPhiUd.

If questions arise at any time during your study, please email the general IRB inbox at VPR-IRB@arizona.edu.
APPENDIX B:

LITERATURE REVIEW GRID
<table>
<thead>
<tr>
<th>Pub. Year; Author’s Last Name</th>
<th>Title of Publication</th>
<th>Type of Study</th>
<th>Main Outcomes of Findings</th>
<th>Support for and or Link to Project</th>
</tr>
</thead>
</table>
| 2019; Acquati et al.          | Post-traumatic stress symptoms and social constraints in the communication with family caregivers among Chinese-speaking breast cancer survivors | Non-experimental, descriptive | • Average score of 14.7 on severity of Post-Traumatic Stress Symptoms (PTSS) with 54.2% likely to meet criteria for PTSD  
• PTSS positively associated with social constraints  
• PTSS negatively associated with social support, closeness, and physical health  
• More medication usage linked to worse PTSS  
• Social constraints in the ability to communicate cancer-related concerns to a caregiver predicted worse PTSS severity | Concerns:  
• Asian breast cancer survivors were concerned about stigma related to breast cancer diagnosis  
• Concerns lead to increased emotional distress and poor quality of life  
• Care of Asian breast cancer survivors requires cultural awareness  
Symptoms:  
• Psychological distress |
| 2017; Adams et al.            | Avoidant coping and self-efficacy mediate relationships between perceived social constraints and symptoms among long-term breast cancer survivors | Qualitative; phenomenological | • Greater social constraints from both partners and healthcare providers were associated with a greater symptom burden  
• Relationships were mediated by avoidant coping and self-efficacy for symptom management | Symptoms:  
• Psychological (anxiety and depression)  
• Menopausal symptoms  
• Cognitive issues  
• Fatigue  
• Sleep disturbances  
Unmet Needs: |
<table>
<thead>
<tr>
<th>Pub. Year; Author’s Last Name</th>
<th>Title of Publication</th>
<th>Type of Study</th>
<th>Main Outcomes of Findings</th>
<th>Support for and or Link to Project</th>
</tr>
</thead>
</table>
| 2017; Adams et al.            | Evaluating survivorship experiences and needs among rural African American breast cancer survivors | Qualitative; phenomenological | • Rural AA-BCS were unwilling to share breast cancer diagnosis with family and friends  
• Quality-of-life issues not well understood  
• Spirituality and religion were essential in coping and accepting cancer  
• Importance of and barriers to maintaining regular check ups  
• Expressed need for knowledge about survivorship self-management | Unmet Needs:  
• Cancer treatment information |
| 2018, Akechi et al.          | Smartphone problem-solving and behavioural activation therapy to reduce fear of recurrence among patients with breast cancer (SMartphone Intervention to LEssen fear of cancer recurrence: SMILE project) | Protocol for RCT | • First trial to investigate efficacy of smartphone-based psychological therapy for fear of cancer reoccurrence among breast cancer survivors | Concerns:  
• Cancer reoccurrence Unmet Needs:  
• Interventions (evidence-based) available to address fear of cancer reoccurrence |
<table>
<thead>
<tr>
<th>Pub. Year; Author’s Last Name</th>
<th>Title of Publication</th>
<th>Type of Study</th>
<th>Main Outcomes of Findings</th>
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</table>
| 2017, Ali et al.              | Prevalence and correlates of patient-reported symptoms and comorbidities in breast cancer survivors at a tertiary center. | Retrospective cohort study | • Hot flashes/night sweats reported in 44% of participants  
• Numbness/tingling reported in 34% of participants  
• Significant associations (P<0.05) were observed with chemotherapy an increased prevalence of 26 conditions and higher BMI and increased prevalence of 10 conditions | Symptoms:  
• Menopausal symptoms  
• Numbness/tingling  
• Receiving chemotherapy led to higher symptom burden  
• Being overweight or obese led to higher symptom burden |
| 2017, Apple et al.            | Subtle hippocampal deformities in breast cancer survivors with reduced episodic memory and self-reported cognitive concerns. | Non-experimental, descriptive | • Cancer survivors showed significantly more inward hippocampal deformation, worse self-reported cognitive functioning, and inferior episodic memory test score | Concerns:  
• Cognition  
Symptoms:  
• Cognitive deficits  
• Cognitive deficits more common in those receiving chemotherapy and hormonal therapy |
| 2018, Apple et al.            | Hippocampal functional connectivity is related to self-reported cognitive concerns in breast | Non-experimental, descriptive | • Whole-brain group-level comparisons identified clusters with differing connectivity to the hippocampus in survivors versus controls | Concerns:  
• Cognition related to task-based functions  
Symptoms:  
• Cognitive issues |
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<tr>
<td>2017, Avis et al.</td>
<td>Longitudinal examination of symptom profiles among breast cancer survivors</td>
<td>Secondary analysis</td>
<td>• Seven sub-group model provided best fit: (1) low symptom burden, (2) mild fatigue, (3) mild fatigue and mild pain, (4) moderate</td>
<td>Symptoms: Psychological distress, Pain, Fatigue</td>
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<td>cancer patients undergoing adjuvant therapy</td>
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<td>• Average connectivity correlated with cognitive performance and subjective report</td>
<td>• Chemotherapy and hormone therapy impair cognition by altering brain structure and impairing connections between brain regions</td>
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<td></td>
<td>• Survivors performed worse on episodic memory tests and reported greater cognitive concerns compared to controls</td>
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<td>• Higher IL6 in cancer survivors compared to controls</td>
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<td>• Cancer survivors demonstrated higher connectivity of hippocampus with left cuneus, left lingual, left precuneus, and right middle prefrontal cortex compared to controls</td>
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<td>• Higher task-related hippocampal-cortical connectivity was related to worse subjective measures of cognitive concern</td>
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</table>
| 2020, Baik et al. | Cancer-relevant self-efficacy Is related to better health-related quality of life and lower cancer-specific distress | Secondary analysis | • Greater cancer-relevant self-efficacy related to better overall health-related quality of life and better social, emotional, and functional well-being domains | • Breast cancer survivors receiving chemotherapy more likely to have a higher symptom burden  
• Higher symptom burden leads to worse quality of life  
• Psychological symptoms lead to worse quality of life than pain symptoms |

Fatigue and moderate pain, (5) moderate fatigue and moderate psychological, (6) moderate fatigue, mild pain, mild psychological, (7) high symptom burden

• 70% of survivors remained in the same subgroup over time
• Chemotherapy and greater illness intrusiveness were related to greater symptom burden
• Single, no difficulty paying for basics, and greater social support were protective
• Higher symptom burden associated with lower quality of life
• Survivors with psychological symptoms reported lower quality of life than survivors with pain symptoms

