

**Deanship of Graduate Studies
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**Supportive Care Services and Quality of Life of Breast
Cancer Patients in Governmental Hospitals of the South-
ern West Bank**

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Supportive Care Services and Quality of Life of Breast Cancer Patients in Governmental Hospitals of the Southern West Bank

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Dissertation Approval

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Dedication

All thanks and blessings to Allah.

To my family—especially my children Qutaiba, Yaqeen al-Deen, and Qutada—thank you for your love, patience, and for accepting the many evenings I spent studying instead of being with you. You made this possible....

To my parents, and to my big family—my brothers and sisters—your prayers, check-ins, and practical help were the support I leaned on....

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To the women living with breast cancer whom I have been honoured to meet and serve: your courage, quiet faith, and perseverance taught me patience and strength, and reminded me why this work matters... Thank you all, with deepest love

Ibtisam Ahmad Essa Al-Titi

Declaration

I Certify that this dissertation, submitted for the degree of Doctor of Philosophy in Public Health, is the result of my own research, except where otherwise acknowledged, and that this Dissertation (or any part of the same material) has not been submitted for a higher degree to any other university or institution.

Signature:

A handwritten signature in black ink, consisting of several overlapping, fluid strokes that form a stylized, somewhat abstract representation of the name.

Ibtisam Ahmad Essa Al-Titi

Date: 12/11/2025

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Ibtisam Ahmad Essa Al-Titi

Abstract

Background: Supportive care and quality of life (QoL) are crucial for positive breast cancer (BC) outcomes. However, there is a widespread lack of fulfilment regarding informational, physical, and psychological needs, and routine QoL assessments are rarely integrated into practice in Palestine. Addressing these gaps is vital, as the systematic assessment of SCNs not only clarifies patients' needs but also serves as a significant predictor of QoL.

Aim: This research aims to assess supportive care services for women with BC in governmental hospitals in the southern West Bank and to evaluate their effect on patients' QoL, while analysing the influence of other important determinants

Method: This research was conducted in governmental hospitals in the southern West Bank and included several complementary sub-studies. The first data collection phase was carried out between August 2023 and July 2024 and involved a cross-sectional survey of 362 women with breast cancer, as well as the follow-up of newly diagnosed patients ($n = 147$) throughout their one-year treatment trajectory. The second phase of data collection took place between November 2024 and January 2025, approximately one year after treatment completion. Across these phases, SCNs, coping strategies, spiritual well-being (SWB), and satisfaction with services associations with QoL at diagnosis and treatment were examined. Data were gathered through face-to-face interviews using validated study tools. Statistical analysis included descriptive statistics, bivariate tests, correlations, and multivariable models, with a significance level set at $p < 0.05$.

Results: Unmet SCNs were highly prevalent in this study. 61% of the total sample and 83.5% of newly diagnosed women reported at least one unmet SCN need. The most affected domains were health system and information (93–95%), physical and daily living (90–93%), and psychological (75–86%). Intensive treatments such as chemotherapy and surgery increased physical and psychological needs, while family and social support reduced them. QoL at diagnosis was modest (global health mean, $\mu = 45.8$), with relatively higher physical ($\mu = 67.1$), cognitive ($\mu = 62.8$), and role functioning ($\mu = 58.6$), but low emotional ($\mu = 49.2$) and social functioning ($\mu = 34.5$). Common symptoms included fatigue ($\mu = 44.67$), insomnia ($\mu = 44.7$), and pain ($\mu = 39.8$). Younger, educated, employed, and married women with family support had better outcomes, while advanced disease, comorbidities, pain medication, chemotherapy, and mastectomy predicted poorer scores. After one year, body image remained modest ($\mu = 43.2$), while sexual functioning ($\mu = 34.5$), sexual enjoyment ($\mu = 34.7$), and future perspective (23.4) were particularly poor. Patient satisfaction strongly influenced QoL. Better communication, skilled nursing, and clean facilities were linked with improved body image and sexual functioning, as well as fewer systemic side effects, while poor access predicted

more side effects. Coping and family support were protective: positive focus and diversion predicted higher QoL, whereas maladaptive coping reduced functioning. SWB was moderate ($\mu=29.7$), highest for Faith ($\mu=11.3$) and Meaning ($\mu=11.0$), and lowest for Peace ($\mu=7.4$). Higher SWB was associated with better body image, sexual functioning, and fewer systemic, breast, and arm symptoms.

Conclusion: This is the first comprehensive evidence-based research that assesses the supportive care services and QoL of Palestinian women with BC. Findings revealed a high burden of unmet SCN needs, particularly in informational, physical, and psychological domains, with newly diagnosed patients at greatest risk. QoL was modest at diagnosis and remained compromised one year after treatment, especially in body image, sexual functioning, and future perspective. In addition, family and social support, education, positive coping strategies, satisfaction with care, and higher SWB improved outcomes. Integrating supportive care, psychosocial services, and culturally sensitive spiritual support into oncology practice is crucial to addressing these gaps and improving women's overall well-being in a resource-limited, conflict-affected setting.

Keywords: supportive care; breast cancer; Quality of Life; Coping Strategies; Satisfaction; Palestine

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List of Abbreviations

BC: Breast Cancer
QoL: Quality of Life
SCNs: Supportive Care Needs
SWB: Spiritual Well-Being
LMICs: Low- and Middle-Income Countries
SCNS-SF34: Supportive Care Needs Survey – Short Form (34 items)
EORTC QLQ-C30: European Organization for Research and Treatment of Cancer Quality of Life Questionnaire – Core 30
EORTC QLQ-BR23: European Organization for Research and Treatment of Cancer Quality of Life Questionnaire – Breast Cancer Module (23 items)
CCQ: Cancer Coping Questionnaire
EORTC IN-PATSAT32: European Organization for Research and Treatment of Cancer In-Patient Satisfaction (32 items)
FACIT-Sp: Functional Assessment of Chronic Illness Therapy – Spiritual Well-being
WHO: World Health Organization
MOH: Palestinian Ministry of Health
PCBS: Palestinian Central Bureau of Statistics
NCCP: National Cancer Control Programme
PHIC: Palestinian Health Information Center
UNRWA: United Nations Relief and Works Agency
NGOs: Non-Governmental Healthcare Organizations
Statistical Terms & Symbols
SPSS: IBM Statistical Product and Service Solutions
SD: Standard Deviation
AOR: Adjusted Odds Ratio
p-value / Sig.: Statistical Significance
Mean (μ): Arithmetic Mean
B: Unstandardized Coefficient
SE: Standard Error
 β (Beta): Standardized Coefficient
95% CI: 95% Confidence Interval
R²: Coefficient of Determination
F change / Sig. F Change: Change in F-statistic (Model Fit)
t: t-test Statistic
N: Sample Size
%: Percentage

Chapter One

Introduction

This chapter provides an overview of breast cancer as a global and local public health concern and presents key concepts relevant to the study, including quality of life, supportive care needs, coping strategies, spiritual well-being, and patient satisfaction. It also outlines the problem statement, justification, significance of the study, study context, and the aims and objectives that guided the research.

