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PERCEIVED SOCIAL SUPPORT, FAMILY RELATIONSHIPS, AND
HEALTH-RELATED QUALITY OF LIFE
AMONG WOMEN WITH BREAST CANCER IN JORDAN

By

Hedaya Rateb Hina

B.S.N., Jordan University of Science and Technology, 2007

MSc., University of Glasgow, 2014

A Dissertation

Submitted to the Faculty of the

School of Nursing of the University of Louisville

In Partial Fulfillment of the Requirements

for the Degree of

Doctor of Philosophy in Nursing

School of Nursing

University of Louisville

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A Dissertation Approved on

November 11, 2021

by the following Dissertation Committee:

Dissertation Director

Lynne A. Hall, DrPH, MSN, RN,

Becky J. Christian, PhD, RN, FNAP, FAAN

Diane Orr Chlebowy, PhD, RN, CNL

Carla P. Hermann, PhD, RN

Tara J. Schapmire, PhD, MSSW, OSW-C, FAOSW

DEDICATION

My dissertation is dedicated to my mother and father, who gave me life, strength, support, and determination with the hope to move forward on this long journey since childhood. After GOD's will, the fruit of this effort is nothing but your hard work with us and your follow-up since our early childhood. My success is your success I dedicate to you, you were the bond and strength in moments of weakness. May GOD protect you and take care of you. To my brothers Hamzah, Muath, Zaid, and my beloved sister Rula, thank you for your continuous support and encouragement during my journey. To my family, I would not be able to accomplish this success without your presence in my life and your continuous support. I dedicated this work to you.

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ABSTRACT

PERCEIVED SOCIAL SUPPORT, FAMILY RELATIONSHIPS, AND HEALTH-RELATED QUALITY OF LIFE AMONG WOMEN WITH BREAST CANCER IN JORDAN

Hedaya Hina

November 11, 2021

Introduction: Breast cancer is the most common cancer among Jordanian women. Perceived social support (PSS) and family relationships are strongly associated with positive psychosocial outcomes and health-related quality of life (HRQoL). This area was widely explored in Western countries, but little attention was devoted to investigate this area in Middle East region.

Purpose: to investigate the interrelationships among PSS, family relationships, and HRQoL of women with breast cancer in Jordan using an exploratory cross-sectional design.

Method: The contextual model of HRQoL designed by Ashing-Giwa (2005) provided the foundation for this study. A total of 140 women were recruited from one large governmental hospital in Jordan using convenience sampling. Survey data were collected in the breast cancer clinic using the Medical Outcomes Study--Social Support Survey (MOS-SSS), Family Relationship Index (FRI), and the Quality of Life-Breast Cancer Version (QOL-BC). Statistical analysis included descriptive and inferential statistics; data were analyzed using SPSS.

Results: A majority of the participants were 41 to 60 years (70%), married (63.6%), had stage II of breast cancer (41%), and were housewives (80.7%). Women with breast cancer had moderate levels of overall HRQoL, and moderate to high levels of perceived social support. In addition, women scored the highest in spiritual well-being and the lowest in the psychological well-being. Despite the presence of COVID-19, women scored the highest in the affectionate and positive social interaction social support. Women with breast cancer who were supported by their social network members had higher levels of HRQoL and psychological well-being. In addition, women who reported that the pandemic of COVID-19 affected the level of social support they received had lower levels of total HRQoL, physical well-being, psychological well-being, and social well-being.

Conclusion: There is an urgent need for psychological counseling services to improve psychological well-being for cancer patients in Jordan. Psychosocial care for cancer patients is still underdeveloped, fragmented, and neglected area. More efforts are needed to focus on other elements of the cancer experience (e.g., social and psychological), besides the physical aspect. The results of this study are beneficial for nursing science and address the gaps in psychosocial cancer care and areas for improvement.

Keywords: *Perceived social support, family relationships, health-related quality of life, breast cancer, social support.*

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CHAPTER I

INTRODUCTION

Background

Cancer is a leading cause of death worldwide, and it accounted for about 10 million deaths in 2020 (World Health Organization, 2020). Breast cancer is the most common type of cancer worldwide (World Health Organization, 2020) and among women in Arab countries (Anton-Culver et al., 2016) and in the Eastern Mediterranean region, including Jordan (Abdel-Razeq et al., 2020; Bray et al., 2018; Kulhánová et al., 2017). The latest report of health statistics in Jordan showed that breast cancer is the most common cancer among Jordanian women; it constitutes 39.67% of all cancer cases among females (Ministry of Health, 2016). Breast cancer is the leading cause of death among women worldwide (Liao et al., 2018) and in less developed countries (Torre et al., 2015). In Jordan, breast cancer is the third leading cause of death, after lung and colorectal cancers (Ministry of Health, 2014).

Breast cancer is incapacitating for Jordanian women as the diagnosis tends to be at an early age and at an advanced stage of the disease (Abdel-Razeq et al., 2018; Abdel-Razeq et al., 2020). According to the latest statistics, a total of 29.8 % of the Jordanian women were diagnosed with breast cancer at the peak of their productivity from 40 to 49 years (Jordan Breast Cancer Program, 2014). Having the disease at an early age is

devastating for Jordanian women since they are the primary caregivers in their families and have multiple roles (e.g., caring and nurturing) (Al-Natour et al., 2017). Jordanian women always try to show strength and they take pride in their families (Al-Natour et al., 2017; Alqaissi & Dickerson, 2010). They tend to prioritize their children and family over their own health as they consider that their primary role in life is to take care of their families (Taha et al., 2012). As a result, cancer seriously affects the health of those women, their social support systems, and family relationships.

Assessment and evaluation of the levels of perceived social support (PSS), family relationships, and health-related quality of life (HRQoL) are paramount for Jordanian women with breast cancer. Cancer patients are likely to experience a lack of adequate social support (Wortman, 1984) due to various factors such as stigma and social isolation (Alqaissi & Dickerson, 2010; Taha et al., 2012). Furthermore, cancer and side effects from its treatment lead to significant social maladjustment/isolation, anxiety, and depression, and poor HRQoL, which necessitates multidisciplinary collaboration to address different psychosocial needs (e.g., to provide social support) for cancer patients (Arunachalam et al., 2011). Perceived social support is strongly associated with positive psychosocial and HRQoL outcomes (Al-Ghabeesh et al., 2019; Leung et al., 2014; Levine et al., 2017; So et al., 2013). In addition, low levels of PSS predict poor HRQoL, impaired functioning status, and high symptoms complaints among patients with cancer (Mosleh, 2018).

It is essential to consider the interpersonal context (e.g., family relationships) in which social support processes occur (Campbell-Enns & Woodgate, 2017; Pierce et al., 1990). Family relationships are of particular importance in collectivistic communities

such as those in Jordan. In these communities, the person is defined within a family or group of individuals (Purnell, 2002). There is more emphasis on the family unit than on individuals (Al-Jauissy et al., 2009). In Arab families, the individuals expect to receive extensive social support from family members and from other individuals in the community (ACCESS Community Health Center, 1999).

Healthcare providers need to understand their patients' experiences during illness to provide the optimal quality of care (Ahmad et al., 2015). Nurses also need to improve their understanding of HRQoL, personal relationships, and sources of social support of patients with cancer (Bahrami, 2016). Failure to consider these aspects will not give healthcare providers insight into the life domains that are likely left unaddressed (e.g., family relationships). Having insight into the physical elements besides the psychosocial ones will provide a better understanding of women's distress with breast cancer during the cancer treatment journey (Leung et al., 2014). When healthcare providers understand the meaning and necessity of social support for Jordanian women with breast cancer, they can support interventions that address the social support needs of those women (Alqaissi & Dickerson, 2010).

Further exploration of PSS, family relationships, and HRQoL among women with breast cancer in Jordan is needed because the existing knowledge in the areas is predominantly from research on Western women (Tajvar et al., 2013). There is a lack of research on the meaning and helpfulness of social support (Alqaissi & Dickerson, 2010) and the influence of social support on HRQoL among Jordanian women with breast cancer (Alananzeh et al., 2016). More attention is also needed to investigate HRQoL

among women with breast cancer and the role of the family in maintaining good HRQoL in the Middle East region (Hashemi et al., 2019).

The purpose of this study was to investigate the associations among PSS, family relationships, and HRQoL among women with breast cancer in Jordan using an exploratory cross-sectional design. The contextual model of HRQoL of Ashing-Giwa (2005) provided the foundation of this study. The sample included women who were at least 18 years of age, were diagnosed with stage I-IV breast cancer, and received breast cancer treatment of any type. A total of 140 women was recruited from Al-Bashir Hospital in Jordan using convenience sampling. The instruments used were the Medical Outcomes Study--Social Support Survey (MOS-SSS), the Family Relationship Index (FRI), and the Quality of Life--Breast Cancer Version (QOL-BC). Statistical analysis included descriptive and inferential statistics; data were analyzed using SPSS.

Research Questions

The study addressed the following research questions:

1. What is the nature of PSS, family relationships, and HRQoL among women diagnosed with breast cancer in Jordan?
2. What are the differences in MOS-SSS (and its subscales) and QOL-BC (and its subscales) by selected demographic (age and marital status) and clinical characteristics (stage of the disease and time since diagnosis) among women diagnosed with breast cancer in Jordan?

3. Controlling for demographic, psychosocial, and clinical variables, what are the effects of PSS and family relationships on HRQoL (and its subscales) among women diagnosed with breast cancer in Jordan?

Significance to Nursing Science and the Nursing Profession

The proposed area of research is beneficial for nursing science and clinical practice and should receive considerable attention in Jordan. On the scientific level, research studies in Western countries have widely explored social support and HRQoL among women diagnosed with breast cancer (Tajvar et al., 2013). However, there is still a lack of research in nursing and health-related literature concerning the advantage of social support among Middle Eastern women (Alqaissi & Dickerson, 2010) and the impact of social support on HRQoL among Jordanian women with breast cancer (Alananzeh et al., 2016). To date, social support research among women with breast cancer in Jordan has focused solely on the structural dimension of social support (the sources of social support). Little attention is devoted to measuring other dimensions of social support, such as the perceived availability of functional support and the nature of family relationships.

In addition, there is a paucity of studies and insufficient information on HRQoL among women with breast cancer in the Arab world (Rahou et al., 2016) and the Middle East region (Hashemi et al., 2019). Researchers in the Arab countries are just beginning to study HRQoL of women with breast cancer, and HRQoL is now receiving more attention than before (Rahou et al., 2016). More attention is also needed on HRQoL among women with breast cancer and the role of the family in maintaining good HRQoL

in the Middle East region (Hashemi et al., 2019). A recent meta-analysis of 36 studies was conducted to evaluate HRQoL of women with breast cancer ($N = 8,347$) in the Middle East region between 2008 to 2018 (Hashemi et al., 2019). Less than one-third of the patients reported good levels of HRQoL. The overall results underscore the importance of paying more attention to HRQoL among women with breast cancer and to the role of the family in maintaining good HRQoL among Middle Eastern women.

The primary researcher searched extensively to retrieve articles on studies conducted in Jordan concerning social support among women with cancer or breast cancer. There were only nine studies related to social support in persons with cancer. Seven publications (including an unpublished master's thesis) included women with cancer and breast cancer (Al-Ghabeesh et al., 2019; Al-Momani, n.d; Alqaissi & Dickerson, 2010; Alqaissi, 2009; Hamdan-Mansour et al., 2015; Khater & Alkwiese, 2013; Mosleh, 2018). Two other studies (including an unpublished master's thesis) explored social support among cancer survivors who had undergone hematopoietic stem cell transplantation (Alaloul, 2007; Alaloul et al., 2015). Among these nine studies, two of them (including the unpublished thesis) focused on the dimension of perceived availability of functional support for cancer survivors with hematopoietic stem cell transplantation (Alaloul, 2007; Alaloul et al., 2015). Another study conducted in Jordan focused on this dimension among patients with heart failure (Alaloul et al., 2017).

No other published research studies in Jordan that explored the dimension of perceived availability of functional support and family relationships among women with breast cancer were identified. To date, research on social support among women with breast cancer in Jordan has been focused on the structural dimension of social support,

i.e., the sources of social support (e.g., family, friends) (Al-Ghabeesh et al., 2019; Khater & Alkwiese, 2013; Mosleh, 2018). Furthermore, many of the retrieved articles discussed different aspects of social support related to the noncancer population such as university students, mental health nurses, sexually abused girls, widowed women, teachers, patients with schizophrenia, refugees, adolescents, and patients with coronary artery disease and with heart failure. On the other hand, the search revealed 10 research studies in Jordan that investigated HRQoL for persons with cancer including women with breast cancer (Abu-Helalah et al., 2014; Al-Ghabeesh et al., 2019; Al-Husban et al., 2019; Al-Natour et al., 2017; Al-Shannaq, 2017; Al Qadire & Al Khalaileh, 2016; Alaloul et al., 2015; Alquraan et al., 2020; Freihat, 2005; Lazenby et al., 2013).

In clinical practice, investigating this area of research is beneficial for nurses and healthcare providers. It is essential for healthcare providers to fully understand their patients' experiences during their illness to optimize the quality of care (Ahmad et al., 2015). Nurses need to improve their understanding of HRQoL, personal relationships, and sources of social support for women with cancer (Bahrami, 2016). Healthcare providers should assess and screen the supportive care needs for cancer patients to ensure that the provided care is holistic and meets the patient's needs (Schouten et al., 2019). Furthermore, nurses and healthcare providers should remember that not all social support and family relationships surrounding their patients is necessarily helpful or supportive (Hammoudeh et al., 2017). This study will offer nurses insight into the importance of PSS in contrast to received social support (Heller et al., 1986). In addition, the study sheds light on the importance of considering the interpersonal context (e.g., family

relationships) in which social support processes and interaction take place among women with breast cancer.

Stewart (1993) noted that nurses are in an excellent position to advance the science of social support. Nurses have easy access to the social network of their patients, and they are the bridge that connects healthcare professionals and the lay network surrounding their patients (Cheng et al., 2013; Hutchison, 1999; Stewart, 1993; Usta, 2012). In addition, nurses are in an optimal position to develop and strengthen social and supportive resources through the social network of their patients and nurses' professional network (Banovcinova & Baskova, 2016; Cheng et al., 2013; Finfgeld-Connett, 2007; Finfgeld-Connett, 2005; Hutchison, 1999).

In clinical practice, nurses need to improve their understanding of HRQoL, personal family relationships, and sources of social support for cancer patients (Bahrami, 2016). Patients might have the opportunity to express their own needs and problems by completing questionnaires (Bahrami, 2016). However, healthcare providers cannot explore personal relationships and financial burdens, as an example, unless cancer patients are asked about it (Bahrami, 2016). A study conducted in Iran to explore nurses' understanding of HRQoL of their patients with cancer showed that there was minimal agreement between nurses and their patients on the social domain which focused on sexuality, social support resources (i.e., friends), and family relationships (Bahrami, 2016). Nurses did not fully understand how their patients received support and what kind of family relationships they had.

Incorporating social support assessment and intervention in the care of women with breast cancer is essential to improve HRQoL (Cheng et al., 2013). When nurses regularly assess the levels of social support for cancer patients, they help them to cope with the disease and to improve their emotional and general well-being (Mosleh, 2018). Furthermore, assessing the levels of HRQoL for women with breast cancer will provide insight into the life domains that might be unaddressed clinically, such as family relationships (Perry et al., 2007). Healthcare providers should follow up, assess, and manage psychosocial and physical side effects over the long term for women with breast cancer (Runowicz, 2016), and oncology nurses should have a role in responding to their patients (Al-Ghabeesh et al., 2019). The findings of this study may demonstrate a need to incorporate more appropriate and feasible methods to assess levels of PSS, family relationships, and HRQoL for patients with cancer.

Ultimately, the results of this study will provide an opportunity for stakeholders and policy makers to evaluate cancer care services and programs for women with breast cancer in Jordan and to address gaps and areas for improvement. While many efforts and initiatives related to breast cancer in Jordan are encouraging, psychosocial care is still an underdeveloped, fragmented, and neglected area due to the lack of structured psychosocial support programs, the absence of training for healthcare providers, and constraints of time or of finances (except for King Hussein Cancer Center [KHCC]) (Abdel-Razeq et al., 2015; Arabiat & Altamimi, 2013; Mosleh, 2018). In general, cancer care is still solely focused on treatment (physical aspects), and less attention is devoted to other elements of the cancer experience (e.g., social, psychological, spiritual) (Abdel-Razeq et al., 2015). In Jordan, there is a lack of psychosocial support services for many

patients with cancer, and thus, there is an urgent need for psychosocial support programs, especially in the Ministry of Health hospitals (Abu-Helalah et al., 2014; Alhusban, 2019; Mosleh, 2018). It is important to note that women with breast cancer have limited options to access social support services in Jordan (Alqaissi & Dickerson, 2010). There is an urgent need to provide these services in outpatient clinics for oncology patients in Jordan (Mosleh, 2018).

From an ethical point of view, it is crucial to consider the psychosocial aspects of cancer care and the physical ones; otherwise, women with breast cancer will continue to be distressed during the cancer treatment journey (Leung et al., 2014). Psychosocial distress is considered a long-term issue for cancer patients due to the extended survival rates (Khater & Alkwiese, 2013). Aspects of social support and family issues are sources of distress encountered by women with advanced stages of breast cancer (Nathoo et al., 2018). Psychosocial intervention decreases psychological distress and improves HRQoL for women with breast cancer (Filazoglu & Griva, 2008; Keller, 1998). Psychosocial treatment is also of particular importance, especially for women who have low levels of PSS or demonstrate a decline in provided support during the breast cancer journey (Thompson et al., 2017). There is a growing agreement that psychosocial care should be integrated into the routine care of patients with cancer (Jacobsen & Wagner, 2012). From an ethical perspective, cancer care should be holistic and meets patients' need on all levels of care.

Psychosocial care and maintaining good HRQoL are particular needs of women with breast cancer in Jordan. Middle Eastern women tend to be afraid and ashamed to disclose their health problems verbally as they perceive, albeit wrongly, that their

physical problems are a priority for healthcare providers or for fear of being perceived as inadequate (El Sharkawi, 1997); that is to say, they tend to conceal their nonphysical problems. Nondisclosure of the side effects of cancer treatment (whether it is physical or nonphysical) might be problematic as it may lead to poor compliance and other health-related problems (Cella & Tulsky, 1990). In general, patients with cancer have a desperate need for social support compared to any other population (Wortman, 1984). For patients with cancer, the influence of social support on HRQoL and psychological distress is more potent than in the general population (Yoo et al., 2017). Healthcare providers should not overlook the importance of social support in improving HRQoL among women with breast cancer (Sammarco, 2003).

Lastly, it is essential to explore PSS, family relationships, and HRQoL among women with breast cancer across Arab countries (including Jordan). Culture influences family relationships, and the perception and utilization of social support. Perceived social support is different across different races and ethnicities (Janz et al., 2008; Sammarco & Konecny, 2010). There is a distinct emphasis on certain types of social support or HRQoL aspects in Western societies compared to Middle Eastern communities. Social support is complex, and even people from the same culture may have different perceptions of it (Williams et al., 2004). What is considered socially supportive in one culture might not be so in another. Therefore, it is essential to equip nurses with cultural competence training to master culturally-sensitive skills and knowledge and to be able to provide optimal care for a diverse ethnic population, such as Arabic women (Andrews et al., 2011).

Theoretical Framework

The theoretical framework for this study is the Contextual Model of HRQoL developed by Ashing-Giwa (2005) to facilitate culturally sensitive and socioecological-responsive research. The model was created over 10 years in research on HRQoL with multi-ethnic socially and economically diverse women cancer survivors. The Contextual Model of HRQoL is an extension of the traditional HRQoL model, which excluded contextual dimensions such as culture and healthcare systems, the biopsychosocial model, literature of cancer and survivorship, and the psychological and multicultural literature. The Contextual Model of HRQoL was used earlier in two HRQoL research studies conducted by Ashing-Giwa with multi-ethnic and socioeconomically diverse breast and cervical cancer survivors (Ashing-Giwa et al., 2004).

According to Ashing-Giwa (2005), the theoretical framework enables the researcher to explore predictors or risk factors for poor HRQoL and disparities in HRQoL outcomes, particularly with ethnically diverse/ethnic minority cancer survivors. The uniqueness of this framework is its expansion of the traditional HRQoL framework – which is based in general on the individual-centered dimensions – by including the contextual dimensions of the cultural and socioecological dimensions. The theoretical framework explains the cultural and socioecological variables and their influence on the overall HRQoL outcomes (Ashing-Giwa & Lim, 2008). There is an urgent need to understand the impact of culture and socioecological factors on the systemic and individual levels and the overall HRQoL and health outcomes (Ashing-Giwa & Lim, 2008). Cultural and socioecological dimensions are not usually investigated in HRQoL survivorship research in racially/ethnically diverse populations (Ashing-Giwa, 2005).

Therefore, it is crucial to adopt a theoretical basis that is responsive to the cultural and socioecological dimensions when researching health disparity and multicultural HRQoL (Ashing-Giwa, 2005).

The two components shaping the theoretical framework are the macro-systemic level and micro-individual level. The macro-systemic level has four dimensions: demographic, healthcare system, socio-ecological, and culture. The micro-individual level has another four dimensions of cancer-related medical factors, general health and comorbidity, psychological well-being, and self-efficacy. The model's dimensions can vary between and within the ethnic/racial groups (Ashing-Giwa, 2005). Ashing-Giwa and Lim (2008) conducted a study to examine whether the contextual model of HRQoL represents a useful framework to understand HRQoL. The study aimed to explore the relationships among the dimensions or variables of HRQoL among a sample of breast cancer survivors using structural equation modeling. Findings from Ashing-Giwa and Lim (2008) demonstrated that the contextual model of HRQoL provides valid conceptualization to explain HRQoL and increases our knowledge of how the cultural and socioecological dimensions may affect HRQoL outcomes. The authors argue that it is vital to understand the role of the socio-cultural factors when examining HRQoL in racially/ethnically diverse populations. The original and modified versions of the Contextual Model of HRQoL are presented in Appendix A.

Perceived Social Support

Perceived social support (PSS) is the extent to which the individuals feel that they are valued, cared for, accepted, and engaged in an open communication relationship (Sarason et al., 1987). It is the belief that social support is available from members of

one's social network (Gottlieb & Bergen, 2010). Perceived social support is a complex and multidimensional concept that includes many dimensions (e.g., emotional support, informational support, tangible support, positive social interaction support, affectionate support). In this study, the functional component of social support was measured, i.e., the perceived availability of functional support. Functional support refers to "the degree to which interpersonal relationships serve particular functions" (Sherbourne & Stewart, 1991, p. 705). The functions (or types) of social support that women with breast cancer could receive from individuals surrounding them is conceptualized into four dimensions: (a) emotional/informational support, (b) tangible support, (c) affectionate support, and (d) positive social interaction (Sherbourne & Stewart, 1991). *Emotional support* is "the expression of positive affect, empathetic, understanding, and the encouragement of expressions of feelings" (Sherbourne & Stewart, 1991, p. 707). *Informational support* is "the offering of advice, information, guidance or feedback" (Sherbourne & Stewart, 1991, p. 707). *Tangible support* is "the provision of material aid or behavioral assistance" (Sherbourne & Stewart, 1991, p. 707). *Affectionate support* is involves "expressions of love and affection" (Sherbourne & Stewart, 1991, p. 707). *Positive social interaction* is "the availability of other persons to do fun things with you" (Sherbourne & Stewart, 1991, p. 707).

Family Relationships

Family relationships within the context of the family environment are defined as, "the extent to which family members feel that they belong to, and are proud of their family, the extent to which there is open expression within the family, and the degree to which conflictual interactions are characteristic of the family" (Moos & Moos, 1976, p.

3). Family relationships in this study are conceptualized as having three dimensions: cohesion, expressiveness, and conflict (Moos & Moos, 1976). The conflict dimension can be considered as the negative aspect of social interaction (Wortman, 1984). The three subscales compose the “Family Relationship Index,” which evaluates the family relationships and social interaction within the family unit. *Cohesion* is defined as “the degree of commitment, help, and support family members provide for one another” (Moos & Moos, 1981, p. 2). *Expressiveness* is “the extent to which family members are encouraged to act openly and to express their feelings directly” (Moos & Moos, 1981, p. 2). *Conflict* is “the amount of openly expressed anger, aggression, and conflict among family members” (Moos & Moos, 1981, p. 2).

Family Members

Patients’ perceptions of family relationships include individuals viewed as important to them, whether their children, parents, spouses, extended family members, and friends (Moos & Moos, 1981); thus, the family composition for each patient varies.

Social Network

Social network is also referred to as the “social support system” or the persons in one’s social network who provide social support (e.g., emotional and tangible support) (Thoits, 1982). Possible sources of social support include partners, friends, relatives, neighbors, a supervisor at work, colleagues at work, peer support groups, service or caregivers, and healthcare providers (House, 1981).

Health-Related Quality of Life (HRQoL)

There are several definitions of HRQoL in literature, and a lack of consensus exists among them (Alborz, 2017; Boggatz, 2016; Farquhar, 1995; Ferrans, 1990; Haas,

1999a, 1999b; Taylor et al., 2008). HRQoL is a multidisciplinary, complex, and dynamic concept used by several disciplines (Farquhar, 1995; Flannery, 2017; Haas, 1999b). It is defined as, “the extent to which one's usual or expected physical, emotional and social well-being are affected by a medical condition or its treatment” (Cella, 1995, p. 73). HRQoL is “a personal sense of well-being encompassing physical, psychological, social, and spiritual dimensions” (Ferrell, 1996, p. 915). It is also a subjective evaluation of one's own life and circumstances in the context of an individual's values, meaning, morals, and culture (Haas, 1999a; Mandzuk & McMillan, 2005). HRQoL is conceptualized in this research as a multidimensional concept encompassing physical, psychological, social, and spiritual dimensions (Centers for Disease Control and Prevention, 2016; Farquhar, 1995; Ferrans, 1990; Ferrell et al., 1995; Flannery, 2017; Haas, 1999a, 1999b; Mandzuk & McMillan, 2005). The *physical well-being dimension* is “the control or relief of symptoms and the maintenance of function and independence” (Ferrell, 1996, p. 911). The *psychological well-being dimension* is defined as, “seeking a sense of control in the face of a life-threatening illness characterized by emotional distress, altered life priorities, and fears of the unknown, as well as positive life changes” (Ferrell, 1996, p. 912). The *social well-being dimension* is defined as, “a way to view not only the cancer or its symptoms, but also the person surrounding the tumor; it is the means by which we recognize people with cancer, their roles, and relationships” (Ferrell, 1996, p. 913). The *spiritual well-being dimension* is, “the ability to maintain hope and derive meaning from the cancer experience that is characterized by uncertainty. Spiritual well-being involves issues of transcendence and is enhanced by one's religion and other sources of spiritual support” (Ferrell, 1996, p. 913).

Conclusion

This study benefits the growing body of science and clinical nursing practice in Jordan and should receive considerable attention. Breast cancer is the most common type of cancer among women in Arab countries (Anton-Culver et al., 2016) and in Jordan (Ministry of Health, 2016). The diagnosis of breast cancer tends to be at an early age and at the peak of their productivity; thus, it is traumatic for Jordanian women (Abdel-Razeq et al., 2018; Abdel-Razeq et al., 2020; Jordan Breast Cancer Program, 2014).

Family is an integral part of the life of Jordanian women (Alqaissi & Dickerson, 2010). Jordanian women are the primary caregivers in their families with many roles; thus, they try to be strong and show pride most of the time (Al-Natour et al., 2017; Alqaissi & Dickerson, 2010). Jordanian women tend to put their family and children as a priority over their own needs and health as they believe that their primary role in life is to take care of their family (Taha et al., 2012). This statement is likely true since Jordan is considered a collectivistic community where individuals are defined within a family or group of individuals (Purnell, 2002).

Advancing the science in social support and HRQoL research with respect to breast cancer is beneficial for the scientific mainstream, clinical nursing practice, and policy makers in Jordan. On the scientific level, there is a need to advance the science in PSS, family relationships, and HRQoL among women with breast cancer in Jordan. There is a shortage of Jordanian research studies concerning social support, family relationships, and HRQoL among women with cancer. While researchers published a considerable amount of literature in this area from Western samples, few empirical investigations were conducted in Arab countries. To date, social support research among

women with breast cancer in Jordan has focused mainly on the structural dimension of social support (the sources of social support such as family, friends) (Al-Ghabeesh et al., 2019; Khater & Alkwiese, 2013; Mosleh, 2018). Researchers have overlooked other dimensions of social support, such as the perceived availability of functional support and family relationships (the focus of this study). In addition, there is a lack of research and insufficient knowledge on HRQoL among women with breast cancer in the Arab world (Rahou et al., 2016) and the Middle East region (Hashemi et al., 2019). More attention to the role of the family in maintaining good HRQoL in the Middle East region is also needed (Hashemi et al., 2019).

Concerning clinical practice, nurses should consider that not all of the social support and relationships between family members or friends is helpful or supportive (Hammoudeh et al., 2017). Therefore, nurses should make an effort to understand personal relationships, sources of social support, and HRQoL when taking care of their patients with cancer (Bahrami, 2016). When nurses understand the meaning of social support and how crucial it is for Jordanian women with breast cancer, they may provide supportive care to meet psychosocial needs of these women (Alqaissi & Dickerson, 2010). Nurses have a valuable opportunity to offer this care, and they are in an excellent position to develop the science of social support (Stewart, 1993) as they have access to the social network of their patients (Cheng et al., 2013; Hutchison, 1999; Stewart, 1993).

It is vital to take care of the psychosocial needs in addition to the physical needs to decrease distress levels among women with breast cancer (Leung et al., 2014). Issues related to social support and family matters are considered sources of distress encountered by women with breast cancer in an advanced stage of the disease (Nathoo et

al., 2018). Commonly, cancer patients experience a lack of social support, social maladjustment, stigma, and poor HRQoL (Alqaissi & Dickerson, 2010; Arunachalam et al., 2011; Peters-Golden, 1982; Taha et al., 2012; Wortman, 1984). Therefore, psychosocial interventions for women with breast cancer are effective, especially for those who suffer from a decline in social support (Thompson et al., 2017). This is particularly important for women with breast cancer in Jordan.

There are many gaps and areas for improvements with psychosocial support services in Jordan. Cancer care in Jordan is predominantly concerned with the physical aspects and less focused on the other elements of the cancer care continuum (e.g., social) (Abdel-Razeq et al., 2015). In addition, there is a limited number of psychosocial support programs and services for many patients with cancer, and therefore, these services are urgently needed, especially in the Ministry of Health hospitals and outpatient clinics (Abu-Helalah et al., 2014; Alhusban, 2019; Mosleh, 2018). In general, psychosocial care for cancer patients is still underdeveloped, fragmented, and neglected in Jordan (except for King Hussein Cancer Center [KHCC]) (Abdel-Razeq et al., 2015; Abu-Helalah et al., 2014; Alhusban, 2019; Alqaissi & Dickerson, 2010; Arabiat & Altamimi, 2013; Mosleh, 2018).

CHAPTER II

REVIEW OF LITERATURE

Breast Cancer and Health-related Quality of Life

The survival rates for cancer patients have increased due to the improvements in the diagnosis, treatment, medical technology, early detection programs, and mammography screening (Bener et al., 2017; Elk & Landrine, 2012; Marzorati et al., 2017; Montazeri, 2008). Although patients with cancer may now live longer lives, the disease can cause pain, grief, and burden. Distress is an undesirable experience in the social, physical, spiritual, or psychological aspects that may affect adjusting to the cancer disease and its treatment (National Comprehensive Cancer Network, 2019; National Research Council, 2004). The continuum of the levels of distress identified by researchers varied, starting from a “normal” feeling such as vulnerability, fear, and sadness, and ending up with severe, and sometimes incapacitating, symptoms as anxiety, depression, and social isolation (National Comprehensive Cancer Network, 2019).