Symptoms:

• Latina breast cancer survivors report a higher symptom burden than non-Latina breast cancer survivors
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</table>
| 2020; Bártolo et al.          | and symptom burden among Latina breast cancer survivors | Non-experimental, descriptive | • Greater cancer self-efficacy related to less breast cancer symptom burden and less cancer-specific distress | Unmet Needs:  
  • Latinas report discrepancy between desired treatment information and information received  
  • Lack of health-care information leads to inferior health-related quality of life |
| 2018; Bernstein et al.        | Fertility under uncertainty: exploring differences in fertility-related concerns and psychosocial aspects between breast cancer survivors and non-cancer infertile women | Single-arm prospective study | • Participants showed improvements in memory | Concerns:  
  • Fertility concerns due to anticancer treatments increasing risk of reduced ovarian function  
  • Survivors with fertility concerns have lower quality of life and at risk for emotional distress  
  • Survivors with fertility concerns have increased risk of developing depression and anxiety |
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| 2020; Black et al.            | The other side of through: young breast cancer survivors’ spectrum of sexual and reproductive health needs. | Qualitative    | • Breast cancer survivors receive limited reproductive health information  
• Breast cancer survivors desired realistic expectations of conceiving after cancer  
• Breast cancer survivors struggled to adjust to altered physical appearance  
• Breast cancer survivors experienced menopause symptoms that led to issues with sexual health and quality of life | • Cognitive functioning  
Symptoms:  
• Cognitive deficits  
Concerns:  
• Sexual health  
• Fertility concerns due to anticancer treatments increasing risk of reduced ovarian function  
• Body image disturbances; particularly younger survivors  
Symptoms:  
• Menopause symptoms  
Unmet Needs:  
• Lack of information regarding reproductive and sexual health |
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| 2016; Buki et al.             | "Our organs have a purpose": Body image acceptance in Latina breast cancer survivors. | Secondary thematic analysis             | • Two themes identified: (1) perceptions of loss and reconstruction (2) process of achieving body image acceptance  
  • Salience of themes varies as a function of survivorship stage and type of cancer treatment                                                                                                                                  | Concerns:  
  • Body image disturbances due to loss of breasts from mastectomies, scarring, hair loss, and weight gain  
  • Body image disturbances increased risk of psychological distress and lead to inferior quality of life  
  • Body image disturbances negatively impact intimacy and relationships  
  • Interventions emphasizing hope and self-compassion can help improve body image disturbances  
 Unmet Needs:  
  • Latinas report a need for culturally tailored counseling                                                                                                           |
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<tr>
<td>2017; Cahir et al.</td>
<td>Urban-rural variations in quality-of-life in breast cancer survivors prescribed endocrine therapy.</td>
<td>Non-experimental, descriptive</td>
<td>• Rural survivors had a statistically significant higher overall quality of life, emotional quality of life, and experienced a lower symptom burden compared to urban survivors</td>
<td>Services related to body image disturbance</td>
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<td>Symptoms:</td>
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<td>• Breast cancer survivors in rural areas experienced a lower symptom burden than those living in urban areas</td>
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<td>• Breast cancer survivors in rural areas had higher overall quality of life and higher emotional quality of life compared to urban survivors</td>
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<tr>
<td>2019; Chae et al.</td>
<td>Unmet needs and related factors of Korean breast cancer survivors: A multicenter, cross-sectional study.</td>
<td>Multicenter, cross-sectional, interview study</td>
<td>• Level of unmet needs was highest in the “information and education” domain and highest in the “needed help in coping with fear of cancer recurrence” item • Unmet needs correlated with age, stage, multiplicity, HER2, treatment state, marital status, employment, and psychosocial status</td>
<td>Concerns:</td>
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<td>• Fear of cancer reoccurrence; leads to increased psychological distress and decreased quality of life</td>
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<td>Unmet Needs:</td>
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| 2020; Chebli et al.         | Multilevel determinants of financial toxicity in breast cancer care: perspectives of healthcare professionals and Latina survivors. | Qualitative | • Individual-level: lack of knowledge and prioritization regarding financial aspects of care was an important determinant of financial toxicity  
• Interpersonal level: social networks were important platforms for disseminating information related to financial resources  
• Community level: community norms and dynamics were important | • Psychological support and counseling  
• Limited social support; negatively impacts quality of life  
• Need for health-related information; feel providers do not have time or lack knowledge to provide necessary patient education  
Concerns:  
• Future plans and return to work due to financial burden related to cost of cancer treatment  
Symptoms:  
• Latina survivors reported higher symptom burden than non-Latina survivors |
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| 2016; Cheng et al.            | The symptom burden in breast cancer survivors | Literature Review | - Identifying and managing symptom burden requires further investigation into individual symptoms and their relationship to one another | Symptom Burden:  
  - Menopausal symptoms  
  - Fatigue,  
  - Depression  
  - Sleep disturbances  
  - Cognitive dysfunction |
| 2018; Cheng et al.            | A mixed-methods study to explore the supportive care needs of breast cancer survivors. | Mixed-methods study | - 32.4% of survivors reported 1 to 5 needs for help; 16.8% of survivors reported greater than or equal to six needs for help  
  - Women within two years posttreatment and with higher educational level had higher levels of psychological and health care system and information unmet needs | Concerns:  
  - Fear of cancer recurrence  
  - Managing follow-up care when survivor returned to work  
  - Finances  
  Symptoms:  
  - Menopausal symptoms  
  - Neuropathy |
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<tr>
<td>2021; Chu et al.</td>
<td>Self-stigma and quality of life among Chinese American breast cancer survivors: A serial multiple mediation model.</td>
<td>Non-experimental, descriptive</td>
<td>• Continuity of care, lifestyle advice and self-management were concerns. • Pain Unmet Needs: • Psychological and counseling supportive care services • Health-related information; providers lack time or knowledge to provide adequate education; need information relayed at patient educational level and tailored to individual concerns and needs • Integrated modes of care such as home-based and telehealth options</td>
<td>• Self-stigma was negatively associated with quality of life through concerns about breast cancer, self-efficacy, and depressive symptoms. Concerns: • Chinese survivors report concern about sigma associated with having a breast cancer diagnosis; believed to be death sentence for immoral behavior.</td>