1.1 Background

Breast cancer (BC) is a major public health concern and remains one of the leading causes of cancer-related morbidity and mortality worldwide (Liu et al., 2022; Okati-Aliabad et al., 2022a). Among women, breast cancer ranks first for both incidence and mortality in the majority of countries worldwide. In 2020, it became the most commonly diagnosed cancer globally, with an estimated 2.3 million new cases, representing 11.7% of all cancer cases. In the same year, it was also the fifth leading cause of cancer deaths, responsible for about 685,000 deaths (Sung et al., 2021). The incidence of BC is particularly high in developed countries, including Australia and New Zealand, Northern Europe (especially the United Kingdom, Sweden, Finland, and Denmark), Western Europe, North America, and China (Bray et al., 2018). However, regardless of a country's economic status, BC continues to present significant challenges in terms of prevention, early detection, and treatment (Francies et al., 2020).

Incidence rates are rising quickly in low- and middle-income countries (LMICs) across South America, Africa, and Asia, and these regions now account for more than half of all global BC cases, even though the disease remains more common in high-income countries (Joko-Fru et al., 2020; Sung et al., 2021; Wilkinson & Gathani, 2022). In LMICs, breast cancer is often the leading or second leading cause of cancer-related deaths among women, with survival outcomes significantly poorer than those in high-income countries (Martei et al., 2018). Despite the lower incidence, rising mortality reflects limited healthcare resources

and underdeveloped infrastructure, particularly the lack of organized, population-based screening programs (Francies et al., 2020; Gao et al., 2024).

In Arab countries, BC is also the most commonly diagnosed malignancy among women, accounting for approximately 14–42% of all tumors (Chouchane et al., 2013) and 17.7–19% of newly diagnosed cancers (Fearon et al., 2020). However, the exact prevalence and incidence remain uncertain due to the absence of comprehensive cancer and mortality registries. Most of the available data are derived from retrospective studies and institutional reports published in peer-reviewed journals. However, organized, population-based screening programs are largely absent in many Arab countries, and financial barriers further restrict women's access to essential BC care (Al-Shamsi et al., 2022). Similar to other Arab countries, BC is also the most prevalent malignancy among women in Palestine. In 2022, the Ministry of Health reported 934 new cases, corresponding to an incidence rate of 18.5 per 100,000 in the total population and 37.4 per 100,000 among females (MOH, 2023a). In 2024, 584 new cases were documented in the West Bank alone, with an incidence rate of 19.5 per 100,000 in the total population (MOH, 2025). Mortality rates are reported to be higher in the southern governorates of the West Bank, particularly Hebron and Bethlehem (Abu-Rmeileh et al., 2016; Jubran et al., 2018).

1.1.1 Quality of life (QoL)

Quality of life, as defined by the World Health Organisation (WHO), refers to individuals' perceptions of their position in life, which are influenced by cultural, social, and environmental settings, as well as their goals, expectations, standards, and concerns. This multidimensional concept encompasses physical health, psychological well-being, connection to others, and personal perspectives (WHO, 2013). According to Mokhtari-Hesari and Montazeri (2020), QoL is defined as BC patients' perception of their physical, mental, and social well-being, shaped by the stages of diagnosis, treatment, post-treatment, and survivorship, and evaluated through the use of validated measurement tools (Mokhatri-Hesari & Montazeri, 2020). In oncology, improving patients' QoL has become a primary goal of cancer treatment. Integrating QoL assessments into routine practice enhances diagnosis, treatment planning, and ongoing patient monitoring (Javan Biparva et al., 2022).

QoL assessments have been shown to help predict treatment outcomes and prognosis (WHO, 2013; Sung et al., 2021). It is recognized as the most sensitive, robust indicator of BC outcomes (Ai et al., 2017). Integrating QoL assessments into clinical practice enhances diagnosis accuracy, treatment efficacy, and patient monitoring by providing precise evaluations of well-being, thereby facilitating improved patient counseling (Javan Biparva et al., 2022). QoL varies among women newly diagnosed with BC (Mokhatri-Hesari & Montazeri, 2020).

Breast cancer adversely affects multiple dimensions of well-being, including physical, psychological, and social functioning associated with a reduction of patients' QoL (Dewi et al., 2023; Faroughi et al., 2023; Ośmiałowska et al., 2021; Ravindran et al., 2019).

1.1.2 Supportive care needs for breast cancer

The term “supportive care needs” was proposed by Fitch in 1994, who described it as “the provision of the necessary services for those living with or affected by cancer to meet their physical, emotional, social, psychological, informational, spiritual, and practical needs during the diagnostic, treatment, and follow-up phases, encompassing issues of survivorship, palliative care, and bereavement” (Fitch, 2008). It has emerged as a critical aspect of comprehensive BC management. Also, SCNs may arise at any stage of the BC journey, including diagnosis, active treatment, post-treatment, and the palliative phase (Amalia et al., 2025; Lam et al., 2014).

Supportive care represents a patient-centered approach that aims to address the complex and multidimensional needs of cancer patients and their families (Zdenkowski et al., 2016). These needs typically emerge when individuals are unable to cope with challenges independently and require external assistance to maintain their well-being (Nimekari et al., 2019; Miniotti et al., 2024). Unmet needs are defined as those that are insufficiently addressed and require further support (Fan et al., 2023; Pérez-Fortis et al., 2017). A growing body of literature highlights that BC patients frequently report high levels of unmet needs, particularly in areas related to information provision, psychological support, physical symptoms, and sexual health (Edib et al., 2016; Fang et al., 2018; Fong & Cheah, 2016; Keeman et al., 2018; Khosravi et al., 2018; Miniotti et al., 2024).

1.1.3 Supportive care needs and QoL

The unmet SCNs are closely linked to patients' QoL, which is widely recognized as a vital indicator of BC outcomes and a key consideration in clinical (Ai et al., 2017). Supportive care plays a crucial role in improving QoL by addressing patients' needs across the cancer trajectory (Kotronoulas et al., 2017). Many studies have shown that unmet supportive care needs negatively affect cancer patients' psychological well-being, treatment adherence, and overall health status (Abate et al., 2020; Abdelsalam & bayomi, 2022; Jie et al., 2020). Among BC patients, unmet SCNs, especially during early survivorship, are strongly associated with lower functional well-being, greater fatigue, emotional distress, and reduced QoL (Aghajari et al., 2024; Edib et al., 2016). Newly diagnosed BC patients often face unique and intense SCNs that, if unmet, can severely affect their QoL. Literature shows that women at the point of diagnosis or during initial treatment phases experience significantly worse health-related QoL, particularly in pain, fatigue, and physical functioning, compared to their pre-diagnosis state (Leung et al., 2014) (Zhou et al., 2022b). This is consistent with findings

from Switzerland and Iran, where psychological and physical needs were reported as the most common unmet needs among newly diagnosed women (Aghajari et al., 2024; Schmid-Büchi et al., 2013).