Women with breast cancer may suffer from psychological, physical, spiritual, and social difficulties which compromise HRQoL (Al-Shannaq, 2017; Jassim & Whitford, 2014; Perry et al., 2007; Rahou et al., 2016). Physical appearance is significant to the human being. Naturally, many species discriminate in quality of body shape, as ordinary appearing members reject or kill those who appear abnormal (Harris, 1982). Being rejected by others may make the person feel inferior, which, if it persists, affects HRQoL

(Arunachalam et al., 2011). On the physical level, breast cancer and its treatment can significantly impact body image and presentation along the trajectory of the disease (Alhusban, 2019; DeSnyder et al., 2014; Scott & Eisendrath, 1986). Women may suffer from changes in skin color, hair loss, and weight changes (Arunachalam et al., 2011). Furthermore, unpleasant symptoms are common, including fatigue, mouth sores, nausea and vomiting, loss of appetite, infections, hot flashes, interrupted menstrual periods, muscle ache, diarrhea, and constipation (Arunachalam et al., 2011). The symptoms (e.g., pain, fatigue, insomnia) might even continue after the completion of adjuvant therapy (Manning-Walsh, 2005). Surgical and medical treatment of breast cancer also destroys the body's integrity, which affects the mental health of women patients (Bener et al., 2017). Changes in physical appearance are a constant reminder of having cancer and looking different, which all together affect HRQoL through social withdrawal and low self-esteem (Alhusban, 2019; Arunachalam et al., 2011).

On the psychological level, women with breast cancer suffer from stress manifested as signs and symptoms of anxiety and depression due to uncertainty about the diagnosis, side effects of treatment, loss of self-control in life, and thoughts of death (Al-Azri et al., 2014). For women, breasts represent a symbol of nurturing, reproduction, and sexual demand (Stavrou et al., 2009). Having had breast cancer, women fear losing femininity and being rejected by their partners (Alhusban, 2019; Stavrou et al., 2009; Taha et al., 2012). They might also be uncertain about the future, feel helpless, and depressed (Frazzetto et al., 2012; Mehnert & Koch, 2007). Newly diagnosed women might feel anxious, shocked, scared, and sad (Edward et al., 2019; Perry et al., 2007).

On the spiritual level, breast cancer disease positively impacts the lives of these women. Arabic and Jordanian women diagnosed with breast cancer found that their awareness of it had strengthened their faith, and the disease was a positive driving force that guided them to live with the disease (Al-Shannaq, 2017; Jassim & Whitford, 2014). On the social level, the burden of cancer is on individuals and their families, and society (Liao et al., 2018). Cancer affects daily activities, work-related paths in life, the relationship between the family members, and the roles and responsibilities of women. The presence of the disease with social problems is associated with worse HRQoL (Abu-Helalah et al., 2014).

Adopting an appropriate and feasible method to assess and evaluate HRQoL of women with breast cancer is paramount in clinical practice. Obtaining HRQoL information daily from nurses is beneficial in allocating resources, designing interventions, reducing the costs, training and educating healthcare providers, and in providing insight into the life domains that are left unaddressed (e.g., Social relationship) (Donaldson, 2004; Goodwin et al., 2003; Perry et al., 2007). Assessment of HRQoL is also crucial for healthcare decisions of whether to pursue or withdraw treatments (Haas, 1999b). Although some cancer-related complications might be inevitable, healthcare providers can evaluate and manage them earlier before they become complicated. For example, providing psychological counseling and referrals to support groups are helpful in the presence of mental illnesses such as depression and anxiety (Carlson & King, 2012).

Improving and maintaining good HRQoL among women with breast cancer is extremely important for Middle Eastern women. Middle Eastern women with breast

cancer fail to take preventive actions and do not seek medical care until the side effects of cancer treatment are severe (El Sharkawi, 1997). They are scared and shy about discussing their problems with health care providers as they assume, albeit wrongly, that the physical issues are the main priority (El Sharkawi, 1997).

Breast Cancer and Social Support

Some studies found that the influence of social support on HRQoL and psychological distress for cancer patients is more substantial than it is for the general population (Yoo et al., 2017). The impact of breast cancer and the distress associated with it are likely to result in an increased need for social support from individuals surrounding women. In addition, with the increase in the survival rates, the burdens and the stress on family members and friends increases. As a result, the disease alters patients' social network systems, and patients might suffer from communication problems and unsupportive relationships (Hammoudeh et al., 2017). Women with breast cancer might need to make many life changes and adjust during or after the treatment journey. They might need physical assistance in completing their daily tasks or emotional support during medical appointments or treatment. Amendments to life habits for these women, such as eating a healthier diet and increasing physical activity, can be aided by social support (Alfano et al., 2009).

Furthermore, being diagnosed with cancer elicits feelings and behaviors that have not been found between the patients themselves and their caregivers. Individuals surrounding patients with cancer might feel anxious or uncomfortable about the disease; however, they try to be optimistic and happy when interacting with their patients (Çömez

& Karayurt, 2016; Wortman, 1984). When an incongruence between inner feelings and beliefs exists, the individual taking care of the patient with cancer might behave in a manner that is unintentionally harmful, such as communicating with tension or avoiding talking to, and interacting with, the patient (Çömez & Karayurt, 2016; Wortman, 1984). As a result, patients with cancer might prefer to be isolated and lonely. They might consider any communication problem or misunderstanding a sign of being rejected, which makes the situation problematic and might interfere with their coping process or marital adjustment (Brandão, Pedro, et al., 2017; Wortman, 1984).

Research studies have provided evidence attesting to the beneficial effects of social support on the health of women with breast cancer. Social support impacts the health of patients, compliance with treatment, coping, and recovery from critical illness (Stewart, 1993). Social support operates as a mediating variable that can indirectly affect the individual's appraisal, coping processes, and adjustment during stressful situations – such as breast cancer in this situation (Lazarus & Folkman, 1984). Having a supportive relationship around the person diagnosed with cancer might influence how the patient appraises their diagnosis and eventually influence the outcomes of the disease (Wortman, 1984). A supportive relationship might also create new coping mechanisms or improve an existing one, serving as a source of motivation to engage in beneficial and adaptive behaviors and improve mood and self-esteem (Wortman, 1984). Women with breast cancer who have high levels of PSS from different resources have better psychological adjustment and HRQoL (Cormio et al., 2015; Friedman et al., 2006).

Several governmental reports and publications have highlighted the importance of social support and relationship ties for health (Institute of Medicine, 2008; National

Academies of Sciences & Medicine, 2019; National Research Council, 2004, 2006).

According to the latest report of the Institute of Medicine (IOM) in 2004, “relationship communication difficulties” is considered one of the leading psychosocial concerns for women diagnosed with breast cancer (National Research Council, 2004). Furthermore, Healthy People 2020 addressed social support as an example of the “social determinants of health,”- which is set as one of its health objectives (U.S. Department of Health and Human Services, 2010). The main goal of the “social determinant of health” section in the Healthy People 2020 report is to “create social and physical environments that promote good health for all” (U.S. Department of Health and Human Services, 2010, Goal section). Furthermore, according to Healthy People 2020, “our health is also determined in part by access to social and economic opportunities; the resources and supports available in our homes, neighborhoods, and communities” and by “the nature of our social interactions and relationships” (U.S. Department of Health and Human Services, 2010, Overview section, para. 1). Within this emphasis on social support and relationships, social support is considered an important area that needs to be addressed by research studies for women with breast cancer.

In clinical practice, incorporating appropriate measures to assess levels of social support and to implement intervention accordingly in the care of women with breast cancer is essential to improve HRQoL (Cheng et al., 2013), fulfill patients’ needs, and provide referrals if needed (Thompson et al., 2017). Improving social support ties is more feasible than minimizing any surrounding stressors (Cassel, 1976). Social relationships are assumed to be more easily changed during critical times than other factors such as the characteristics of one’s personality or way of adjustments (Cassel, 1976; Thoits, 1982).

Accordingly, strengthening the social networks surrounding cancer patients, or developing a new network if one is absent, should be the primary goal for healthcare providers (Banovcinova & Baskova, 2016; Finfgeld-Connett, 2007; Finfgeld-Connett, 2005).

The Mechanisms through Which Social Support Influences Health

Evidence shows that social support impacts the physical and mental well-being and coping of women with breast cancer, whether positively or negatively. It is essential to understand how social support influences health to decide how to measure it. The exact mechanisms of how social support operates and affects our health are not clearly understood (Chen, 2013; Tajvar et al., 2013; Tilden & Weinert, 1987). However, research focused on three competing hypotheses that contribute to our understanding of how social support influences health outcomes: (1) social support may prevent stress from occurring (e.g., the stress of being isolated); (2) social support has an indirect buffering (or cushioning) effect on stress (e.g., support of family members to bereaved widow); and (3) social support has a direct positive effect on health that is unrelated to stress (Chen, 2013; Cohen & Wills, 1985; Tilden & Weinert, 1987). These models are believed to contribute to our understanding of the relationship between social support and health (Cohen & Wills, 1985). Although differences of opinion still exist, there appears to be some agreement to this date that social support may not contribute directly to health problems but work as a “buffer” or protector from the harmful effect of stressors (Chen, 2013; Wortman, 1984).

According to the buffering hypothesis, social support is beneficial to health and well-being only in stressful situations (Sarason et al., 1992). However, the literature has

proposed that this perspective is simplistic, and that researchers should go beyond the stressful vs. nonstressful distinction of a situation. That is to say, social support might also influence the behavior and have an impact on health in nonstressful cases as well (Sarason et al., 1992). Based on this, researchers presented the stress-support matching hypothesis, which states that social support will be beneficial when it meets the needs of an individual created by a stressful situation (Cutrona, 1990; Cutrona & Russel, 1990). The literature discussed the stress-support matching hypothesis as one of the theories explaining the relationship between social support and health.

As discussed above, the impact of providing different types of social support to the recipient depends on the notion of optimal matching. Adequate social support necessitates matching between the type of social support provided and the needs of the recipient (Cutrona & Russel, 1990). Even after an individual has survived cancer, members of the social network (i.e., family members, friends, etc.) should pay more attention to the type of social support provided to meet individual needs and increase satisfaction (Fong et al., 2017). For example, a spouse might support his wife with advice on what she can do to manage her symptoms (informational support), whereas what she needs is to disclose her emotions to someone who will listen to her (emotional support). Mismatching between one's own need and the type of support provided by others might give a woman a sense of incapability and powerlessness. However, matching between the received social support and the needs patients with cancer improves psychosocial adjustment to the illness (Merluzzi et al., 2016). Robinson and Turner (2003) extended this type of matching to include the relationship between the provider and recipient of social support. Helgeson et al. (2000) supported this notion and emphasized that the

impact of providing different types of social support depends on the strength and nature of one's social network. Despite the importance of matching, Cohen and Syme (1985) highlighted that matching processes are somehow complicated, as there might be multiple needs for the individual simultaneously, and patients' conditions also change across the disease process. The meaning and significance of social support also change across a lifetime (Williams et al., 2004).

There are other competing discussions concerning the process through which social support might influence health. Wortman (1984) proposed that having a supportive relationship around cancer patients might affect how the patient appraises their diagnosis and, eventually, the outcomes of the disease. It might also create new coping mechanisms or improve an existing one. Furthermore, social support might also increase patients' desire to communicate, engage in beneficial and adaptive behaviors, and maintain psychological health (Wortman, 1984). The literature reports that each of these mechanisms affects a specific aspect of well-being: physical, psychological, social, etc. (Wortman, 1984).

Sarason et al. (1992) introduced the following three contextual factors of social support, which interact to produce behavioral outcomes: personality characteristics, interpersonal relationships for social support exchange, and the situational context that stimulates supportive behaviors. The interaction of these factors presents a theoretical orientation background, linking social support to health and psychological well-being. In accordance with the perspective of Sarason et al. (1992), perceived social support is a product of the interaction of these three variables.

Lakey and Cohen (2000) presented another three competing theoretical perspectives that might explain the influence of social support and relationships on health: (a) the stress and coping perspective, which proposes that social support affects our health by protecting us from the consequences of a stressful situation; (b) the social constructionist perspective, which suggests that social support nurtures self-confidence and self-control regardless of the presence of stress, thereby having a direct impact on our health; and (c) the relationship perspective, which supports the notion that social relationship processes and dynamics occur concurrent with social support and we cannot look at social support in isolation.

Development of Social Support Research

The importance of social connectedness and its impact on survival rates has been widely discussed since Darwin (Sarason & Sarason, 2009). It is believed that after the release of the two classic influential papers of Cassel (1976) and Cobb (1976), advancement in social support research began. Thousands of publications started to look at the relationship between social support and different health-related outcomes (Barrera, 1986; Bottomley & Jones, 1997; Sarason & Sarason, 2009). The work of Cassel (1976) and Cobb (1976) built upon the laboratory and epidemiology disciplines, and focused mainly on the individuals with poor social ties or those who encountered anxiety and stress (Sarason & Sarason, 2009). Both authors concluded that these individuals are prone to sickness and stress, which affects their health status. According to the authors, providing support is a source of caring, loving, and willingness to help which influence the attitude and behaviors of the individuals (Sarason & Sarason, 2009). Social support is an important aspect in our lives because all the feelings of connectedness and being

accepted and valued by others will stay with the person throughout life (Sarason & Sarason, 2009).

Perceived Social Support

Concept Analysis

Social support is broadly defined as the assistance given to individuals to help them overcome difficulties, protect themselves, and improve their health. It expresses mutuality, closeness, and a caring relationship between two parties (Gottlieb & Bergen, 2010). Earlier work in social support research described social support as a unidimensional concept, and later on, the researchers found that it is multidimensional (Hutchison, 1999). Perceived social support assesses the extent to which the individuals feel that they are valued, cared for, accepted, and engaged in an open communication relationship (Sarason et al., 1987). It is the belief that social support is available from members in one's social network, whereas the received social support is more related to the actual utilization of support resources (Gottlieb & Bergen, 2010; Uchino, 2009). Perceived social support and its interpretation are more important and influential than received social support (Heller et al., 1986) as it is believed to be strongly associated with positive psychosocial and health-related outcomes (Krause, 1999; Uchino, 2009). Perceived social support is considered an appropriate area of research for cancer researchers (Wortman, 1984) and provides the most accurate assessment of the concept of social support (Sarason et al., 1987).

Antecedents of social support were identified as perceived need, social network, social climate, and social embeddedness (Finfgeld-Connett, 2005; Langford et al., 1997).

Langford et al. (1997) stated that: “Without a structure of people (network) with the quality of connectedness (embeddedness) required to generate an atmosphere of helpfulness and protection (social climate), supportive social behaviors cannot occur” (p. 97). Harrison et al. (1995) agreed and stated that to initiate social support, the support recipient must have a sense of perceived need, be aware that they need help, and be willing to accept it. Willingness to receive support and compassion from others is an essential consideration in social support research. Some individuals may resist engaging in a compassionate experience and even find it threatening or unpleasant (Gilbert et al., 2011), which might affect their perception of social support provided to them. In a study conducted with a sample of 86 women with nonmetastatic breast cancer, results showed that fear of compassion was negatively associated with perceived social support ($r = -.40, p < .01$) (Trindade et al., 2018). Fear of compassion was also positively associated with symptoms and depression ($r = .45, p < .001$), indicating that it impacts the psychological well-being of women with breast cancer.

The antecedent of “social climate” refers to the shared anticipation and response to the needs of each other. Shared expectations also exist with a mutual and reciprocal relationship in which giving and receiving support is an active process (Coffman & Ray, 1999). The last antecedent is social embeddedness, which refers to the connection with significant individuals in their social network (Barrera, 1986) and the quality of this connectedness (Langford et al., 1997).

With respect to its attributes, social support is an advocative interpersonal process that has attributes of reciprocal exchange of information, advocacy, and context-specific interaction (Finfgeld-Connett, 2005). Exchange of information might include reassurance

and empathy (Coffman & Ray, 1999, 2002). Whereas describing social support as “context-specific” means that social support is dynamic, fluid, and changes continuously according to the surrounding circumstances (Coffman & Ray, 1999; Finfgeld-Connett, 2005; Sarason & Sarason, 2009; Thoits, 1982; Williams et al., 2004).

In cancer research, it is essential to consider “reciprocity” as one of the structural properties of social networks and attributes of social support (Wortman, 1984). A reciprocal relationship means that the provider and recipient can reciprocate and support each other in return (bidirectional relationship). Langford et al. (1997) proposed that reciprocity must be present for social support to continue between two parties. Likewise, Finfgeld-Connett (2005) recommended that members of the social network share mutual experiences, have a sense of closeness, be available to offer and receive support. Thoits (1982) mentioned that it is not necessary for the supportive actions to be reciprocal or symmetrical. Wortman (1984) supported this notion and noted that nonreciprocal relationships, whether in receiving or giving support, are expected when one of the parties is severely ill. He continued, stating that this is common in cancer patients where surrounding people support them primarily.

Nonetheless, the nonreciprocal relationship could have a negative consequence on both parties. Inability to reciprocate, especially from the recipient’s side, accentuates the feelings of vulnerability and the feelings of being sick for patients with breast cancer (Coyne et al., 2012). If the patient can reciprocate, their belief in their abilities and self-esteem will increase, resulting in improved mental and physical health (Cutrona & Russel, 1990). Some researchers used the term “norm of reciprocity,” which indicates that the recipient of the support desires to reciprocate some benefit to the provider in

return to feel comfortable and avoid overbenefiting from their supportive relationships (Antonucci et al., 1990; Uehara, 1995).

Members in the social network can provide social support as an “obligation,” or the support can be “actively solicited.” However, individuals who afford social support as an obligation might not be willing to provide the support freely (Hupcey, 1998). Therefore, even though social support might be helpful, the recipient might not perceive it as positive (Hupcey, 1998). On the other hand, recipients of social support can ask for support from those surrounding them, or they might be reluctant to do so (Hupcey, 1998). Most of the research in social support discussed the social support concept as something that one person does for another. It is noteworthy to mention that some literature discussed social support as an interactive communication process contextualized within a specific relationship (Robinson & Tian, 2009), or in the context of general moral principles rather than merely a pattern of social exchange (Uehara, 1995).

The literature discussed the attributes of social support in the context of two main components: structural and functional components (Cohen & Syme, 1985; Stewart, 1993; Usta, 2012). The structural part refers to the presence of individuals to provide the support, and the functional part relates to the types of provided support (Usta, 2012). The combination of these two components was referred to as “social integration” or “support system” (Cutrona, 1990; Gottlieb & Bergen, 2010). The literature consistently reported four main types of social support: emotional, instrumental, informational, and appraisal support (House, 1981; House & Kahn, 1985; Langford et al., 1997; Tilden & Weinert, 1987; Usta, 2012). It is noteworthy that the researchers discussed types of social support using various expressions; however, the meaning was the same. For example, the

material and behavioral aids correspond to instrumental support, whereas the intimate interaction aid is the same as the emotional support. Regardless of the above discussions, attributes of social support (emotional, instrumental, informational, and appraisal) are beneficial and protective for the recipient of social support, and occur in the presence of antecedents (Langford et al., 1997).

Dimensions

Tardy (1985) discussed several dimensions to understand the different approaches followed in social support research. Researchers should decide on whether they are interested in investigating: (a) direction (received or provided social support); (b) disposition (perceived or actual received support); (c) describing or evaluating (satisfaction level) social support; (d) content (instrumental, informational, emotional, and appraisal social support); or (e) existence or characteristics of a social network. Other dimensions are the history of the relationship, characteristics of the recipient or the provider of support, duration of the relationship, support adequacy (helpfulness), actively solicited or spontaneous support, and intentionality of the support (Gottlieb & Bergen, 2010; Pearson, 1986; Stewart, 1993; Tardy, 1985; Williams et al., 2004). The literature refers to the received (enacted) support as the behavioral description of the support (Tardy, 1985), whereas the perceived support is “the cognitive appraisal of being reliably connected to others” (Stewart, 1993, p. 11).

In the context of cancer patients, emotional support provides reassurance and comfort and enhances the perception of being valued and loved, especially at times of hardship. Instrumental support is concerned with providing services (e.g., grocery shopping and household tasks) or accompanying patients to medical appointments.

Informational support includes providing solutions to problems, giving advice, and providing any needed information related to the disease process or treatment. Lastly, appraisal support enhances the peers' self-confidence.

Sources of Social Support

In crisis situations, such as being diagnosed with breast cancer, women would seek support and care from close family members and friends (Çömez & Karayurt, 2016). Among the possible sources of social support are the partners, friends, relatives, neighbors, supervisors at work, colleagues at work, peer support groups, services or caregivers, and health care providers (Çömez & Karayurt, 2016; House, 1981). Close relationships (e.g., with nuclear family members or partners) provide a variety of types of social support compared to casual contacts, a sense of bonding, and more specialized and intimate type of support such (e.g., caring, listening, and affection) (Gottlieb & Bergen, 2010).

While research studies might investigate social support with close relationships, it is also preferable to consider a broader approach (Sarason & Sarason, 2009). Places such as hospitals, social and cultural centers, hospitals, or libraries are impersonal and might be considered sources of support (Sarason & Sarason, 2009). Casual contacts (e.g., at the bus stop, through the phone, or with neighbors), while apparently being superficial, could be considered important and meaningful (Henderson, 1977). A virtual support system through the internet is another form of communication that might be supportive especially during the pandemic. Having had a sense of community support might be especially important for those with limited personal relationships, such as introverts, socially isolated individuals, and the elderly (Henderson, 1977; Sarason & Sarason,

2009). Besides, those who are reluctant to build close personal ties might use community ties (Sarason & Sarason, 2009).

The size of the network is one of the dimensions of social support. It is one of the classical social network indicators measuring the structural dimension of social support. The literature used to describe socially isolated women as those women who have a small social network (e.g., family members, friends, etc.) (Kroenke et al., 2006). Although the number of individuals surrounding women with breast cancer can be detrimental to their health, it is crucial to remember that a larger social network does not necessarily provide adequate or needed social support for those women (Hammoudeh et al., 2017).

Outcomes of Social Support

Outcomes of social support could be positive or negative for those who receive the support. Positive effects of social support might include improved mental health (going back to everyday life and decreased isolation), enhanced coping, and reduced distress (Finfgeld-Connett, 2007; Finfgeld-Connett, 2005; Lugton, 1997; Olsson, 1997). For decades, there was a general premise that social support is beneficial or has a therapeutic value on physical and mental health (Pearson, 1986; Wortman, 1984). Thereby, almost all definitions of social support implied positive actions, being helpful, and providing supportive behavior to those in need. However, considering social support as positive is not necessarily true in real life, not all social ties are positive. Researchers usually do not consider the negative outcomes of social support (Coyne & DeLongis, 1986).

Not all social support provided to individuals is supportive. Instead of protecting the individual against cancer-related stress, psychosocial interactions with cancer patients

can be a source of distress. It is well accepted that social network members provide different types of support (emotional, instrumental, etc.) and enhance socialization. However, they might also be a source of conflict and stress, improper efforts to help, feelings of isolation, or perceived as demanding and draining (Cohen, 2004; Coyne & DeLongis, 1986; Wortman, 1984). They might also hinder the recipient's freedom or decrease their self-confidence (Gottlieb & Bergen, 2010). Negative aspects of the social network may be a source of psychological distress, which alters the physiological process and increases the risks for poor health-related outcomes (Cohen, 2004). Negative social interaction has a more substantial impact on an individual's well-being than positive social interaction (Rook, 1984). Whether it is positive or negative, the impact of social support depends on how the individual perceives the actions of others (Heller et al., 1986; House, 1981).

Measurement of Social Support

The social support instruments are different regarding the dimensions they are intended to measure (Cohen & Syme, 1985). There are three dimensions, which could be considered as a general umbrella to measure social support: (1) social support integration and social network analysis (e.g., size and density of social network), (2) perceived and received social support, and (3) social relationship properties and interactions (e.g., family environment) (Barrera, 1986; Cohen et al., 2000; Gottlieb & Bergen, 2010; Stewart, 1993).

Others stated that social support is either a measure of function (types of social support), which is a subjective indices, or a measure of structure (social network analysis) as an objective indices (Tilden, 1985). The functional component refers to the types (or

functions) of provided support. In contrast, the structural part refers to the presence of network members to provide the support or sources of support (Usta, 2012). The functional component of social support is measured by assessing the subjective perception of social support or satisfaction with this support (Berg & Piner, 1990). It is the perceived amount and adequacy of emotional and instrumental support from various resources in one's social network (Thoits, 1982; Wortman, 1984). The structural component is described empirically by classical network indicators or characteristics, such as density, size, strength, and sources of support (e.g., friends, spouse) (Thoits, 1982; Tilden, 1985; Wortman, 1984).

Assessment of the functional component of social support cannot be overlooked because social support for cancer patients is proposed to be context-specific (Vaux, 1992). That is to say, types of the needed support varied at different times during illness or stressful situations (Tilden, 1986); therefore, healthcare providers must be aware of the changing needs of the recipients of support (Hupcey, 1998). Nonetheless, various types of social support are beneficial to HRQoL of women with breast cancer with diverse stages of the disease and treatment (Kwan et al., 2010; So et al., 2013). Having had an instrument with which researchers can measure the functional component of social support is beneficial for the complete assessment of social support in cancer research (Wortman, 1984). Measurement of the functional component of social support (e.g., emotional and instrumental support) can also help determine the specific type of social support that affects health and behavior and provides a better prediction of health (Cohen & Syme, 1985). Based on this discussion, the perceived availability of functional social support is the focus of this research study.

In conclusion, the instruments of perceived social support are different in how they break down the concept of social support and vary in terms of its focus, approach, and domains of social support. Therefore, it is necessary to understand how the social support concept is measured and critically appraise the available measurement scales of social support.

Perceived and Received Social Support. Received support is not as important and influential as how this support is perceived and interpreted (Heller et al., 1986). Perceived social support is more critical than received support; it assesses the extent to which the individuals feel that they are valued, cared for, accepted, and engaged in an open communication relationship (Sarason et al., 1987). It is also the most appropriate measurement in the initial efforts to understand the relationship of social support to health-related outcomes and stress (House, 1981). In addition, perceived social support may provide the most accurate assessment of the concept of social support (Sarason et al., 1987). House (1981) supports this notion and mentions that the degree of the usefulness and effectiveness of social support depends on how the individual perceives this support. That is to say, regardless of how much caregivers or family members act as supportive as they can, social support will not be effective unless the patients themselves perceive their caregivers as supportive (House, 1981; Sarason et al., 1992). Since there was an agreement in the literature that the perceived social support dimension is more influential than the received social support, perception of social support will be the focus of this research study.

Relationship of Perceived Social Support to HRQoL

Social support has a positive effect on several health-related outcomes, including physical, mental well-being, and social functioning (Uchino, 2009; Wortman, 1984). Higher levels of PSS from family and friends are associated with effective coping with stress in women with breast cancer (Curtis et al., 2014; Ozdemir & Tas Arslan, 2018). Social support from family and friends has a positive effect on minimizing cancer and treatment-related symptoms, thereby improving HRQoL (Manning-Walsh, 2005). Moderate to high levels of PSS are also associated with less severe chemotherapy-related emotional and physical distress (e.g., pain, fatigue, anorexia) among women with breast cancer (Oh et al., 2020). Furthermore, higher levels of PSS from different social network members are an essential factor to minimize the psychological distress (anxiety and depression) (Ng et al., 2015; Nurasyikin et al., 2018) and anxieties related to the fear of death among women with breast cancer (Bibi & Khalid, 2020).

A number of research studies have found a positive relationship between PSS and HRQoL among women with breast cancer (Al-Ghabeesh et al., 2019; Filazoglu & Griva, 2008; Kroenke et al., 2013; Kwan et al., 2010; Leung et al., 2014; Levine et al., 2017; Ng et al., 2015; Ogce et al., 2007; Sammarco & Konecny, 2008; So et al., 2013; Waters et al., 2013) and women with cancer disease (Banovcinova & Baskova, 2016; Mosleh, 2018).

One research study investigated the relationship between PSS, prevalent symptoms, and HRQoL among women with breast cancer ($N = 279$) by employing structural equation modeling (So et al., 2013). Results showed that PSS has a significant total positive effect on all the subscales of HRQoL (physical, emotional, social/family,

and functional well-being) of women with breast cancer ($p < .05$) except for the breast cancer-specific subscale. Results also showed a direct association between PSS and each of the functional, social/family, and breast cancer-specific subscales. The largest direct positive effect was between PSS and the social/family well-being subscale (direct effect = .704, $p < .05$), reflecting that women with breast cancer were socially supported with enough resources and scored high on the MOS-SSS scale.

So et al. (2013) study enhanced understanding of the importance of alleviating any psychological distress earlier in the cancer treatment to improve HRQoL. The study explored the relationship between social support, prevalent symptoms, and HRQoL among women with breast cancer ($N = 279$) undergoing treatment. So et al. (2013) found that the total positive effect of social support on the physical well-being domain was contributed exclusively by the indirect effect of two main symptoms: anxiety and depression. This result means that social support can improve the physical well-being of women with breast cancer by minimizing levels of anxiety and depression. In addition, the total effect of social support on the breast cancer-specific scale was decreased ($p > .05$) by the indirect effect of anxiety and depression. This result indicates that social support can decrease any breast cancer-related sign and symptoms when anxiety and depression are alleviated.

Likewise, Kwan et al. (2010) found an association between the individual subscales of PSS and HRQoL. However, the lowest association was between the overall PSS scores and physical well-being subscale of HRQoL (Spearman correlation [r_s] = .15). In the regression model, higher levels of PSS during the early phase of breast cancer (average two months) were associated with higher levels of HRQoL subscales (social,

emotional, functional, and breast cancer-specific) ($p < .05$) except for the physical well-being. Similar to So et al. (2013) study, Kwan et al. (2010) also found that the strongest positive association was between overall PSS and the social well-being subscale of HRQoL ($r = .48, p < .0001$). Both studies' results emphasized the importance of social support earlier in the breast cancer diagnosis to minimize psychological distress and improve HRQoL. Therefore, it is essential to assess the levels of social support for women with breast cancer earlier in the diagnosis period.

There is a consensus on the importance of social support during the early period right after a breast cancer diagnosis. Higher levels of PSS earlier at the time of breast cancer diagnosis have an influential impact on later HRQoL and psychological adjustment of the disease (Brandão, Schulz, et al., 2017; Kwan et al., 2010; Lee et al., 2011; Leung et al., 2014; Waters et al., 2013). At the time of initial breast cancer diagnosis, higher levels of perceived emotional support are associated with improvement in the depressive modes (Lee et al., 2011). Improvement in HRQoL and coping mechanisms earlier in breast cancer diagnosis due to supportive relationships is consistent with stress-buffering theory (Sarason et al., 1992; Tilden & Weinert, 1987). As discussed earlier, according to the stress-buffering theory, social support will positively impact health outcomes in stressful situations (Sarason et al., 1992). In women with breast cancer, the most stressful time encountered is when they are informed officially about their diagnosis of breast cancer (Alqaissi & Dickerson, 2010). According to stress-buffering theory, this is the time when receiving social support from individuals surrounding the patient optimizes health outcomes.

However, the main point is not only providing social support but considering what type (function) of social support is provided or received. Undesired social support for cancer patients is associated with worse psychological and psychosocial adjustment after the disease (Merluzzi et al., 2016; Reynolds & Perrin, 2004). Therefore, researchers moved from the simplistic theoretical orientation of the stress-buffering hypothesis to a broader approach for understanding social support and presented the stress-support matching hypothesis. The theory states that for social support to be beneficial, it must meet the patient's needs (Cutrona, 1990; Cutrona & Russel, 1990). For women with breast cancer, supportive care should still be subjective and individualized to their needs. However, earlier in the breast cancer diagnosis, certain types (or functions) of social support are more influential on HRQoL than others. During this phase, cancer patients have a desperate need for reassurance, managing distress, and obtaining more information about cancer. In addition, at this time, the emotional/informational social support, affectionate support, and positive social interaction are more important to improve HRQoL than any other types of social support, such as tangible support (Kroenke et al., 2013; Leung et al., 2014; Levine et al., 2017).