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| 2020; Chua et al.             | Determining the concerns of breast cancer survivors to inform practice. | Cross-sectional survey | • Top five concerns were cancer treatment and reoccurrence risk (55.5%), fear of recurrence (54.6%), long-term effects of treatment (53.4%), osteoporosis/bone health (39.0%), keeping primary care providers informed (37.4%) | • Concerns regarding stigma increased emotional distress and lower quality of life than non-Chinese breast cancer survivors  
• Providing care for this population requires addressing breast cancer stigma concerns |
<p>| 2020; Davis et al.           | Body image in older breast cancer survivors: A systematic review. | Systematic review | • Literature review suggests body image is important to older breast cancer survivors and may impact or be impacted by age, menopausal status, mental health, | • Body image disturbances; increased risk of psychological distress and inferior quality of life; |</p>
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<tr>
<td>2016; Dawson et al.</td>
<td>Interventions to manage uncertainty and fear of recurrence in female breast cancer survivors: A review of the literature.</td>
<td>Literature review</td>
<td>• Interventions focused on mindfulness, managing uncertainty, having more effective patient-provider communication, and handling stress through counseling are options to manage fear of cancer reoccurrence</td>
<td>Concerns: • Cancer reoccurrence; increased psychological distress and decreased quality of life; more common in younger survivors and those of lower education levels, increased psychological distress, and increased symptom burden Unmet Needs: • Interventions for fear of cancer reoccurrence</td>
</tr>
<tr>
<td>2019; Doege et al.</td>
<td>Health-related quality of life in long-term disease-free breast cancer</td>
<td>Secondary analysis</td>
<td>• Disease-free breast cancer survivors had statistically significant lower physical, psychological, and social well-being compared to the general population.</td>
<td>Symptoms: • Fatigue • Cognitive functioning</td>
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<td>2021; Dugan et al.</td>
<td>Perceptions of clinical support for employed breast cancer survivors managing work and health challenges.</td>
<td>Content analysis</td>
<td>• Six themes of support: (1) information support, (2) emotional support, (3) instrumental support, (4) quality of life support, (5) non-specific support, and (6) non-support</td>
<td>Concerns: Return to work due to financial burden related to cost of treatment</td>
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<td>Unmet Needs: Increased need for health-related information</td>
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<td>Concerns:</td>
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<td>Unmet Needs:</td>
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<tr>
<td>2016; Edib et al.</td>
<td>Most prevalent unmet supportive care needs and quality of life of breast cancer patients in a tertiary hospital in Malaysia.</td>
<td>Cross-sectional study</td>
<td>• Highest unmet supportive care needs observed in the psychological domain, followed by the physical domain. The most prevalent unmet supportive care needs were uncertainty about the future (78.6%); fears about cancer spreading (76.1%); feelings of sadness (69.2%); feelings about death and dying (68.4%); concerns about psychological distress.</td>
<td>Concerns: Cancer reoccurrence</td>
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<td>Symptoms: Psychological distress</td>
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<td>Unmet Needs: Psychological and counseling services</td>
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| 2017; Ellegaard et al.        | Fear of cancer recurrence and unmet needs among breast cancer survivors in the first five years. A cross-sectional study. | Cross-sectional study | individuals close to patient (65.0%), feeling down or depressed (65.0%)  
- Survivors diagnosed at an advanced stage and greater physical and psychological needs had poorer quality of life  
- 82.6% of women reported at least one unmet need  
- 59.3% of unmet needs were rated as “strong” unmet needs  
- Most frequent unmet needs were concerned with doctors collaborating to coordinate care; need for ongoing dialog with healthcare providers; understandable and up-to-date information, how to manage side effects, and reassurance that best medical care was given | Concerns:  
- Cancer reoccurrence  
Symptoms:  
- Survivors who received chemotherapy had higher symptom burden  
- Higher symptom burden increased concerns regarding return to work and fear of cancer reoccurrence  
Unmet Needs:  
- Psychological and counseling services  
- Symptom burden support  
- Lack of communication with |
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| 2018; Fang et al.             | Fear of recurrence as a predictor of care needs for long-term breast cancer survivors | Correlational study | • Highest unmet needs were related to existential survivorship  
  • Most frequently endorsed unmet need was for ongoing case manager  
  • Fear or reoccurrence associated with existential survivorship, comprehensive cancer, and quality of life unmet needs | healthcare team when seeking health-related information  
  • Desire for health-related information to be relayed an educational level and personalized to individual concerns and needs  
  • Collaboration between providers  
  Concerns:  
  • Cancer reoccurrence; leads to increased psychological distress and decreased quality of life  
  Unmet Needs:  
  • Psychological and counseling services  
  • Desire for ongoing case manager to assist in answering questions and providing health-related information |
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| 2016; Fong & Cheah            | Unmet supportive care needs among breast cancer survivors of community-based support group in Kuching, Sarawak | Cross-sectional study | - Health system and information domain were endorsed as the most common unmet supportive care need  
- Significantly higher level of unmet needs was associated with younger survivors, higher education attainment, unemployed, had a survival duration of up to 5 years, and were undergoing active treatment | Concerns:  
- Intimacy due to physical and emotional changes following breast cancer  
- Cancer reoccurrence; leads to increased psychological distress and decreased quality of life  
\Symptoms:  
- Anxiety and depression  
- Pain  
- Cognitive issues  
- Fatigue  
\Unmet Needs:  
- Psychological and counseling services  
- Health-related information  
- Lack of communication with healthcare team |
| 2017; Freeman-Gibb et al.     | The relationship between illness representations, | Cross-sectional, descriptive, | - Emotional representations, symptom attribution, timeline, and consequences | Concerns:  
- Cancer reoccurrence; leads to increased |
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<td>risk perception and fear of cancer recurrence in breast cancer survivors</td>
<td>correlational study</td>
<td>were significantly related to fear of reoccurrence</td>
<td>psychological distress and decreased quality of life</td>
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| 2020; Gorman et al.           | Patient-centered communication to address young adult breast cancer survivors' reproductive and sexual health concerns. | Qualitative, grounded theory | • Three main themes (1) normalizing and integrating assessment of reproductive and sexual health, (2) healthcare provider conveying genuine caring and investment, (3) improving accessibility of comprehensive reproductive and sexual health services after cancer | Concerns:  
  • Sexual health and intimacy  
  • Survivors with fertility and reproductive concerns have decreased quality of life and increased risk for emotional distress  
  • Body image disturbances; more common in younger survivors  
 Unmet Needs:  
  • Health-related information; lack of provider time or knowledge to provide adequate education; specifically |