1.1.4 Coping strategies and QoL

Coping strategies refer to the intentional cognitive and behavioral efforts that individuals employ to handle stressors. These strategies are commonly categorized into two main types: problem-focused coping, which aims to tackle the stressor directly, and emotion-focused coping, which seeks to regulate the emotional responses associated with stress (Sharif & Khanekharab, 2017). Coping strategies are a key factor influencing QoL and shaping how women adapt to BC. The use of coping strategies plays a crucial role in determining patients' QoL and influences how they perceive their illness (Dewi et al., 2023; Lan et al., 2019). In the context of cancer management, various coping mechanisms have been identified, including a fighting spirit, positive reframing, feelings of helplessness or hopelessness, and anxious preoccupation (Ośmiałowska et al., 2021).

Effective coping strategies help individuals maintain emotional balance and mitigate the negative effects of illness, thereby facilitating better adaptation to the disease and improving QoL. In contrast, the absence or inadequate use of coping strategies may lead to considerable psychosocial distress, undermining an individual's capacity to manage the illness (Carreiro et al., 2025; Marco et al., 2023; Ośmiałowska et al., 2021). Newly diagnosed women with BC often utilize a variety of adaptive coping strategies, which are positively correlated with improved QoL (Nipp et al., 2016). However, the treatment protocols can negatively impact their QoL (Park et al., 2021; Roszkowska & Białczyk, 2023). Therefore, to strengthen health-related QoL, interventions must focus on promoting adaptive coping strategies and providing additional support to help patients adjust positively to their diagnosis (Zhou et al., 2022b).

1.1.5 Satisfaction and QoL

Patient satisfaction is a critical determinant of overall well-being in cancer patients (Batbaatar et al., 2015), is defined as the degree to which an individual's experiential perceptions and their pre-existing expectations (Asadi-Lari et al., 2004; Batbaatar et al., 2015). In oncology, the link between satisfaction and QoL is well established (Asadi-Lari et al., 2004; Djambazov et al., 2019). In BC, higher satisfaction is consistently associated with better treatment adherence, especially after surgery, and sustained engagement with care (Abate et al., 2020; Djambazov et al., 2019; Pintault et al., 2023). As an indicator of healthcare quality, satisfaction reflects multiple dimensions of care, including provider communication and technical competence, accessibility and waiting times, coordination/continuity, and the care environment (Batbaatar et al., 2017; Kleeberg et al., 2005). Assessing satisfaction alongside QoL provides a more holistic picture of patients' experiences, helps

identify those who need tailored support, and guides practical improvements in service delivery (Brédart et al., 2013; Manjali et al., 2020).

Along with patient satisfaction, we also consider spiritual well-being (SWB). SWB is commonly defined as an individual's sense of peace, meaning, and purpose, and a connection with self, others, nature, and the transcendent (Puchalski et al., 2014; Martoni et al., 2017). It extends beyond religion to include personal values and existential beliefs (Forouzi et al., 2017; Fradelos et al., 2016). SWB supports coping, decision-making, and problem-solving for patients and families (Alradaydeh & Khalil, 2018; Alvarez et al., 2016; Clark & Hunter, 2019). The WHO recognizes spirituality as a fourth dimension of health alongside the physical, mental, and social (Ahmad et al., 2022; Sepúlveda et al., 2002). Several studies confirmed that high spiritual well-being is associated with better QoL across emotional, functional, and social domains, especially around diagnosis (Abdelrahman et al., 2025; Abou Chaar et al., 2018; Bai et al., 2015; Munoz et al., 2015; Muzdalifah et al., 2023; Oh & Cho, 2020; Rabitti et al., 2020; Yilmaz & Cengiz, 2020).

Finally, research examining the association between SCNs, coping strategies, and satisfaction with healthcare and their associations with QoL among BC patients in Arab countries remains limited. Only a few studies have explored links between QoL and factors such as patient satisfaction or coping; however, none have specifically targeted newly diagnosed patients, highlighting a critical gap and a missed opportunity for early supportive interventions (Abu-Odah et al., 2022). To our knowledge, no study has assessed the relationship between SCNs and QoL among newly diagnosed BC patients in Palestine. Therefore, this study aims to evaluate SCNs and QoL among newly diagnosed Palestinian women with BC in the southern West Bank.

1.2 Problem statement

Cancer in Palestine is a growing public health concern, with approximately 5,000 new cases diagnosed annually, and incidence rates expected to nearly double by 2040 (NCCP, 2023). In 2022, it was the second leading cause of death (PHIC, 2023). Cancer mortality in Palestine increased by 136% from 2000 to 2016, and by 14% from 2016 to 2020 (Salem, 2023). In the West Bank, 3,590 new invasive cancer cases were reported in 2023, with an incidence rate of 122.1 per 100,000, reflecting a 5.3% increase from 2022 (MOH, 2024).

Breast cancer is the most common cancer among females, accounting for 30.4% of female cancer cases between 2017 and 2021. Half of the women diagnosed were aged 53 or younger, and the crude incidence rate rose by 50% between 2012 and 2021. In the West Bank, 2,502 BC cases were registered during 2017–2021 (15.9% of all cancers) (PHIC, 2023). In 2016, the southern governorates of the West Bank recorded the highest occurrence of reported BC cases, with 32% of cases reported in Hebron and 13% in Bethlehem. Moreover, BC mortality rates were higher in the southern West Bank (Jubran et al., 2018; Salem, 2023).

Supportive care is essential in enhancing a patient's QoL by addressing various needs, including physical symptoms, education, social, psychological, and spiritual support (Elsous et al., 2023). Breast cancer patients may continue to experience SCNs for years after diagnosis. High-quality, multidisciplinary care helps meet these needs and reduces the physical and psychological impact of the disease and its treatment (Arnaud et al., 2021). Addressing unmet SCNs is essential to improving patients' QoL and reducing the risk of cancer recurrence (Fan et al., 2023; Zdenkowski et al., 2016). In low- and middle-income countries (LMICs), the lack of comprehensive supportive care services often worsens patients' distress and hinders their ability to manage the psychological and physical burdens of the disease (Cabanes et al., 2022; Molassiotis et al., 2017). However, studies examining the link between SCNs and QoL among cancer patients are scarce in the Arab world. Despite advances in BC treatment, there is still a gap in understanding how supportive care influences QoL, particularly in Palestine. To our knowledge, no research in Palestine has assessed SCNs and QoL among women newly diagnosed with BC. Evidence on unmet SCNs and QoL at the early stage of diagnosis is limited. This gap is critical because needs are often most acute at diagnosis, and early support can shape subsequent QoL and engagement with care. Therefore, the present study aimed to assess the SCNs, QoL, coping strategies, and satisfaction with care among women newly diagnosed with BC in the southern West Bank. The study provides baseline evidence on how diagnosis and treatment affect well-being and how supportive care can enhance patients' experiences and outcomes.

1.3 Justification and significance of the study

According to the latest statistics available between 2017 and 2021, a total of 24,911 newly diagnosed cancer patients were reported to the government cancer centres in the West Bank and Gaza (NCCP, 2023). Breast cancer is always the most common cancer in Palestine. In 2023, the number of new BC cases was 546 cases in the West Bank, with an incidence rate of 18.6 per 100,000 in the total population, accounting for 12.5% of all cancer deaths. The Ministry of Health provides mammography and breast ultrasound across its facilities; however, only 2.6% of the target population, women aged 40–64 years in the West Bank, underwent screening. This underscores the need for tailored care that addresses barriers to adequate follow-up and enhances patient outcomes, particularly among women at the highest risk of insufficient follow-up (MOH, 2024). Being diagnosed with BC is a life-changing experience that affects not only a woman's body but also her emotions, relationships, and daily life (Fearon et al., 2020).