Leung et al. (2014) conducted a longitudinal study to investigate the role of social support in improving HRQoL in newly diagnosed women with breast cancer ($N = 412$). Results showed that higher levels of PSS, mainly emotional/informational and affectionate support/positive social interaction, earlier in breast cancer disease were associated with higher HRQoL at 3-years follow-up ($p < .01$). The effect of social support on HRQoL at subsequent follow-up was stronger for mental health ($r = .94$). The emotional/informational and affectionate support/positive social interaction at the early

phase of breast cancer diagnosis was stronger (partial eta squared [η_p^2] < .01) than tangible social support ($\eta_p^2 = .01$) in predicting HRQoL three years later. Results indicated that there were specific support needs for those women earlier in the breast cancer diagnosis.

Consistent with the other studies, Kroenke et al. (2013) conducted a study to investigate the association between the size of the social network, PSS, and HRQoL among women with breast cancer ($N = 3,139$) within two months of the breast cancer diagnosis. Results showed a significant relationship between the subscales of PSS (emotional/informational, tangible, affectionate, and positive social interaction) and HRQoL (functional and social well-being) earlier after the diagnosis. The “positive social interaction” subscale was the strongest mediator and most predictive of all HRQoL subscales. Kroenke et al. (2013) also found that emotional/informational social support was related to higher summary scores of emotional and social well-being post-diagnosis. On the other hand, tangible support was most important for the physical and social well-being subscales of HRQoL, particularly for women with late-stage or severe status of breast cancer disease.

Levine et al. (2017) conducted a study to examine HRQoL predictors among women with breast cancer ($N = 116$) over time. Results emphasized the importance of emotional social support earlier after a breast cancer diagnosis. Earlier emotional/informational social support was a significant predictor of overall HRQoL at four years after breast cancer diagnosis ($\beta = .172, p = .02$). This result is consistent with studies done by Kwan et al. (2010) and Leung et al. (2014). However, the latter two studies found that besides emotional/informational social support, tangible support, and

positive social interaction were predictive of the overall HRQoL. A possible explanation is that the Levine et al. (2017) study was a longitudinal study. Thus, it might be that by the time women coped and learned more skills to live with the disease, they did not need physical help from their social network. It is expected that the initial boost of social support at the early time of breast cancer diagnosis will decrease over time (Lee et al., 2011; Thompson et al., 2013).

The Levine et al. (2017) study results are consistent with the previous studies, which found a significant association between PSS and HRQoL. Results showed that each of the subscales of PSS (emotional/informational, tangible, affectionate, and positive social interaction) was significantly associated with the overall HRQoL ($p < .001$) across five different time points over a two-year period. For the subscales, emotional/informational social support was associated with both social well-being (at five-time points over two years period) and emotional well-being (at six months and 1.6 months since diagnosis) ($p < .001$). Tangible social support was significantly associated with physical well-being ($p < .001$) only at 3.5 and 4 years from the time of breast cancer diagnosis. Although there was a significant association between PSS and HRQoL subscales in the regression model, the emotional/informational social support was the only predictive of overall HRQoL at four years from the diagnosis. These results emphasized the importance of social support (mainly positive social interaction and emotional/informational social support) earlier in the breast cancer diagnosis.

One of the factors to consider while providing social support earlier for women with breast cancer is the stage of the disease. Suppose a woman has an advanced stage of breast cancer at the time of diagnosis. In that case, she will probably have more critical

conditions and health problems that necessitate seeking health care immediately.

Therefore, specific types of supportive needs will be helpful than others. For example, she might need tangible/instrumental support rather than emotional/informational support from individuals surrounding her. Kroenke et al. (2013) found that tangible support was significantly associated with physical and social well-being during the advanced stage of breast cancer ($p < .05$). In comparison, high levels of affectionate support were associated with lower levels of HRQoL during the advanced stage of breast cancer. Therefore, it is essential to consider the stage of breast cancer when assessing PSS levels at the early time of the diagnosis (Kroenke et al., 2013). Social support is contextualized among cancer patients by the level of physical impairment (Merluzzi et al., 2016).

Research studies investigated the association between the subscales of PSS and HRQoL. However, the results were inconsistent because the sample characteristics and the setting varied across studies. Perceived instrumental support and functioning status for patients with cancer were negatively associated (Courtens et al., 1996). This finding was expected because social network members are likely to move at the time of impaired physical well-being and provide instrumental support such as helping in daily activity living. In addition, research studies reported a strong positive association between PSS (the overall and subscales scores) and social/family well-being of HRQoL among women with breast cancer (Kwan et al., 2010; Levine et al., 2017; So et al., 2013). This result indicated that social support was likely to be positive and supportive for the participating women.

Conclusion

There was a positive association between PSS and HRQoL among women with breast cancer across different stages and treatment modalities, which underscores the importance of PSS in maintaining and sustaining HRQoL for those women. Furthermore, the perceived availability of various types (or functions) of support (informational/emotional, tangible, affectionate, and positive social interaction) was beneficial to HRQoL among women with breast cancer. Research studies provide an insight into the importance of social support early in the disease process to improve and maintain HRQoL in the long term.

Higher levels of PSS earlier in breast cancer disease are associated with better HRQoL years after the diagnosis (Kwan et al., 2010; Levine et al., 2017; Waters et al., 2013) and predictive of later psychological distress, symptoms of anxiety and depression, and HRQoL (Brandão, Schulz, et al., 2017). Therefore, there is a need to assess the levels of PSS for patients with breast cancer (Manning-Walsh, 2005; So et al., 2013; Thompson et al., 2017) earlier in the disease process (Jones et al., 2012; So et al., 2013) or during treatment and survivorship period (Thompson et al., 2017). There is also a need to provide psychosocial interventions for those with low levels of social support or those who show a decline in social support over time (Thompson et al., 2013). It is crucial to consider and focus on the psychosocial issues besides the physical aspects for women with breast cancer (Leung et al., 2014; Thompson et al., 2017).

Demographic Variables Influencing HRQoL and PSS

Age

In this study, age is an essential factor to consider, as in Jordan and many neighboring countries, breast cancer is likely to be diagnosed at an early age (Abdel-Razeq et al., 2018). Many Jordanian women with breast cancer are affected by the disease at the peak of their productivity from 40 to 49 years (Jordan Breast Cancer Program, 2014). It becomes the norm for the younger Jordanian women to juggle marriage, careers, education completion, and sometimes take care of extended family members. Breast cancer poses more pressure and demands on younger women than those of an older age, affecting their HRQoL and social support systems (Northouse, 1994).

Perceived social support is different across age groups. Several research studies showed that younger women with breast cancer have higher levels of PSS than older women (Banovcinova & Baskova, 2016; Filazoglu & Griva, 2008; Sammarco, 2009). Older and younger women with breast cancer have different psychosocial needs and concerns (Sammarco, 2001a; Sammarco, 2003). Older women with breast cancer might be more concerned about changes in their body with the aging process, loss of autonomy, and possibility of dependency on others, which all serve as barriers for them to admit or ask for help (Yoo et al., 2010). Social support is a significant concern for older women with breast cancer. As the social network size shrinks over time, they might find it challenging to ask for support and prefer to live independently (Cameron & Horsburgh, 1998; Sammarco, 2003). Accordingly, older women with breast cancer are more vulnerable than any other group of patients and need to learn how to receive or ask for support (Yoo et al., 2010). Older women with breast cancer need special psychosocial

and physical consideration from nurses in clinical practice (Cameron & Horsburgh, 1998).

There is a significant difference in HRQoL across different age groups among women with breast cancer (Yan et al., 2016). Being diagnosed with the disease at a younger age is associated with the worst overall HRQoL (Janz et al., 2005; Kwan et al., 2010; Sammarco, 2009). The psychological impact of breast cancer on younger women is more substantial than older women (Brandão, Schulz, et al., 2017). Younger women are more likely to receive aggressive treatment and encounter age-specific complications such as infertility, early menopause, and the fear of losing childbearing opportunity (Hopwood et al., 2007; Mosher & Danoff-Burg, 2006). Poorer sexual functioning, related to the aggressive treatment received, is not uncommon (Schou et al., 2005). Younger women with breast cancer are exposed to greater health-related threats, and they are more vulnerable to disruptive family and social life affecting their HRQoL (Northouse, 1994; Sammarco, 2001b). Younger women with breast cancer are believed to have more disruptive lives than their older counterparts. They have more chances to live longer, and the medical treatment tends to be more aggressive, resulting in poor health-related outcomes and psychosocial problems over the long term (Fernandes-Taylor et al., 2015).

On the other hand, older women with breast cancer have better overall HRQoL, primarily in the psychological and spiritual dimensions (Sammarco, 2009). Older women tend to be emotionally resilient due to their prior life experiences and, therefore, can cope with the psychosocial distress of the disease (Ganz, Greendale, et al., 2003). In addition, older women with breast cancer can develop adequate mechanisms to cope with the disease. However, older women with breast cancer might have a greater decline in their

perceived physical and cognitive abilities compared to younger women, which might be due to the expected limitation accompanied with aging processes (Brandão, Schulz, et al., 2017).

Marital Status

There are significant differences in PSS across different levels of relationship status among women with breast cancer (Banovcinova & Baskova, 2016; Filazoglu & Griva, 2008; Leung et al., 2014; Sammarco & Konecny, 2008). For women with breast cancer, being in a marital or cohabiting relationship was associated with higher levels of PSS compared to single or widowed women (Banovcinova & Baskova, 2016; Filazoglu & Griva, 2008; Leung et al., 2014; Sammarco & Konecny, 2008; Thompson et al., 2017; Thompson et al., 2013). Intimate partnership, spirituality, and mental health were associated with higher levels of PSS among African women with breast cancer ($N = 227$) ($p < .05$) (Thompson et al., 2017). In a sample of Turkish women with breast cancer ($N = 188$), married women reported higher levels of PSS compared to single women, and the difference was significant ($F(1,187) = 1.62, p < .001$) (Filazoglu & Griva, 2008).

There are unique psychosocial and health-related concerns for women diagnosed with breast cancer while being in a relationship affecting their HRQoL. Married women might fear marriage disruption or worry about cancer recurrence or having another tumor in the other breast (El Sharkawi, 1997; Taha et al., 2012). Part of the emotional burden that women with breast cancer face may be related to losing femininity and rejection by their partners (Stavrou et al., 2009; Taha et al., 2012). Women might also hold negative perceptions concerning their bodies. They might feel dissatisfied with their appearance, reluctant to see themselves naked, and experience feelings of diminished sexual

attractiveness (Alhusban, 2019; Ganz, Greendale, et al., 2003). Employment status and marital status had a significant impact on the emotional well-being of women with breast cancer (Bulotiene et al., 2008). Women with breast cancer might be under pressure and stress due to their role as workers besides being housewives (Rahou et al., 2016). They might feel worried and anxious about not fulfilling job requirements (Bulotiene et al., 2008). Their self-esteem might also be affected due to their inability to perform the traditional roles at home (Frazzetto et al., 2012).

The relationship between HRQoL and being in a relationship is inconsistent. Married women with breast cancer are more supported by their spouses and have better mental and physical HRQoL (Leung et al., 2016). Spousal support is associated with better physical wellbeing, emotional wellbeing, higher levels of HRQoL, and lower levels of depression among women with breast cancer (Gremore et al., 2011; Talley et al., 2010). Partners of married women with breast cancer might be supportive and improve HRQoL for those women (Leung et al., 2016). However, not all social support and relationships are helpful or supportive. Instead of protecting individuals from stress, patients' social relationships can be a source of distress (Wortman, 1984). Women may experience a strained relationship with individuals surrounding them, thus making them more isolated and abandoned (Dakof & Taylor, 1990). In a sample of women ($N = 950$) recruited immediately after the breast cancer diagnosis, being widowed was associated with higher physical, emotional well-being, and overall HRQoL (Kwan et al., 2010). In comparison, married women reported worse physical and emotional well-being but better social/family well-being.

Psychosocial Variables Influencing HRQoL and PSS

Previous and Current Life Events

Perceived social support might be affected by previous or current life events that happened before or after a breast cancer diagnosis. Patients might lose a spouse or beloved one or change their living place, resulting in losing or gaining supportive relationships needed to cope and manage stress (Pearson, 1986; Thoits, 1982). Life events might be the reason for altering the size of the social network or the degree of the social support offered in one's social support system (Thoits, 1982). For example, divorce might result in a loss of a supportive spouse and reluctance from relatives to provide support immediately (Thoits, 1982). This is congruent with the previous discussion about the social support concept as dynamic and changing according to circumstances. It is essential to consider this factor in this study. Any previous difficulties or events might affect PSS and the desire to seek or benefit from interventions designed to provide social support (Coyne & DeLongis, 1986).

Previous Mental Health Problems

Preexisting psychological problems and major life events affect the level of social support received by the recipient (Thoits, 1982). For example, individuals who did not have previous psychological problems probably have a robust social support system and would be able to manage stressful events. Furthermore, psychiatric issues might impact the individual's ability to initiate and maintain mutual social relationships (Henderson, 1977). In addition, individuals with psychiatric symptoms might believe that they do not have adequate social support from others (Henderson, 1977), which might

affect their levels of PSS. Those with previous mental problems or poor mental health might be more critical of their social support network (Wortman, 1984).

Clinical Variables Influencing HRQoL and PSS

Stage of Breast Cancer

Several research studies showed that there is an association between the stage of breast cancer disease and HRQoL (Awad et al., 2008; Brandão, Schulz, et al., 2017; Jassim & Whitford, 2013; Kwan et al., 2010; Montazeri, 2008; Mosleh, 2018; Sprangers et al., 1996). However, other research studies did not find a relationship between stage of breast cancer and HRQoL (Aaronson et al., 1993; Janz et al., 2005; Ogce et al., 2007); however, other studies noted that the direction of the association was negative (Brandão, Schulz, et al., 2017; Mosleh, 2018). Other research studies did not find significant differences in the PSS or HRQoL across different stages of cancer disease, including breast cancer (Ogce et al., 2007; Yan et al., 2016). These results support the notion that social support does not decrease over time but changes in the focus and content (Rose, 1990).

Perceived social support might be different across different stages of breast cancer disease. Supportive needs of patients with cancer to cope with the disease differ according to the type of cancer, the stage of the disease, and the time of cancer disease (Courstens et al., 1996; Wortman, 1984). As the breast cancer disease advances, the needs of the patient increase, which are likely to be associated with exhaustion of support resources (Ng et al., 2015) and difficulties in adjusting to the disease compared to those with early stage of the disease. Family members might be burned out from continuous

support and caregiving (Wortman, 1984). Accordingly, the perception of social support for those women is likely to decrease as the stage of breast cancer disease advances.

Time Since Diagnosis

Time since diagnosis is an essential factor to consider for women with breast cancer. The perception of how much the disease affected their life changes depending on the time since diagnosis (Masià et al., 2019). The development of cancer disease may cause many changes in the woman's life. Initial diagnosis of cancer might be accompanied with an increase in availability of social support resources where it reaches the peak (Banovcinova & Baskova, 2016; Courtens et al., 1996; Eom et al., 2013; Thompson et al., 2013). An increased level of PSS after breast cancer diagnosis might be an indication of the presence of a supportive social network around the woman when she is sick (Masià et al., 2019). After the social support reaches its peak, it starts to decline to return to the baseline levels before cancer diagnosis (Arora et al., 2007; Thompson et al., 2013). As a result, members of the social network might start to move away because their patients look better or have completed treatment, or due to the burdens encountered by caregivers (Arora et al., 2007; Courtens et al., 1996; Eom et al., 2013). These burdens are described as "care stress," "relation stress," or "network stress" (House, 1981). Supportive attitudes might also decline as women acquire skills to cope with their illness and overcome many difficulties associated with treatment journeys (Arora et al., 2007). As a result, HRQoL for patients with cancer improves (Courtens et al., 1996; Yan et al., 2016). As supportive actions toward cancer patients decline, their perception of social support might also decrease.

Several studies investigated the changes of PSS levels during different times of the disease process (Leung et al., 2014; Masià et al., 2019; Thompson et al., 2017; Waters et al., 2013). Most studies showed that PSS levels among women with breast cancer are higher earlier at the diagnosis and tend to decrease over time (Arora et al., 2007; Banovcinova & Baskova, 2016; Eom et al., 2013; Thompson et al., 2013). In contrast, others did not find any changes in PSS levels among women with breast cancer over time (Leung et al., 2014; Thompson et al., 2017). It is essential to assess and monitor PSS levels regularly during breast cancer disease so healthcare providers can know the needs of those women and provide referrals if needed (Thompson et al., 2017).

Presence of Chronic Illnesses or Comorbidities

A negative correlation between PSS and well-being might not necessarily mean that social support was problematic or not beneficial (Wortman, 1984). Instead, it might be related to the severity of the patients' condition; they might have poor prognoses or chronic diseases that necessitate multiple supportive demands (Wortman, 1984). Several research studies have investigated the levels of comorbidities or the presence of chronic diseases among women with breast cancer.

Family Relationships and Breast Cancer

Cancer disease extends beyond the patients (Koenig Kellas et al., 2021). The increase in survival rates and moving out of cancer patients back to their homes have increased their families' burden and responsibilities (Jun et al., 2021). As families become more involved, it becomes essential to consider the interpersonal context in which social support processes occur (Al-Bahri et al., 2019; Pierce et al., 1990; Wortman, 1984) and

its impact on the life of the patients and their families. Social support is a dynamic and complex process that involves a continuous exchange between the individuals and their social network within the social environment (Vaux, 1992). The quality of close relationships with family members (degree of conflicts, intensity, and the individuals' point of view of one another) may impact the processes of social interaction in providing support (Sarason et al., 1992). The presence of resistance and conflict in the family environment affects the patient's perception of social support and HRQoL. A minimal condition to have social support is to experience a stable relationship with others (House, 1981). Therefore, in his classical work, Wortman (1984) recommended considering the patients' network system characteristics such as family relationships.

In the context of illness, family functioning is defined as the outcome of the family's attempts to keep a certain level of coherence, balance, and agreement when encountering a stressful situation (McCubbin & McCubbin, 1988). Cancer disease has a significant negative impact on the life of family members and the interpersonal relationships of the patients (Al-Azri et al., 2014; Stenberg et al., 2014). When family relationships deteriorate, it can affect the lives of cancer patients and their families. Family relationship problems are associated with increased symptoms distress and impaired social well-being among Jordanian women with cancer (Al-Husban et al., 2019; Omran et al., 2012). Greater family dysfunction is associated with psychosocial distress and poor social adjustment among patients with advanced cancer (Schuler et al., 2017). In addition, family conflicts are related to complicated grief and major depressive symptoms in the families of patients with advanced cancer (Hamano et al., 2020). Stress related to caregiving for the cancer patient is associated with worse mental and physical health of

caregivers (Saimaldaher & Wazqar, 2020). Furthermore, family members of patients with cancer might suffer from sleep disturbance and severe depression (Stenberg et al., 2014). All aspects affecting family members disrupt the caregiving performance and family relationships.

Negative aspects of one's social network are a source of psychological distress which alters the physiological process and increases the risks of poor health-related outcomes (Cohen, 2004). Members of our social network influence our ability to ask for help and affect our evaluation of the stressful situation, thereby influencing coping processes (Al-Bahri et al., 2019; Stewart, 1993). They might also be a source for conflict and stress, complicated grief, depression, improper efforts to help, feelings of isolation, and being demanding and draining (Cohen, 2004; Coyne & DeLongis, 1986; Hamano et al., 2020; Tilden, 1985; Wortman, 1984). Members of one's social network might also hinder the recipient's freedom, decrease their self-confidence, and be distressing or not helpful (Alqaissi & Dickerson, 2010; Gottlieb & Bergen, 2010). On the other hand, supportive family relationships enhance coping and adaptation with cancer, improving HRQoL (Al-Shannaq, 2017; Ghaemi et al., 2019; Mosleh, 2018). For Jordanian women with breast cancer, family members (e.g., children and husband) are a major source of hope and strength to move forward, encouragement, and reassurance (Al-Shannaq, 2017; Alqaissi & Dickerson, 2010).

There are many cultural differences in the degree of family involvement in the treatment journey of cancer patients. In Middle Eastern countries, the family has a more substantial impact on treatment-decision making compared to Western countries (Al-Bahri et al., 2019). The non-Western patients have a more significant need to involve

their social network (e.g., family members and friends) in their treatment plans and decision-making (Obeidat et al., 2013). It is likely because most Middle Eastern countries are collectivistic communities where the person is defined within a family or group of individuals (Purnell, 2002). In contrast, individualism is more valued in treatment decision-making in most of Western countries (Dwairy, 2002; Obeidat et al., 2013). In individualistic societies, the person usually stands alone as a unique individual (Purnell, 2002). In Jordan, family members and friends have a significant role in supporting cancer patients and decreasing stressors (Alhusban, 2019; Alqaissi & Dickerson, 2010; Khater & Alkwiese, 2013). Family and children come first for Jordanian women, and their needs are a priority (Taha et al., 2012). Jordanian women with breast cancer identified family members, especially females, as an essential resource for support during the disease journey (Alqaissi & Dickerson, 2010).

The importance of considering the contextual factors of social support is emphasized by many theoretical orientations linking social support to health and psychological well-being. According to Sarason et al. (1992) perspective, PSS is a product of the interaction of three variables: personality characteristics, interpersonal relationships for social support exchange, and the situational context that stimulates supportive behaviors. Lakey and Cohen (2000) presented another competing theoretical perspective, with three factors that might explain the influence of social support and relationships on health. One of these factors was the relationship perspective, which discussed the fact that social relationships could not be separated from social support. That is to say, social support is not restricted to the idea of the support recipient and another individual who is the support provider (Gottlieb & Bergen, 2010; Pierce et al.,

1990). The provider-recipient social support approach fails to consider the larger societal network in which social interaction and potentially supportive processes occur (Pierce et al., 1990). Social support is an expression of reciprocal, passionate, and emotional characteristics of the relationship between provider and recipient of the support (Gottlieb & Bergen, 2010).

Another theoretical underpinning for social support is presented by Veiel and Baumann (1992), noting that social support can represent a characteristic of the recipient, the environment, or a combination of the person and environment – named as a social system. In the social system, social support is a characteristic of the interactional context, mainly a function of the dynamic system of both the individuals and their environment. The relationship between the recipient and the provider may provide a context in which some small behaviors or gestures might be perceived as supportive compared to others (Veiel & Baumann, 1992).

To date, researchers have not investigated family relationships among cancer patients in Jordan. A research study was conducted to identify the needs of noninstitutionalized patients with cancer in Jordan (Al-Jauissy et al., 2009). The results showed that the area of “interpersonal interaction” was one of the crucial needs for these patients. The need was to improve the interaction between patients with cancer and their family members and friends and enhance the communication channels between the patients and their spouses (Al-Jauissy et al., 2009). Another study conducted by Omran et al. (2012) supported this notion. This study aimed to explore the prevalence of symptom distress among Jordanian patients with cancer receiving chemotherapy. Results showed that Jordanian patients with cancer need more family involvement in cancer treatment

and care. It is essential to improve the communication channels between patients with cancer and their families earlier at the diagnosis period (Inoue et al., 2003; Jeong et al., 2016). Engaged family members and a positive family environment affect the decision processes for the patient with cancer related to their treatment across different stages, ages, and treatment modalities. Unmet supportive care needs of Arab patients with cancer have a negative impact on the psychosocial outcomes and HRQoL (Alananzeh et al., 2016).

Cultural and Societal Features of Arab Communities

In Jordan, as in many other Arab countries, cancer experience is a family matter. Jordanian women perceive their families and associated social support as a motivator to take care of their health (Taha et al., 2012). The acceptance and encouragement, specifically from the husband during treatment, is a significant source of support for Jordanian women with breast cancer (Alqaissi & Dickerson, 2010). The expectation from family members is to dedicate the maximum time and effort to take care of their patients. In Jordan, patients do not find themselves asking for social support from family members who are readily available to provide social support (Alqaissi & Dickerson, 2010; Khater & Alkwiese, 2013). Jordanian family members support their patients spontaneously as an ethical and social obligation for caring (Al-Shannaq, 2017). Seeking support from outside the family network while the family already exists is not acceptable, violating interpersonal etiquette and placing the whole family at risk of being stigmatized and shamed by society. However, at the same time, it is expected that nonfamily members will be readily available to provide support voluntarily. During illness, Arab patients

receive extensive social support from family members and other community members who might not be related to the patient (ACCESS Community Health Center, 1999).

Lipson and Meleis (1983) described some of the core values and behaviors of the Middle Eastern population concerning health care issues. To be affiliated and connected with others is a universal human need; however, the intensity is relevant between nations and cultural groups. This need is dominant and robust among Middle Eastern people. Relationships within the family fulfill the need to be affiliated and connected. Family gatherings and regular visits on an almost daily basis are not uncommon and are expected. As a cultural norm, children live with their families until they get married, and after marriage, they stay in close contact with their families. A Jordanian family provides continuous psychological support to single and married females (Omran et al., 2012). Children are expected to take care of their parents when they get old. Within Middle Eastern communities, patients are likely show up to receive medical treatment or follow-up accompanied by their family members. As a conservative society, the family structure is mainly patriarchal and includes many generations (parents, children, and grandchildren).

As a cultural norm, bonding and affiliation are intensified during illness, and people rely on each other as a source of support (Lipson & Meleis, 1983). Jordan is a tribal society, where people rely on each other at difficult times as a collective group (Omran et al., 2012). During crises, Jordanians (e.g., family members, friends, neighbors, relatives, and parents) have solid relationships and support each other (Al-Ghabeesh et al., 2014; Omari, 2009). For Jordanian women with breast cancer, being lonely during illness is traumatizing and might affect the treatment journey (Al-Shannaq, 2017).

Middle Eastern society emphasizes different cultural and societal features, resulting in different health-related outcomes. There might be a distinct emphasis on a specific type of social support than other types of support. In some cultures, being there to support someone is comforting; however, the physical presence might not always be necessary (Finfgeld-Connett, 2005). For example, in some Western societies, nonphysical social support (e.g., flowers, phone calls, prayers, letters, or cards) can be more valuable and provide emotional support (Hupcey, 2001; Lee & Bell, 2011). However, in Middle Eastern and Eastern societies, expressing the support by being present physically or providing financial support reflect a strong family bonding with a sense of belonging, being cared for, and being loved (Al-Shannaq, 2017; Alqaissi & Dickerson, 2010; Lee & Bell, 2011).

Culture influences the individual's values, beliefs, and practices concerning health and illness (Purnell, 2002). Our emotional and behavioral responses are the results of who we are. Individuals bring their values, background, cultures, and perspective to their new situations. Like any other country, Jordan has cultural norms, social structures, and ties different from Western society (Khater & Alkwiese, 2013). Accordingly, guided by the theoretical framework developed by Ashing-Giwa (2005), the results of the proposed study will be interpreted and analyzed within the cultural context that distinguishes Jordan as an Arab country in the Middle East region.

Social Support and HRQoL among Cancer Patients During the Pandemic

Jordan, similar to many other countries across the globe, undertook several measures to combat the global coronavirus disease 2019 (COVID-19) pandemic. These

measures started from banning the entry of people from several countries worldwide to complete closure of borders, shops, malls, and organizations. As a state of emergency was declared by the Jordanian government on March 17, 2020, a curfew was announced, and borders were closed in the Kingdom (Alqutob et al., 2020). The Jordanian government launched a website for people who needed a permit to resume their daily life and work outside their homes (e.g., healthcare providers, workers in telephone companies etc.) (Alqutob et al., 2020).

Cancer care has been profoundly impacted by the global pandemic. Supportive care is an essential part in the treatment journey for cancer patients under the routine and normal conditions. With the presence of the pandemic, many healthcare sectors, especially in the developing countries, encountered unprecedented challenges to supporting their patients (Alqutob et al., 2020). In Jordan, most of the outpatient clinics were closed, and unnecessary surgical procedures were cancelled. Most patients' appointments were cancelled in the clinics or transferred to a virtual telehealth appointment which is provided by few centers in Jordan. Delay in treatment and interruption of care due to COVID-19 affected the physical, psychological, and emotional well-being of cancer patients (G. Chen et al., 2020; Choobin et al., 2021).

Jordanian people highly appreciate family gatherings, regular visits between each other on an almost daily basis, and social relationships with others (Alqutob et al., 2020; Lipson & Meleis, 1983). The need to be connected and support each other during crisis situations (such as the pandemic) is robust among Middle Eastern population, including Jordanians (Al-Ghabeesh et al., 2014; Lipson & Meleis, 1983; Omari, 2009). However, the Jordanian government enforced several infection control and prevention measures to

combat the spread of COVID-19 (Alqutob et al., 2020). Jordanian media also played a significant role in encouraging social distancing to save and protect beloved ones, especially older family members or those who were sick (Alqutob et al., 2020). Among the stressors that people faced during the pandemic worldwide were persistent fear of having the disease or transferring it to a beloved one, being away from people and isolated, and financial distress (Kira et al., 2021; Shuwiekh et al., 2020). Banning of social gatherings, lockdowns, and isolation had a negative impact on the social well-being and physical health of people (P. Chen et al., 2020).

As a result, supportive care from social network members among cancer patients was decreased due to the imposition of social distancing and isolation. Being lonely during illness is traumatizing for Jordanian women with breast cancer and has a significant impact on the treatment journey (Al-Shannaq, 2017). For Jordanian women with breast cancer, the physical presence of social network members to provide supportive care or financial help is valued as a sense of being cared for, loved, and belonging (Al-Shannaq, 2017; Alqaissi & Dickerson, 2010). Several studies reported that cancer patients, as well as the general population, suffered from a significant decline in mental, psychological, and cognitive health due to the pandemic (G. Chen et al., 2020; Choobin et al., 2021; Ciężyńska et al., 2020; Khatatbeh et al., 2021; Shuwiekh et al., 2020; Wang et al., 2020). In addition, studies showed that quality of life for patients with cancer has been decreased significantly during COVID-19 pandemic, and voices were raised for urgent psychosocial interventions (Bargon et al., 2020; Choobin et al., 2021; Jeppesen et al., 2021).

Cancer Care in Jordan

In Jordan, many efforts have been undertaken to ensure the availability of quality screening services and to increase public awareness and education concerning breast cancer (Abdel-Razeq et al., 2020). Jordan breast cancer Program (JBCP) is a national program established in 2007 under the Jordanian Ministry of Health and King Hussein Cancer Center (KHCC) leadership. As a result, mobile mammography, early detection programs, breast cancer campaigns, and many other programs were launched. Compared to many neighboring countries, cancer care and treatment in Jordan is advanced, and the country hosts many international experts who provide various treatment modalities in cancer care (Abdel-Razeq et al., 2015; Abdel-Razeq et al., 2020).

Health care is provided to Jordanian people through the public and private sectors. The public sector is composed of Ministry of Health hospitals, the military's Royal Medical Services, and university hospitals (Abdel-Razeq et al., 2020). Cancer treatment is provided by many of these healthcare sectors, including KHCC. However, the Ministry of Health is considered the primary arm for healthcare services, resources, and legislation. Around 80% of Jordanian people have public and military insurance; therefore, after KHCC, most breast cancer surgeries are usually performed in public sectors (Ministry of Health hospitals) (Obeidat & Lally, 2014).

King Hussein Cancer Center is an independent, non-governmental, not-for-profit institution. The center is accredited by the Joint Commission International (JCI) as a disease-specific cancer center, making it the first and only center in the developing world to obtain such a prominent accreditation. The center is the only comprehensive cancer center in Jordan that has employed unique and advanced cancer care by adopting a

multidisciplinary approach to cancer treatment, assessing and monitoring outcomes, and supporting cancer research (Abdel-Razeq et al., 2020).