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| 2021; Gurgel et al.           | Determinants of health and physical activity levels among breast cancer survivors during the COVID-19 pandemic: A cross-sectional study | Cross-sectional epidemiological study | • During COVID-19 pandemic participants increased their body weight by 5 +/- 3.4 kg; 90% reported decreased physical activity with increased sedentary time  
• Only factor associated with perceived difficulty in engaging in physical activities was having had more than three cancer treatments | COVID-19:  
• Barrier to physical activity was more than 3 cancer treatments  
• Breast cancer survivors had decreased physical activity, increased weight gain, and increased sedentary behavior during the pandemic |
| 2021; Hamilton et al.         | Using spirituality to cope with COVID-19: The experiences of African American breast cancer survivors. | Qualitative, descriptive study | • Spirituality allowed A.A. breast cancer survivors to better manage psychological distress through increased engagement in religious activities, reliance on God for protection when fearful, feeling isolated, and in need of assistance with finances, finding joy and courage from listening to gospel music and reading scripture, finding meaning through spirituality | COVID-19:  
• Breast cancer survivors experienced psychological distress and used engagement in religious activities, reliance on God, listening to gospel music, reading scripture, and finding meaning in spirituality to cope |
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<tr>
<td>2021; Hamlish &amp; Papautsky</td>
<td>Differences in emotional distress among black and white breast cancer survivors during the Covid-19 pandemic: A national survey.</td>
<td>National survey</td>
<td>• Survey data indicated significantly higher levels of distress among White survey respondents compared to Black respondents</td>
<td>COVID-19: • White breast cancer survivors reported statistically significant higher emotional distress levels than black breast cancer survivors</td>
</tr>
<tr>
<td>2018; Hubbeling et al.</td>
<td>Psychosocial needs of young breast cancer survivors in Mexico City, Mexico.</td>
<td>Content analysis</td>
<td>• Five major phenomena: (1) minimization of fertility concerns, (2) persistence of body image disturbance over time, (3) barriers to employment during survivorship, (4) impact on family relationships and social networks, and (5) unmet psychological care and informational needs</td>
<td>Concerns: • Intimacy • Fertility • Body image disturbances; more common in younger survivors Unmet Needs: • Psychological and counseling services • Health-related information; provider lack time or knowledge to provide adequate education; specifically reproductive and sexual health</td>
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<td>2017; Lambertini et al.</td>
<td>The PRegnancy and FERtility (PREFER) study: An Italian multicenter prospective cohort study on fertility preservation and pregnancy issues in young breast cancer patients.</td>
<td>Multicenter prospective cohort study</td>
<td>• Opportunity to acquire more data on efficacy and safety of the available strategies for fertility preservation, on the management of breast cancer survivors achieving a pregnancy</td>
<td>Concerns: • Fertility; associated with increased risk of developing depression and anxiety</td>
</tr>
<tr>
<td>2020; Lee et al.</td>
<td>Symptom clusters in breast cancer survivors: A latent class profile analysis.</td>
<td>Latent class profile analysis</td>
<td>• Four distinct classes: (1) symptoms within normal limits, (2) pain with fatigue and sleep disturbance, (3) depression with fatigue and sleep disturbance, and (4) all high symptom burden</td>
<td>Symptoms: • Psychological distress • Pain • Cognitive issues • Sleep disturbances</td>
</tr>
<tr>
<td>2021; Lee et al.</td>
<td>Physicians' awareness of the breast cancer survivors' unmet needs in Korea.</td>
<td>Cross-sectional interview survey</td>
<td>• Level of unmet needs was highest in the hospital service domain • Top-ranked unmet need item was “wished my doctor to be easy, specific, and honest in his/her explanation” • Higher unmet needs correlated with presence of genetic counseling clinic</td>
<td>Concerns: • Fear of cancer reoccurrence Unmet Needs: • Health-related information</td>
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|                              |                      |               | Physicians overestimated breast cancer survivors’ unmet needs in all domains; discordance was highest in the family/personal relationship problems domain | Concerns:olu
| 2020; Lewis-Smith et al.     | Psychological and sociocultural influences on body image among midlife women with and without a history of breast cancer: Testing the Tripartite Influence Model of Body Image. | Qualitative | Media pressure and appearance comparisons on body image occur in breast cancer survivors | • Body image disturbances; increased risk of psychological distress and decreased quality of life; negatively impact intimacy and relationships  • Target interventions for body image disturbance  |
| 2018; Li et al.              | Development and validation of a fertility intention scale in breast cancer survivors. | Literature review and qualitative study | Cronbach’s alpha for Fertility Intention Scale (FIS) was 0.88  • Pregnancy risk, disease control, social support, and happiness were the four factors that accounted for 68.72% of total variance  • Significant correlation between the total FIS and | Concerns:olu
<p>| | | | |
|                              |                      |               | |</p>
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<tr>
<th>Pub. Year; Author’s Last Name</th>
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</table>
| 2019; Lovelace et al.         | Long-term effects of breast cancer surgery, treatment, and survivor care. | Literature review | • Up to 90% of women experience unwanted long-term sequelae associated with breast cancer treatment  
• Symptoms include physical, functional, emotional changes that alter quality of life  
• Require a holistic, multifactorial approach to treatment  
• Long-term physical changes include anatomic changes, chronic pain, phantom breast pain, axillary web syndrome, and lymphedema  
• Some women may have decreased strength, aerobic capacity changes, mobility changes, fatigue, and cognitive dysfunction  
• Emotional changes include depression, anxiety, fatigue, concerns a body image, and issues with sexuality | Concerns:  
• Sexual health  
• Body image disturbance  
Symptoms:  
• Psychological distress  
• Menopausal symptoms  
• Neuropathy  
• Pain |
| 2018; Lowery-Allison et al.   | Sleep problems in breast cancer survivors 1-10 | Survey | • 38% of participants reported poor-quality sleep (took longer to fall asleep, had | Symptoms:  
• Sleep disturbances |
<table>
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<tr>
<th>Pub. Year; Author’s Last Name</th>
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<tr>
<td>2019; Luo et al.</td>
<td>Breast cancer survivors report similar concerns related to return to work in developed and developing nations.</td>
<td>Qualitative; Interpretative Phenomenological Analysis</td>
<td>- Three recurrent themes: (1) challenges at work related to residual effects of diagnosis and/or primary treatment, (2) positive and negative responses from employers and/or supervisors, and (3) positive and negative responses from co-workers/colleagues</td>
<td>Concerns: • Cognitive issues; particularly regarding return to work  Symptoms: • Cognitive deficits</td>
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<tr>
<td>2020; Mandelblatt et al.</td>
<td>Symptom burden among older breast cancer survivors: The Thinking and Living with Cancer (TLC) study.</td>
<td>Secondary analysis</td>
<td>- Differences between survivors and controls most notable for cognitive and sleep problems, anxiety, and neuropathy  - Adjusted burden score was highest among chemotherapy-exposed</td>
<td>Symptoms: • Psychological distress • Neuropathy • Survivors who received chemotherapy were more likely to have a</td>
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<td>87</td>