In Palestine, where BC is the most common cancer among women, many patients face their diagnosis in a context of limited resources, fragmented services, and a lack of emotional and psychosocial support. Yet, little is known about what newly diagnosed women truly need to feel supported, to cope, and to maintain a good QoL during this critical time (Ammar-Shehada et al., 2023). Most of the available research focuses on medical treatment, while the personal experiences, concerns, and unmet needs of these women often go unrecognized.

There is a clear gap in the local evidence that can help health professionals and decision-makers understand how to better support women from the moment of diagnosis (Chen et al., 2022). Two studies from Palestine highlight the SCNs among cancer patients. A mixed-methods study in the Gaza Strip on BC survivors documented substantial unmet SCNs, particularly for psychological support, health-system information, and physical care. Married and younger women, those in the early stages of diagnosis, and those receiving conservative treatments reported higher levels of unmet needs. The authors emphasized the importance of comprehensive care that addresses the diverse needs of BC patients (Elsous et al., 2023).

A second cross-sectional study in Gaza among advanced cancer cases (stage III–IV) found that 96.8% of participants reported moderate to high unmet needs, especially in physical and psychological domains. Despite perceptions of good spiritual well-being, distress (78.1%), depression, and anxiety were common, and overall QoL was poor. Age, gender, marital status, cancer stage and type, physical symptoms, and psychological states were independently associated with these unmet needs (Abu-Odah et al., 2022). Importantly, neither study focused on newly diagnosed women, leaving a critical gap at the point when needs may be most acute and early support most impactful.

Patients with BC require comprehensive, high-quality care. Examining SCNs, coping strategies, satisfaction with care, spiritual well-being, and QoL among newly diagnosed Palestinian women will help clinicians and policymakers understand patients' perceptions and experiences that shape well-being. This knowledge can guide the development and implementation of targeted supportive care strategies tailored to patients' needs. The findings of this study can inform healthcare policy and practice in the West Bank by identifying priority areas for intervention, enabling more effective resource allocation and service improvement for BC patients. Ultimately, this study addresses an important research gap and contributes to enhancing the overall experience and quality of care for women living with BC in Palestine.

1.4 Study Context

The study was conducted in two governmental hospitals located in the southern region of the West Bank: Harmalah Hospital in Bethlehem Governorate and Dura Hospital in Hebron Governorate. As of mid-2022, the State of Palestine had a population of 5,354,656, with 59.5% residing in the West Bank (PHIC, 2023). Hebron is the largest governorate, with 201,063 residents within the city limits and over 700,000 in its broader metropolitan area (Hebron, 2025). Bethlehem, located approximately 10 km south of Jerusalem, has an estimated population of 30,000 (Bethlehem, 2025).

1.4.1 Palestinian health system and cancer services

The Palestinian health system is composed of four main sectors: the governmental sector, led by the Palestinian Ministry of Health (MoH); the United Nations Relief and Works Agency (UNRWA); non-governmental organizations (NGOs); and the private sector. These sectors collectively provide services across all levels of care, including primary, secondary, and tertiary care. The MoH serves as both the primary healthcare provider in the West Bank and Gaza Strip and the national body responsible for overseeing, regulating, and ensuring the sustainability and development of the health sector in response to the population's evolving needs. Cancer treatment is provided free of charge to all Palestinian patients through governmental, NGO, and private hospitals, with the Palestinian Authority covering the associated costs (PHIC, 2023).

Since 2008, the Palestinian Ministry of Health (MoH) has collaborated with NGOs and private providers to strengthen BC prevention and treatment strategies, including offering free mammography screening for women over 40 in both the West Bank and Gaza (WHO, 2022) (MOH, 2024). Currently, there are 43 mammography machines across Palestine. Nineteen of them are available at government facilities, 12 available at non-profit facilities, and 12 at the private-for-profit sector (Jubran et al., 2018). Data collection through the Palestinian Cancer Registry, established in 1998, continues to focus mainly on incidence and case numbers, with limited reporting on survival outcomes or treatment effectiveness (Abdul-Sater et al., 2022; Al-Shamsi et al., 2022). Chemotherapy is available at six government hospitals across the West Bank and Gaza, but services frequently face disruptions due to inconsistent medication supplies and logistical challenges. Radiotherapy is exclusively provided at Augusta Victoria Hospital in East Jerusalem, requiring patients from the West Bank and Gaza to obtain permits and face complex referral pathways. Genetic testing and diagnostic imaging, including X-rays, ultrasound, CT scans, and MRI, are now available in the West Bank. However, only three MRI machines are currently operating in the public sector within government hospitals across the West Bank. Furthermore, palliative care services are still in their infancy, hindered by financial constraints, limited service provision, and a lack of national planning (NCCP, 2023).

The current health services in Palestine are insufficient to meet the population's needs, leading the Ministry of Health to refer patients to Israel, Egypt, and Jordan (NCCP, 2023). The system also lacks national clinical guidelines, regular multidisciplinary team meetings, and adequate specialized oncology training for surgeons. These gaps are compounded by the ongoing political and economic challenges, including Israeli-imposed restrictions, movement barriers, and inadequate infrastructure, which further delay diagnosis, treatment, and supportive care for BC patients, contributing to greater patient distress and poorer outcomes (Battat, 2022). Overall, the Palestinian healthcare system remains fragmented and heavily burdened by geopolitical divisions, financial constraints, and increasing debts to referral service providers, which have further reduced service availability. Access to essential health

services is particularly restricted in Gaza, the West Bank, East Jerusalem, Area C, and H2 Hebron due to blockades, administrative separations, and other imposed barriers, raising serious concerns about the continuity and equity of care (WHO, 2022).

1.4.2 Breast Cancer in the Palestinian Context

Cancer care in Palestine is highly fragmented, with patients experiencing significant delays in referrals and treatment initiation, often leading to deterioration of their health status. Access to radiotherapy in East Jerusalem is hindered by Israeli permit restrictions, while interruptions in chemotherapy are common due to medication shortages linked to Israeli delays. Additionally, systemic issues within the Palestinian health system, such as service fragmentation, poor infrastructure, and frequent medication shortages, further compromise care quality. Advanced diagnostics and palliative care services are largely unavailable in governmental hospitals, forcing patients to seek costly private care (Mitwalli et al., 2023).

Breast cancer care in Palestine is shaped by a complex interplay of political, economic, and sociocultural context. The Israeli occupation, characterized by roadblocks, closures, and movement restrictions, significantly hampers Palestinian women's access to cancer diagnosis and treatment services, resulting in delays in care and compromised health outcomes (Rosenthal, 2021). These geopolitical barriers are further compounded by systemic healthcare limitations, including a critical shortage of female oncologists and a broader deficit of specialized medical personnel in governmental hospitals, which exacerbates the strain on the already overstretched oncology workforce. Moreover, delays in BC diagnosis are aggravated by the absence of standardized clinical protocols, extended waiting times, and inefficiencies within the referral system, all of which contribute to delayed treatment initiation and poorer patient outcomes (Abo Al-Shiekh et al., 2019).