Breast cancer as a disease and its treatment places a lot of pressure and challenges on the healthcare system in Jordan (Abdel-Razeq et al., 2020). Several areas affect cancer care and need to be addressed and improved in the Jordanian healthcare sectors. In general, cancer care is concerned with the physical aspects, and less attention is devoted to other elements of the cancer experience (e.g., social, psychological, spiritual) (Abdel-Razeq et al., 2015). In addition, cancer care quality varied widely and depended on where the patient received the care (Abdel-Razeq et al., 2020; Alqaissi & Dickerson, 2010). Most hospitals and centers providing cancer care are located centrally in the Kingdom, thereby creating challenges to access treatment (Abdel-Razeq et al., 2020). Besides, structured cancer care programs are lacking across the country, which puts a lot of pressure on healthcare sectors to follow up cancer patients during treatment and beyond (Abdel-Razeq et al., 2020).

There are many differences in the cancer care between KHCC and other healthcare sectors in Jordan (e.g., Ministry of Health hospitals such as Al-Bashir Hospital) (Al-Shannaq, 2017; Alqaissi & Dickerson, 2010; Obeidat, 2015; Obeidat et al., 2013; Obeidat & Lally, 2014). Psychosocial programs and services are underdeveloped and a neglected area in Jordan, especially for women with breast cancer in Ministry of Health hospitals (except KHCC) (Abdel-Razeq et al., 2015; Abu-Helalah et al., 2014; Alhusban, 2019; Mosleh, 2018). In KHCC, emotional and spiritual support are provided to patients and their families through structured psychosocial oncology programs to improve HRQoL and ensure optimal outcomes (Abdel-Razeq et al., 2015). For example,

a group named “SANAD” (Support) in KHCC is comprised of a trained breast cancer survivors who support other women with breast cancer and share with them their own experience and stories (SANAD group, 2018).

King Hussein Cancer Center adopts a patient-centered model of care, whereas the physician-centered model of care (paternalistic model) is dominant in other sectors (Obeidat, 2015; Obeidat & Khrais, 2015; Obeidat & Lally, 2014). In addition, a multidisciplinary approach in cancer care is a routine practice in KHCC, and clinics are equipped with the latest technology (e.g., telemedicine) and equipment (e.g., portable computers, iPad, and laptops) (Abdel-Razeq et al., 2015). It is the only center that does not suffer from a shortage in equipment or medical services for cancer patients (Abdel-Razeq et al., 2015).

Many healthcare sectors in Jordan (except KHCC) suffer from a lack of education for cancer patients and their families, a lack of social workers and psychologists, psychological and palliative care units are limited, shortage of oncology healthcare providers, time constrains and high patients’ load (Abdel-Razeq et al., 2015; Al-Jauissy et al., 2009; Arabiat & Altamimi, 2013; Obeidat & Khrais, 2015). With all of these shortages and barriers, healthcare sectors relay on referrals to address any gaps (Abdel-Razeq et al., 2015). As a result, the waiting time and load increase in these institutions, resulting in the interruption of provided care (Abdel-Razeq et al., 2015).

There are differences in information exchange between health care providers and patients across Jordanian healthcare sectors (Alqaissi & Dickerson, 2010; Obeidat, 2015; Obeidat & Lally, 2014). Information exchange depends on the area where the women live (e.g., rural, urban, North, or Center) and the facility providing cancer care to them (e.g.,

public, teaching, private) (Obeidat & Lally, 2014). King Hussein Cancer Center adopts Western patient-centered model of care, where patients can ask questions and engage with their healthcare providers compared to those at teaching and public hospitals (Ministry of Health hospitals) (Obeidat, 2015; Obeidat & Lally, 2014). Compared to those treated at public hospitals, women with breast cancer treated at KHCC are provided with teaching materials about their disease and treatment (Obeidat & Lally, 2014).

In addition, there are differences in the way of communicating the news of breast cancer diagnosis. Physicians at KHCC inform their patients about their diagnosis and any related information directly, whereas physicians at the public and teaching healthcare sectors employ euphemisms or do not share a lot of details related to treatment side effects (Alqaissi & Dickerson, 2010; Obeidat, 2015; Obeidat & Lally, 2014). Controlling the exchanged information and concealing medical information is considered as way to minimize stress and maintains hope for breast cancer survivors (Alqaissi & Dickerson, 2010; Obeidat & Khrais, 2015). Based on the above discussions, the primary researcher chose Al-Bashir hospital (public hospital) for the data collection due to the lack of psychosocial services and shortage in resource in this setting. The goal was to address gaps to improve cancer care in this setting and public health sectors in general.

Conclusion

To build upon the literature, it is evident that PSS, family relationships, and HRQoL are three significant variables that influence the experience of women with breast cancer. The evidence shows a positive association between PSS and HRQoL among women with breast cancer across different stages and treatment modalities, which underscores the importance of PSS in maintaining and sustaining good HRQoL for those

women. Findings appear to be robust across studies conducted in different countries and cultural settings. Various types of functional social support (informational/emotional, tangible, affectionate, and positive social interaction) were also beneficial to HRQoL among women with breast cancer. In addition, the experiences of women diagnosed with breast cancer concerning PSS and HRQoL might be different across demographics (age and marital status) and clinical factors (stage of breast cancer and time since diagnosis).

Furthermore, evidence shows that family relationships and the quality of social relationships impact health-related outcomes and social interaction processes in providing support (Sarason et al., 1992). Therefore, family relationships and how they affect HRQoL are important areas to investigate among women with breast cancer in Jordan. This is of particular importance, as family members and friends in a collectivistic community such as Jordan play a major role in supporting cancer patients and in minimizing stress or side effects of treatment.

Noninstitutionalized patients with cancer in Jordan have raised a need to improve interpersonal interaction with their families and to strengthen the communication channels between them and their spouses (Al-Jauissy et al., 2009). Inability to meet the supportive care needs of Arab patients with cancer might have a negative impact on the psychosocial outcomes and HRQoL (Alanzeh et al., 2016). Advancing social support research is beneficial to nurses and healthcare professionals to design effective interventions and thereby optimize healthcare outcomes (Hutchison, 1999). Furthermore, evaluating the levels of social support across cancer disease trajectories is valuable to fulfill patients' needs and to provide referrals if needed (Thompson et al., 2017).

There is a need to improve cancer care in Jordan. In clinical practice, psychosocial care is still underdeveloped and neglected (Abdel-Razeq et al., 2015; Abu-Helalah et al., 2014; Alhusban, 2019; Alqaissi & Dickerson, 2010; Arabiat & Altamimi, 2013; Mosleh, 2018). The country suffers from a shortage of psychosocial support programs and services for many patients with cancer, especially in the Ministry of Health hospitals (Abu-Helalah et al., 2014; Mosleh, 2018). Therefore, women with breast cancer have limited access to social support services (Alqaissi & Dickerson, 2010). In addition, the main focus of cancer care in Jordan is still concerned with physical aspects, and less attention is devoted to other elements of the cancer experience (e.g., social support) (Abdel-Razeq et al., 2015). From an ethical point of view, it is important to take into consideration the psychosocial aspects in addition to the physical ones; otherwise women with breast cancer will continue to be distressed during the treatment journey (Leung et al., 2014). It is important from an ethical perspective to provide holistic cancer care for patients.

In conclusion, our scientific understanding of PSS, family relationships, and HRQoL in Jordan are limited. The theoretical framework of Ashing-Giwa (2005) presents a conceptual foundation and basis to guide the research inquiry by understanding the predictors and disparities for HRQoL outcomes, particularly with multiethnic diverse cancer patients. The results of the study will be interpreted within the cultural context that distinguishes Jordan as an Arab country in the Middle East region. The proposed research will contribute to scientific knowledge by addressing the research gaps, advancing science, and serving as a basis for future research studies. Ultimately, the results of this study will present scientific evidence for those in leadership positions, stakeholders, and

policy makers to evaluate the services provided to patients with cancer and to address any gaps or areas for improvement.

CHAPTER III

METHODS

Design

This study used an exploratory cross-sectional design. Although this design does not allow testing for causality and long-term impact (Polit & Beck, 2017), an initial exploration of the relationships among variables was considered appropriate since there is a lack of studies in this area among women in Jordan.

Setting

Participants were recruited from Al-Bashir Hospital, the largest government hospital in the capital, Amman, Jordan. Since 2009, Al Bashir Hospital has become the primary hospital to treat women with breast cancer covered by the Jordanian Ministry of Health (Abu-Helalah et al., 2014). This setting was chosen because it receives the largest number of women with breast cancer who are believed to be representative to a large extent of the socio-cultural context of the Jordanian society. In addition, Al-Bashir Hospital was chosen because psychosocial programs and services are underdeveloped and a neglected area in Jordan, especially for cancer patients in Ministry of Health hospitals (e.g., Al-Bashir hospital) (Abdel-Razeq et al., 2015; Abu-Helalah et al., 2014; Alhusban, 2019; Alqaissi & Dickerson, 2010; Mosleh, 2018). There is an urgent need to provide these services in outpatient clinics for oncology patients in Jordan (Mosleh, 2018).

Participants

Inclusion Criteria

Eligible women were Arabic-speaking women from Middle Eastern countries aged 18 years and above, diagnosed with breast cancer with stage I to IV who received any type of breast cancer treatment (surgery chemotherapy, radiation therapy, and hormonal therapy) at Al-Bashir Hospital in Amman, Jordan. There were no limitations on the stage of breast cancer or time since diagnosis to increase the generalizability of findings and identify differences in PSS and HRQoL across selected demographic (age and marital status) and clinical characteristics (stage of the disease and time since diagnosis).

Exclusion Criteria

Women were excluded if they chose to withdraw from the study or were hospitalized during the study period. Non-Arabic-speaking women were excluded as cultures emphasize different aspects of HRQoL (Montazeri, 2008). Culture and ethnicity could also affect patient-based outcomes (Bates et al., 1997; Taleghani et al., 2006).

Sample and Power Analysis

The sampling method was convenience sampling. The sample size was calculated by G* power estimation (Faul et al., 2007), where a medium effect correlation r of .50 is estimated. To achieve 80% power at an alpha of .05, two-tailed, at least 128 participants were needed. The final sample size was increased to 140 to compensate for any missing or incomplete data.

Measures

Demographic Variables

Data were collected on the following demographic variables: age, age at diagnosis, time since diagnosis, country from which they came to receive cancer treatment/care, marital status, education for woman and her husband (if married), employment for woman and her husband (if married), household monthly income, number of children (if present), number of children under 18 years, and living situation (nuclear family, extended family, with husband, alone).

Psychosocial Variables

Data were collected on the following psychosocial variables: received psychological counseling after diagnosis (at least once), currently receiving a psychological counseling, currently participating in a psychosocial support program, currently participating in a formal/informal support group (social media, forum, community setting, etc.), history of any mental illness/problems (anxiety and/or depression), and presence of major life events during the previous year.

Clinical Variables

Data were collected on the following clinical variables: family history of cancer, presence of chronic illness/comorbidity, stage of breast cancer, presence of metastatic breast cancer, previous treatment of breast cancer received (surgery, chemotherapy, hormonal therapy, radiation), and current treatment of breast cancer.

Perceived Social Support

The Medical Outcomes Study--Social Support Survey (MOS-SSS) is an easy-to-administer 19-item questionnaire that measures the perceived availability of functional support on a 5-point Likert scale ranging from 1 = none of the time to 5 = all of the time (Sherbourne & Stewart, 1991). The questionnaire was initially developed to measure perceived social support (PSS) in community-dwelling individuals with multiple chronic conditions. The 18 items are separated into four dimensions: (1) emotional/informational (eight items), (2) tangible support (four items), (3) positive social interaction (three items), and (4) affectionate support (three items) as well as a single item to measure structural support of, "Someone to do things with to help you get your mind off things" (Sherbourne & Stewart, 1991).

Scores of the four separate MOS-SSS subscales and total functional support index were calculated; a higher score indicates greater social support (RAND Corporation, n.d). To obtain a score for each subscale, the mean of the item scores for each subscale was calculated (RAND Corporation, n.d). To obtain an overall support index score (total PSS), the mean was calculated for the scores on all 18 items plus the score for the one additional item (RAND Corporation, n.d). In a sample of 2,987 chronically ill participants from the original study, Cronbach's alphas for the subscales ranged between .91 - .96; for the total score, alpha was .97 (Sherbourne & Stewart, 1991). According to this study, the instrument has strong reliability over time. The short version of the instrument was validated in diverse multiethnic groups of women with breast cancer with different stages of the disease or treatment modalities (Ganz, Guadagnoli, et al., 2003; Oh

et al., 2004). Face, discriminant validity, construct validity, convergent validity, and confirmatory factor analysis validity were supported (Sherbourne & Stewart, 1991).

The instrument was translated and validated with Arabic-speaking medical students ($N = 487$) in Sudan (Dafaalla et al., 2016). The results showed that the instrument had high reliability and strong evidence to support validity. The MOS-SSS was also translated into the Arabic language and validated with Arabic stem cell transplant survivors in Jordan ($N = 63$) by Alaloul (2007) (unpublished master thesis). In his study, Cronbach's alphas ranged from .79 (for the tangible support subscale) to .87 (for the emotional/informational subscale) (Alaloul, 2007). The same author used the Arabic version of the MOS-SSS to explore the factors associated with HRQoL among Arabic patients with heart failure ($N = 99$) (Alaloul et al., 2017). Cronbach's alphas ranged from .88 for the tangible and emotional/informational social support to .96 for the affectionate social support. Appendix B presents a summary table of the included instruments.

The participants were asked one additional question:

1. Do you think that the pandemic of COVID-19 had an impact on the level of social support you received (implied negative impact with translation into Arabic)? (Yes and No question)

Family Relationships

The Family Relationship Index (FRI) is a global measure of family interaction and relationships; it was developed from the Family Environment Scale (FES) (Moos & Moos, 1981). The FES is composed of 90 items that are used to evaluate the social

climate of the family and family functioning (Moos & Moos, 1981). Patients' perception of family functioning and relationships includes individuals viewed as important to them, whether their children, parents, spouses, extended family members, and friends (Moos & Moos, 1981). Thus, the family compositions for each patient varied. The FES is composed of 10 subscales measuring three main dimensions: (1) family relationships (which represents the FRI used in this study), (2) personal growth, and (3) system maintenance and change. According to the developer, the dimensions can be used separately without affecting the reliability and validity of the instrument (Mind Garden, 2019). The FES has three forms: (a) the Real Form (Form R) that "measures people's perceptions of their current family environment," (b) the Ideal Form (Form I) that "measures people's preferences about an ideal family environment," and (c) the Expectation Form (Form E) that "measure people's expectations about family setting" (Moos & Moos, 1981). Form R was used in this study.

The FRI, a part of the FES, is a 27-item, true-false response scale composed of three subscales: (1) cohesion (nine items) which is the degree to which all members are helpful and support each other, (2) expressiveness (nine items) which is the extent to which family members can express their feelings freely and behave openly, and (3) conflict (nine items) which represents a characteristic of the family as having an interaction that is full of anger, conflict, and aggression (Moos & Moos, 1981).

Appendix B presents a summary table for the included instruments.

The reliability of the instrument was documented with Cronbach's alphas for the cohesion, expressiveness, and conflict subscales of .78, .69, and .75, respectively (Moos & Moos, 1981). Cronbach's alpha for the FRI was .89. In addition, test-retest reliability

coefficients for the three subscales were .86, .73, and .85, respectively (Moos & Moos, 1981). Face, content, construct, concurrent, and predictive validities were supported (Moos, 1990). The instrument was translated into 22 languages by the developer, including the Arabic language.

The FES can be used to assess the family environment that includes several family members or just one family member (Moos & Moos, 2009). An individual FES profile indicates the person's perception of their family (Moos & Moos, 2009). The scale's manual includes a scoring key which was used in this study (Moos & Moos, 2009). The 90 items which constitute the FES are arranged so each column in the answer key includes only one subscale. An individual's raw score for each subscale is calculated by counting the number of responses given in the keyed direction on the scoring key in each column. A higher score indicates a higher degree of the characteristics in that subscale. In this study, the raw score was calculated for each subscale according to the developers' instructions. For the calculations of raw scores, the scoring key took into consideration the positively and negatively phrased items. For positively phrased items, True = 1 and False = 0, whereas, for negatively phrased items, True = 0 and False = 1. The FRI total score is the sum of the scores for the cohesion, expressiveness, and conflict (reversed) subscales (Moos & Moos, 2009). In this study, the FRI was calculated according to the developer's instruction.

The scale's manual presents a typology of the family environment (seven family types) based on data from a representative community sample in the United States. Two types of these families are based on characteristics of the FRI. Describing and analyzing the typology of families' environment in depth was out of the scope of this study.

However, to answer the first research question and describe the nature of family relationships, the two types of family typologies (based on the family relationship characteristics) were included in the results. The two types of families are: (1) the *support-oriented families* (the standardized score of cohesion or expressiveness or both ≥ 60 and either cohesion or expressiveness \geq conflict); (2) *conflict-oriented families* (the standardized score of conflict ≥ 60) (Moos & Moos, 2009).

The scale's manual included normative data for families in the United States including single-parent families, multigenerational families, families from different ethnicities (African American and Hispanic), and families of all age groups (Moos & Moos, 2009). Our results were compared to the normative data for three different types of families from United States published in the scale's manual (Moos & Moos, 2009). There is no published normative data for Middle Eastern (Including Arabs) families in the scale's manual nor it was found in literature. Therefore, from the scale's manual, three types of families were chosen for comparison with the Middle Eastern families of the women in this sample. The three types of families were: "four-member family," "African American and Latino family," and "family of origin." The subset of "four-member family" was chosen as it is comparable to the average number of children (3.87, $SD = 2.56$) for women with breast cancer in this study. The scale's manual also included data from other investigators' research studies ($N = 17,730$) (Moos & Moos, 2009).

Health-related Quality of Life (HRQoL)

The Quality of Life-Breast Cancer version (QOL-BC) instrument is composed of 46 items representing the four dimensions of HRQoL: physical well-being (eight items), psychological well-being (22 items), social well-being (nine items), and spiritual well-

being (seven items) (Ferrell et al., 1995). The scores range from zero (lowest HRQoL) to 10 (highest HRQoL) on the visual analog scale. Several items have reverse anchors, and therefore were reverse scored. These items are 1-7, 9,10, 17-29, 31, 33-39, and 43. All items within each subscale are summed separately, and mean scores are calculated for each subscale (Ferrell et al., 1995). In addition, a total HRQoL mean score can be calculated. A higher overall mean score corresponds to better HRQoL. The instrument was translated into the Arabic language and validated among women with breast cancer in Jordan and Saudi Arabia (Al-Husban et al., 2019; Al Zahrani et al., 2019).

The QOL- BC instrument is reliable and valid. In a sample of patients with cancer ($N = 70$), test-retest reliability for the overall scale was .89, and for the subscales it was: $r = .88$ for the physical subscale; $r = .88$ for the psychological subscale; $r = .81$ for the social subscale; and $r = .90$ for the spiritual subscale, respectively (Ferrell et al., 1995). Cronbach's alpha for the overall scale was .93. For the subscales, the following alphas were reported: $r = .81$ for the physical subscale; $r = .89$ for the psychological subscale; and $r = .81$ for the social subscale (Ferrell et al., 1995). Content, predictive, concurrent, construct and discriminate validities were supported (Ferrell et al., 1995). Appendix B presents a summary table for the included instruments. Appendix C shows all study instruments.

Translation of the QOL-BC Instrument

The QOL-BC Instrument was translated into Arabic in two research studies conducted in the Middle East (Al-Husban et al., 2019; Al Zahrani et al., 2019); however, the researchers did not include the psychometric properties. Thus, the principal investigator, a Jordanian native and Arabic speaker, translated the instrument into Arabic.

There is no consensus on the methodological approaches for translation and validation of instruments for cross-cultural research (Sousa & Rojjanasrirat, 2011). Despite that the published guidelines and recommendations provide a multi-step process for translation, it is common to overlook such information in research studies (Sousa & Rojjanasrirat, 2011). Most of the published guidelines shared common steps for translation, adaptation, and validation of instruments (Beaton et al., 2000; Brislin, 1970; Brislin, 1986; Sousa & Rojjanasrirat, 2011; Sperber, 2004; Waltz et al., 2016; World Health Organization, n.d). The World Health Organization (n.d) method for translation and validation of instruments was commonly cited in the literature. It includes a comprehensive and straightforward approach; therefore, the QOL-BC instrument was translated into Arabic per World Health Organization (n.d) guidelines. The translation steps were forward translation, expert panel and back-translation, pre-testing and cognitive interviewing, and finalizing the translated version. See Appendix D for the translation steps.

Psychometric Testing of the Translated Instrument

The translated questionnaire was pre-tested and validated before using it in this study. The two steps of the WHO method of “expert panel” and “cognitive interviewing” provided a way of validating and evaluating the translated version. The advantage of these two steps was to ensure that the translation process was not solely dependent upon the skills and knowledge of one translator (Waltz et al., 2016). The sample size of 140 was appropriate for the psychometric testing in this study.

Protection of Human Subjects

The researcher obtained human subjects' approval to conduct the study from the Biomedical Institutional Review Board (IRB) of the University of Louisville, the Jordanian Ministry of Health, and Al-Bashir Hospital in Jordan. The researcher carried out this study in compliance with the three principles of the Belmont Report: beneficence, respect for human dignity, and justice.

Beneficence

The study is exploratory and cross-sectional; the potential risks were expected to be minimal. Protecting participants from physical harm is straightforward, but the psychological damage might be subtle and thus requires careful consideration (Polit & Beck, 2017). Participants were not subjected to unnecessary discomfort or harm and were given a choice to withdraw or not to participate if they chose to. Participants were reminded that there was no direct benefit for participating in this study.

Respect for Human Dignity

The participants had the right to self-determination and full disclosure. The researchers fully explained the study to the participants, their rights to withdraw, responsibilities of the researchers, risks, and benefits.

Justice

The principal investigator provided training for the female research assistant and emphasized maintaining the participant's privacy if they choose to answer the questionnaires in a private room or area in the outpatient clinics. For the collected data, the printed questionnaires were kept in a locked, secured cabinet. The principal

investigator entered the data using a secured password-protected laptop. Only the investigator had access to the data.

Procedure

Female Research Assistant

One Jordanian Arabic-speaking female research assistant helped the principal investigator collect data two days per week because many patients were seen at the chemotherapy clinic. The female principal investigator completed data collection by herself on the remaining days of the week. After each day of data collection, the principal investigator held debriefing sessions with the research assistant. Training for the female research assistant was conducted on the following: research background and study's aims, description of the instruments, methodology, eligibility screening (inclusion and exclusion criteria), ethical considerations, the data collection procedure, and time for questions and answers.

Data Collection

Data were collected during June and July of 2021. The female principal investigator and the female research assistant approached women in the waiting area in the outpatient clinics. The study's aims and rights of participants were explained to those who expressed their desire to participate. If the woman agreed to participate and gave their consent, the researchers confirmed eligibility (screening questions of inclusion and exclusion criteria). Eligible and willing participants were handed preamble consent document and self-administered questionnaires to complete and return to the researchers. Participants were reminded that their participation was voluntary and confidential. Data

collection did not interfere with the time of women's health care appointments or treatment. The reasons for refusal to participate were collected.

In the Middle Eastern culture, it is expected that family members or friends accompany the patient with cancer to receive health care (Lipson & Meleis, 1983), and these are cultural norms in Jordan. Therefore, the women were given an option to answer the questionnaire in a private room or area in the outpatient clinic.

Incentives

Non-monetary incentives were given to each participant. The researchers gave each woman who participated a travel-size hand sanitizer.

Data Analysis

The analysis was conducted using the SPSS, version 27. For the analysis, an alpha level of .05 or less was interpreted as a statistically significant. The first step in the analysis was cleaning the data which included: checking for any missing values, outliers, and data transformation (recoding for the reversed items and other variables when necessary). Second, to ensure that the results were reliable and valid, the assumptions of the inferential statistics were checked: linear relationship between the independent and dependent variable, normal distribution of the dependent variable across the levels of independent variables, homoscedasticity, and multicollinearity (tolerance and variance inflation factors). Next, bivariate correlations were performed to explore the associations among the following variables: age, time since diagnosis, HRQoL (and its subscales), PSS (and its subscales), and FRI (and its subscales).

The first research question is: What is the nature of PSS, family relationships, and HRQoL among women diagnosed with breast cancer in Jordan? To address this question, descriptive statistics were performed to describe study participants' demographic, psychosocial, and clinical characteristics using means (standard deviations) or medians (interquartile range), as appropriate, for continuous variables and frequencies and percentages for categorical variables.

The second research question is: What are the differences in MOS-SSS (and its subscales) and QOL-BC (and its subscales) by selected demographic (age and marital status) and clinical characteristics (stage of the disease and time since diagnosis) among women diagnosed with breast cancer in Jordan? To address the second research question, one-way ANOVA was performed to test whether there are significant differences in the means of QOL-BC and MOS-SSS across demographic (age and marital status) and clinical characteristics (stage of the disease and time since diagnosis) of the participants. One-way ANOVA was also conducted to test potential differences in mean subscale scores for QOL-BC and MOS-SSS by demographic (age and marital status) and clinical characteristics (stage of the disease and time since diagnosis) of the participants. Additional exploration of the mean differences in the dependent variables across the levels of the independent variable were evaluated using Fisher's Least Significant Difference (LSD) post hoc tests if needed.

The third research question is: Controlling for demographic, psychosocial, and clinical variables, what are the effects of PSS and family relationships on HRQOL among women diagnosed with breast cancer in Jordan? To explore the relationships of the MOS-SSS and FRI with QOL-BC, simultaneous multiple regression was performed.

Categorical variables with more than two levels were dummy coded before running the analysis. The reference category in dummy coding was assigned to a variable based on the largest sample size (Field, 2009). Since this study was exploratory, the simultaneous multiple regression method was chosen as it is best suited for this type of study (Polit, 2010). The dependent variable was HRQoL and the independent variables were PSS, FRI, age, time since diagnosis, marital status, stage of breast cancer, previous treatment of breast cancer received, history of mental illness/problems, presence of chronic illness/comorbidities, received psychological counseling after diagnosis (at least once), participation in a support group (formal or informal), pandemic affected levels of support received.

CHAPTER IV

RESULTS

Sample Characteristics

The sample consisted of 140 women who were diagnosed with breast cancer. The mean age of participants was 52.22 years ($SD = 8.92$); they ranged in age between 29 to 74 years. The mean age at the time of breast cancer diagnosis was 47.86 ($SD = 8.81$; range 29-70 years). The mean time since breast cancer diagnosis was 4.36 ($SD = 4.48$; range 0- 22 years). The mean number of children in the family was 3.87 ($SD = 2.56$; range 0-12 children). The family's mean number of children under 18 years was 1.22 ($SD = 1.65$; range 0-7). About 20 women refused to participate. Reasons for refusals to participate were: busy with other family members/friends; afraid that the nurse would call their name to see the physician; and a refusal to participate implied from a male family member who accompanied the women to the appointment.

Table 1 shows the demographic characteristics of women diagnosed with breast cancer. A total of 132 participants (94.3%) were Jordanian, and eight (5.7%) were Syrian women receiving cancer treatment in Jordan. Most participants were 41 to 60 years (70%), married (63.6%), and had a less than high school education (36.4%). A majority were housewives (80.7%). Of those who were married, most of their husbands were retired (29.2%) and had a less than high school education (44.9%). About half of the

participants lived in a nuclear family (51.4%), and 87.1% had a household monthly income of less than 500 Jordanian Dinar (about \$700). Around forty-six participants (46%) had four to six children, and 78% had two children or less under 18 years old.

Table 2 shows the psychosocial characteristics of the women. Most women did not receive psychological counseling at least once after diagnosis (92.9%), and 97% of women were not receiving any kind of psychological counseling at the time of data collection. In addition, most participants were not participating in any support groups (formal or informal) (92.1%) or any psychosocial support program (96.4%). Around ninety-five participants (95.7%) did not have a history of mental illness/problem. Furthermore, about half of the women did not encounter a major life event during the previous year (57.1%) and reported that the COVID-19 pandemic affected the level of social support they received (55.7%).

Table 3 shows the clinical characteristics of the women. A majority of women were diagnosed with breast cancer between the ages of 41 to 50 years (45.7%) and were diagnosed within the previous five years (66.4%). Most women had a family history of cancer (60%), had stage II breast cancer (41.7%), did not have metastatic breast cancer (74.1%), had received chemotherapy treatment previously (95%), and recently were taking hormonal therapy (52.1%). About half of the women reported that they had a chronic illness or comorbidities (51.4%).

Table 1*Demographic Characteristics of the Women Diagnosed with Breast Cancer (N = 140)*

Variable	n (%)
Age	
18 - 40 years	15 (10.7)
41 - 60 years	98 (70)
≥ 61 years	27 (19.3)
Marital status	
Married	89 (63.6)
Widowed	29 (20.7)
Divorced	8 (5.7)
Single (Never married)	14 (10)
Education	
Uneducated	11 (7.9)
Less than high school	51 (36.4)
High school	38 (27.1)
Some college or associate degree	32 (22.9)
Bachelor's degree	7 (5)
Master's degree	1 (0.7)
Employment status	
Employed full time	6 (4.3)
Employed part-time	2 (1.4)
Unemployed due to COVID-19	1 (0.7)
Retired	17 (12.1)
Housewife	113 (80.7)
Self-employed	1 (0.7)

Table 1 Continued*Demographic Characteristics of the Women Diagnosed with Breast Cancer (N = 140)*

Variable	n (%)
Education of husband	
Uneducated	5 (5.6)
Less than high school	40 (44.9)
High school	21 (23.6)
Some college or associate degree	19 (21.3)
Bachelor's degree	4 (4.5)
Employment of husband	
Employed full time	24 (27)
Employed part-time	11 (12.4)
Unemployed due to COVID-19	3 (3.4)
Retired	26 (29.2)
Self-employed	8 (9)
Disable (Unable to work)	17 (19.1)
Number of children	
≤ 3 children	51 (40.5)
4 - 6 children	59 (46.8)
7 - 9 children	13 (10.3)
10 - 12 children	3 (2.4)
Number of children under 18 years	
≤ 2 children	99 (78.6)
3 - 5 children	26 (20.6)
≥ 6 children	1 (0.8)

Table 1 Continued*Demographic Characteristics of the Women Diagnosed with Breast Cancer (N = 140)*

Variable	n (%)
Living situation	
Nuclear family	72 (51.4)
Extended family	25 (17.9)
With husband only (Without children)	9 (6.4)
Alone	10 (7.1)
Single mother with children	24 (17.1)
Household monthly income	
< 500 Jordanian dinar (~ US \$700)	122 (87.1)
500 – 700 Jordanian dinar (~ US \$700 - \$990)	11 (7.9)
700 – 1000 Jordanian dinar (~ US \$990 - \$1400)	7 (5.0)
Country from which the patients came from to receive cancer treatment	
Jordan	132 (94.3)
Syria	8 (5.7)

Table 2*Psychosocial Characteristics of the Women Diagnosed with Breast Cancer (N = 140)*

Variable	n (%)
Received psychological counseling after diagnosis (At least once)	
Yes	10 (7.1)
No	130 (92.9)
Currently receiving a psychological counseling	
Yes	3 (2.1)
No	137 (97.9)
Currently participating in psychosocial support program	
Yes	5 (3.6)
No	135 (96.4)
Currently participating in a support group (Formal or informal)	
Yes	11 (7.9)
No	129 (92.1)
History of mental illness/Problems (Anxiety and/or depression)	
Yes	6 (4.3)
No	134 (95.7)
Major life event during the previous year	
Yes	60 (42.9)
No	80 (57.1)
Pandemic affected level of social support received	
Yes	78 (55.7)
No	62 (44.3)

Table 3*Clinical Characteristics of the Women Diagnosed with Breast Cancer (N = 140)*

Variable	n (%)
Age at diagnosis	
18 - 30 years	2 (1.4)
31 - 40 years	28 (20)
41 - 50 years	64 (45.7)
≥ 51 years	46 (32.9)
Time since diagnosis	
≤ 5 years	93 (66.4)
6 – 10 years	33 (23.6)
11 – 20 years	13 (9.3)
≥ 21 years	1 (0.7)
Family history of cancer	
Yes	84 (60)
No	56 (40)
Presence of chronic illnesses or comorbidities	
Yes	72 (51.4)
No	68 (48.6)
Stage of breast cancer	
Stage I	30 (21.6)
Stage II	58 (41.7)
Stage III	32 (23)
Stage VI	19 (13.7)

Table 3 Continued*Clinical Characteristics of the Women Diagnosed with Breast Cancer (N = 140)*

Variable	n (%)
Presence of metastatic breast cancer	
Yes	36 (25.9)
No	103 (74.1)
Previous treatment of breast cancer received	
Surgical	110 (78.6)
Chemotherapy	133 (95)
Hormonal	101 (72.1)
Radiation	86 (61.4)
Current treatment of breast cancer	
Chemotherapy	54 (38.6)
Hormonal	73 (52.1)
Hormonal and chemotherapy	2 (1.4)
Hormonal and radiation	7 (5)

Descriptive Statistics for HRQoL, PSS, and Family Relationships

Table 4 shows the mean total scores and subscales scores for the main study variables. For the QOL-BC scale, the mean total score was 288.15 ($SD = 1.47$) and the highest mean scores among the four subscales were those of the spiritual well-being subscale (53.62, $SD = 1.36$) and the social well-being (56.86, $SD = 1.76$). For the MOS-SSS scale, the total score was 74.77 (15.52); the highest score among the subscales was that of the affectionate subscale (12.97, $SD = 2.92$).