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<td>survivors, followed by hormone-therapy exposed survivors</td>
<td>higher symptom burden</td>
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<td>• Survivors who received hormone therapy second-most likely to have a higher symptom burden</td>
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| 2016; Marshall et al.         | Symptom clusters in women with breast cancer: An analysis of data from social media and a research study. | Cluster analysis     | • Forum data identified clusters: menopausal/psychological, pain/fatigue, gastrointestinal, and miscellaneous  
• Study data identified clusters: menopausal, pain, fatigue/sleep/gastrointestinal, psychological, increased weight/appetite | Symptoms:  
• Psychological distress  
• Menopausal symptoms  
• Pain  
• Fatigue  
• Sleep disturbances |
|                               |                                                                                      |                        |                                                                                         |                                    |
| 2021; McDonough et al.        | Implementation of a brief screening tool to identify needs of breast cancer survivors. | Qualitative, descriptive | • Clinicians report screening tool led to discussion of issues that may not have otherwise been addressed  
• Most commonly endorsed patient concerns were desire to improve fitness or nutrition, worry about cancer reoccurrence, and insomnia  
• Majority of patients also reported anxiety, and aches | Concerns:  
• Sexual health  
• Intimacy  
• Cancer reoccurrence; more common in younger survivors  
• Finances  
Symptoms:  
• Anxiety and depression |
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<td></td>
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<td>or pains in joints or extremities</td>
<td>Menopausal symptoms</td>
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<td>• Other reported issues included sexual dissatisfaction and memory impairments</td>
<td>Neuropathy</td>
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<td>Pain; main reason aromatase inhibitors discontinued</td>
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<td>Cognitive issues</td>
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<td>Fatigue</td>
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<td></td>
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<td>Sleep disturbances</td>
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<tr>
<td>2018; McRoy et al.</td>
<td>Assessing unmet information needs of breast cancer survivors: Exploratory study of online health forums using text classification and retrieval.</td>
<td>Exploratory study</td>
<td>• Breast cancer survivors have many information needs not covered in typically received written documents; at most 1/3 of breast cancer survivors’ questions adequately addressed by materials currently provided</td>
<td>Unmet Needs:</td>
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<td>• Health related information; relayed at patient education level and personalized to individual concerns and needs</td>
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<tr>
<td>2021; Merz et al.</td>
<td>Electronic medical record-assisted telephone follow-up of breast cancer survivors during the COVID-19 pandemic: A single institution experience.</td>
<td>Correlational study</td>
<td>• 80.3% of breast cancer survivors were satisfied with E-TFU</td>
<td>COVID-19:</td>
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<td>• Low educational level was correlated with higher COVID-19 related anxiety</td>
<td>• Breast cancer survivor satisfaction with electronic medical record-assisted telephone follow-up; felt understood medical advice and providers understood their needs</td>
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<td>2017; Mody et al.</td>
<td>Contraception concerns, utilization, and counseling needs of women with a history of breast cancer: a qualitative study.</td>
<td>Qualitative study</td>
<td>• Identified themes: (1) doctors treating cancer do not focus on reproductive health issues, (2) misinformation and lack of information on contraceptive options and risks, (3) women fear unintended pregnancy but have limited guidance on prevention, (4) peers are trusted sources of contraception information, and (5) information about contraception should be provided soon after diagnosis</td>
<td>Concerns: • Unintended pregnancy Unmet Needs: • Lack of health-related information; specifically reproductive and sexual health</td>
</tr>
<tr>
<td>2020; Moore</td>
<td>Breast cancer survivorship.</td>
<td>Literature review</td>
<td>• Breast cancer survivors experience a variety of medical, physical, and psychosocial issues that can impact overall health and wellbeing • Clinicians providing care breast cancer survivors should be able to address cardiovascular toxicity,</td>
<td>Concerns: • Sexual health • Intimacy • Fertility; increased risk of developing depression and anxiety; important to understand fertility intentions and</td>
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|                               |                      |               | sequelae of estrogen deficiency, chronic pain, fatigue, cognitive concerns, sleep issues, and psychosocial concerns  | • manage fertility preservation  
|                               |                      |               | • Survivorship care should be individualized according to treatment received with regular assessment of active symptoms and comorbidities | • Body image disturbances; increased risk of psychological distress and decreased quality of life; negative impact on intimacy and relationships  
|                               |                      |               |                           | • Return to work with current symptom burden  
|                               |                      |               |                           | • Finances; increased in survivors who were younger, unmarried, and without a college education  
| Symptoms:                    |                      |               |                           | • Psychological distress; decreased physical activity levels, increased fatigue, and more pain  
<p>|                               |                      |               |                           | • Menopausal symptoms |</p>
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</table>
| 2017; Moreno et al. | Unmet supportive care needs in Hispanic/Latino cancer survivors: prevalence and associations with patient-provider communication, satisfaction with | Descriptive study | • Hispanic/Latinos cancer survivors reported greater unmet needs compared to primarily non-Hispanic/Latino white samples  
• Two most common unmet needs were in the psychological domain: fear of metastasis (32.6%) and | • Neuropathy; more common in overweight patients and those who did not exercise  
• Pain  
• Cognitive issues; more common in those who receive chemotherapy or hormonal therapy  
• Fatigue  
• Sleep disturbances  
Unmet Needs:  
• Lack of health-related information; specifically reproductive and sexual health  
Symptoms:  
• Anxiety and depression  
Unmet Needs:  
• Supportive care; lack of supportive care leads to increased symptom burden, decreased physical functioning, |
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</table>
| 2017; Nápoles et al.          | Post-treatment survivorship care needs of Spanish-speaking Latinas with breast cancer. | Qualitative   | - Most bothersome physical symptoms: joint pain, fatigue, hot flashes, numbness in hands/feet, and vaginal dryness  
- Most bothersome emotional symptoms: thoughts of recurrence/new cancers, depression/sadness, anxieties, and stress  
- Seven themes identified: (1) unmet physical symptom management needs, (2) social support from family/friends often ends when treatment is completed, (3) challenges | Increased psychological distress  
- Health-related information; Latinas report discrepancy between desired treatment information and information received |