Beyond structural limitations, financial hardship remains a pervasive barrier, as essential services like physiotherapy and psychological counseling are excluded from health insurance coverage, imposing additional burdens on patients and their families. Financial challenges further exacerbate the situation, not only by limiting access to comprehensive care but also by influencing patients' QoL and survival outcomes (Almuhtaseb et al., 2021; Al-Shamsi et al., 2022; Azriful et al., 2021). The sociocultural context in Palestine stigmatizes cancer, encourages its concealment, and reinforces adherence to traditional customs. Cultural stigma, fear, embarrassment, and fatalistic beliefs, intertwined with the broader political and economic constraints, create a complex environment that hinders timely access to treatment and adversely impacts patients' psychosocial well-being (Almuhtaseb et al., 2021; Hammoudeh et al., 2017).

1.5 Study aims:

1. To evaluate the supportive care services provided at the governmental hospitals in the southern area of the West Bank.
2. To determine the effect of supportive care services on the QoL of women with BC at the governmental hospitals in the southern region of the West Bank.

1.6 Study objectives:

1. Assessing the current supportive care services for women with BC at governmental hospitals.
2. Determining the various influencing factors (demographic, stage of disease, spirituality, social support, treatment type, and others) on the QoL of women with BC.
3. Determining the association between the supportive care services provided and the QoL of women with BC throughout the treatment period.
4. Assessing the QoL of newly diagnosed women with BC before and after treatment.
5. Assessing women with BC's satisfaction with the cancer care provided at governmental hospitals.
6. Determining the coping strategies of women with BC and their association with their QoL.

1.7 Dissertation Structure

This dissertation is organized into six chapters, each serving a distinct purpose to guide the reader through the research process and findings:

- **Chapter 1: Introduction**

This chapter outlines the background and context of the study, presents the problem statement, and justifies the research. It also clearly states the aims and objectives.

- **Chapter 2: Literature Review**

This chapter provides a critical review of the literature on BC, supportive care services, and QoL (QoL), encompassing international, regional, and Palestinian studies.

- **Chapter 3: Conceptual Framework**

This chapter presents the study's conceptual framework, which guides the research, integrating Fitch's Supportive Care Framework with the modified supportive-care model adopted for this study.

- **Chapter 4: Methods**

This chapter describes the study design and methodology, including the study setting, population, sampling methods, sample size, and data collection tools. It also includes data analysis procedures and ethical considerations.

- **Chapter 5: Results**

This chapter presents the results of the five studies according to the research objectives.

- Objective 1 is presented in section 1
- Objective 2 and 3 are presented in section 2 and section 5
- Objective 4 and 5: are presented in section 4
- Objective 6: is presented in section 3

- **Chapter 6: Discussion, Conclusions, Limitations and Recommendations**

This chapter interprets the findings in relation to the study objectives and existing literature. It discusses the implications for policy and practice, highlights study limitations, and provides recommendations for future research and health system improvements. Ultimately, it highlights the importance of enhancing the QoL and supportive care for women newly diagnosed with BC.

Chapter Two:

Literature review

2.1 Introduction

Supportive care encompasses a broad range of services designed to aid cancer patients and their families in managing the difficulties associated with the illness and its treatment. These services address physical, emotional, social, spiritual, and informational needs throughout cancer care. Integrating supportive care with cancer therapy has been shown to significantly enhance patient outcomes, reduce morbidity, optimize healthcare resource utilization, and improve the overall effectiveness of treatment (Balboni et al., 2018; Moffat et al. 2019; Zdenkowski et al. 2016). In addition, effective supportive care facilitates accurate diagnosis and contributes to a better QoL for patients (Berman et al., 2020; Fiszer et al., 2014). As the evidence base has expanded, supportive care has gained wide acceptance in oncology for its impact on essential patient outcomes (Balboni et al., 2018). Comprehensive supportive care improved patients' perception of health changes and overall impact QoL (Arnaud et al., 2021; Ellawindi et al., 2021). Moreover, individual, clinical, psychological, lifestyle, and QoL-related factors are associated with SCNs (Molenaar et al., 2025). Due to its multifaceted benefits, supportive care is a crucial component of comprehensive cancer care, which has a direct role in addressing the gaps that this study seeks to explore. It frames our review of QoL and its links to coping, patient satisfaction, and SWB.

To develop this literature review, a comprehensive search was conducted in PubMed, Scopus, Web of Science, and Google Scholar. The search included studies published between 1994 and 2025, allowing the inclusion of both foundational conceptual work—such as Fitch's supportive care framework (1994)—and recent empirical evidence related to supportive care needs (SCNs), quality of life (QoL), coping strategies, patient satisfaction, and spiritual well-being (SWB). Keywords and MeSH terms included “breast cancer,” “support-

ive care needs,” “SCNS,” “quality of life,” “QoL,” “coping strategies,” “patient satisfaction,” “spiritual well-being,” “FACIT-Sp,” “EORTC QLQ-C30,” “EORTC QLQ-BR23,” and “newly diagnosed.” Boolean operators (AND/OR) were used to refine and combine search terms. Studies were included if they focused on adult women with breast cancer, used validated assessment tools, and examined at least one of the study domains. Non-relevant papers, conference abstracts, and studies lacking methodological rigor were excluded. Reference lists of included articles were also manually searched to ensure comprehensive coverage.

2.2 Quality of life

QoL is a multidimensional concept that includes physical, psychological, and social well-being (Javan Biparva et al., 2022). The WHO defines QoL as a person’s perception and satisfaction with life and functional health (WHO, 2013). For women with BC, QoL is vital not only for survival but also for family stability. Psychosocial distress can intensify physical symptoms, especially at diagnosis when treatment side effects feel overwhelming. Therefore, improving QoL is a key treatment goal, and identifying its influencing factors is essential to help patients adapt to survivorship (Papadopoulou et al., 2017). QoL is defined as BC patients’ perception of their physical, mental, and social well-being, shaped by the stages of diagnosis, treatment, post-treatment, and survivorship, and evaluated through the use of validated measurement tools (Mokhtari-Hesari and Montazeri 2020). Research shows that a combination of sociodemographic and medical factors including, age, disease stage, financial difficulties, daily challenges, pain, stress, anxiety, sexual challenges, declining self-efficacy, and weakened social relationships all significantly affect QoL in BC patients (Imran et al., 2019; Lake et al., 2019; Ng et al., 2015; Saleh & Narjes, 2021; Shimosuma, 2022; Ośmiałowska et al., 2021; Dewi et al., 2023). QoL assessments have been shown to help predict treatment outcomes and prognosis (WHO 2013; Sung et al. 2021).