Table 4 also displays Cronbach's alphas. For the QOL-BC subscales, Cronbach's alphas ranged from a low of .34 for the spiritual well-being to a high of .88 for the psychological well-being. Cronbach's alpha for the overall QOL-BC scale was .90. In addition, Cronbach's alpha for the MOS-SSS subscales ranged between .77 for the positive social interaction subscale and .88 for the tangible subscale. Cronbach's alpha for the overall MOS-SSS scale was .91.

Table 5 shows the means of the raw and standardized scores for the three subscales of the FRI. Cronbach's alpha for FRI subscales ranged between .45 for the expressiveness subscale and .79 for the cohesion subscale. Cronbach's alpha for the total FRI was .43. In relation to the criteria of the type of families, the mean standardized score of cohesion subscale was higher than that of the conflict subscale. Finally, Table 6 displays the means and standard deviations of the subscales for the current study sample and the normative sample of different types of families reported in the scale's manual (Moos & Moos, 2009).

Table 4

Descriptive Statistics and Cronbach's Alphas for Quality of Life-Breast Cancer Version (QOL-BC) Instrument and Medical Outcomes Study--Social Support Survey (MOS-SSS) and Their Subscales (N = 140)

Variable	Sum scores	SD	Actual range	Potential range	Cronbach's Alpha
Quality of Life-Breast Cancer (QOL-BC)					
Physical Well-Being subscale	49.19	1.87	2 - 80	0 - 80	.71
Psychological Well-Being subscale	128.47	1.90	32 - 218	0 - 220	.88
Social Well-Being subscale	56.86	1.76	11 - 83	0 - 90	.64
Spiritual Well-Being subscale	53.62	1.36	22 - 70	0 - 70	.34
Total scale	288.15	1.47	106 - 440	0 - 460	.90
Medical Outcomes Study Social Support Survey (MOS-SSS)					
Emotional/Informational Subscale	29.42	7.94	10 - 40	8 - 40	.86
Tangible subscale	15.96	4.87	4 - 20	4 - 20	.88
Affectionate subscale	12.97	2.92	3 - 15	3 - 15	.79
Positive Social Interaction subscale	12.38	2.74	4 - 15	3 - 15	.77
Total scale	74.77	15.52	25 - 95	19 - 95	.91

Table 5

Descriptive Statistics and Cronbach's Alphas for the Family Relationship

Index (FRI) and Its Subscales (N = 140)

Subscale	Raw scores <i>M (SD)</i>	Standardized score <i>M (SD)</i>	Cronbach's Alpha
Cohesion	6.84 (2.11)	50.82 (14.37)	.79
Expressiveness	5.21 (1.68)	47.99 (10.47)	.45
Conflict	2.94 (2.40)	48.77 (12.63)	.78
FRI Total Scale	---	---	.43

Table 6

Form R Subscale Means and Standard Deviations for the Current Study Sample and Normative Sample for Different Types of Families

Type of family	Cohesion	Expressiveness	Conflict
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
Current sample (N = 140)	6.84 (2.11)	5.21(1.68)	2.94 (2.40)
Four-Member family (N = 161)^a	6.53	5.26	3.85
African Americans and Latino adult family^b	6.90 (1.94)	4.97 (1.73)	3.26 (2.12)
Family of origin-Normal adults (N = 240)	6.68 (2.39)	4.87 (2.29)	3.33 (2.28)
Other investigators research-Normal individuals (N = 17,730)	6.69 (2.17)	5.13 (1.99)	3.57 (2.18)

Note. The Real Form (Form R) of the FRI measures the individuals' perceptions of their family environment. Data in the table are obtained from the scale's manual of Moos and Moos (2009). Reproduction by special permission of the Publisher, Mind Garden, Inc., www.mindgarden.com from the Family Environment Scale by Bernice S. Moos & Rudolf H. Moos. Copyright © 1974, 2002 by Rudolf H. Moos. Further Reproduction is prohibited without the Publisher's written consent.

^aValues of the standard deviations was not presented in the FRI scales manual (Moos & Moos, 2009). ^bCalculations of mean were based on $N = 454$ and the standard deviation calculations were based on $N = 276$.

Bivariate Correlations

Table 7 displays the bivariate correlations among the variables. There were significant strong positive correlations between total HRQoL and the following: physical well-being subscale ($r = .76, p < .001$), psychological well-being subscale ($r = .96, p < .001$), and social well-being subscale ($r = .81, p < .001$). There were significant strong positive correlations between the physical well-being subscale and the following: psychological well-being ($r = .62, p < .001$) and social well-being ($r = .58, p < .001$). In addition, there were significant strong positive correlations between the psychological well-being subscale and social well-being ($r = .69, p < .001$).

In addition, there were significant strong positive correlations between the total PSS and the following: emotional/informational support ($r = .86, p < .001$), tangible support ($r = .71, p < .001$), affectionate ($r = .78, p < .001$), and positive social interaction support ($r = .76, p < .001$). Moreover, there were significant moderate positive correlations between the emotional/informational support subscale and the following: affectionate support ($r = .52, p < .001$) and positive social interaction ($r = .55, p < .001$). In addition, there were significant moderate positive relationships between the tangible support subscale and affectionate support ($r = .53, p < .001$).

There was a significant strong positive correlation between the affectionate support subscale and positive social interaction ($r = .67, p < .001$). In addition, there were significant moderate to strong positive relationship between the FRI and the cohesion subscale ($r = .55, p < .001$), and between the FRI and the expressiveness subscale ($r = .66, p < .001$). Finally, there was a significant strong negative correlation between the

cohesion subscale and the conflict subscale ($r = -.57, p < .001$), and between the expressiveness subscale and the conflict subscale ($r = -.53, p < .001$).

Differences in QOL-BC and MOS-SSS Mean Scores across Demographic and Clinical Variables

Age and Marital Status

One-way ANOVA was conducted to compare the effects of age and marital status on the mean total QOL-BC score and its mean subscale scores and the mean total MOS-SSS score and its mean subscale scores (Table 8). There was a significant difference in the mean physical well-being subscale score of the QOL-BC scale across different age groups ($F [2,137] = 2.92, p = .05$) and by marital status ($F [3,136] = 2.96, p < .05$). Fisher's Least Significant Difference (LSD) post hoc test for multiple comparisons showed that the mean physical well-being scale score was significantly different between the youngest age group (18 – 40 years) and the oldest age group (≥ 61 years) ($p = .02$, 95% C.I. = [-2.55, -.19]) (Table 9). In addition, the LSD post hoc test showed that the mean physical well-being score for married and divorced women was significantly different ($p = .03$, 95% C.I. = [-2.80, -.12]) as was the mean comparing married and single women ($p = .02$, 95% C.I. = [-2.22, -.13]) (Table 10).

Stage of Breast Cancer and Time Since Diagnosis

One-way ANOVA was conducted to compare the effect of breast cancer stage and time since diagnosis on the mean total QOL-BC score and its mean subscale scores and the mean total MOS-SSS score and mean scores on its subscales (Table 11). There was a significant difference in the mean positive social interaction subscale score of the MOS-

SSS scale across different stages of breast cancer ($F [2,135] = 2.94, p < .05$). The LSD post hoc test showed that the mean for positive social interaction was significantly different for those in the fourth stage compared with the first stage of breast cancer ($p = .01, 95\% \text{ C.I.} = [-1.15, -.11]$) and for those in the fourth stage compared with the second stage of breast cancer ($p = .02, 95\% \text{ C.I.} = [-1.01, -.08]$) (Table 12).

Table 7*Intercorrelations among the Main Study Variables (N = 140)*

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Age	—															
2. Time since diagnosis	.28**	—														
3. Total HRQoL	.19*	-.19*	—													
4. Physical Well-Being	.28**	-.17	.76**	—												
5. Psychological Well-Being	.13	-.20*	.96**	.62**	—											
6. Social Well-Being	.21*	-.12	.81**	.58**	.69**	—										
7. Spiritual Well-Being	-.01	-.05	.40**	.13	.30**	.18*	—									
8. PSS	-.14	-.18*	.24**	.12	.24**	.13	.27**	—								
9. Emotional/Informational	-.13	-.16	.15	.02	.15	.12	.22*	.86**	—							
10. Tangible support	-.11	-.19*	.20*	.18*	.22*	.04	.11	.71**	.38**	—						
11. Affectionate support	-.12	-.14	.19*	.10	.17*	.10	.26**	.78**	.52**	.53**	—					
12. Positive Social Interaction	-.03	-.01	.27**	.15	.26**	.15	.30**	.76**	.55**	.38**	.67**	—				
13. FRI	-.11	-.22**	.05	.06	.03	.04	.02	.33**	.26**	.40**	.18*	.12	—			
14. Cohesion	-.14	-.19*	.28**	.27**	.27**	.18*	.08	.39**	.26**	.44**	.26**	.25**	.55**	—		
15. Expressiveness	-.06	-.13	.12	.05	.13	.06	.10	.30**	.28**	.32**	.11	.11	.66**	.48**	—	
16. Conflict	.04	-.004	-.28**	-.20*	-.29**	-.15	-.12	-.15	-.12	-.14	-.10	-.15	.22**	-.57**	-.53**	—

* $p < .05$, two-tailed. ** $p < .01$, two-tailed

Table 8

One-Way ANOVA of Differences in Mean Scores on the Physical Well-being Subscale of the Quality of Life-Breast Cancer Version (QOL-BC) Instrument among the Women Diagnosed with Breast Cancer by Selected Variables (N = 140)

Variable	Physical Well-Being subscale <i>M (SD)</i>	<i>F</i> statistic	<i>p</i>
Age		<i>F</i> (2, 137) = 2.92	.05
18 - 40 years	5.43 (2.15)		
41 - 60 years	6.07 (1.90)		
≥ 61 years	6.81 (1.40)		
Marital status		<i>F</i> (3,136) = 2.96	.03
Married	5.86 (1.83)		
Widowed	6.26 (1.74)		
Divorced	7.32 (1.71)		
Single (Never married)	7.04 (2.06)		
Stage of breast cancer		<i>F</i> (3,135) = 0.43	.72
Stage I	6.37 (2.12)		
Stage II	6.22 (1.87)		
Stage III	5.86 (1.66)		
Stage VI	6.03 (1.90)		
Time since diagnosis		<i>F</i> (3,136) = 0.42	.73
≥ 5 years	6.24 (1.86)		
6 - 10 years	6.05 (2.01)		
11 - 20 years	5.75 (1.68)		
≥ 21 years	5.00 (1.86)		

Table 9

Fisher's Least Significant Difference (LSD) Post Hoc Tests for the Physical Well-being Subscale of the Quality of Life-Breast Cancer Version (QOL-BC) Instrument by Age Group (N = 140)

Age	Age	Mean difference (I-J)	SE	p	95% CI	
					Lower bound	Upper bound
18 - 40 years	41 - 60 years	-.64	.51	.21	-1.65	.37
	≥ 61 years	-1.37*	.59	.02	-2.55	-.19
41 - 60 years	18 - 40 years	.64	.512	.21	-.37	1.65
	≥ 61 years	-.73	.40	.07	-1.52	.05
≥ 61 years	18 - 40 years	1.37*	.59	.02	.19	2.55
	41 - 60 years	.73	.40	.07	-.05	1.52

* $p \leq .05$

Table 10

Fisher's Least Significant Difference (LSD) Post Hoc Test of the Physical Well-being Subscale of the Quality of Life-Breast Cancer Version (QOL-BC) Instrument by Marital Status (N = 140)

Marital status	Marital status	Mean		p	95% CI	
		difference (I-J)	SE		Lower bound	Upper bound
Married	Widowed	-.39	.39	.31	-1.17	.37
	Divorced	-1.46*	.67	.03	-2.80	-.12
	Single (Never married)	-1.18*	.52	.02	-2.22	-.13
Widowed	Married	.39	.39	.31	-.37	1.17
	Divorced	-1.06	.73	.14	-2.51	.38
	Single (Never married)	-.78	.59	.19	-1.96	.39
Divorced	Married	1.46*	.67	.03	.12	2.80
	Widowed	1.06	.73	.14	-.38	2.51
	Single (Never married)	.28	.81	.72	-1.32	1.89
Single (Never married)	Married	1.18*	.52	.02	.13	2.22
	Widowed	.78	.59	.19	-.39	1.96
	Divorced	-.28	.81	.72	-1.89	1.32

* $p \leq .05$

Table 11

One-Way ANOVA of the Differences in Means of Positive Social Interaction Subscale of the Medical Outcomes Study--Social Support Survey (MOS-SSS) among Women Diagnosed with Breast Cancer by Selected Variables (N = 140)

Variable	Positive Social Interaction subscale <i>M (SD)</i>	<i>F</i> statistic	<i>p</i>
Age		<i>F</i> (2, 137) = 0.94	.39
18 - 40 years	4.13 (10.7)		
41 - 60 years	4.18 (.84)		
≥ 61 years	3.91 (1.05)		
Marital status		<i>F</i> (2, 136) = 1.13	.33
Married	4.19 (.84)		
Widowed	4.00 (.86)		
Divorced	4.37 (.91)		
Single (Never Married)	3.80 (.134)		
Stage of breast cancer		<i>F</i> (2, 135) = 2.94	.03
Stage I	4.35 (.84)		
Stage II	4.27 (.85)		
Stage III	3.93 (.95)		
Stage VI	3.71 (.96)		
Time since diagnosis		<i>F</i> (2, 136) = .34	.79
≥ 5 years	4.12 (.90)		
6 - 10 years	4.22 (.91)		
11 - 20 years	3.92 (1.07)		
≥ 21 years	4.3333		

Table 12

Fisher's Least Significant Difference (LSD) Post Hoc Test of the Positive Social Interaction Subscale of the Medical Outcomes Study--Social Support Survey (MOS-SSS) by Stage of Breast Cancer (N = 140)

Stage of breast cancer	Stage of breast cancer	Mean difference (I-J)	SE	p	95% CI	
					Lower bound	Upper bound
First stage	Second stage	.08	.20	.67	-.31	.48
	Third stage	.41	.22	.06	-.03	.86
	Fourth stage	.63*	.26	.01	.11	1.15
Second stage	First stage	-.08	.20	.67	-.48	.31
	Third stage	.33	.19	.09	-.05	.72
	Fourth stage	.55*	.23	.02	.08	1.01
Third stage	First stage	-.41	.22	.06	-.86	.03
	Second stage	-.33	.19	.09	-.72	.05
	Fourth stage	.21	.25	.40	-.29	.73
Fourth stage	First stage	-.63*	.26	.01	-1.15	-.11
	Second stage	-.55*	.23	.02	-1.01	-.08
	Third stage	-.21	.25	.40	-.73	.29

* $p \leq .05$

Relationships of Perceived Social Support and Family Relationships with HRQoL

Multiple regression with simultaneous entry was performed to explore the relationships of perceived social support and family relationships with health-related quality of life. Selected demographic, clinical, and psychosocial variables were entered into the model as independent variables with the MOS-SSS and FRI total scores. Table 13 shows that the model explained a significant amount of the variance in the total QOL-BC scores ($F [22,117] = 2.53, p < .001, R^2_{Adjusted} = .20$). A total of 20% of the variance in the QOL-BC total score was explained by the model; however, only perceived social support, being 18 to 40 years of age, previous treatment with chemotherapy received, and the pandemic affected levels of support received were significant. Women with higher levels of PSS had higher levels of HRQoL, controlling for all other predictors. Those who were 18 to 40 years of age had lower levels of HRQoL compared to those who were 41 to 60 years old, controlling for all other predictors. In addition, women who received chemotherapy treatment previously had higher levels of HRQoL compared to those women who did not, controlling for all other predictors. Lastly, women who reported that the pandemic affected the level of social support received had lower levels of HRQoL compared to women who reported that pandemic did not affect the level of social support received, controlling for all other predictors.

Table 14 shows that the model explained a small but significant amount of the variance in physical well-being ($F [22,117] = 1.62, p = .05, R^2_{Adjusted} = .10$). A total of 10% of the variance in physical well-being was explained by the model; however, the only significant predictors were: being 18 to 40 year and the pandemic affected levels of support received. Women who were 18 to 40 years of age had lower levels of physical

Table 13

Multiple Linear Regression with Simultaneous Entry Method for the Prediction of the Total HRQoL of the Quality of Life-Breast Cancer Version (QOL-BC) Instrument among Women Diagnosed with Breast Cancer (N = 140)

Variables in the model	Unstandardized coefficients		Standardized coefficients	<i>t</i>	<i>p</i>
	<i>b</i>	<i>SE</i>	β		
(Constant)	4.66	1.07		4.32	<.001
Perceived social support	.35	.15	.19	2.27	.02
Family Relationship Index	.007	.04	.01	.15	.87
Age					
18 – 40 years	-.79	.38	-.16	-2.06	.04
41 – 60 years					
(Reference)					
≥ 61 years	.29	.31	.07	.94	.34
Time since diagnosis					
≤ 5 years (Reference)					
6 – 10 years	.15	.30	.04	.49	.62
11 – 20 years	.11	.44	.02	.24	.80
≥ 21 years	-1.44	1.41	-.08	-1.01	.31
Marital status					
Married (Reference)					
Widowed	.17	.31	.04	.56	.57
Divorced	.64	.52	.10	1.24	.21
Single (Never married)	-.01	.40	-.003	-.04	.96

Note. Significance at $p \leq .05$.

Table 13 Continued

Multiple Linear Regression with Simultaneous Entry Method for the Prediction of the Total HRQoL of the Quality of Life-Breast Cancer Version (QOL-BC)

Instrument among Women Diagnosed with Breast Cancer (N = 140)

Variables in the model	Unstandardized coefficients		Standardized coefficients	<i>t</i>	<i>p</i>
	<i>b</i>	<i>SE</i>	β		
Stage of breast cancer					
Stage I	.46	.32	.12	1.41	.15
Stage II (Reference)					
Stage III	-.05	.32	-.01	-.18	.85
Stage VI	-.31	.36	-.07	-.86	.39
Previous treatment of breast cancer received					
Surgical (vs no)	-.29	.36	-.08	-.80	.42
Chemotherapy (vs no)	1.11	.56	.16	1.97	.05
Hormonal (vs no)	-.20	.35	-.06	-.58	.56
Radiation (vs no)	-.40	.35	-.13	-1.14	.25
History of mental illness/Problems (vs no)	-.003	.67	.0004	-.005	.99
Presence of chronic illness/Comorbidities (vs no)	.004	.24	.001	.01	.98
Received psychological counseling after diagnosis (At least once) (vs no)	-1.04	.55	-.18	-1.90	.06
Participation in a support group-Formal or informal (vs no)	-.12	.44	-.02	-.28	.77
Pandemic affected level of social support received (vs no)	-.67	.24	-.22	-2.76	.007

Model summary $F(22,117) = 2.53, p < .001, R^2_{Adjusted} = .20$

Table 14

Multiple Linear Regression with Simultaneous Entry Method for the Prediction of the Physical Well-being Subscale of the Quality of Life-Breast Cancer Version (QOL-BC) Instrument among Women Diagnosed with Breast Cancer (N = 140)

Variables in the model	Unstandardized coefficients		Standardized coefficients		
	<i>b</i>	<i>SE</i>	β	<i>t</i>	<i>p</i>
(Constant)	4.71	1.45		3.24	.002
Perceived social support	.25	.21	.11	1.21	.22
Family Relationship Index	.04	.06	.06	.71	.47
Age					
18 – 40 years	-1.02	.52	-.17	-1.97	.05
41 – 60 years (Reference)					
≥ 61 years	.71	.42	.15	1.69	.09
Time since diagnosis					
≤ 5 years (Reference)					
6 – 10 years	.25	.40	.05	.61	.54
11 – 20 years	-.01	.59	-.002	-.02	.98
≥ 21 years	-1.73	1.90	-.07	-.91	.36
Marital status					
Married (Reference)					
Widowed	.21	.42	.04	.51	.60
Divorced	1.06	.70	.13	1.51	.13
Single (Never married)	.99	.54	.16	1.82	.07

Note. Significance at $p \leq .05$

Table 14 Continued

Multiple Linear Regression with Simultaneous Entry Method for the Prediction of the Physical Well-being Subscale of the Quality of Life-Breast Cancer Version (QOL-BC) Instrument among Women Diagnosed with Breast Cancer (N = 140)

Variables in the model	Unstandardized coefficients		Standardized coefficients	<i>t</i>	<i>p</i>
	<i>b</i>	<i>SE</i>	β		
Stage of breast cancer					
Stage I	-.01	.43	-.003	-.03	.97
Stage II (Reference)					
Stage III	-.19	.43	-.04	-.45	.65
Stage VI	.05	.49	.01	.11	.91
Previous treatment of breast cancer received					
Surgical (vs no)	.48	.48	.10	.98	.32
Chemotherapy (vs no)	.28	.75	.03	.37	.70
Hormonal (vs no)	-.34	.48	-.08	-.71	.47
Radiation (vs no)	-.70	.47	-.18	-1.48	.14
History of mental illness/Problems (vs no)	.62	.91	.06	.68	.49
Presence of chronic illness/Comorbidities (vs no)	.05	.32	.01	.17	.86
Received psychological counseling after diagnosis (At least once) (vs no)	-.90	.74	-.12	-1.22	.22
Participation in a support group-Formal or informal (vs no)	-.21	.60	-.03	-.35	.72
Pandemic affected level of social support received (vs no)	-.71	.32	-.19	-2.19	.03

Model summary $F(22,117) = 1.62, p = .05, R^2_{Adjusted} = .10$

well-being compared to those who were 41 to 60 years old, controlling for all other variables in the model. In addition, women who reported that the pandemic affected the level of social support they received had lower levels of physical well-being compared to women who reported that pandemic did not affect the level of social support received, controlling for all other variables in the model.

Table 15 shows that the model explained a significant amount of the variance in psychological well-being ($F [22,117] = 2.22, p = .003, R^2_{Adjusted} = .16$). A total of 16% of the variance in the psychological well-being was explained by the model; however, only the following predictors were significant: perceived social support, being 18 to 40 years old, and the pandemic affected levels of support received. Women with higher levels of PSS had higher levels of psychological well-being, controlling for all other variables in the model. Those who were 18 to 40 years old had lower levels of psychological well-being compared to those who were 41 to 60 years old, controlling for all other variables in the model. In addition, women who reported that the pandemic affected the level of social support received had lower levels of psychological well-being compared to women who reported that the pandemic did not affect the level of social support received, controlling for all other variables in the model.

Table 16 shows that the model explained a significant amount of the variance in the social well-being ($F [22,117] = 2.15, p = .005, R^2_{Adjusted} = .16$). A total of 16% of the variance in the social well-being was explained by the model; however, only the following predictors were significant: previous treatment with chemotherapy received, received psychological counseling after diagnosis, and the pandemic affected levels of support received. Women who received chemotherapy treatment in the past had higher

Table 15

Multiple Linear Regression with Simultaneous Entry Method for the Prediction of the Psychological Well-being Subscale of the Quality of Life-Breast Cancer Version (QOL-BC) Instrument among Women Diagnosed with Breast Cancer (N = 140)

Variables in the model	Unstandardized coefficients		Standardized coefficients		<i>t</i>	<i>p</i>
	<i>b</i>	<i>SE</i>	β			
(Constant)	4.342	1.418			3.06	.003
Perceived social support	.43	.20	.18		2.13	.03
Family Relationship Index	-.006	.05	-.009		-.10	.91
Age						
18 – 40 years	-.98	.50	-.16		-1.92	.05
41 – 60 years (Reference)						
≥ 61 years	.09	.41	.02		.23	.81
Time since diagnosis						
≤ 5 years (Reference)						
6 – 10 years	.27	.39	.06		.67	.49
11 – 20 years	.19	.58	.02		.33	.74
≥ 21 Years	-1.75	1.85	-.07		-.94	.34
Marital status						
Married (Reference)						
Widowed	.25	.41	.05		.62	.53
Divorced	.77	.68	.09		1.13	.25
Single (Never married)	-.21	.53	-.03		-.40	.69

Note. Significance at $p \leq .05$.

Table 15 Continued

Multiple Linear Regression with Simultaneous Entry Method for the Prediction of the Psychological Well-being Subscale of the Quality of Life-Breast Cancer Version (QOL-BC) Instrument among Women Diagnosed with Breast Cancer (N = 140)

Variables in the model	Unstandardized coefficients		Standardized coefficients	<i>t</i>	<i>p</i>
	<i>b</i>	<i>SE</i>	β		
Stage of breast cancer					
Stage I	.71	.42	.15	1.66	.09
Stage II (Reference)					
Stage III	.08	.42	.01	.20	.84
Stage VI	-.45	.48	-.08	-.92	.35
Previous treatment of breast cancer received					
Surgical (vs no)	-.57	.47	-.12	-1.20	.23
Chemotherapy (vs no)	1.23	.74	.14	1.66	.09
Hormonal (vs no)	-.22	.46	-.05	-.48	.62
Radiation (vs no)	-.57	.46	-.14	-1.24	.21
History of mental illness/Problems (vs no)	-.08	.89	-.009	-.09	.92
Presence of chronic illness/Comorbidities (vs no)	-.04	.32	-.01	-.15	.87
Received psychological counseling after diagnosis (At least once) (vs no)	-1.25	.72	-.17	-1.73	.08
Participation in a support group-Formal or informal (vs no)	-.04	.59	-.006	-.07	.94
Pandemic affected level of social support received (vs no)	-.70	.31	-.18	-2.19	.03
<i>Model summary F(22,117) = 2.22, p = .003, R²_{Adjusted} = .16</i>					

Table 16

Multiple Linear Regression with Simultaneous Entry Method for the Prediction of the Social Well-being Subscale of the Quality of Life-Breast Cancer Version (QOL-BC) Instrument among Women Diagnosed with Breast Cancer (N = 140)

Variables in the model	Unstandardized coefficients		Standardized coefficients	<i>t</i>	<i>p</i>
	<i>b</i>	<i>SE</i>	β		
(Constant)	4.77	1.31		3.62	<.001
Perceived social support	.18	.19	.08	.96	.33
Family Relationship Index	.03	.05	.04	.55	.57
Age					
18 – 40 years	-.53	.47	-.09	-1.13	.25
41 – 60 years (Reference)					
≥ 61 years	.70	.38	.15	1.84	.06
Time since diagnosis					
≤ 5 years (Reference)					
6 – 10 years	-.27	.37	-.06	-.74	.45
11 – 20 years	.01	.54	.003	.03	.97
≥ 21 years	-.47	1.72	-.02	-.27	.78
Marital status					
Married (Reference)					
Widowed	.08	.38	.02	.22	.82
Divorced	.75	.63	.10	1.18	.23
Single (Never married)	.07	.49	.01	.15	.88

Note. Significance at $p \leq .05$.

Table 16 Continued

Multiple Linear Regression with Simultaneous Entry Method for the Prediction of the Social Well-being Subscale of the Quality of Life-Breast Cancer Version (QOL-BC) Instrument among Women Diagnosed with Breast Cancer (N = 140)

Variables in the model	Unstandardized coefficients		Standardized coefficients		<i>t</i>	<i>p</i>
	<i>b</i>	<i>SE</i>	β			
Stage of breast cancer						
Stage I	.49	.39	.11	1.24	.21	
Stage II (Reference)						
Stage III	-.40	.39	-.09	-1.02	.30	
Stage VI	-.08	.45	-.01	-.19	.85	
Previous treatment of breast cancer received						
Surgical (vs no)	-.52	.44	-.12	-1.17	.24	
Chemotherapy (vs no)	1.33	.68	.16	1.94	.05	
Hormonal (vs no)	.007	.43	.002	.01	.98	
Radiation (vs no)	-.03	.43	-.009	-.07	.94	
History of mental illness/Problems (vs no)	.38	.82	.04	.46	.64	
Presence of chronic illness/Comorbidities (vs no)	-.08	.29	-.02	-.28	.77	
Received psychological counseling after diagnosis (At least once) (vs no)	-1.83	.67	-.26	-2.72	.007	
Participation in a support group-Formal or informal (vs no)	-.23	.54	-.03	-.42	.67	
Pandemic affected level of social support received (vs no)	-.72	.29	-.20	-2.44	.01	
<i>Model summary F(22,117) = 2.15, p = .005, R²_{Adjusted} = .16</i>						

levels of social well-being compared to those women who did not, controlling for all other variables in the model. In addition, women who reported that they received psychological counseling after diagnosis at least once had lower levels of social well-being compared to those women who did not receive any psychological counseling, controlling for all other variables in the model. Lastly, women who reported that the pandemic affected the level of social support received had lower levels of social well-being compared to women who reported that the pandemic did not affect the level of social support received, controlling for all other variables in the model.

CHAPTER V

DISCUSSION

This study aimed to explore perceived social support, family relationships, and HRQoL using an exploratory cross-sectional design among women diagnosed with breast cancer in Jordan. Concerning the first research question, the descriptive statistics for the QOL-BC showed that women with breast cancer in this study had moderate levels of overall HRQoL. The lowest scores were on the psychological and physical well-being subscales. In comparison, the highest scores were for spiritual well-being and social well-being. These results are consistent with other research studies conducted in Jordan and neighboring countries (Al-Husban et al., 2019; Al Zahrani et al., 2019; Alawadi & Ohaeri, 2009).

There are several possible explanations for the difficulties in the physical and psychological well-being domains. Most of the women in this study were young (41-60 years), diagnosed at the peak of their productivity (41- 50 years), and had stage II breast cancer. Younger women with breast cancer, compared to older women, receive more aggressive treatment and suffer from disruptions in their lives and poor physical and psychological outcomes in the long term (Fernandes-Taylor et al., 2015; Mosher & Danoff-Burg, 2006). In addition, most of the women in this study were diagnosed within the last five years (66.4%), so they may not have had enough time to acquire skills to cope with the disease or treatment.

Another reason for the difficulties in physical and psychological well-being could be related to the fact that most of the participants were currently receiving chemotherapy or hormonal treatment. Chemotherapy treatment was associated with the worst physical and psychological outcomes compared to other treatments among women with breast cancer (El Sharkawi, 1997; Freihat, 2005; Mostafa et al., 2010).

Difficulties in physical and psychological well-being might be related to cultural aspects influencing women's perceptions in Arab communities. In Middle Eastern Arab communities, women only ask for medical advice if they have severe conditions/symptoms or encounter a life-threatening health condition (Salman et al., 2018; Taha et al., 2012). Jordanian culture also encourages tolerance to pain, and belief in fatalism affects Jordanian women's decision-making (Al-Hassan et al., 1999; Kawar, 2012). The idea of fatalism among Jordanian women means accepting that breast cancer as a disease is inevitable and predetermined by GOD (Kawar, 2012). For them, if this means that they will have any disease, it will be because it is the decision of GOD, and those who believe in Him will accept it and be more patient and thankful (Kawar, 2012).