Concerns:  
- Cancer reoccurrence  
Symptoms:  
- Menopausal symptoms  
- Neuropathy  
- Pain  
- Fatigue  
- Latinas reported higher symptom burden than non-Latina breast cancer survivors  

Unmet Needs:  
- Limited social support; negatively
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</table>
| 2018; Nichols et al.          | Patient-provider communication: Experiences of low-wage-earning breast cancer survivors in managing cancer and work. | Qualitative | • Over 70% of respondents reported no communication or only routine communication with providers regarding work  
• Three quarters of women reported poor or standard communication quality, and content of work-related communication covered scheduling issues, work |  
• Impacted quality of life  
• Lack of communication with healthcare team  
• Lack of health-related information; specifically reproductive and sexual health  
• Latinas report discrepancy between desired treatment information and information received  
• Transition from active treatment to follow-up care  
Concerns:  
• Managing follow-up care when survivor returns to work |
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</table>
| 2018; Nolan et al. | An integrative review of psychosocial concerns among young African American breast cancer survivors. | Integrative review | • Review revealed key areas of psychosocial concern for young AA survivors: ongoing anxiety/depression, cognitive changes, and relationships | Concerns:  
  • Cognitive function  
  • Sexual health  
  • Intimacy  
  • Fertility; increased risk for inferior quality of life and psychological distress  
  • Cancer reoccurrence  
  • Return to work due to financial burden associated with treatment  
 Unmet Needs:  
  • Psychological and counseling services  
  • Health-related information; providers lack time or education to provide adequate information |
| 2016; Otto et al. | Effects of a randomized gratitude | Randomized controlled trial | • Participants in the gratitude intervention experienced a significant decrease in death-related absences, continuing to work during treatment, and financial concerns | Concerns:  
  • Cancer reoccurrence; increased |
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<tr>
<td>2018; Otto et al.</td>
<td>Intervention on death-related fear of recurrence in breast cancer survivors.</td>
<td>Qualitative</td>
<td>Related fear of cancer recurrence compared to the control condition • Effected significantly mediated by meaningful goal pursuit and not by positive affect • Gratitude intervention was found to prevent declines in positive affect observed in the control condition</td>
<td>Psychological distress and decreased quality of life; increased healthcare utilization Unmet Needs: • Interventions for fear of cancer reoccurrence; requires significant resources</td>
</tr>
<tr>
<td>2021; Papautsky &amp; Hamlish</td>
<td>Assessing the relationship between fear of cancer recurrence and health care utilization in early-stage breast cancer survivors.</td>
<td>Correlational study</td>
<td>Fear of cancer reoccurrence predicted more visits to both oncology providers and primary care providers • Fear of cancer reoccurrence predicted more phone calls to oncology providers • Fear of cancer reoccurrence was not a significant predictor of phone calls to primary care providers, utilization of mental health treatment or use of psychotropic medications</td>
<td>Concerns: • Cancer reoccurrence; increased psychological distress and decreased quality of life; increased healthcare utilization</td>
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<td>Emotional response of US breast cancer survivors during COVID-19:</td>
<td>Significant positive correlations between communication and trust, Increased worry for vulnerable breast cancer survivors</td>
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<td>the COVID-19 pandemic.</td>
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<td>communication and planning, and trust and planning</td>
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<td></td>
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<td>Trust is a significant covariate in vulnerability and worry</td>
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<td>2016; Paterson et al.</td>
<td>Body image in younger breast cancer survivors: A systematic review.</td>
<td>Systematic review</td>
<td>Majority of studies cross-sectional with large variation in body image assessment tools</td>
<td>compared to less vulnerable breast cancer survivors</td>
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<td>Age and treatment had significant impact on body image</td>
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<td>Poorer body image was related to physical and psychological distress, sex, and intimacy, and partnered relationships</td>
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<td>Only one study found a significant improvement in body image after an intervention</td>
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<tr>
<td>2021; Peate et al.</td>
<td>Who is managing menopausal symptoms, sexual problems, mood, and sleep disturbance after</td>
<td>Online cross-sectional survey</td>
<td>Mean age was 55.2 years and mean time since diagnosis was 5.7 years</td>
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<td>66% had received chemotherapy and 64% were taking endocrine therapy</td>
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<td>Symptoms:</td>
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<td></td>
<td>Anxiety and depression</td>
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<td>Menopausal symptoms; intimacy difficulties</td>
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<td>2020; Pembroke et al.</td>
<td>Breast cancer survivors’ unmet needs after</td>
<td>Qualitative descriptive study</td>
<td>• Identified themes: (a) struggle with adapting to body image changes, (b)</td>
<td>Concerns: • Intimacy</td>
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<td>breast cancer and is it working? Findings from a large community-based survey of breast cancer survivors</td>
<td></td>
<td>• Most common symptoms were hot flushes/night sweats (89%), sleep disturbance (89%), vaginal dryness (75%), mood swings (62%), and sexual problems (60%)</td>
<td>• Sleep disturbances</td>
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<td></td>
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<td>• Symptoms were mild or moderate for about one-third of respondents, and severe in one-quarter of participants</td>
<td>Unmet Needs: • Psychological and counseling services</td>
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<td></td>
<td>• Symptoms affected ability to “get on with life” for 36%, predicted severity of hot flushes, sleep disturbance, mood disturbance and sexual problems</td>
<td>Support related to symptom burden</td>
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<td>• 32% of respondents were offered treatment primarily delivered by primary care (33%) or oncologists (26%); 49% found treatment to be somewhat effective and 34% found it ineffective</td>
<td>Health-related information; specifically sexual and reproductive health</td>