QoL varies among women newly diagnosed with BC (Mokhatri-Hesari & Montazeri, 2020). The disease adversely affects multiple dimensions of well-being, including physical, psychological, and social functioning, ultimately reducing overall QoL. For patients with newly diagnosed BC, the adoption of coping strategies varies. Some strategies, such as emotional support and acceptance, are positively associated with improved QoL, while others, such as denial and self-blame, are linked to poorer outcomes (Nipp et al., 2016; Greer et al., 2018). Perceived social support 12 months’ post-diagnosis is significantly associated with improving QoL and reducing emotional distress among women with BC (Ng et al. 2015). Moreover, QoL assessment is recognized as the most sensitive, robust indicator of BC outcomes (Ai et al., 2017). Integrating QoL assessments into clinical practice enhances diagnosis accuracy, treatment efficacy, and patient monitoring by providing precise evaluations of well-being, thereby facilitating improved patient counseling (Javan Biparva et al., 2022).

2.3 Supportive care needs (SCNs): Definition and domains

This section introduces the concept of supportive care needs (SCNs) and outlines their main domains within the context of comprehensive patient care

2.3.1 Definition

Supportive care comprises services that help people with cancer, their caregivers, and their families cope with the disease and its treatment across the care pathway and maximize the benefits of therapy (Arnaud et al., 2021). Care needs are defined as “the requirement of some action or resource in care that is necessary, desirable, or useful to attain optimal well-being.” (Sanson-Fisher et al., 2000). When these needs are not fully met, they are termed unmet needs, highlighting the gap between the care and services a patient receives and those they require or desire. In cancer care, unmet needs have been associated with poorer treatment adherence, which consequently leads to worse clinical outcomes (Akuoko et al., 2022; Fiszler et al., 2014). Numerous studies from different countries have highlighted a wide range of unmet needs in patients at various stages of the cancer journey, from diagnosis to survivorship (Cheng et al., 2018; Nguyen, 2023; Okati-Aliabad et al., 2022a; Pérez-Fortis et al., 2017). Within the SCNS framework, needs are commonly grouped into five domains: physical & daily living, psychological, health system & information, patient care & support, and sexuality. The next sections review each domain with evidence from diverse cultural and health-care settings.

2.3.2 SCNs Domains

The following subsection provides an overview of the main domains of supportive care needs (SCNs) and their relevance to patient care.

2.3.2.1 Physical Needs domain

Physical needs represent one of the most commonly reported concerns among patients newly diagnosed with BC. Studies show that these needs often increase during the first three months following their diagnosis, as patients adjust to treatment and its physical effects (Fong & Cheah, 2016; Klungrit et al., 2019; Liao et al., 2014). Physical symptoms significantly influence overall care needs (Kim & Lee, 2023). Common symptoms include pain, fatigue, and side effects related to treatment, particularly following early discharge from hospital, which are associated with reduced performance status and poorer QoL (Cheng et al., 2016; Costa et al., 2017; Nguyen, 2023). These physical limitations can hinder daily tasks and reduce participation in normal daily activities (Fong & Cheah, 2016; Zomkowski et al., 2017).

Unmet physical needs refer to the inability to manage treatment-related side effects such as pain, numbness, swelling, and sensory impairments in the affected arms (Bu et al., 2022). These needs are more common among younger age, marital status, education, and chronic diseases (Konieczny et al., 2020; Pérez-Fortis et al., 2017; Wu et al., 2019). Comorbid conditions associated with lower physical and role functioning and worse fatigue, dyspnea, appetite loss, and nausea and vomiting (Wu et al., 2019). Literature also emphasises the importance of supportive care services in reducing physical symptoms, managing physical limitations, and support household responsibilities and daily routines for BC patients (Anbari et al., 2020; Edib et al., 2016; Ke et al., 2024; Sleight et al., 2018).

2.3.2.2 Psychological needs domain

The psychological well-being of cancer patients has arisen as a significant issue in public health. As the number of cancer survivors grows, more patients are living with ongoing psychological challenges (Van et al., 2022). Psychological needs are highly prevalent among BC patients, and several studies have linked unmet SCNs to a lack of adequate psychological support (Er & Erkan, 2023; Kemp et al., 2018). Many women experience significant psychological distress, caused by fears of rejection and feelings of being a burden to others, which can undermine self-efficacy and independence. Moreover, treatment-induced physical alterations, such as hair loss or mastectomy, can significantly impact self-image and induce an imbalance in personal identity (Trusson & Pilnick, 2017).

Several studies have identified fear of recurrence as one of the most persistent challenges, particularly in the early stages post-diagnosis and during treatment transitions. In a systematic review, 84% of post-discharge BC patients reported at least one unmet supportive care needs, primarily in psychological domain (Nguyen, 2023). Martínez Arroyo et al. (2019) found that one in four BC survivors experienced clinical distress due to unmet psychosocial needs (Martínez Arroyo et al., 2019). Similar findings have been reported in many countries, highlighting the prominence of psychological needs among BC patients. For instance, studies from two systematic reviews (Fan et al., 2023; Wang et al., 2018), from Germany (Faller et al., 2017), and from the United Arab Emirates (Aamir et al., 2024).

Younger women, those with higher educational levels, and patients with limited social support are more vulnerable to psychological distress (Kim & Lee, 2023). Providing clear information on prognosis, treatment options, and psychological services can help reduce unmet psychological needs (Ng et al., 2017), which Chou et al. (2020) found to be the first needs among BC patients, followed by nutrition and patient care (Chou et al., 2020).

2.3.2.3 Health System and Information Care Needs domain

Health system and informational needs are among the most frequently unmet SCNs reported by cancer patients (Tabari-Khomeiran et al., 2023). In Mexico, 99% of cancer patients reported at least one supportive care need across different domains, with the highest level in the health system and information domain (Doubova et al., 2015). Breast cancer patients often report difficulties accessing clear, reliable, and timely medical information about diagnosis, treatment options, side effects, and self-management strategies (Chen et al., 2022). Studies have recommended providing survivorship care plans that include clear explanations of side effects and medical procedures (Fiszer et al., 2014; Shih et al., 2020). Additionally, in the United States, unmet needs have been reported in treatment preparation, particularly for radiation therapy, despite standard educational practices (Pembroke et al., 2020).

Breast cancer survivors in India have expressed a need for more information not only on treatment and disease stage but also on post-treatment care, recurrence symptoms, and treatment costs (Barthakur et al., 2016; Dsouza et al., 2018). Similar finding of unmet informational needs have been reported in other countries, including Mexico among newly diagnosed BC patients (Gálvez-Hernández et al., 2021; Pérez-Fortis et al., 2017), Spain (Martínez Arroyo et al., 2019), the United States (Sleight et al., 2018, 2019) Malaysian (Azman et al., 2021) and Korean (Kim & Lee, 2023). Factors influencing these needs include age, education level, income, employment status, and the presence of comorbidities (Cheng et al., 2018; Fong & Cheah, 2016; Nguyen, 2023; Sleight et al., 2019).

2.3.2.4 Patient care and support domain

Patient care and support needs are one of the key dimensions of SCNs, which arise when individuals with cancer face difficulties adjusting to the disease and its consequences (Crowe et al., 2025). These needs refer to the practical and emotional assistance that enables BC patients to cope with the challenges of their illness and treatment. These include help with daily activities, management of treatment side effects, physical comfort, and emotional reassurance provided by healthcare professionals, family members, and caregivers (Dhakal et al., 2021; Ozbayir et al., 2017). Therefore, the nature and intensity of unmet needs vary across patients, depending on factors like age, gender, cancer type, disease stage, and treatment phase (Chou et al., 2020; Evans Webb et al., 2021).