In this study, women scored the lowest on the psychological well-being subscale, consistent with other studies conducted in Jordan. One recent study was conducted (before COVID-19) to investigate the prevalence of depression among women with breast cancer and the impact on patients' quality of life in Jordan (Alquraan et al., 2020). The prevalence of depression among participants was 30.2%. Alquraan et al. (2020) emphasized that psychological and social support for women with breast cancer in Jordan is urgently needed.

Another study investigated the percentage of undiagnosed depression and anxiety among women with breast cancer at Al-Bashir Hospital (where this study was conducted) (Abu-Helalah et al., 2014). Forty-five percent of women had mild to severe depression, 18% had severe depression, 53% had mild to severe anxiety, and 14% had severe anxiety. According to Abu-Helalah et al. (2014), a large number of women in this study did not know that they might have depression or anxiety due to the absence of psychological counseling/screening services provided to them in this setting.

In the current study, 95.7% of women reported not having any history of mental illness/problems (anxiety or depression). With the absence of psychosocial support services in this setting, it appears that a physician or psychologist had not diagnosed the women's mental health problems. Around 90% of women reported not receiving psychological counseling after diagnosis (at least once) or not currently receiving counseling. Therefore, women might have mental health problems that they were unaware of, consistent with the findings of Abu-Helalah et al. (2014). It is also possible that women were aware that they had mental illness/problems, but that they were underreported because culturally, mental illnesses are associated with stigma in Jordan (Abd Al-Hadi & Musleh, 2017). It is important to assess and evaluate the mental health status of patients with cancer. A history of mental health problems is considered a risk factor for developing psychological issues among cancer patients during the COVID-19 pandemic (Wang et al., 2020).

The spiritual well-being score was the highest quality of life subscale score of the participants. Other studies conducted in Jordan also reported high levels of spiritual well-being among women diagnosed with cancer (Al-Natour et al., 2017; Lazenby et al.,

2013). Spirituality for Jordanian patients with cancer is a significant source of coping and support during each phase of the disease (Alaloul et al., 2016; Alqaissi & Dickerson, 2010). Spirituality helps Jordanian women to overcome the shock and sadness of the initial diagnosis of breast cancer or to accept the disease as a gift from GOD (Al-Natour et al., 2017; Alqaissi & Dickerson, 2010). Spiritual acts for Jordanian patients with cancer are concerned with praying to GOD, reading from the Holy Book, and asking their supportive network to pray for them (Alaloul et al., 2016; Alqaissi & Dickerson, 2010). Another possible reason for the high level of spirituality is that the majority of the population (97%) in Jordan is Muslim (The World Factbook, 2021). It is believed that the Islamic faith and beliefs contribute to high spirituality levels among Muslim cancer patients and cancer survivors (Al-Natour et al., 2017; Alaloul et al., 2016; Alhusban, 2019; Jafari et al., 2013; Lazenby et al., 2013).

Women reported a moderate level of social well-being (after spiritual well-being), consistent with other studies conducted in Jordan among women with breast cancer (Al-Ghabeesh et al., 2019). Interestingly, this result was found with the presence of the COVID-19 pandemic when the study was conducted. However, high levels of social well-being could be an expected outcome. Jordan is a tribal society where people depend on and support each other during crises as a collectivist community (Al-Ghabeesh et al., 2014; Omari, 2009; Omran et al., 2012). In the Jordanian culture, patients are supported by their family and friends spontaneously without asking (Al-Shannaq, 2017; Alqaissi & Dickerson, 2010; Khater & Alkwiese, 2013).

In addition, the need to be affiliated and connected with others during a crisis is dominant and robust among the Middle Eastern population (Lipson & Meleis, 1983).

Most women in this study were married (63.6%). Therefore, it might be that women found themselves surrounded by a family who supported their need to be affiliated and connected. For Jordanian women with breast cancer, being lonely during illness is traumatizing and might affect the treatment journey (Al-Shannaq, 2017). Family members, especially the husband and children, are considered a significant source of support, hope, encouragement, and reassurance for women with breast cancer in Jordan (Al-Husban et al., 2019; Al-Shannaq, 2017; Alqaissi & Dickerson, 2010).

Regarding perceived social support, women reported moderate to high levels of perceived social support consistent with previous studies conducted in Jordan (Alaloul et al., 2015; Khater & Alkwiese, 2013). Women in this study scored the highest on the affectionate and positive social interaction social support subscales, followed by the tangible support and emotional/informational support consistent with other studies (Kwan et al., 2010; Leung et al., 2014; So et al., 2013). Despite the presence of COVID-19, women scored the highest on affectionate and positive social interaction social support, which might reflect the robust need for connection, support, and communication among the Middle Eastern population during crises (Al-Ghabeesh et al., 2014; Lipson & Meleis, 1983; Omari, 2009). Sympathy and affection support are also encouraged in Islam in times of illness. The Prophet Muhammad, “peace be upon him,” said: “The likeness of the believers in their mutual love, mercy, and compassion is that of the body; when one part of it is in pain, the rest of the body joins it in restlessness and fever.” (Sahih Muslim Book) (Muslim bin al-Hajjaj, 2007, p. 451).

The reason for low scores on tangible support could be related to the presence of the COVID-19 pandemic, during which the government forced infection control

measures (e.g., curfews, lockdowns, and closures of shops), and people practiced social distancing and isolation to protect themselves and others (Alqutob et al., 2020; Shuwiekh et al., 2020). One study that used the same instrument with cancer survivors in Jordan found that their tangible subscale score was the highest, followed by the affectionate subscale (Alaloul et al., 2015). However, this study was conducted before the COVID-19 pandemic. In the current study, COVID-19 has had a significant impact on cancer care and social life among cancer patients in Jordan. The ban on social gatherings, as well as the lockdowns and isolation, have had a negative effect on the social well-being and physical health of people (P. Chen et al., 2020). Healthcare sectors in Jordan, even worldwide, encountered unexpected changes and difficulties in supporting cancer patients. The interruptions and delays in providing care for cancer patients because of COVID-19 affected their physical, psychological, and emotional well-being (G. Chen et al., 2020; Choobin et al., 2021).

The low scores on the emotional/informational social support in this study might reflect the gap in Jordan's healthcare sectors. Information exchange depends on the place where women in Jordan live (e.g., rural, urban, North, or Central regions) and the center that provides cancer care (e.g., governmental or private) to those women (Obeidat & Lally, 2014). For example, King Hussein Cancer Center adopts a Western patient-centered model of care, where patients are engaged and pose questions to healthcare providers compared to those at teaching and public hospitals (Ministry of Health hospitals) (Obeidat, 2015; Obeidat & Lally, 2014).

In addition, compared to those treated at public hospitals, women treated at KHCC are supported with educational materials concerning their disease and can fully

engage with their healthcare providers (Obeidat et al., 2013; Obeidat & Lally, 2014). In KHCC, there are many structured psychosocial programs to provide emotional and informational support to the women and their families to improve quality of life (Abdel-Razeq et al., 2015); such programs do not exist in the governmental hospitals (e.g., Al Bashir hospital). Therefore, cancer patients treated in governmental hospitals have fewer resources compared to those treated at KHCC.

Regarding the family relationships, the typology of the family environment in this study was mainly “support-oriented families” as the standardized score of the cohesion subscale (50.82, $SD = 14.37$) was higher than the conflict subscale (48.77, $SD = 12.63$). In other words, women in this study perceived their family’s relationship as more cohesive, more expressive, and less conflictual. These results were compared to the normative data for three different types of families (four-member family, African American and Latino adult family, and family of origin) from the United States published in the scale’s manual (Moos & Moos, 2009).

Compared with women’s families in this study, the “four-member family” was less cohesive and more expressive and conflictual. On the other hand, the “African American and Latino adults” (from normal families) were more cohesive, less expressive, and more conflictual than our sample. Lastly, “family of origin” was less cohesive and expressive, and more conflictual, than our sample. Overall, the mean scores were comparable, with all three subscale means for women in our study were within one raw score point of the norms for the three types of families. However, the family’s relationships in this study were perceived to be more cohesive and expressive, and less conflictual than the three different types of families from the United States published in

the scale's manual. The scale's manual also included data from other investigators' research studies ($N = 17,730$). The three subscale means for women in our study were comparable to the data from other investigators research; however, the typology of the family environment in the other research studies was less cohesive and expressive, and more conflictual than our sample.

Differences in QOL-BC and MOS-SSS Mean Scores across Demographic and Clinical Variables

There was a significant association between physical well-being (QOL-BC scale) and the demographic characteristics of age and marital status that was inconsistent with other studies (Yan et al., 2016). It is expected that older women are at more risk for a decline in their physical and cognitive well-being because of breast cancer treatment or the normal aging process (Brandão, Schulz, et al., 2017). However, in this study older women (61 years and older) had higher mean scores of physical well-being compared to younger women (18 – 40 years), which is inconsistent with other studies (Durá-Ferrandis et al., 2017; Yan et al., 2016). Other studies supported this result and showed that older age at diagnosis is associated with better HRQoL and physical well-being compared to younger age (Janz et al., 2005; Kwan et al., 2010; Sammarco, 2009).

It might be possible that because most of the women in this study were young (41 -60 years), diagnosed at the peak of their productivity (41 – 50 years), and had stage II of the disease, they were treated aggressively. Younger women are more likely to receive more intense cancer treatment than older women (Mosher & Danoff-Burg, 2006; Schou

et al., 2005), resulting in poor health-related outcomes and psychosocial and physical complications (Fernandes-Taylor et al., 2015).

In this study, women with breast cancer who were single or divorced had higher mean scores on physical well-being (QOL-BC scale) than married women, consistent with other studies (Janz et al., 2005; Kwan et al., 2010). The results of this study were inconsistent with those of Leung et al. (2016) who found that women with breast cancer who had a partner had higher physical well-being than those who did not. Inconsistency between studies could be related to the fact that not all relationships are helpful and supportive. Some of the relationships could be conflictual and a source of stress (Alqaisi & Dickerson, 2010; Wortman, 1984). In addition, the classifications of marital status between Western and non-Western countries are different.

Most of the women were housewives and were diagnosed at the peak of their productivity, which could have contributed to the low levels of the physical well-being of married women compared to single and divorced women. Jordanian women are the primary caregivers in their families and have multiple roles (Al-Natour et al., 2017). They consider their family and children a priority over their health and believe that their primary role in life is to take care of them (Taha et al., 2012). Jordanian women always try to show that they are strong enough and capable of juggling several roles in their families even when they need help and support (Al-Natour et al., 2017).

In this study, women who had the first or second stage of the disease had higher mean scores on positive social interaction support (MOS-SSS scale) than those who had the fourth stage of breast cancer. This result is expected for several reasons. First, at the time of initial diagnosis of cancer, social support resources probably reach a peak

(Banovcinova & Baskova, 2016; Courtens et al., 1996; Eom et al., 2013; Thompson et al., 2013) due to the presence of a supportive network around a woman when she is sick (Masià et al., 2019). With the advanced stage of breast cancer disease, the needs of women are likely to increase, which is likely to be associated with exhaustion of resources (Ng et al., 2015) and burnout of family members from continuous caregiving (Eom et al., 2013; Wortman, 1984).

In addition, most women with breast cancer acquire more skills over time and find themselves able to cope with illness and needs without intensive support from network members (Arora et al., 2007). As a result, family members might start to move away gradually (Arora et al., 2007). As supportive actions toward cancer patients decline, their perception of positive social interaction might also decrease. This is consistent with other research studies that found that PSS levels among women with breast cancer are higher earlier at the diagnosis and tend to decrease over time (Arora et al., 2007; Banovcinova & Baskova, 2016; Eom et al., 2013; Thompson et al., 2013).

Second, within the perspective of Jordanian women, cancer is an incurable disease and is associated with death, especially after initial diagnosis (Abu-Helalah et al., 2014; Al-Shannaq, 2017; Alqaissi & Dickerson, 2010; Taha et al., 2012). Therefore, for a woman with stage four breast cancer disease and her family members, death is approaching, and there is limited time to enjoy, relax, and show signs of happiness. For the positive social interaction subscale, women were asked about the availability of someone to have a good and enjoyable time with and the presence of someone to get together with for relaxation. It is possible that women with the fourth stage of the disease found these questions culturally inappropriate.

Relationships of Perceived Social Support and Family Relationships with HRQoL

In this study, women with breast cancer who were supported by their social network members had higher levels of HRQoL and psychological well-being consistent with other research studies (Brandão, Schulz, et al., 2017; Filazoglu & Griva, 2008; Kroenke et al., 2013; Kwan et al., 2010; Leung et al., 2014; Levine et al., 2017; Ng et al., 2015; Ogce et al., 2007; Sammarco & Konecny, 2008; So et al., 2013; Waters et al., 2013). The impact of social support on psychological well-being and HRQoL is more substantial than on the general population (Yoo et al., 2017). A higher level of PSS is associated with better psychological well-being, better ability to cope with stress, and HRQoL among women with breast cancer (Cormio et al., 2015; Curtis et al., 2014; Friedman et al., 2006; Ozdemir & Tas Arslan, 2018). In addition, having supportive family members is a protective factor for mental health problems, especially during the pandemic of COVID-19 (Wang et al., 2020).

In this study, PSS was predictive of psychological well-being, but it was not associated with physical well-being or social well-being. It might be that women in this study had low levels of psychological well-being at baseline, and it was worsened during the pandemic. Research studies (before COVID-19) showed that Jordanian women with cancer suffer from poor mental health status (e.g., anxiety, depression, and stress) that needs to be addressed and managed (Abu-Helalah et al., 2014; Al-Ghabeesh et al., 2019; Al-Husban et al., 2019; Hamdan-Mansour et al., 2015). With the COVID-19 pandemic, studies worldwide reported that cancer patients, as well as the general population, suffered from a significant decline in mental and cognitive health (G. Chen et al., 2020; Choobin et al., 2021; Ciężyńska et al., 2020; Shuwiekh et al., 2020; Wang et al., 2020).

Therefore, during the pandemic, the mental health of women in Jordan could have also deteriorated or been exacerbated (especially if there were a history of mental illness). The “COVID-19 traumatic stress” is a new type of stress that people have faced during the pandemic, and it includes persistent fear from having the disease, being away from people and isolated, and economic loss (e.g., financial distress) (Kira et al., 2021; Shuwiekh et al., 2020).

Women in this study had financial distress, which was associated with the psychological distress of cancer patients in Jordan (Abu-Helalah et al., 2014; Al-Ghabeesh et al., 2019). Jordan is an upper-middle-income country with a growth national income per capita in 2021 between \$4,096 and \$12,695 (The World Bank, 2021) and limited financial resources (Abdel-Razeq et al., 2020). With the presence of COVID-19, people in Jordan have suffered from further financial burdens. While Jordanian husbands are significant sources of financial security for their families (Alqaissi & Dickerson, 2010; Taha et al., 2013), around 60% of husbands in this study did not work either due to COVID-19, being retired, or being unable to work. In addition, about 80% of women were housewives with a total household income for the whole family of less than 500 Jordanian Dinar (around \$700) per month.

Results of this study showed that women who were 18 to 40 years old had lower levels of total HRQoL, physical well-being, and psychological well-being than those who were 41-60 years old. This result is consistent with other studies that showed that older women with breast cancer had higher HRQoL and physical well-being levels than younger women (Janz et al., 2005; Kwan et al., 2010; Sammarco, 2009). As discussed before, most women in this study were young (41 – 61 years) and diagnosed at the peak

of their productivity (41-50 years). Younger women are expected to live longer, and therefore, they are more likely to be treated aggressively compared to older women (Mosher & Danoff-Burg, 2006; Schou et al., 2005), which would be the reason for poor health-related outcomes, psychosocial, and physical complications (Fernandes-Taylor et al., 2015).

In this study, women who had received chemotherapy treatment previously had higher total HRQoL and social well-being levels than those who did not. In contrast, several studies showed that chemotherapy treatment is associated with the worst HRQoL and symptoms of distress among cancer patients with different age groups (Liu et al., 2021; Yan et al., 2016). There are several possible explanations for the significant positive association between previous chemotherapy treatment with HRQoL and social well-being among those women. In this study, the predictor of chemotherapy treatment was one of the cancer treatments women received previously. Therefore, it might be that chemotherapy treatment effectively improved HRQoL for women in the long term, or there was enough time to overcome treatment complications. Studies have found that the negative effects of chemotherapy treatment on quality-of-life and symptom burden among cancer patients with different age groups (26 years to 70 years and older) were temporary and improved within two years (Battisti et al., 2021; Hsu et al., 2013; Quinten et al., 2018). Future research might be needed to investigate the association between chemotherapy treatment and HRQoL across different age groups for those women.

In addition, the side effects and impact of chemotherapy on different health-related outcomes among cancer patients depend on several factors such as the type of chemotherapy received (adjuvant, non-adjuvant, or conventional, etc.), drug

combinations, dosages, and other treatments received with chemotherapy (Omran et al., 2012). The frequency and number of cycles of chemotherapy treatment received have also been associated with distress among cancer patients (Omran et al., 2012). Collecting such data might have provide some explanation for the results of this study. However, this was beyond the scope of this research study.

Women who received psychological counseling after diagnosis at least once had lower social well-being levels than those who did not receive any counseling. It might be that those women who sought medical help at that point suffered from the severe psychological deterioration that affected their personal and social life. Poor psychological and mental health among those women is expected due to the lack of structured psychological screening (Abdel-Razeq et al., 2015; Omran et al., 2012), especially at the Ministry of Health hospital (e.g., Al Bashir hospital) (Abu-Helalah et al., 2014). Deterioration in mental and physical health is also expected as Middle Eastern women fail to take preventive actions and do not seek medical care until the side effects of cancer treatment are severe (El Sharkawi, 1997; Salman et al., 2018; Taha et al., 2012). The belief in fatalism, discussed before, also affects Jordanian women's decision-making (Al-Hassan et al., 1999; Kawar, 2012).

In a cross-sectional study of 327 Jordanian women with breast cancer, around 32% of patients sought medical care more than three months from the appearance of breast cancer symptoms (delay in presentation) (Abu-Helalah et al., 2016). Furthermore, the cultural background of Arab patients impacts the expression of pain and suffering, such as the tendency to please healthcare providers, social pressure for the endurance of

pain, and Muslims' attribution of health and illness to GOD's will (Al-Hassan et al., 1999).

Interestingly, women who reported that the pandemic of COVID-19 affected the levels of social support they received had lower levels of total HRQoL, physical well-being, psychological well-being, and social well-being consequently. These results are consistent with studies conducted worldwide among cancer patients and the general population (Bargon et al., 2020; G. Chen et al., 2020; Choobin et al., 2021; Ciężyńska et al., 2020; Jeppesen et al., 2021; Khatatbeh et al., 2021; Shuwiekh et al., 2020; Wang et al., 2020).

An interesting result is that none of the predictors in the regression model predicted spiritual well-being. It appears that the spiritual well-being subscale did not capture the meaning of spirituality for women in this study. Cronbach's alpha for this subscale was the lowest among all the QOL-BC subscales. One of the possible explanations is that some of the items in this subscale might not have measured spirituality among women with breast cancer in a predominantly Muslim country. Items number 43 and 45 were: "How much uncertainty do you feel about your future?" and "Do you sense a purpose/mission for your life or a reason for being alive?" On many occasions, women expressed that these two questions were considered "unusual", "do did not know how to answer them", or against Islamic values and beliefs".

On the other hand, women were more receptive and responsive to items 40 and 41 related to religious activities. Women were asked: "How important to you is your participation in religious activities such as praying, going to church or temple?" and "How important to you are other spiritual activities such as meditation or praying?"

These questions might have contributed to the spiritual meaning of practicing religious activities for women in this study. Religiosity seems to resonate well with the meaning of spirituality for these women from Jordan.

A recent systematic review was conducted to identify the studies in spirituality and health in the Middle East (Weathers, 2018). Most studies were conducted in Iran ($N = 16$) and Jordan ($N = 6$) and among the cancer population. The results of studies ($N = 28$) showed an increase in the number of studies on spirituality from Middle Eastern countries with a predominantly Muslim population. However, the conceptualization of spirituality among the Middle Eastern population differs from that of the Western population. Thus, there is a need to explore the differences in the meaning of spirituality between the Middle Eastern and Western people. Weathers (2018) also found that from an Islamic perspective, it does appear that religion and spirituality overlap and are connected among the Middle Eastern population. Several research studies supported this notion and found that the Islamic faith and beliefs contributed to high spirituality levels among Muslim cancer patients and cancer survivors (Al-Natour et al., 2017; Alaloul et al., 2016; Alhusban, 2019; Jafari et al., 2013; Lazenby et al., 2013). There is a great reliance on religious activities during illness among Jordanian cancer survivors (Alaloul et al., 2016). For Jordanian patients with cancer and cancer survivors, a spiritual act is concerned with praying to GOD, reading from the Holy Book, and asking the supportive network to pray for them (Alaloul et al., 2016; Alqaissi & Dickerson, 2010).

Based on these results, it seems that a spiritual well-being instrument that is conceptualized with religiosity and religious act or practices might be more appropriate within the predominantly Muslim population. However, before making any conclusions,

in-depth qualitative studies concerning the meaning of spirituality for women with breast cancer in Jordan are needed. In addition, more studies are needed to explore the differences in the meaning of spirituality across different religious contexts and Western and non-Western populations (Weathers, 2018). For the future, there is also a need to analyze the psychometric properties and factorability of the QOL-BC scale using a larger sample size. It is worth mentioning that the QOL-BC instrument was translated into Arabic in two research studies conducted in the Middle East (Al-Husban et al., 2019; Al Zahrani et al., 2019); however, the researchers did not report the psychometric properties of their measure.

In conclusion, this research study was guided by the Contextual Model of HRQoL developed by Ashing-Giwa (2005) to support culturally sensitive and socioecological research. The theoretical framework is not an explicit theory, but it provided a conceptual foundation to explore predictors for HRQoL, particularly with diverse minority cancer patients. The framework provided the basis to guide the research inquiry by understanding predictors of HRQoL and the impact of culture and socioecological (social support and family relationship) variables on the overall HRQoL.

Many theoretical models in the literature are conceptually grounded on Western culture. However, the theoretical foundation of the work by Ashing-Giwa (2005) was based on multi-ethnic socially and economically diverse women with breast cancer. Therefore, this model was the best fit with the study's aims and appropriate to guide research conducted with a non-Western population including different cultures. In addition, as a native Jordanian female researcher, the primary investigator found this

model to be more closely aligned with the cultural and societal features of Jordanian people than any other Western model of HRQoL.

The results of this study supported the findings of Ashing-Giwa's (2005) who emphasized the importance of a strong support system (one of the socioecological factors) in minimizing the impact of breast cancer on the lives of women. The Contextual Model of HRQoL proposed that emotional social support and instrumental (tangible) social support was positively associated with psychological adjustment and coping with cancer. Furthermore, a lack of social support was associated with higher mortality rates 10 years after breast cancer. The results in this study were aligned with this discussion.

The Contextual Model of HRQoL model also emphasized the necessity of considering the quality of relationships and family relationships (one of the cultural factors) when investigating health-related outcomes among female patients. Ashing-Giwa also suggested that family and children for women might be a priority over their own health. The review of the literature in our study emphasized the importance of considering the interpersonal context in which social support processes occur (Al-Bahri et al., 2019; Pierce et al., 1990; Wortman, 1984). Moreover, for Jordanian women, family and children come first and their needs are a priority (Taha et al., 2012).

Overall, the Contextual Model of HRQoL model reflects the importance of expanding the traditional models of HRQoL by including cultural and socio-ecological dimensions that have an impact on HRQoL. The results of this study supported this framework and showed that social support and family relationships are two main variables that have an impact on HRQoL. Therefore, these variables should be considered when investigating HRQoL across multi-ethnic diverse cancer population.

The Contextual Model of HRQoL model discussed spirituality as one of the cultural factors that is associated with HRQoL. Several studies referenced in the Ashing-Giwa model showed that higher spiritual well-being corresponds with better health-related outcomes and adjustment to the disease among cancer patients. The model found that multiethnic populations often consider religious and spiritual practices and beliefs as a major source of coping with the disease. In our study, this framework was supported, and studies showed that Islamic faith and beliefs contributed to high spirituality levels among Muslim cancer patients and cancer survivors (Al-Natour et al., 2017; Alaloul et al., 2016; Alhusban, 2019; Jafari et al., 2013; Lazenby et al., 2013). In addition, among Jordanian cancer survivors, there is a great reliance and emphasis on religious activities during illness (Alaloul et al., 2016).

However, one of the important considerations that was not emphasized by the model is that researchers should take into consideration the meaning of spirituality for the population of interest. As shown in this study, the meaning of spirituality might be different across multiethnic groups. Therefore, the results of this study suggest that Contextual Model of HRQoL model can be modified to incorporate conceptualization of spirituality and to emphasize that meaning of this concept may differ across multiethnic and diverse population. According to Ashing-Giwa (2005), more research is needed to address the impact of culture and socioecological variables on health behaviors and HRQoL outcomes. Importantly, the findings of this study provide empirical data as the basis for further research on the social and cultural factors affecting HRQoL among cancer patients in Jordan. In conclusion, the Contextual Model of HRQoL (Ashing-Giwa, 2005) provides a useful framework for describing, explaining, and empirically testing the

phenomena of social support research and health-related quality of life within the social and cultural context of Jordanian women with breast cancer.

Reliability of the Family Relationship Index Scale

The reliability estimate for the expressiveness subscale and the total FRI scale was low (Nunnally, 1978). The FRI was chosen based on adequate reliability estimates of studies conducted in diverse populations and languages, as referenced in the scale's manual and literature (Moos & Moos, 2009). The instrument had been widely used in family research since its publication over 10 years ago, and it has been translated into more than 22 languages (by the developer). Several studies used the translated instruments across cultures in the scale's manual, but there were no references for any study among Middle Eastern or Arabic-speaking populations. It is believed that this is the first study that tested the instrument's reliability on the Middle Eastern people, specifically on women diagnosed with breast cancer. This can be understood as the researchers had to purchase the license to be able to use it.

One of the possible reasons for the low estimate of internal consistency for the FRI could be the cultural differences between Western and non-Western populations. It could also be related to some of the unique characteristics of the sample in this study, such as living conditions (e.g., extended family, nuclear family, etc.) or biologic sex/gender (all participants were women). In addition, the reliability of FRI could be varied as a function of the number of family members in a research study. There might be differences in the individual's perception of family relationships compared to a group of family members' perceptions. Therefore, future studies can test the psychometric properties of the FRI from the perspective of several family members instead of one

member of the family. Accumulative evidence will also provide a normative data for the Middle Eastern family that can be utilized in research and clinical practice. It is also recommended to conduct a follow-up study with a larger sample size to investigate the factorability and the reliability estimates of the FRI scale.

Another reason for the low reliability estimates for the FRI in this sample could be related to the dichotomous nature of the questions (True and False format). One study explored the psychometric properties of the FES (FRI is a subset of three dimensions of the FES) in a sample of 92 families (the parents and one child from each family) (Loveland-Cherry et al., 1989). The children's reliability estimates were lower than those of their parents (range from .15 to .29) in three subscales (Expressiveness, Achievement, and Active-Recreational subscales). Researchers mentioned that the low reliability is related to the difficulty in answering questions of dichotomous nature and difficulties with interpretations among children (Loveland-Cherry et al., 1989). The dichotomous nature of the items could be another reason for the low reliability of FRI in this study as well.

On many occasions, women in this study informed the primary investigator that they had some difficulties choosing true or false answers for a question. Women were directed to “Answer true if you think it is true most of the time or true of most of the members of your family or true on most days and so on,” as it was instructed in scale’s manual (Moos & Moos, 2009, p. 4). It is noted that several studies used a multi-point (four to six point) answer format instead of the two-point design (Moos & Moos, 2009). It is recommended that future studies adopt a multi-point answer format to test the reliability of the FRI among the Middle Eastern population. For example, a Likert-scale

design may allow the participants to answer consistently, thereby increasing this scale's reliability (Loveland-Cherry et al., 1989).

Implications

The primary purpose of this study was to explore perceived social support, family relationships, and HRQoL among women with breast cancer in Jordan. The results of this dissertation highlight the need to focus on several areas to provide optimal care for cancer patients in Jordan. Implications for future research, clinical practice, education, and healthcare policy are discussed below. Some of the implications are derived from the literature, and others are based on the results of this study.

Future Research

1. There is still a lack of research concerning the meaning and helpfulness of social support (Alqaissi & Dickerson, 2010) and the impact of social support on different health-related outcomes (e.g., HRQoL) among women with breast cancer in Jordan (Alananzeh et al., 2016).. Nurses are in an excellent position to expand the science of social support as they have quick and easy access to the patients and their network system (Cheng et al., 2013; Hutchison, 1999; Stewart, 1993; Usta, 2012).
2. More research is needed in the Middle East region to understand the relationship between social support and health-related outcomes (Tajvar et al., 2013).
3. More attention is needed to investigate HRQoL among women with breast cancer and the role of the family in maintaining good HRQoL in the Middle East region (Hashemi et al., 2019).

4. To date, social support research among cancer patients in Jordan is focused on the structural dimension of social support, i.e., the sources of social support (e.g., friends, family, etc.). Little attention is devoted to investigating other social support dimensions, such as the perceived availability of functional support (e.g., tangible support).
5. Psychosocial research is complex, and it is necessary to understand the context of a relationship between the patients and their social network. There is a need for further research to explore the area of family relationships among cancer patients in Jordan. Jordanian cancer patients expressed their need to strengthen interpersonal interaction and involvement with their families (Al-Jauissy et al., 2009; Omran et al., 2012).
6. One of the limitations of social support instruments is that it assumes a universal set of supportive needs for all women, and therefore it may not fully capture individual differences and preferences (Reynolds & Perrin, 2004). To overcome this limitation, researchers are advised to adopt a mixed methods design or a qualitative inquiry to fully capture patients' individualized supportive needs.
7. Findings in this study reflect the association of overall perceived social support with HRQoL rather than focusing on a specific type of social support. At each stage of breast cancer disease, all social support types are proposed to be beneficial. However, certain types of social support may be more significant at some point in the disease process. Therefore, future research studies can focus on certain types of functional social support (e.g., tangible social support) and how it is related to different health-related outcomes (e.g., HRQoL).

8. There is a need to consider longitudinal design studies to explore the area of social support and health-related outcomes (as HRQoL), especially in the Middle East region (Tajvar et al., 2013). For example, research studies can examine the changes of supportive needs across the trajectory of the disease.
9. More research is needed to examine the meaning of spirituality or spiritual well-being for cancer patients in the Jordan and the Middle East region and how it might differ from that of Western people (Weathers, 2018).
10. There is a need to examine the factorability and psychometric properties of the QOL-BC scale among cancer patients in Jordan or Middle East countries in large samples.
11. It is recommended to conduct a follow-up study with a larger sample size to provide data on the FRI scale's reliability among Arabic-speaking populations in order to accumulate enough evidence on the performance of this scale on non-Western populations.
12. Future researchers can consider exploring the FRI from the perspective of several family members instead of one member of the family.
13. It is recommended for future studies to adopt a multi-point answer (e.g., a Likert-scale) format instead of the dichotomous format to test the reliability of the FRI among the Middle Eastern population.
14. To examine the typology of the family environment (i.e., patterns of cohesion, expressiveness, and conflict) in depth, future research can use a hierarchical cluster analysis (Ward's cluster analysis criterion) to analyze data collected from all of the participants as it was used in other research studies (Mirsu-paun, 2004). Cluster

analysis is composed of different methods to merge scores into groups in such a way that each group would share certain characteristics. From cluster analysis, each group will be characterized by different scores on the three subscales (cohesion, expressiveness, and conflict), thereby each group will reflect different typology/type of the family environment (support-oriented family or conflict-oriented family). Following this approach will avoid imposing a certain type of family environment for all participants in a study. In our study, describing and analyzing the typology of families' environment in depth was beyond the scope of this research study.