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<td>• 60% of respondents wanted more support to manage symptoms</td>
<td>Lack of communication with the healthcare team</td>
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<td>Collaboration between providers; fragmented care increased symptom burden and concerns</td>
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|                               | completion of radiation therapy treatment. |              | living with fear of recurrence, (c) unexpected impact of radiation dermatitis, and (d) need for education to prepare for radiation therapy | • Body image disturbances; negatively impact intimacy and relationships  
• Cancer reoccurrence  
• Return to work with symptom burden and treatment from colleagues and supervisors  
• Finances  
Unmet Needs:  
• Psychological and supportive care services  
• Health-related information; providers lack time or education to provide adequate information; relay information at educational level and personalize to individual concerns and needs |
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</table>
| 2019; Reese et al.            | A randomized pilot trial of a couple-based intervention addressing sexual concerns for breast cancer survivors. | Randomized pilot trial | • For survivors the IE intervention had a medium to large positive effect on all sexual outcomes and most psychosocial outcomes  
• IE intervention demonstrated feasibility, acceptability, and promise meeting survivors sexual concerns and improving their and their partners’ intimate relationships and psychosocial well-being | • Transition from active treatment to follow-up care |
| 2018; Rosenberg et al.       | “I don't want to take chances.”: A qualitative exploration of surgical decision making in young breast cancer survivors. | Qualitative; content analysis | • Emergent themes: (1) emotions/feelings surrounding surgery/decision about surgery, (2) factors affecting the decision, (3) communication and interaction with the healthcare team, (4) impact on post-surgical life and recovery, and (5) support needs | • Concerns:  
• Body image disturbances  
• Cancer reoccurrence; influences desire to seek surgical interventions  
Unmet Needs:  
• Limited social support  
• Lack of communication with healthcare team |
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<tr>
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</table>
| 2018; Schmidt et al.          | Quality of life, problems, and needs of disease-free breast cancer survivors 5 years after diagnosis. | Longitudinal study | • Quality of life related functions and symptoms in patient were worse compared to health references but largely improved over time  
  • Cognitive function and sleep still significantly impaired at 5-year follow-up  
  • Other common long-term problems: sexual issues (45%), hot flashes (38%), pain (34%), fatigue (24%), and polyneuropathy (21%)  
  • Fatigue had the strongest impact on global quality of life  
  • Expressed support needs: menopausal disorders (43%), physical performance (39%), sleep problems (38%), arthralgia (37%), cognitive problems (36%), weight problems (32%), and fatigue (31%) | Symptoms:  
  • Menopausal symptoms  
  • Neuropathy  
  • Pain  
  • Cognitive issues  
  • Fatigue  
  • Sleep disturbances  
  Unmet Needs:  
  • Psychological and counseling services  
  • Support regarding symptom burden |
| 2018; Segrin et al.           | A dyadic analysis of stress processes in Latinas with breast cancer and caregivers    | Qualitative     | • For survivors and caregivers there were significant direct and indirect actor effects of perceived stress on anxiety and depression                                                                                         | Symptom Burden:  
  • Psychological distress has been linked to decreased immune function, |
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<tr>
<td>2020; Shih et al.</td>
<td>Prioritizing care for women with breast cancer based on survival stage: A study examining the association between physical symptoms, psychological distress, and unmet needs.</td>
<td>Cross-sectional study</td>
<td>• Caregiver stress predicative of survivors’ depression and anxiety through survivors increased perception of family conflict</td>
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<td>• Path coefficients from physical and depressive symptoms to unmet needs were similar between short-term survivors and long-term survivors</td>
<td>adverse effects and poor response to chemotherapy, and early mortality in breast cancer survivors</td>
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<td>• Path coefficient from fear of recurrence to unmet needs among women who survived for greater than 5 years was significantly greater than that among those who had survived less than 5 years</td>
<td>Concerns:</td>
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<td></td>
<td></td>
<td>• Cancer reoccurrence</td>
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<td>Symptoms:</td>
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<td></td>
<td></td>
<td>• Menopausal symptoms; difficulties with intimacy</td>
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<td></td>
<td></td>
<td></td>
<td>• Neuropathy</td>
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<td>• Cognitive issues</td>
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<td>• Sleep disturbances</td>
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<td>Unmet Needs:</td>
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<td>• Psychological and counseling services</td>
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<td>• Symptom burden support</td>
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<td>• Limited social support; negative impact on quality of life</td>
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<td>• Health-related information relayed at survivor</td>
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<tr>
<td>Pub. Year; Author’s Last Name</td>
<td>Title of Publication</td>
<td>Type of Study</td>
<td>Main Outcomes of Findings</td>
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| 2021; Skandarajah et al.      | Patient-reported outcomes in survivors of breast cancer one, three-, and five-years post-diagnosis: A cancer registry-based feasibility study | Cancer registry-based feasibility study | • Survivors 1-year post-diagnosis had significantly greater problems with pain or discomfort (59.2%) and with anxiety or depression (51.3%) compared with survivors 5 years post-diagnosis (45.1% with pain or discomfort, p<0.01).  
• For the 5 years group, pain or discomfort and anxiety or depression were significantly higher than for the general population (32.2% and 21.6%, respectively).  
• Improved quality of life was found in those who did not receive chemotherapy and those who did not have a longstanding health condition  
• Poorer quality of life was associated with those who were not certain what was happening with their breast cancer and those whose | educational level and personalized to individual concerns and needs |