Timely and individualized support from healthcare professionals plays a vital role in reducing these unmet needs and improving overall care quality (Springer et al., 2024). Studies show that these needs are closely linked to patients' emotional well-being. For example, Wang et al. (2024) found that unmet needs in this domain were directly associated with impaired emotional functioning, underscoring the importance of helping patients manage symptoms and adapt to changes in daily life (Wang et al., 2024). Similarly, Al-Azri et al.

(2022) reported that the most common unmet need was for clinicians to demonstrate greater sincerity and emotional sensitivity, highlighting a gap in the relational aspects of care (Al-Azri et al., 2022). In Malaysia, patient care and support ranked as the second-highest unmet need after health system and information, further emphasizing its influence on patient experiences (Azman et al., 2021). Despite its clear importance, this domain remains under-addressed in the literature (Evans Webb et al., 2021). Effective patient care and support can reduce unmet needs, strengthen patients' emotional and psychological resilience, and ultimately improve both the quality of care and QoL (Abu-Odah et al., 2022).

2.3.2.5 Sexual needs domain

Sexual health is an important aspect of a woman's overall well-being and a significant determinant of QoL in BC survivors (Lee et al., 2015). Despite its importance, it remains an underexplored and often neglected aspect of supportive care. Several studies report that BC diagnosis and treatment frequently lead to changes in sexual desire, body image, and sexual function (Blouet et al., 2019; Castillo et al., 2022; Franzoi et al., 2024). For example, a Swedish study found that 68% of young BC patients experienced sexual dysfunction in at least one domain, and 58% expressed high reproductive health concerns, underscoring their vulnerability to hormonal changes and body image issues following treatment (Ljungman et al., 2018).

Despite the high prevalence of sexual health concerns, communication about sexuality between patients and healthcare providers remains limited (Male et al., 2016). In a U.S. study, although one-third of women reported sexual problems, fewer than half had discussed these issues with their providers, and only 40% of medical visits included any sexual health conversation, most of which were initiated by clinicians and focused narrowly on issues such as sexual inactivity, body image, vaginal dryness, and safety concerns (Beach, 2020). Similarly, Stark et al. (2019) found that young BC patients had unmet needs related to fertility, contraception, and sexual health; while most providers felt confident discussing reproductive health, they were less comfortable addressing fertility concerns specifically (Stark et al., 2019). Cultural norms strongly influence whether sexuality is addressed in cancer care (Brajkovic et al., 2021). In Mexico, it was ranked as the least relevant supportive care domain, possibly due to the absence of formal studies or cultural reluctance to discuss the topic (Azman et al., 2021; Doubova et al., 2015). In Iran survivors reported profound sexual life changes shaped by cultural expectations and restrictions (Maleki et al., 2021), while studies from Hong Kong and Taiwan suggest that conservative values surrounding sexuality may prevent patients from expressing these needs (Li et al., 2013). In the Netherlands, although only 25% of patients reported an active need for sexual health information, over 80% of patients and nearly 74% of partners said they had not received any (Albers et al., 2020). Across settings, this gap between need and communication persists, as sexuality is rarely addressed proactively by healthcare professionals (Albers et al., 2020; Chang et al., 2019).

2.4 Sociocultural Determinants Among Arab Women

Understanding breast cancer experiences among Arab women requires situating their health behaviors within the broader cultural and social structures that shape daily life. In this context, Arab cultural norms play a central role in influencing women's emotional responses, decision-making, and engagement with supportive care. Therefore, improving breast cancer screening and related supportive interventions requires approaches that consider these broader contextual factors rather than focusing solely on individual-level practices (Hwang et al., 2017). The Arab cultural environment strongly influences women's psychological responses to breast cancer, shaping help-seeking behaviors, disclosure patterns, and coping processes. Concepts such as family honor, modesty, stigma associated with illness, and expectations tied to women's social roles often lead to delayed emotional expression and reduced engagement with mental-health services. Recent regional evidence indicates that many Arab women fear social judgment, conceal emotional distress, and prioritize family stability over their own psychological needs, which may exacerbate emotional burden (Al-Shamsi et al., 2022). Furthermore, findings from multi-country studies in the Middle East demonstrate that sociocultural norms, limited public awareness of mental health, and deeply gendered expectations significantly influence distress levels and overall quality of life among Arab breast cancer survivors (Salem & Daher-Nashif, 2020).

2.5 Association between supportive care needs and quality of life

QoL assessment is widely considered as one of the most sensitive and powerful indicators of BC outcomes (Ai et al., 2017). By integrating QoL assessments into clinical practice, significant improvement can be made in diagnosis, treatment planning, and ongoing patient monitoring (Javan Biparva et al., 2022). This integration aligns with the principles of supportive care, which is grounded in a person-centered approach aimed at enhancing the QoL of individuals with cancer and their families by addressing multidimensional needs across the entire disease trajectory (Aghajari et al., 2024; Kotronoulas et al., 2017). Many studies have shown that unmet SCNs adversely affect cancer patients' psychological well-being, treatment adherence, and overall health status (Abate et al., 2020; Fitch & Maamoun, 2016; Jie et al., 2020). Recognizing the comprehensive impact of unmet needs on QoL is therefore of critical clinical importance throughout the survivorship continuum, as it enables timely and targeted interventions to improve patient outcomes needs (Edib et al., 2016; Okati-Aliabad et al., 2022a).

In different settings, higher unmet SCNs among women with BC are linked to poorer QoL. For example, in the Gaza Strip, unmet needs were most prominent in the psychological domain, followed by health system/information and physical needs, and these clustered needs were linked to lower QoL (Elsous et al., 2023). Malaysian data similarly showed that uncertainty about the future, fear of disease spread, and sadness predicted poorer QoL, with the

largest gaps in psychological and physical domains (Edib et al., 2016). Two systematic reviews converge on this pattern: unmet psychological/emotional, health system and information, and physical and daily living needs are most strongly tied to reduced QoL, particularly among younger patients, those with advanced disease, recent diagnosis, ongoing treatment, or lower income (Fan et al., 2023; Khajoei et al., 2023). We employed two well-established tools: The European Organization for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC QLQ-C30) and the EORTC QLQ-BR23. The QLQ-C30, administered at diagnosis, includes nine multi-item scales: five functional (physical, role, cognitive, emotional, and social), three symptoms (fatigue, pain, and nausea/vomiting), and one global health/QoL scale (Tan et al., 2014). After one year of treatment, the QLQ-BR23 was used to capture BC, specific concerns, including body image, sexual functioning, and systemic therapy side effects (Jassim & Alansari, 2020).

2.5.1 Psychological and informational needs as QoL dominant predictors

Psychological needs frequently emerge as the highest unmet domain and a key predictor of QoL. A recent Iranian study reported a high mean of SCNs score (87.25), with psychological needs most frequently unmet; total SCNs were negatively correlated with functional QoL and positively with symptom burden (Aghajari et al., 2024). A UK survey of adults with cancer found psychological and sexuality needs to be the most unmet; both low- and moderate-need groups had worse health-related QoL and greater helplessness, with unmet service needs concentrated in the moderate-need group (Lidington et al., 2021). Chinese survivors also highlighted patient-provider communication (63.2%) and fear of recurrence (69%) among the most frequent unmet needs, with higher unmet needs strongly and negatively correlated with all QoL domains except health behaviour (Bu et al., 2022).