Clinical Practice

1. There is a need to incorporate feasible methods to assess and evaluate levels of PSS, family relationships, and HRQoL for patients with cancer. These aspects are usually overlooked and left unaddressed in clinical practice. Having insight into this area is essential to ensure that provided care is holistic and meets the psychosocial needs earlier in the disease process.
2. Based on the results of this study, nurses should pay more attention to women with breast cancer with the following demographic and psychosocial characteristics: being between the age of 18 to 40 years, being married women, having stage IV of breast cancer, and having received psychological counseling after diagnosis (at least once). In addition, more attention should be paid to those who reported that the pandemic affected the levels of social support received.

3. Appropriate and feasible measures should be put into place urgently to follow up, evaluate, and manage the psychological problems of women with breast cancer in the outpatient clinics.
4. There is primarily emphasis on the physical aspects of cancer care in Jordan (Abdel-Razeq et al., 2015). It is essential to consider the social support processes and the interpersonal context (e.g., family relationships) when providing cancer care (Al-Bahri et al., 2019; Pierce et al., 1990; Wortman, 1984). Oncology nurses should have a role in responding to patients' needs and providing referrals if needed.
5. A brief measure of social support can be integrated into clinical practice to assess patients' supportive needs earlier after diagnosis and during the treatment journey. However, more information is needed to determine the "clinical significance" of the MOS-SSS scores. Future research is required to determine the decline of PSS levels that are considered clinically meaningful (Thompson et al., 2017) (e.g., if this decline is associated with a change in physical and mental health).
6. The Family Relationship Index is a helpful scale that can be adopted clinically. The typology of family environment provides an accessible classification for healthcare providers of the relationship pattern and communication among family members of women with breast cancer (i.e., support-oriented families or conflict-oriented families). Other research studies presented other typologies of family relationships based on their classification systems (e.g., Cohesive-Expressive and Conflictual-Expressive) (Mirsu-paun, 2004). Therefore, different classifications of family relationships can be used according to the need. Having insight into the type of the

family environment in clinical practice is beneficial as it is associated with different health-related outcomes.

7. Cancer is a family disease that affects all members of the patients' network system. In clinical practice, healthcare professionals should incorporate proper and feasible measures to assess and evaluate caregivers' psychosocial and psychological difficulties to prevent "care stress" and provide referrals if needed. Caregivers are often neglected when providing cancer care to patients.

Education

1. During curriculum development and clinical competency training for nurses, educational institutions and healthcare sectors should focus not only on the physical aspects and disease processes but place more emphasis on incorporating psychosocial and interpersonal care.
2. It is crucial to educate nurses at the undergraduate and graduate levels about the importance of holistic care by focusing on HRQoL, which encompasses physical, psychological, social, and spiritual well-being. Education can be reflected in curriculum development or during clinical rotations in a healthcare setting.
3. In the clinical field, nurses should be equipped with cultural competence training (including skills and knowledge) to provide optimal care for a diverse population (Andrews et al., 2011). Culture influences family relationships and the perception and utilization of social support resources.
4. Nursing administrators should consider developing a training module/courses and workshops to educate clinical nurses about the impact of breast cancer disease on

- social support, family relationship, and HRQoL aspects. Educational sessions should be conducted regularly, accompanied by competency checking for clinical nurses.
5. Women with breast cancer at the outpatient clinics of the governmental hospitals need more education about cancer disease processes and the side effects of treatment. Educational material can be provided to the patients at the clinics, and informational sessions can be held regularly.

Healthcare Policy

1. Findings from this study provide an opportunity for stakeholders and policymakers (especially in the governmental hospitals) to evaluate cancer care services and programs for cancer patients in Jordan and to address gaps and areas for improvement.
2. There is an urgent need for psychosocial support programs and services, especially in the Ministry of Health hospitals (Abdel-Razeq et al., 2015; Abu-Helalah et al., 2014; Alhusban, 2019; Mosleh, 2018). Women with breast cancer in Jordan have limited options to access social support services (Alqaissi & Dickerson, 2010), especially in the outpatient clinics for oncology patients (Mosleh, 2018).
3. Policymakers at governmental hospitals should support and push forward all efforts to improve psychosocial care to be integrated into the routine care of patients with cancer in the outpatient clinics.
4. There is an urgent need for psychological counseling services to improve psychological well-being for cancer patients in Jordan, especially in the COVID-19 pandemic. Policymakers should make more efforts to initiate these services urgently,

- to identify patients at high risk for psychological impairment, and to provide quick and cost-effective psychological intervention at the proper time.
5. Overall, cancer care in Jordan is still focused mainly on treatment (physical aspects). More efforts are needed to focus on other elements of the cancer experience (e.g., social, psychological, and spiritual) besides the physical characteristics (Abdel-Razeq et al., 2015). Policy makers should develop an appropriate policy to achieve these goals, such as providing the needed training to healthcare professionals and adopting feasible measures to assess and evaluate psychosocial aspects, family relationships, and HRQoL for cancer patients.
 6. Stakeholders at the Ministry of Health hospitals should support nursing administrators in advancing cancer care in the outpatient clinics by providing the needed resources to achieve the strategic goals of holistic care. Nurses are in an excellent position to support their patients and have a significant impact on their lives. They are persuaders and advocates by nature and trained to be good listeners. They used to stand for, and speak knowledgeably about, the needs of their patients.

Limitations

First, a limited number of settings reduces findings' generalizability (Polit & Beck, 2017). Second, introducing an instrument that asks about past events might affect the results due to the patient's inability to recall what happened or the difficulty in doing so. This, in turn, may magnify or minimize the effect of some variables. Nonetheless, patient-reported outcomes (PROs) are considered the most effective ways to assess the

health-related outcomes of patients without the intervention of other people (e.g., physicians or family members) (Calvert et al., 2013).

Third, many women were tired of waiting their turn in the outpatient clinics, and thus they asked the researcher to help them answer the questionnaire in a semi-structured interview. Therefore, there is a potential that the findings of this study might have been affected by the social desirability bias; the tendency of the respondents to give socially acceptable answers. However, the primary investigator attempted to remain open-minded, unbiased, and avoid leading questions. Nonetheless, collecting most of the data using semi-structured interviews ensured that all the questions were answered and gave the participants a chance to elaborate more if they wanted to (Polit & Beck, 2017).

Fourth, a number of the women wished to respond privately and were taken to a private room in the outpatient clinics to answer the questionnaire. This was not feasible all the time due to the crowdedness of the outpatient clinics. However, if they asked to answer privately, they were taken to private corner in the waiting area of the clinic. Fifth, it is possible that women who accepted the invitation to participate in this study may have stronger, or more acceptable, levels of social support or family relationships than those who declined to participate. Therefore, those who had poor social support or family relationships may be underrepresented.

Nonetheless, the principal investigator is a Jordanian female Arabic-speaking researcher. Being interviewed by a female native researcher encouraged women to participate and minimized cultural barriers. In Jordan, the gender of the healthcare providers has a significant impact on the healthcare behaviors and decision-making of Jordanian women. Jordanian women prefer female healthcare providers or female family

members for seeking supportive care or cancer care (Alkhasawneh, 2007; Alqaissi & Dickerson, 2010; Taha et al., 2012). The presence of female healthcare providers encourages Jordanian women to engage and interact with the healthcare providers and to express concerns or stressors (Salman et al., 2018).

Sixth, asking women to answer questions related to perceived social support and family relationships might have been impacted by a measurement problem named “slice of time,” which means taking a snapshot of measurement, as is the case in cross-sectional design studies (Tilden, 1985). Therefore, some external factors might have affected the answers during data collection, such as fights with their husband, children, or family members. Researchers can employ longitudinal design studies in psychosocial and interpersonal studies to eliminate the effect of any confounders on the results.

Seventh, the presence of the COVID-19 pandemic has probably affected the study in many ways. Although most women with breast cancer were open to communicating and talking to the primary investigator, some women hesitated to participate because of the fear of contacting the virus. In addition, the use of face masks all the time (it was mandated in the clinics) affected the communication and body language between the primary investigator and the participants. To overcome this barrier, the primary investigator carried a hand sanitizer bottle (other than the incentives) all the time so participants could use it if they wanted to. Also, the primary investigator used a double mask instead of a single mask so participants would be comfortable, and the safety of all parties would be ensured.

Eighth, the medical record numbers of the patients were not collected as it was not feasible. Therefore, the stage of breast cancer disease was self-reported by the

participants. Collecting this information from the electronic healthcare system was not feasible. Ninth, the cultural differences in the meaning of spirituality between Western and non-Western populations might have affected how women answered the spiritual well-being subscale. However, the primary investigator minimized the impact of cultural differences by adopting a well-validated method for translating the QOL-BC instrument. In addition, the steps of back translation and cognitive interviewing provided a way of validating and evaluating the translated version to fit with the cultural aspects of Jordanian society.

Conclusion

The purpose of the study was to explore perceived social support, family relationships, and HRQoL among women diagnosed with breast cancer in Jordan, using an exploratory cross-sectional design. Women in this study had a moderate level of overall HRQoL and moderate to high levels of PSS. Results also showed that women in this study had low levels of physical and psychological well-being, which could be related to the demographic and clinical characteristics of the sample and the presence of the COVID-19 pandemic. However, spiritual well-being scored the highest among those women. Furthermore, women with breast cancer had higher affectionate and positive social support levels than levels of tangible and emotional/informational support. The context of the COVID-19 pandemic and Middle Eastern communities' cultural and societal features cannot be overlooked and provided a foundation to interpret the results of this study.

This study showed that women with breast cancer supported by their network members had higher HRQoL and psychological well-being levels. Interestingly, women

who reported that the pandemic of COVID-19 affected the levels of social support they received had lower levels of total HRQoL, physical well-being, psychological well-being, and social well-being consequently.

Healthcare providers (especially nurses) should pay more attention to women with breast cancer with some particular demographic and psychosocial characteristics. Those women had lower levels of HRQoL or physical well-being or psychological well-being, or social well-being. The characteristics of those women were being between the age of 18 to 40 years, being married, having stage IV of breast cancer, and having received psychological counseling after diagnosis (at least once). In addition, women who reported that the pandemic affected levels of social support received need more attention and follow-up to provide referrals if needed.

Psychosocial care is still underdeveloped, fragmented, and neglected, especially in Jordan's Ministry of Health hospitals (Abdel-Razeq et al., 2015; Abu-Helalah et al., 2014; Alhusban, 2019; Alqaissi & Dickerson, 2010; Mosleh, 2018). Therefore, healthcare policy makers should make tremendous efforts to integrate psychosocial care into the routine care of patients with cancer, especially at governmental hospitals. It is also essential to support and educate healthcare providers in clinical fields about the impact of breast cancer on social support, family relationships, and HRQoL to help them to understand patients' experiences and to provide optimal and holistic cancer care. A brief and feasible measure to assess and evaluate these aspects can be incorporated during the daily work in the outpatient clinics.

Even though this study failed to demonstrate a relationship between family relationships and HRQoL, the literature sheds light on the importance of considering the

interpersonal relationships in which the social support process occurs among women with breast cancer (Al-Bahri et al., 2019; Pierce et al., 1990; Wortman, 1984). Further exploration is recommended to examine the factorability and reliability of QOL-BC and FRI scales, using a larger sample size for women with breast cancer to accumulate evidence on the performance of these scales on non-Western populations. More research is also needed to explore the meaning of spirituality or spiritual well-being among women with breast cancer in Jordan. Overall, the results of this study are beneficial for nursing science and address the gaps in psychosocial cancer care and areas for improvement; therefore, this study should receive considerable attention from healthcare providers and policy makers in Jordan.

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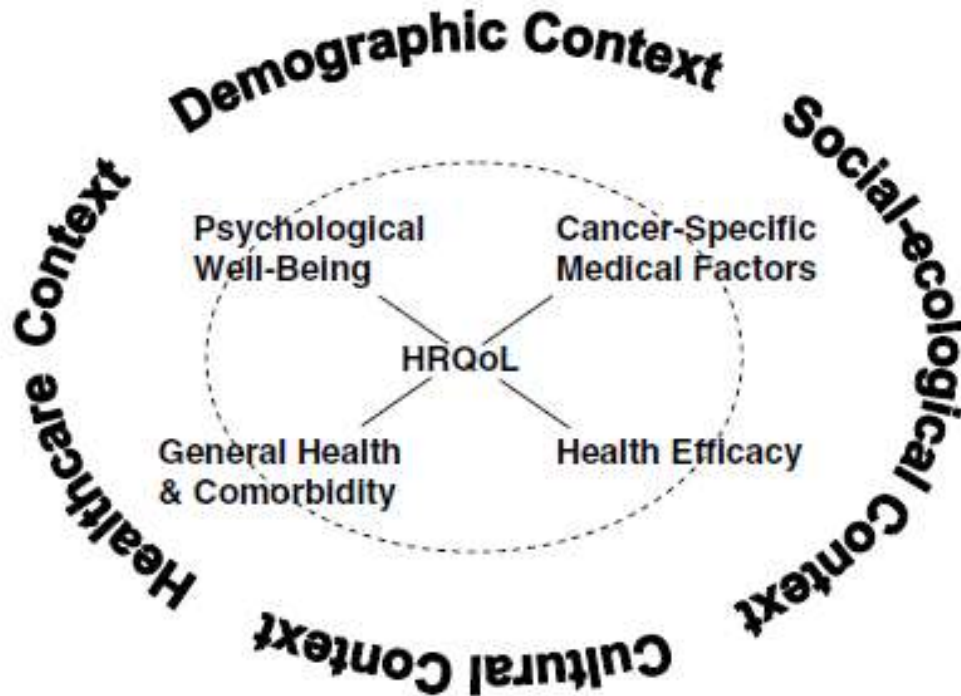
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APPENDIX A

Theoretical Framework of Ashing-Giwa (2005)

Figure A1

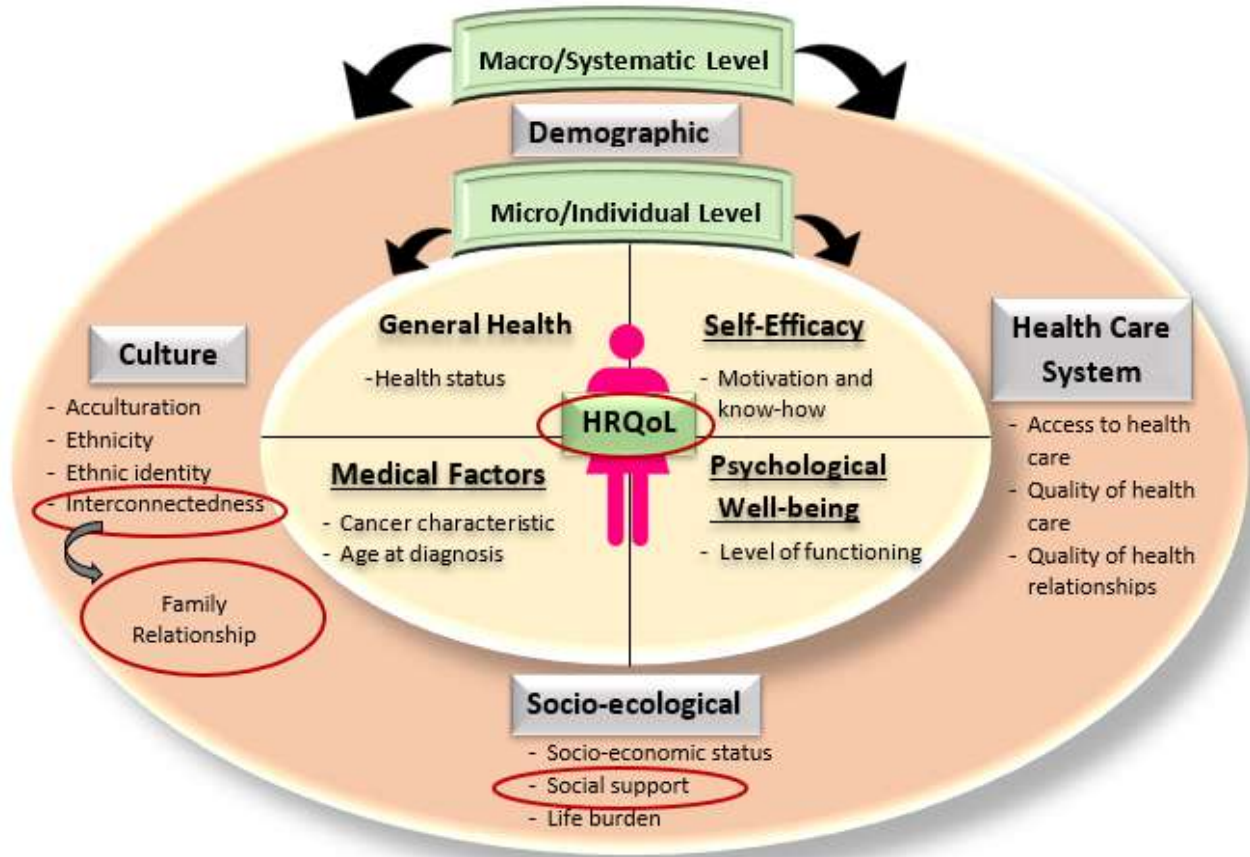
The Contextual Model of HRQoL by Ashing-Giwa (2005)



Note. Reprinted by permission from [Springer Nature Customer Service Centre GmbH]: [SPRINGER NATURE] [Quality of Life Research] [REFERENCE CITATION (The contextual model of HRQoL: A paradigm for expanding the HRQoL framework, Ashing-Giwa, K. T), [COPYRIGHT] (2005).

Figure A2

Modified Version of the Contextual Model of HRQoL



Note. The circled concepts are the study's main variables.

APPENDIX B

Summary Table of Variables and Instruments

Table

Summary of the Variables and Instruments

Concept (s)	Instrument and subscales	Items, time to complete, recall period	Reliability and validity	Translation and permission
Demographic, psychosocial, and clinical variables	Structured questionnaire developed by the author and answered by the participants	<ul style="list-style-type: none"> • 26 items • 5 minutes • At the time of data collection 	-----	-----
Perceived social support	Medical Outcomes Study-- Social Support Survey (MOS-SSS) (Sherbourne & Stewart, 1991).	<ul style="list-style-type: none"> • 19-item scale rated on “5-point” Likert scale • 15 minutes. 	<p>Reliability (English version):</p> <p>In a sample of chronically ill participants ($N = 2,987$), Cronbach’s alpha</p>	Translated into Arabic and permission obtained to adopt the

Table Continued

Summary of the Variables and Instruments

Concept (s)	Instrument and subscales	Items, time to complete, recall period	Reliability and validity	Translation and permission
	<ul style="list-style-type: none"> • Emotional/informational (eight item) • Tangible support (four item) • Positive social interaction (three item) • Affectionate support (three item) <p>Additional item to measure structural support</p>	<p>During the past week</p>	<p>for the subscales range between .91 - .96. Whereas, Cronbach's alpha for the total scale equal to .97 (Sherbourne & Stewart, 1991)</p> <p>Validity (English version):</p> <p>Face, discriminant, construct, convergent, and confirmatory factor analysis validity</p>	<p>translated version</p>

Table Continued

Summary of the Variables and Instruments

Concept (s)	Instrument and subscales	Items, time to complete, recall period	Reliability and validity	Translation and permission
Family relationships	<p>The Family Relationship Index (FRI) from the original Family Environment Scale (FES) (Moos & Moos, 1981)</p> <p>The FRI is composed of three subscales:</p> <ul style="list-style-type: none"> • Cohesion (nine items) • Expressiveness (nine items) • Conflict (nine items) 	<ul style="list-style-type: none"> • 27-item true-false response scale • < 10 minutes. • Current time 	<p>Reliability: Test-retest reliability coefficients for the three subscales are .86, .73, and .85, respectively</p> <ul style="list-style-type: none"> • Cronbach's alpha for the cohesion, expressiveness, and conflict subscales are .78, .69, and .75, respectively. Cronbach's alpha for the FRI is .89. 	<p>Translated into Arabic and permission obtained to use the translated version</p>

Table Continued

Summary of the Variables and Instruments

Concept (s)	Instrument and subscales	Items, time to complete, recall period	Reliability and validity	Translation and permission
Health-related quality of life	Quality of Life-Breast Cancer Version (QOL-BC) Instrument (Ferrell et al., 1995)	<ul style="list-style-type: none"> • 46-item scale. The items rated on visual analogue scale range from zero to 10 • 10 - 15 minutes • Current time 	<p>Validity: Face, content, construct, concurrent, and predictive validities</p> <p>Reliability: In a sample of patients with cancer ($N = 70$), the overall QOL-BC test-retest reliability was .89, and for the subscales: $r = .88$ for physical; $r = .88$ for psychological; $r = .81$ for social; and $r = .90$ for spiritual, respectively</p>	Translated into Arabic by the principal investigator

Table Continued

Summary of the Variables and Instruments

Concept (s)	Instrument and subscales	Items, time to complete, recall period	Reliability and validity	Translation and permission
	<ul style="list-style-type: none"> • Physical well-being (eight items) • Psychological well-being (22 items) • Social well-being (nine items) • Spiritual well-being (seven items) 		<ul style="list-style-type: none"> • Cronbach's alpha, the results revealed an overall $r = .93$, and for the subscales it was reported as the following: $r = .81$ for physical, $r = .89$ for psychological, $r = .81$ for social 	

APPENDIX C

Instruments

UofL Institutional Review Boards
IRB NUMBER: 20.1049
IRB APPROVAL DATE: 02/15/2021

Perceived Social Support, Family Relationships, and Health-related Quality of Life Among Women with Breast Cancer in Jordan

Dear Participant:

You are being invited to participate in a research study about perceived social support, family relationships, and health-related quality of life among women with breast cancer in Jordan by answering initial screening questions, followed by questions in the attached survey. Note that based on screening question responses, some subjects may be ineligible to continue participating by answering main survey questions. The purpose of this study is to understand the levels of social support, type of family relationships that might have an impact on your quality of life. This study is conducted by Hedaya Hina, a PhD student at the University of Louisville working under the direction of Professor Diane Chlebowy. There are no known risks for your participation in this research study. The information collected may not benefit you directly. The information learned in this study may be helpful to others. The information you provide will help us in better understanding of your experience with breast cancer disease. Your completed survey will be stored at password protected computer in password protected files. The survey will take approximately 10 – 15 minutes to complete.

Individuals from the Department of Nursing, the Institutional Review Board (IRB), the Human Subjects Protection Program Office (HSPPPO), and other regulatory agencies may inspect these records. In all other respects, however, the data will be held in

confidence to the extent permitted by law. Should the data be published, your identity will not be disclosed.

This study requires the use of protected health information (PHI). Examples of PHI are identifiers such as your name or birthdate together with your health information. The Health Insurance Portability and Accountability Act (HIPAA) provides federal safeguards for your PHI. In this study we will use your medical record number along with your health information relevant to this study such as stage of breast cancer disease. We will keep this data safe by accessing this information on a password protected computer in password protected files and we will destroy all identifiers when they are no longer needed for the study.

Taking part in this study is voluntary. By answering survey questions I agree to participate in this study, including use and sharing of study data outside this country. do not have to answer any questions that make you uncomfortable. You may choose not to take part at all. If you decide to be in this study you may stop taking part at any time. If you decide not to be in this study or if you stop taking part at any time, you will not lose any benefits for which you may qualify.

If you have any questions about your rights as a research subject, you may call the Human Subjects Protection Program Office at (+1502) 852-5188. You can discuss any questions about your rights as a research subject, in private, with a member of the Institutional Review Board (IRB). The IRB is an independent committee made up of people from the University community, staff of the institutions, as well as people from the community not connected with these institutions. The IRB has reviewed this research study.

If you have any questions, concerns, or complaints about the research study, please contact: Hedaya Hina, +1 (502)8524562. If you have concerns or complaints about the research or research staff and you do not wish to give your name, you may call 1-877-852-1167. This is a 24 hour hot line answered by people who do not work at the University of Louisville.

Sincerely,

Hedaya Hina

Demographic Variables

1. What is your age? -----
2. What was your age when you were first diagnosed with breast cancer? ----
3. Which country you came from to receive cancer care?
(Egypt, Iraq, United Arab Emirates, Jordan, Kuwait, Lebanon, Libya, Comoros, Mauritania, Morocco, Oman, Palestine, Qatar, Saudi Arabia, Somalia, Sudan, Syrian Arab Republic, Tunisia, Yemen, Algeria, Bahrain, and Djibouti)
If Jordan, which governorate? -----
4. What is the highest degree or level of education you have completed?
 - Uneducated
 - less than high school
 - High school/ GED
 - Some College or Associate degree
 - Bachelor's degree
 - Master's degree
 - Doctoral or Professional degree (PhD, MD, etc.)
5. What is your employment status?
 - Employed full time
 - Employed part time
 - Unemployed Due to COVID-19
 - Student
 - Retired
 - Housewife

- Self-employed
- Disables, Unable to work

6. What is your marital status?

- Married
- Widowed
- Divorced
- Single, never married

If married,

What is the highest degree or level of education your husband completed?

- Uneducated
- less than high school
- High school/ GED
- Some College or Associate degree
- Bachelor's degree
- Master's degree
- Doctoral or Professional degree (PhD, MD, etc.)

What is your husband employment status?

- Employed full time
- Employed part time
- Unemployed Due to COVID-19
- Student
- Retired
- Self-employed

Disables, Unable to work

How many children do you have? ----

How many children you have under 18 years? -----

7. Where do you live?

Nuclear family

Extended family

With husband

Alone

Alone with children

8. What is the range of your monthly income?

Less than 500 Jordanian Dinar.

Between 500 – 700 Jordanian Dinar.

Between 700 – 1000 Jordanian Dinar.

More than 1000 Jordanian Dinar

9. Do you smoke?

Yes

No

Psychosocial Variables

10. Did you receive a psychological counseling after diagnosis at least once?

Yes

No

11. Are you currently receiving a psychological counseling?

Yes

No

12. Are you currently participating in any kind of psychosocial support program?

Yes

No

If possible, please specify what is the program: -----

13. Are you participating in a formal or informal support group (e.g., social media, forum, community setting etc.)?

Yes

No

14. Do you have a history of any mental health problems (e.g., anxiety or depression)?

Yes

No

15. Did you encounter any of major life event during this year or previous year?

Yes

No

If possible, please specify: -----

Clinical Variables

16. Do one of your family members (Nuclear or extended family) have previously diagnosed with cancer?

Yes

No

17. Did you reach the menopause?

Yes

No

If yes, from cancer treatment?

Yes

No

18. What is the stage of your breast cancer?

First

Second

Third

Fourth

19. What type of breast cancer treatment you received? Select what apply:

Surgery

Chemotherapy

Hormonal therapy

Radiation

What is the current one? -----

20. Do you have any other chronic illnesses?

Yes

No

21. Do you have metastatic breast cancer?

Yes

No

Additional Questions

25. Do you feel that the type of provided social support matches with your desire or what you actually need?

Yes

No

If no, please explain.

26. Do you think that the pandemic of COVID-19 has an impact on the level of social support you received?!

Yes

No

Quality of Life Scale/BREAST CANCER PATIENT

Directions: We are interested in knowing how your experience of having cancer affects your Quality of Life. Please answer all of the following questions based on your life **at this time.**

Please circle the number from 0 - 10 that best describe your experiences:

To what extent are the following a problem for you:

1. Fatigue

no problem 0 1 2 3 4 5 6 7 8 9 10 severe problem

2. Appetite changes

no problem 0 1 2 3 4 5 6 7 8 9 10 severe problem

3. Aches or pain

no problem 0 1 2 3 4 5 6 7 8 9 10 severe problem

4. Sleep changes

no problem 0 1 2 3 4 5 6 7 8 9 10 severe problem

5. Weight gain

no problem 0 1 2 3 4 5 6 7 8 9 10 severe problem

6. Vaginal dryness/menopausal symptoms

no problem 0 1 2 3 4 5 6 7 8 9 10 severe problem

7. Menstrual changes or fertility

no 0 1 2 3 4 5 6 7 8 9 10 severe
problem problem

8. Rate your overall physical health

extremely 0 1 2 3 4 5 6 7 8 9 10 excellent
poor

Psychological Well Being Items

9. How difficult is it for you to cope today as a result of your disease?

not at all 0 1 2 3 4 5 6 7 8 9 10 very
difficult difficult

10. How difficult is it for you to cope today as a result of your treatment?

not at all 0 1 2 3 4 5 6 7 8 9 10 very
difficult difficult

11. How good is your quality of life?

extremely 0 1 2 3 4 5 6 7 8 9 10 excellent
poor

12. How much happiness do you feel?

none at all 0 1 2 3 4 5 6 7 8 9 10 a great
deal

13. Do you feel like you are in control of situations in your life?

not at all 0 1 2 3 4 5 6 7 8 9 10 completely

14. How satisfying is your life?

not at all 0 1 2 3 4 5 6 7 8 9 10 completely

15. How is your present ability to concentrate or to remember things?

extremely 0 1 2 3 4 5 6 7 8 9 10 excellent
poor

16. How useful do you feel?

not at all 0 1 2 3 4 5 6 7 8 9 10 extremely

17. Has your illness or treatment caused changes in your **appearance**?

not at all 0 1 2 3 4 5 6 7 8 9 10 extremely

18. Has your illness or treatment caused changes in your **self concept** (the way you see yourself)?

not at all 0 1 2 3 4 5 6 7 8 9 10 extremely

How distressing were the following aspects of your illness and treatment?

19. **Initial diagnosis**

not at all 0 1 2 3 4 5 6 7 8 9 10 very distressing
distressing

20. **Cancer chemotherapy**

not at all 0 1 2 3 4 5 6 7 8 9 10 very distressing
distressing

21. **Cancer radiation**

not at all 0 1 2 3 4 5 6 7 8 9 10 very distressing
distressing

22. **Cancer surgery**

not at all 0 1 2 3 4 5 6 7 8 9 10 very distressing
distressing

23. **Completion of treatment**

not at all 0 1 2 3 4 5 6 7 8 9 10 very distressing
distressing

24. How much **anxiety** do you have?

none at all 0 1 2 3 4 5 6 7 8 9 10 a great deal

25. How much **depression** do you have?

none at all 0 1 2 3 4 5 6 7 8 9 10 a great deal

To what extent are you fearful of:

26. Future diagnostic tests

no fear 0 1 2 3 4 5 6 7 8 9 10 extreme
fear

27. A second cancer

no fear 0 1 2 3 4 5 6 7 8 9 10 extreme
fear

28. Recurrence of cancer

no fear 0 1 2 3 4 5 6 7 8 9 10 extreme
fear

29. Spreading (metastasis) of your cancer

no fear 0 1 2 3 4 5 6 7 8 9 10 extreme
fear

30. To what degree do you feel your life is back to **normal?**

none at all 0 1 2 3 4 5 6 7 8 9 10 a great
deal

Social Concerns

31. How distressing has your illness been for your **family?**

not at all 0 1 2 3 4 5 6 7 8 9 10 a great
deal

32. Is the amount of **support you receive from others sufficient to meet your needs?**

not at all 0 1 2 3 4 5 6 7 8 9 10 a great
deal

33. Is your continuing health care interfering with your **personal relationships?**

not at all 0 1 2 3 4 5 6 7 8 9 10 a great
deal

34. Is your **sexuality impacted by your illness?**

not at all 0 1 2 3 4 5 6 7 8 9 10 a great deal

35. To what degree has your illness and treatment interfered with your **employment**?

no 0 1 2 3 4 5 6 7 8 9 10 severe problem
problem

36. To what degree has your illness and treatment interfered with your **activities at home**?

no 0 1 2 3 4 5 6 7 8 9 10 severe problem
problem

37. How much **isolation** do you feel is caused by your illness?

none 0 1 2 3 4 5 6 7 8 9 10 a great deal

38. How much **concern** do you have for your daughter(s) or other close female relatives regarding breast cancer?

none at all 0 1 2 3 4 5 6 7 8 9 10 a great deal

39. How much **financial burden** have you incurred as a result of your illness and treatment?

none 0 1 2 3 4 5 6 7 8 9 10 a great deal

Spiritual Well Being

40. How important to you is your participation in **religious activities** such as praying, going to church or temple?

not at all 0 1 2 3 4 5 6 7 8 9 10 very important
important

41. How important to you are other **spiritual activities** such as meditation or praying?

not at all 0 1 2 3 4 5 6 7 8 9 10 very important
important

42. How much has your **spiritual life changed** as a result of cancer diagnosis?

- | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|----|-----------|
| less | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | more |
| important | | | | | | | | | | | | important |
| 43. How much uncertainty do you feel about your future? | | | | | | | | | | | | |
| not at all | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | very |
| uncertain | | | | | | | | | | | | uncertain |
| 44. To what extent has your illness made positive changes in your life? | | | | | | | | | | | | |
| none at all | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | a great |
| | | | | | | | | | | | | deal |
| 45. Do you sense a purpose/mission for your life or a reason for being alive? | | | | | | | | | | | | |
| none at all | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | a great |
| | | | | | | | | | | | | deal |
| 46. How hopeful do you feel? | | | | | | | | | | | | |
| not at all | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | very |
| | | | | | | | | | | | | hopeful |

Ferrell, Grant, Hassey-Dow, 1995



OBJECTIVE ANALYSIS.
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Social Support Survey Instrument

People sometimes look to others for companionship, assistance, or other types of support. How often is each of the following kinds of support available to you if you need it? Choose one number from each line.