**Concerns:**  
- Cognitive function  
- Body image disturbances; increased risk for psychological distress and inferior quality of life  
- Cancer reoccurrence; increased psychological distress and decreased quality of life  

**Symptoms:**  
- Psychological distress  
- Pain  
- Cognitive issues  
- Fatigue  
- Sleep disturbances  
- Survivors who received chemotherapy more
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<th>Pub. Year; Author’s Last Name</th>
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| 2018; Sleight et al.          | Supportive care priorities of low-income Latina breast cancer survivors. | Cross-sectional study | cancer had not been treated, had been treated but was still present, or had returned after treatment  
• Women were bothered by changes in weight (21.3%) and concerned about the effects of stress on their cancer (19.6%).  
• Fear of cancer recurrence was commonly reported and did not diminish over time (60.7%, 52.2%, and 56.9% at 1, 3, and 5 years, respectively) | likely to have higher symptom burden  
Unmet Needs:  
• Psychological and counseling services  
• Health-related information; lead to inferior health-related quality of life |

Concerns:  
• Intimacy  
• Cancer reoccurrence  
Symptoms:  
• Anxiety and depression  
• Pain  
• Fatigue  
Unmet Needs:  
• Supportive care  
• Psychological and counseling services  
• Health-related information
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<tr>
<th>Pub. Year; Author’s Last Name</th>
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| 2018; Starreveld et al.       | The course of fear of cancer recurrence: Different patterns by age in breast cancer survivors. | Longitudinal study | • Final model demonstrated significant interaction between between age and time since surgery and main effect for optimism  
• Results suggest course of fear of cancer recurrence depends on the age of breast cancer survivors; younger survivors showed an increase of fear during the first 1.5 years after treatment versus older survivors showed stable levels during first 6 months after which fear declined | Concerns:  
• Cancer reoccurrence; increased psychological distress and decreased quality of life; more common in younger survivors |
| 2018; Tat et al.              | Qualitative exploration of sexual health among diverse breast cancer survivors. | Qualitative | • Path coefficients from physical and depressive symptoms to unmet needs were similar between short-term BCSs and long-term BCSs (p > .05).  
• Path coefficient from FOR to unmet needs among women who had survived for >5 years was significantly greater than that among those who had survived < .001) | Concerns:  
• Sexual health  
• Intimacy  
Unmet Needs:  
• Lack of health-related information; specifically regarding sexual and reproductive health |
<p>| 2017; Tisnado et al.          | Perceptions of survivorship care | Qualitative | • Numerous gaps and unmet needs in Latinas’ | Concerns: |</p>
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|                               | among Latina women with breast cancer in Los Angeles County. |                          | survivorship and care experiences: problems with finances, continuity of care, unmet needs for information, and symptom management  
• Participants identified patient navigators as sources of support | Future plans; return to work due to financial burden  
• Finances; limits ability to adhere to recommended follow-up care and seek treatment for symptom burden  
Symptoms:  
• Anxiety and depression  
• Pain  
• Fatigue  
• Sleep disturbances  
Unmet Needs  
• Support regarding symptom burden  
• Increased need for health-related information; relay information at educational level and personalized to individual needs and concerns  
• Latinas report discrepancy between desired health- |
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<th>Pub. Year; Author’s Last Name</th>
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<th>Main Outcomes of Findings</th>
<th>Support for and or Link to Project related information and information received</th>
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| 2019; Todorov et al.         | Self-compassion and hope in the context of body image disturbance and distress in breast cancer survivors. | Cross-sectional study | • Self-compassion and hope were inversely correlated with all outcomes  
• Self-compassion and hope uniquely explained variance in all outcomes with different magnitudes of strength. | Concerns:  
• Body image disturbances; increased risk of psychological distress and inferior quality of life; interventions emphasizing hope and self-compassion can improve body image disturbance |
| 2016; Tompkins et al.        | Survivorship care and support following treatment for breast cancer: A multi-ethnic comparative qualitative study | Phenomenological qualitative | • Three key themes: (1) emotional responses to transition to follow-up, (2) challenges communicating with healthcare professionals at follow-up, and (3) challenges finding and accessing information and | Unmet Needs:  
• Health-related information  
• Complex transition from active treatment to follow-up |
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| 2021; Vachon et al.           | The impact of fear of cancer recurrence on healthcare utilization among long-term breast cancer survivors recruited through ECOG-ACRIN trials | Cross-sectional survey | - Younger survivors had significantly higher fear of cancer recurrence (FCR) than older survivors  
- FCR was significantly associated with all three types of breast cancer related healthcare utilization  
- Positive interaction between FCR and increased comorbidities and nonroutine BC appointments and BC-related emergency room visits  
- Comorbidities were associated with non-BC-related utilization  
- Nonwhites more likely to utilize nonroutine resources, both BC and non-BC-related | • Collaboration between providers  
Concerns:  
- Cancer reoccurrence; increases healthcare utilization; more common in younger survivors  
Unmet Needs:  
- Supportive care needs; decrease inappropriate utilization of healthcare resources |
| 2021; Vuksanovic et al.       | Unmet needs in breast cancer survivors are common, and multidisciplinary care is underutilized: The | Cross sectional study | - Average of 4.9 unmet survivorship needs with 67% of participants reporting at least one unmet need  
- Key concerns: fear of cancer recurrence, stress, coordination of medical care, | Concerns:  
- Cognitive functioning  
- Sexual health; more inferior quality of life and increased risk for psychological distress |
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<td>Survivorship Needs Assessment Project.</td>
<td>and negative iatrogenic impacts of hormonal treatments  • Key areas of service improvement: provision of additional dietary and cancer recurrence education and written treatment plan</td>
<td>Qualitative</td>
<td>• Participant writings reflected emotion suppression, self-stigma, and perceived stigma</td>
<td>• Body image disturbances; more common in younger survivors  • Cancer reoccurrence  Symptoms:  • Anxiety and depression  • Menopause symptoms  • Pain  • Cognitive issues  • Fatigue  • Sleep disturbances  • Older breast cancer survivors more likely to have higher psychological and physical symptom burden  Unmet Needs:  • Psychological and counseling services  • Multidisciplinary care</td>
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| 2020; Yanez et al.            | immigrant breast cancer survivors: A qualitative study using an expressive writing approach | Randomized control trial          | • Participants indicated reluctance to disclose cancer diagnosis to family and friends and concerns about fulfilling multiple roles  
  • Barriers of communicating with spouses, unfamiliarity with healthcare system, and language barriers  
  • Unmet Needs: Counseling services for cultural concerns  
  • Symptoms: Latinas reported higher symptom burden than non-Latina breast cancer survivors | and worse quality of life  
  • Require culturally competent care  
  Unmet Needs:  
  • Counseling services for cultural concerns                                                                                 |
APPENDIX C:
FLOW DIAGRAM OF LITERATURE SEARCH FOR BREAST CANCER SURVIVORS’ AND CONCERNS
Articles identified through PubMed database searching
(n = 154)

Articles after duplicates removed
(n = 165)

Full-text articles assessed for eligibility
(n = 165)

Studies included in qualitative synthesis
(n = 52)

Additional articles identified through other sources
(n = 11)

Full-text articles excluded, with reasons
(n = 113)

Reasons:
- Did not relate to breast cancer survivor-specific concerns
- Patient population had a secondary cancer, other types of cancer, or other medical condition
APPENDIX D:

FLOW DIAGRAM OF LITERATURE SEARCH FOR BREAST CANCER SURVIVORS AND SYMPTOM BURDEN
Articles identified through PubMed database searching
(n = 25)

Additional articles identified through other sources
(n = 25)

Articles after duplicates removed
(n = 49)

Full-text articles assessed for eligibility
(n = 49)

Studies included in qualitative synthesis
(n = 38)

Full-text articles excluded, with reasons
(n = 11)

Reasons:
- Did not relate to breast cancer survivor symptoms
- Symptoms were related to another disease process
APPENDIX E:

FLOW DIAGRAM OF LITERATURE SEARCH FOR BREAST CANCER SURVIVORS AND UNMET NEEDS
Articles identified through PubMed database searching (n = 43)

Articles after duplicates removed (n = 60)

Full-text articles assessed for eligibility (n = 60)

Studies included in qualitative synthesis (n = 37)

Additional articles identified through other sources (n = 17)

Full-text articles excluded, with reasons (n = 23)

Reasons:
- Did not relate to breast cancer survivor-specific unmet needs
APPENDIX F:

FLOW DIAGRAM OF LITERATURE SEARCH FOR BREAST CANCER SURVIVORS AND COVID-19
Articles identified through PubMed database searching (n = 9)

Additional articles identified through other sources (n = 0)

Articles after duplicates removed (n = 9)

Full-text articles assessed for eligibility (n = 9)

Full-text articles excluded, with reasons (n = 4)

- Emphasis on active breast cancer treatment during the COVID-19 pandemic
- Emphasis on healthcare outcomes of breast cancer survivors with COVID-19

Studies included in qualitative synthesis (n = 5)
REFERENCES