Emotional/informational support	None of the time	A little of the time	Some of the time	Most of the time	All of the time
Someone you can count on to listen to you when you need to talk	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Someone to give you information to help you understand a situation	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Someone to give you good advice about a crisis	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Someone to confide in or talk to about yourself or your problems	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Someone whose advice you really want	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Someone to share your most private worries and fears with	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Someone to turn to for suggestions about how to deal with a personal problem	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Someone who understands your problems	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5

Tangible support

	None of the time	A little of the time	Some of the time	Most of the time	All of the time
Someone to help you if you were confined to bed	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Someone to take you to the doctor if you needed it	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Someone to prepare your meals if you were unable to do it yourself	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Someone to help with daily chores if you were sick	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5

Affectionate support

	None of the time	A little of the time	Some of the time	Most of the time	All of the time
Someone who shows you love and affection	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Someone to love and make you feel wanted	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Someone who hugs you	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5

Positive social interaction

	None of the time	A little of the time	Some of the time	Most of the time	All of the time
Someone to have a good time with	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Someone to get together with for relaxation	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Someone to do something enjoyable with	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5

Additional item

	None of the time	A little of the time	Some of the time	Most of the time	All of the time
Someone to do things with to help you get your mind off things	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5

ABOUT

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APPENDIX D

Steps of the Translation of the QOL-BC Instrument

Table

Steps of Translation and Adaptation of QOL-BC Instrument Following the WHO

Method

Steps	Process	Consideration	Personnel involved
1. Forward translation	The instrument was translated by the primary investigator who is a native female Arabic speaking researcher; familiar with the area, and terminology of the instrument and her mother tongue is the same as that of the language of target population.	(a) aim at the conceptual equivalent of words/phrases rather than word-for-word translation. (b) avoid jargon, be simple, concise, and clear.	The primary investigator of this study
2. Expert panel and back-translation	(a) bilingual (in Arabic and English language) expert panel reviewed the translated instrument for any inappropriate or inadequate expressions.	same considerations as in the forward translation besides, experts have the freedom to modify or question any unclear	As recommended by WHO, the primary investigator, is an expert in healthcare field, and have a good knowledge in instruments

Table Continued*Process of Translation and Adaptation of QOL-BC Instrument Following the WHO**Method*

Steps	Process	Consideration	Personnel involved
	(b) the instrument was blindly back translated to English language by an independent translator. According to WHO method, back translation is advised to be on selected items. In this study, back translation was employed to all of the 46 items.	translation and provide alternatives /corrections.	developments and translations.
3. Pre-testing and cognitive interviewing with respondents	(a) The instrument is advised by WHO to be tested on the target population. However, since this was not feasible in this study, the translated questionnaire was administered to a sample of women and men from Jordan. (b) WHO recommend to sample 10 respondents per each section in the questionnaire. The target sample size in this study was as larger as possible.	If several alternatives for words/expressions were suggested by respondents, it is advised to present these suggestions to all respondents so they can make an informative decision of the best alternatives/words that fits their language and culture.	Middle Eastern women and men from Jordan

Table Continued

Process of Translation and Adaptation of QOL-BC Instrument Following the WHO

Method

Steps	Process	Consideration	Personnel involved
	(c) Debriefing was followed with the respondents as they were given the time to comment on the translated questionnaire, question unclear items or provide an alternative expressions/word etc.		
4. Finalizing the translated version	Details of the translation procedure is kept and included version of the initial forward translation, summary of the recommendations from the expert panel, version of the back translated questionnaire, and a summary of the respondents' comments/suggestions with the proposed modifications.	-----	-----

Note. Adapted from *World Health Organization (n.d)* translation method.

APPENDIX E

Study's IRB Approval

UNIVERSITY OF
LOUISVILLE

Human Subjects Protection Program Office
MedCenter One – Suite 200
501 E. Broadway
Louisville, KY 40202-1798

DATE: February 15, 2021
TO: Diane O Chlebowy
FROM: The University of Louisville Institutional Review Board
IRB NUMBER: 20.1049
STUDY TITLE: Perceived Social Support, Family Relationships, and Health-related Quality of Life Among Women with Breast Cancer in Jordan
REFERENCE #: 717801
IRB STAFF CONTACT: Jennifer Hay 852.4535 jmhay001@louisville.edu

This study was reviewed and approved with changes requested on 12/08/2020, 01/13/2021 and on 01/25/2021 by a Chair of the Institutional Review Board through Expedited Review Procedure, according to 45 CFR 46.110(b), since this study falls under Category 7: Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies. The requested changes were received, reviewed and approved administratively on 02/15/2021.

This study now has final IRB approval from 02/15/2021 through 02/14/2024.

This study was also approved through 45 CFR 46.116 (C), which means that an IRB may waive the requirement for the investigator to obtain a signed informed consent form for some or all subjects.

The following items have been approved:

Title	Version #	Version	Outcome
IRB Study Application	Version	02/03/2021	Approved
Preamble-Unsigned Consent Clean version.V 4.1	Version	02/03/2021	Approved
Screening Questions Clean version	Version	01/18/2021	Approved
HIPAA waiver form Clean version. V2	Version	02/15/2021	Approved
Proposal of the Study_Clean v3	Version	02/15/2021	Approved
Instrument QoL BC_English	Version	11/13/2020	Approved
Instrument MOSS-SSS_English	Version	11/13/2020	Approved
Instrument Family Relationship Index_English	Version	11/13/2020	Approved

IRB policy requires that investigators use the IRB “stamped” approved version of informed consents, assents, and other materials given to research participants. For instructions on locating the IRB stamped documents in iRIS visit:
<https://louisville.edu/research/humansubjects/iRISSubmissionManual.pdf>

Your study does not require annual continuing review. Your study has been set with a three year expiration date. If your study is still ongoing you will receive iRIS automated reminders to submit a request to continue your study prior to the expiration date above.

All other IRB requirements are still applicable. You are still required to submit amendments, personnel changes, deviations, etc... to the IRB for review. Please submit a closure amendment to close out your study with the IRB if it ends prior to the three year expiration date.

Human Subjects & HIPAA Research training are required for all study personnel. It is the responsibility of the investigator to ensure that all study personnel maintain current Human Subjects & HIPAA Research training while the study is ongoing.

Site Approval

Permission from the institution or organization where this research will be conducted must be obtained before the research can begin. For example, site approval is required for research conducted in UofL Hospital/UofL Health, Norton Healthcare, and Jefferson County Public Schools, etc...

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Privacy & Encryption Statement

The University of Louisville's Privacy and Encryption Policy requires identifiable medical and health records; credit card, bank account and other personal financial information; social security numbers; proprietary research data; and dates of birth (when combined with name, address and/or phone numbers) to be encrypted. For additional information: <http://louisville.edu/security/policies>.

Implementation of Changes to Previously Approved Research

Prior to the implementation of any changes in the approved research, the investigator must submit modifications to the IRB and await approval before implementing the changes, unless the change is being made to ensure the safety and welfare of the subjects enrolled in the research. If such occurs, a Protocol Deviation/Violation should be submitted within five days of the occurrence indicating what safety measures were taken, along with an amendment to revise the protocol.

Unanticipated Problems Involving Risks to Subjects or Others (UPIRTSOs)

A UPIRTSO is any incident, experience, or outcome, which has been associated with an unexpected event(s), related or possibly related to participation in the research, and suggests that the research places subjects or others at a greater risk of harm than was previously known or suspected. The investigator is responsible for reporting UPIRTSOs to the IRB within 5 working days. Use the UPIRTSO form located within the iRIS system. Event reporting requirements can be found at: <http://louisville.edu/research/humansubjects/lifecycle/event-reporting>.

Continuation Review Requirements

You are responsible for submitting a continuation review approximately 30 days prior to the expiration date of your research study. Investigators who allow their study approval to expire have committed non-compliance. Such lapses may require an audit by HSPPO compliance auditors and/or reporting to federal agencies. For additional information see: <http://louisville.edu/research/humansubjects/lifecycle/continuous-reviews>

Payments to Subjects

In compliance with University policies and Internal Revenue Service code, payments to research subjects from University of Louisville funds, must be reported to the University Controller's Office. For additional information, please call 852-8237 or email controll@louisville.edu. For additional information: <http://louisville.edu/research/humansubjects/policies/PayingHumanSubjectsPolicy201412.pdf>

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The committee will be advised of this action at a regularly scheduled meeting.

If you have any questions, please contact: Jennifer Hay 852.4535
jmhay001@louisville.edu

Thank you,
Pete M. Quesada

Peter M. Quesada, Ph.D., Chair
Social/Behavioral/Educational Institutional Review
Board
PMQ/jmh

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DATE: May 27, 2021
TO: Diane O Chlebowy
IRB NUMBER: 20.1049
STUDY TITLE: Perceived Social Support, Family Relationships,
and Health-related Quality of Life Among
Women with Breast Cancer in Jordan
REFERENCE #: 727469
IRB STAFF CONTACT: Sherry Block 852-2163 sbloc04@louisville.edu

The amendment request has been received by the Human Subjects Protection Program Office and approved by the Chair/Vice-Chair of the Institutional Review Board (IRB) on 05/27/2021 through the expedited review procedure according to 45 CFR 46.110(B). The following documents have been reviewed and approved:

Submission Components			
Title	Version #	Version Date	Outcome
Contacts_Research assistants_Clean version 1	Version 1.0	05/24/2021	Approved
Proposal of the Study_Clean version.V5.May.24th	Version 5.0	05/24/2021	Approved

The modifications include:

1. The primary investigator of this study will be physically present in Jordan during the data collection with the research team there.
2. Due to COVID-19 status in Jordan, all the external research studies at King Hussein Cancer center have been suspended, so there will be no data collection at this site.
3. A new site for the data collection is added instead of King Hussein cancer center, which is Jordan university hospital. An IRB submission is submitted there and as soon as the approval received it will be sent to you here at the university.

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4. Previously, there were four research assistants who will assist in the data collection. The fourth research assistant, who was assigned to complete the data collection at King Hussein Cancer center, has been withdrawn from the study now.

Approval from the ethics committees at the locations in Jordan must be submitted to the UofL IRB once received. Research cannot begin with those institutions or their research personnel until approval is obtained from their local ethics committee. UofL IRB approval is not extended to cover the external research collaborators.

The committee will be advised of this action at a regularly scheduled meeting.

If you have any questions, please contact: Sherry Block 852-2163
slbloc04@louisville.edu

We value your feedback; let us know how we are doing:

<https://www.surveymonkey.com/r/CCLHXRP>

Sincerely,

Laura Clark, M.D., Chair,
Biomedical Institutional Review Board
LC/slb

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الرقم كود معلومات ٢٤٥٠
التاريخ
الموافق ٢٠٢١/٤/٢١

مدير ادارة مستشفيات البشير

تحية طيبة وبعد ،،،

أرفق طياً صورة عن كتاب مدير إدارة مستشفيات البشير / رئيس لجنة أخلاقيات البحث العلمي رقم م ب أ / لجنة أخلاقيات / ٥٧٩٢/ تاريخ ٢٠٢١/٤/٢١ بخصوص الموافقة لطالبة الدكتوراة في جامعة لويفل / امريكا هداية راتب حسن حيننا والفريق البحثي اجراء بحث بعنوان :-

(Perceived Social Support, Family Relationship, and Health-related Quality of Life among Women with Breast Cancer in Jordan)

(الدعم الاجتماعي والعلاقات العائلية وجودة الحياة العامة لمرضى سرطان الثدي في الأردن)

وذلك عن طريق توزيع الاستبيان المرفق صورة عنه ورقياً أو الكترونياً على مرضى سرطان الثدي في إدارة مستشفيات البشير .

أرجو التكرم بالإيعاز لمن يلزم تسهيل مهمة إجراء الدراسة أعلاه ، على ان يتم موافاة لجنة اخلاقيات البحث العلمي بنتائج الدراسة العائدة للبحث اعلاه .

وتفضلوا بقبول فائق الاحترام ،،،

مدير مديرية التعليم وتطوير الموارد البشرية


الدكتورة رهام الحمود



المملكة الأردنية الهاشمية

هاتف: ٢٣٠٠٢٣٠ ٦ ٥٢٢٠٠٢٣٠ فاكس: ٥٦٨٨٣٧٣ ٦ ٩٦٢٢٢ ص.ب: ٨٦ عمان ١١١١٨ الأردن. للبرق الإلكتروني: www.moh.gov.jo



الرقم م ب / لجنة أخلاقيات / ٥٧٩٣
التاريخ ٢٠٢١ / ٤ / ٢٤
الموافق

مدير مديرية التعليم وتطوير الموارد البشرية

تحية طيبة وبعد،

إشارة لكتابكم رقم تطوير/معلومات/ ٢٨٠٢ تاريخ ٢٠٢١/٣/١٤ بخصوص البحث العلمي المقدم من قبل طالبة الدكتوراه / هداية راتب حسن حينا.

أرفق بطيية قرار لجنة أخلاقيات البحث العلمي والمتضمن الموافقة على اجراء البحث العائد للمذكورة أعلاه على أن يتم موافقتنا بنتائج الدراسة العائدة للبحث المذكور.

للاطلاع واجراءاتكم لطفًا.

واقبلو فائق الاحترام ،،،،،

مدير ادارة مستشفيات البشير

الدكتور عبدالمانع احمد السليمات

١٥١١٥.١

معلومات

ع خ
٩

المملكة الأردنية الهاشمية

محافظة: ٢٥٢٠٠٢٣٠ +٩٦٢٢٢٠٠٢٣٠ فاكس: ٢٥٦٨٢٧٣٠ +٩٦٢٢٢٠٠٢٣٠ ص. ب. ٨٦ عمان ١١١١٨ الأردن . الموقع الإلكتروني: www.moh.gov.jo



الرقم MOH/REC/2021/63

التاريخ

لموافق

قرار لجنة أخلاقيات البحث العلمي

اجتمعت لجنة أخلاقيات البحث العلمي بتاريخ ٢٠٢١/٤/٢٠ لمناقشة ودراسة البحث العلمي المقدم من قبل طالبة الدكتوراه/ هداية راتب حسن حينا .

بـ عنوان :-

”الدعم الاجتماعي والعلاقات الاجتماعية وجودة الحياة العامة لمرضى سرطان الثدي في الأردن“

وبناءً عليه قررت اللجنة الموافقة على إجراء البحث العائد للمذكورة أعلاه مع الالتزام بأخلاقيات البحث العلمي وحقوق المرضى وموافقته، وتم التوقيع من قبل أعضاء اللجنة حسب الأصول.

مقرر اللجنة
رئيس وحدة تنمية الموارد
البشرية السيدة/ خولة علاونة

عضو
مدير التمريض
د. هاني القضاة

عضو
الصيدلاني
حنان سرطاوي

عضو
مدير الشؤون الإدارية والمالية
د. فاروق جمدان

عضو
مدير مديرية المختبرات
د. معاذ بدوي

عضو
رئيس قسم الباطني
د. يوسف القديمات

عضو
مدير الشؤون الإدارية والمالية
د. جمال حمدان

عضو
مدير الشؤون الإدارية والمالية
د. غالب القواسمي

رئيس اللجنة
مدير ادارة مستشفيات البشير
الدكتور عبدالمعز احمد السليمات

الملكات الأردنية الهاشمية

ماتقد: ٢٣٠٠٠٢٣ ٦٥٢٠٠٢٣ فاكس: ٦٥٢٣٠٠٢٣ ص.ب. ٤١١١٨ عمان الأردن . الموقع الإلكتروني: www.moh.gov.jo

APPENDIX F

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Material:

Instrument: *Family Environment Scale*

Author: *Rudolf H. Moos*

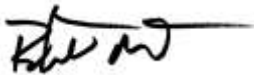
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The entire instrument may not be included or reproduced at any time in any other published material.

Sincerely,



Robert Most
Mind Garden, Inc.
www.mindgarden.com

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Publication Agreement

Mind Garden, Inc.

Effective date is October 30, 2021 for:
Hedaya Hina

you submitted your publication agreement form at 7:11 am EDT on October 25, 2021.



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Name: Hedaya Hina

Your mailing address: hrhina01@louisville.edu

Phone Number: 502- [REDACTED]

Email: hedaya.hina@louisville.edu

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Author(s) of your article: Hedaya Hina, Becky Christian, Carla P. Hermann, Tara J. Schapmire, Lynne A. Hall, and Diane Orr Chlebowy

Name of Book or Magazine, etc.: Dissertation

Title of article/research study/chapter: Perceived Social Support, Family Relationships, And Health-Related Quality of Life of Jordanian Women with Breast Cancer

Expected date of Publication (enter the year): 2021

Expected print run (enter the number): 10

Will this also be available online, as a pdf or in an E-reader? Yes

If yes, what will be the expected quantity of online use? 10

Name of Publisher: University of Louisville

Publication Copyright holder (if different from Publisher): Hedaya Hina

What else would you like to tell us about this publication? This is a dissertation study.

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I agree to the above conditions.

Name: Hedaya Hina

Signature: Hedaya Hina

Date: Oct 30th, 2021

Mind Garden

Katherine Smith

Mind Garden Representative Signature: _____

Date: November 1, 2021

APPENDIX G

Permission to Use Ashing-Giwa (2005) Theoretical Model

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Nov 20, 2021

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Portion	figures/tables/illustrations
Number of figures/tables/illustrations	1
Will you be translating?	no
Circulation/distribution	1 - 29
Author of this Springer Nature content	no
Title	Perceived Social Support, Family Relationships, and Health-related Quality of Life of Jordanian Women with Breast Cancer
Institution name	University of Louisville
Expected presentation date	Nov 2021
Portions	Figure 1 on page 298
Requestor Location	Ms. Hedaya Hina 2330 Crittenden Dr, Louisville, KY 40217
Total	LOUISVILLE, KY 40217 United States Attn: Ms. Hedaya Hina 0.00 USD

APPENDIX H

Permission to Translate QOL-BC Instrument

From: Betty Ferrell <BFerrell@coh.org>
Sent: Monday, July 27, 2020 11:42 PM
To: Hina,Hedaya Rateb Hasan <[REDACTED]>
Subject: RE: PhD student: Your instrument

I do not have an Arabic version but you are welcome to translate and use the tool.
Betty Ferrell

From: Hina,Hedaya Rateb Hasan <[REDACTED]>
Sent: Monday, July 27, 2020 7:57 PM
To: Betty Ferrell <BFerrell@coh.org>
Subject: PhD student: Your instrument

[Attention: This email came from an external source. Do not open attachments or click on links from unknown senders or unexpected emails.]

Hello Dr. Ferrell,

I am a PhD student in school of Nursing, university of Louisville at KY.
I finished my qualifying oral exam and i am currently working on my dissertation.

Recently i came across two articles that translated your instrument "quality of life- Breast cancer version" into Arabic language but unfortunately the authors did not mention any information concerning the psychometric properties.

I would like to ask you kindly if you have an Arabic version of this instrument (Attached)? If not, kindly can i have a permission from you to translate it into Arabic language?

APPENDIX I

Permission to Use Arabic-translated MOS-SSS



Alaloul, Fawwaz Abdelqader

Wed 12/18/2019 3:37 AM



To: Hina, Hedaya Rateb Hasan

Salam Hedaya,

I translated the instrument and used it in three of my studies. I am working with Dr. Hall for publishing. It can be cited as my theses for the master. I can give you the translated Arabic version. Please let me know if you have any questions. Thank you

Fawwaz Alaloul, PhD, MSN, MPH, RN

...

From: Hina, Hedaya Rateb Hasan <hedaya.hina@louisville.edu>

Sent: Monday, December 16, 2019 1:48 PM

To: Alaloul, Fawwaz Abdelqader <fawwaz.alaloul@louisville.edu>

Subject: Hedaya: MOS-SSS Survey

Hello Dr. Alaloul,

I am planning to use the Medical Outcome Study Social Support Survey (MOS-SSS) in my dissertation, however i did not find it in Arabic language. So i talked to Dr. Christian as i am planning to translate it and validate it for my dissertation. Did you encounter any Arabic version for this questionnaire (Attached) that i am not aware of?

Warm regards,

Hedaya R. Hina, MSc. BSN

PhD Student


Graduate Research Assistant

...


CURRICULUM VITAE

Hedaya R. Hina, Bsc, Msc

University of Louisville - School of Nursing

 Hrhina01@louisville.edu

 [Hedaya Rateb Hina](#)

 +1(502) 852-5555

EDUCATION

Sep 2013 – Sep 2014	University of Glasgow, United Kingdom.	MSc, Advanced Practice in Health Care. - Merit awarded with specials in Acute & Critical Care. - GPA: 16.1 - Upper second class.
Sep 2003– June 2007	Jordan University of Science & Technology, Jordan.	BSc in Nursing science. - Grade: 83.9 % - Very good.

LICENCES AND CERTIFICATIONS

2003 - present Registered Nurse - Jordan Nurses & Midwives Council (JNMC)

HONORS AND AWARDS

April 2017 Middle East Research Ethics Training Initiative (MERETI), two years online training (Not completed). University of Maryland, USA

PROFESSIONAL POSITIONS

March 2021 – March 2020	Member in Midwest Nursing Research Society	University of Louisville
Aug 2018 - 2021	Graduate Teaching Assistant	University of Louisville
Aug 2017 – 2021	Graduate Research Assistant	University of Louisville
April 2019 - present	Member in the Sigma Theta Tau International	The Iota Zeta Chapter, University of Louisville
April 2018 – April 2019	Member in Midwest Nursing Research Society	University of Louisville
Jan 2015 – April 2017	Senior Nurse in the Research and Evidence-based Practice (EBP) Unit	King Hussein Cancer Center, Jordan
Jan 2015 – April 2017	Co-chair of the Nursing Research and Evidence- based Practice Council	King Hussein Cancer Center, Jordan
Jan 2015 – April 2017	Leader for the “Online Middle East Nursing Education Group” – St. Jude Children’s Research Hospital	King Hussein Cancer Center, Jordan
Jan 2012 – July 2013	Team leader in Adult Intensive Care Unit	King Hussein Cancer Center, Jordan
Oct 2007 – June 2011	RN in Adult Intensive Care Unit.	King Abdullah University Hospital, Jordan.

SCHOLARSHIP: GRANTS/FUNDS AND OTHERS

March 2021 The Multicultural Association of Graduate Students (MAGS) research awards (\$500), University of Louisville.

Feb 2021	School of Interdisciplinary and Graduate Studies (SIGS) Travel Fund (\$200), University of Louisville.
Nov 2020	Sigma Theta Tau International Scholarship from Iota Zeta Chapter (\$1000), University of Louisville.
Oct 2020	Graduate Student Council Research Grant (\$335), University of Louisville.
Feb 2020	Three Minute Thesis competition: Second Place (\$250) University of Louisville.
Jan 2020	The Harold Adams Memorial Scholarship Fund (\$50), University of Louisville.
Oct 2019	Graduate Student Council Research Grant (\$400) University of Louisville.
Feb 2019	Ruth Craddock funds (\$500), University of Louisville.
Dec 2018	School of Interdisciplinary and Graduate Studies (SIGS) Travel Fund (\$200), University of Louisville.
Feb 2018	Ruth Craddock funds (\$500), University of Louisville.
Nov 2017	School of Interdisciplinary and Graduate Studies (SIGS) Travel Fund (\$200), University of Louisville.
Sep 2013	The University of Glasgow Country Scholarship (5000 pound), University of Glasgow.

SCHOLARSHIP: PUBLICATIONS

1. Al Qadire, M., Al Khalaileh, M. & Hina, H. R. (2018). Risk factors for breast cancer among Jordanian women: A case-control study. *Iranian Journal of Public Health*, 47(1), 49-56.
2. Hina, H. R., & McDowell, J. R. S. (2017). Minimising central line-associated bloodstream infection rate in inserting central venous catheters in the adult intensive care units. *Journal of Clinical Nursing*, 26(1), 3962–3973.

CONFERENCE ATTENDANCE & PRESENTATIONS

October, 2021	2021 Research!Louisville Nursing Symposium, virtual conference. Poster presentation: Perceived social support, family relationship, and health-related quality of life among Women with Breast Cancer in Jordan Authors: Hedaya R. Hina, Lynne A. Hall, Becky Christian, Carla P. Hermann, Diane Orr Chlebowy, Tara J. Schapmire
March 2021	Midwest Nursing Research Society (MNRS), virtual conference.
March 2021	Graduate Student Regional Research Conference, University of Louisville, KY

- Poster & oral presentation:** Perceived social support, family relationship, and health-related quality of life among women with breast cancer in Jordan.
Authors: Hedaya R. Hina, Becky Christian, Diane Orr Chlebowy
Feb 2020 Three Minute Thesis Competition, 2nd place winner, University of Louisville, USA
Oral presentation: Perceived social support, family relationship, and health-related quality of life among women with breast cancer in Jordan
- Feb 2020 Graduate Student Regional Research Conference, University of Louisville, KY
Poster & oral presentation: Psychosocial distress and quality of life among women with breast cancer in Jordan: Mediating role of perceived social support
Authors: Hedaya Hina, Becky J. Christian and Diane Orr Chlebowy
Sep 2019 Research! Louisville Conference, University of Louisville, KY
Poster presentation: Social support in cancer patients: Concept analysis
Authors: Hedaya Hina, Becky J. Christian and Diane Orr Chlebowy
April 2019 Midwest Nursing Research Society (MNRS), Kansas, MO
Poster presentation: Quality of life of women with breast cancer in Arab countries: A systematic review.
Authors: Hedaya Hina and Carla Hermann.
March 2019 Graduate Student Regional Research Conference, University of Louisville, KY
Poster & oral presentation: Quality of life of women with breast cancer in Arab countries: A systematic review
Authors: Hedaya Hina and Carla Hermann.
Oct 2018 Research! Louisville Conference, University of Louisville, KY
Poster presentation: Quality of life of women with breast cancer in Arab countries: A systematic review.
Authors: Hedaya Hina and Carla Hermann
April 2018 Midwest Nursing Research Society (MNRS), Cleveland, Ohio
March 2018 Graduate Student Regional Research Conference, University of Louisville, KY
Poster presentation: Quality of life concept analysis.
Author: Hedaya Hina.
June 2014 Ambassador at International Lymphedema Framework Conference, University of Glasgow.
April 2014 Ambassador at Royal college of Nursing International Nursing Research Conference, University of Glasgow.

TEACHING ACTIVITIES

Graduate Teaching Assistant: Epidemiology with Professor Lynn Roser Aug 2021 – December 2021	School of Nursing University of Louisville, USA
Graduate Teaching Assistant: Health Information Technology with Professor Cynethia Bethel-Jaiteh Jan 2021 – May 2021	School of Nursing University of Louisville, USA
Graduate Teaching Assistant: Health Information Technology with Professor Cynethia Bethel-Jaiteh Aug 2020 – Dec 2020	School of Nursing University of Louisville, USA
Graduate Teaching Assistant: Advanced Statistical Application for Graduate students with Professor Rachel Vickers-Smith Aug 2019 – Nov 2019	School of Nursing University of Louisville, USA
Graduate Teaching Assistant: Advanced Statistical Application for Graduate students with Professor Lynn Roser May 2019 – July 2019	School of Nursing University of Louisville, USA
Graduate Teaching Assistant: Proctor and grading exam papers for undergraduate students. Aug 2018 – Dec 2018	Total of 22 hours over one semester period.
Designing and lecturing a series of workshop and lectures. Jan 2015 – April 2017	Evidence Based Practice workshop and lectures: Research ethics lecture, steps of Research Process and how to write an abstract: King Hussein Cancer Centre, Jordan

PROFESSIONAL & UNIVERSITY SERVICE ACTIVITIES

September 2021	International student focus group: Panel discussant, Graduate School, University of Louisville
November 2020	Invited guest presentation at the virtual PhD program information session: Starting your program as an international student and challenges of graduate studies.
August 2020	Virtual GTA orientation - Graduate student panel discussant: Balancing roles as students and Graduate Teaching Assistant (GTAs), University of Louisville
March 2020	Invited guest presentation for graduate student at school of Nursing by Professor Becky Christian
October 2019	Invited guest presentation for graduate student at school of Nursing by Professor Lynn Hall
August 2019	GTA orientation - Graduate student panel discussant: Balancing roles as students and Graduate Teaching Assistant (GTAs), University of Louisville
September 2014	Graduate student orientation - Graduate student panel discussant: Personal experience and advice for new graduate students joining the University of Glasgow

CONTINUING EDUCATION

February 2021	Creating a Positive Classroom Community Workshop, University of Louisville.
February 2021	Maximizing Active Learning Workshop, University of Louisville.

February 2021	Writing Literature Review Workshop, University of Louisville.
February 2021	Responding to graduate student writing workshop, University of Louisville.
Jan 2020	C.V versus Resume workshop
January 2020	Writing for Publication, University of Louisville
October 2019	Basic Life Support (BLS) Certificate by American Heart Association, University of Louisville.
August 2019	Course: Clinical research from idea to publication, University of Louisville (8 hours).
February 2019 – April 2019	Graduate Teaching Assistant (GTA) Academy Part II: Advanced Concepts and Strategies in Post-Secondary Teaching. School of Interdisciplinary and Graduate Studies (SIGS), University of Louisville.
September 2018 – Dec 2018	Graduate Teaching Assistant (GTA) Academy Part I: Introduction to Teaching in Higher Education. School of Interdisciplinary and Graduate Studies (SIGS), University of Louisville.
May 2019	Dissertation writing retreat over one week. University of Louisville.
March 2019	Interdisciplinary curriculum for oncology palliative education (iCOPE) workshop. University of Louisville.
September 2018	ATI proctor certificate.
November 2017	Basic Life Support (BLS) Certificate by American Heart Association , University of Louisville.
March 2017	Introduction to Research Ethics Workshop by University of Maryland 3 days workshop, Egypt.
June 2016	Graduate Record Examination (GRE) Certificate, Jordan.

April 2016	Evidence-Based Practice Workshop by Rush University Medical Centre, Jordan.
September 2015	National Institute of Health (NIH) Ethics Program Certificate, Jordan.
May 2015	Training of Trainers (TOT) Certificate, Jordan.
March 2015	Writing Professionally: Getting on Track Certificate, University of Jordan.
April 2014	Find the ideal job, make sure yours is the perfect C.V, stand out at interview workshops, Scottish Exhibition and Conference Centre, University of Glasgow.
Feb 2014	Principles of Acute Cardiac Management Certificate, Scottish Ambulance Service, University of Glasgow.
April 2013	Symptom management, Oncology Emergency, Critical Care Certificate, King Hussein Cancer Center.
March 2013	IETLS Certificate, Jordan.
November 2012	Advanced Cardiovascular Life Support (ACLS) by American Heart Association, Jordan.