2.5.2 Physical and daily living needs and symptom burden

Physical and daily living needs are common and consequential for QoL. In Iran, physical needs were most frequent during chemotherapy and hormone therapy and extended their impact to caregivers through emotional and financial strain (Nimekari et al., 2019). In Indonesia, 96.1% reported at least one unmet need, most often in physical and daily living (80.4%) and patient care/support, with unmet needs associated with worse global health, poorer functional scores, and greater symptom burden (Putri et al., 2018). In a German multicentre sample of 1,108 cancer patients, physical functioning needs ranked highest, and SCNs correlated strongly and negatively with satisfaction and QoL (Hinz et al., 2023). Egyptian women with unmet needs (54.8% overall; most often psychological and health system/information) had significantly worse global QoL, poorer physical and sexual functioning, and more breast symptoms; overall satisfaction with care was 56.4% (Abdelsalam & bayomi, 2022).

2.6 Coping strategies and QoL

Coping strategies are vital psychological and behavioural methods that help women with BC in managing the stresses related to diagnosis and treatment. Efficient coping is closely associated with improved psychological adjustment and a better QoL. Previous studies indicate that coping mechanisms vary according on age, social support, and cultural context (Lake et al., 2019). The most prevalent strategies identified include acceptance, emotional support, self-distraction, religious coping, active coping, planning, social disengagement, and denial, all of which affect one's ability to adjust to illness (Ardakani et al., 2020; Elsheshtawy et al., 2014; Islam et al., 2023). Research indicates that in the early stages of diagnosis, patients often fluctuate between adaptive techniques, including acceptance and positive reframing, and maladaptive strategies, such as denial and self-blame (Greer et al., 2018; Nipp et al., 2016).

Beyond individual differences, coping among women with breast cancer is significantly influenced by cultural and social contexts, particularly in the Arab region. The psychosocial literature on breast cancer in the Arab region shows that coping is strongly shaped by sociocultural norms, with many women relying on spirituality, family support, and emotional suppression to maintain social stability. However, stigma, modesty, and fatalistic beliefs often limit adaptive coping, delay help-seeking, and increase distress, particularly among women with low socioeconomic status or restricted access to support systems (Younis et al., 2021). Evidence also indicates that coping among breast cancer survivors is influenced by both individual and contextual factors, with emotion-focused coping emerging as the most common strategy. Problem-focused coping, by contrast, is shaped by socioeconomic circumstances, time since diagnosis, and clinical characteristics, whereas avoidant coping is more prevalent among women experiencing higher distress, ongoing treatment demands, or reduced access to resources (Ali & Al-Qazaz, 2025). Qualitative findings further show that newly diagnosed women rely on three primary coping modes, emotional turmoil, avoidance, and logical (problem-focused) efforts. While many struggle with fear and uncertainty, others use avoidance to distance themselves from emotional pain, and some adopt rational strategies to regain a sense of control. Collectively, these studies highlight the importance of implementing psycho-oncology interventions that strengthen adaptive coping and address the emotional and psychosocial challenges women face during and after diagnosis (Hajian et al., 2017).

Global studies highlight an important impact of these coping mechanisms on QoL. In China, newly diagnosed women often engaged in detrimental coping behaviours such as self-blame, denial, and anxiety, which negatively impacted their QoL, whereas techniques including acceptance, planning, and positive reframing enhanced outcomes (Li et al., 2015). Similarly, a South Korean study indicated that maladaptive coping in newly diagnosed patients predicted poor health-related QoL for at least of two years' post-diagnosis, emphasising the necessity of early screening and management (Cho et al., 2020). Research from Spain confirmed that

maladaptive methods at the beginning of therapy were associated with increased anxiety and depression, which subsequently reduced QoL and treatment adherence (Gutiérrez-Hermoso et al., 2022). Additional research supports a protective role of adaptive coping. Ethiopian findings revealed that over half of BC patients used positive coping strategies, such as acceptance and positive reinterpretation, which were associated with improved QoL (Kelkil et al., 2022). Research from Iran, Malaysia, and Turkey consistently indicated that problem-focused coping, positive focus, and diversion account for a significant percentage of variance in QoL (Bahcivan et al., 2021; Dewi et al., 2023; Maleknia & Kahrazei, 2015). The literature highlights that newly diagnosed BC patients are more likely to use maladaptive coping strategies, which intensify psychological distress and reduce QoL. Improving adaptive coping at this crucial phase can significantly enhance emotional resilience, adherence to therapy, and long-term survival outcomes.

Overall, the literature underscores that maladaptive coping is especially common in newly diagnosed women and strongly predicts poorer QoL, while adaptive coping enhances resilience, emotional stability, and therapeutic adherence.

2.7 Patient Satisfaction and QoL

Patient satisfaction is a crucial determinant influencing the overall well-being of cancer patients (Batbaatar et al., 2015). It is defined as the degree to which an individual's actual experiences meet or exceed their pre-existing expectations (Asadi-Lari et al., 2004). Several factors contribute to satisfaction, such as access to care, the quality of the treatment environment, technical competence, and interpersonal interactions with healthcare providers. Satisfaction is also influenced by the clarity and sufficiency of information delivered by medical professionals, their sensitivity to patients' needs, and their capacity for effective communication (Batbaatar et al., 2017). Therefore, patient satisfaction is widely acknowledged as an essential indicator of care quality, reflecting the overall healthcare experience (Gomez-Cano et al., 2020).

Satisfaction, as a critical indicator of healthcare quality, enables the identification of gaps in service delivery, helping healthcare professionals improve treatment and policymakers to develop more effective strategies (Batbaatar et al., 2017; Kleeberg et al., 2005). It plays a significant role in BC therapies, especially in surgical care, where higher satisfaction levels are associated with improved treatment adherence and outcomes (Pintault et al., 2023).

The association between satisfaction and QoL is well established in cancer patients, since the two factors have a strong connection (Asadi-Lari et al., 2004; Djambazov et al., 2019). A comprehensive assessment of both QoL and satisfaction provides a holistic view of patients' experiences and helps in identifying individuals who need specific support (Brédart et al., 2013; Shiraishi et al., 2022). Patients who report higher satisfaction are more likely to maintain engagement with healthcare services and follow therapy protocols (Abate et al.,

2020). Studies across countries show that BC patients reported different levels of satisfaction with healthcare. For example, moderate scores of satisfaction were found in Egypt and Ethiopia, where doctors' skills were rated positively but access and waiting times were weak (Abate et al., 2020; Abdelsalam & Bayomi, 2022). Similar results were reported in Slovakia, Morocco, and Poland, with higher satisfaction for doctors' and nurses' competence but lower for access to services and information provided (Obročníková & Majerníková, 2017; Obtel et al., 2017; Skreć-Magierło et al., 2016). In contrast, higher satisfaction was reported in Italy (88.5%) (Djambazov et al., 2019) and Poland (81.7%) (Rudzińska et al., 2025), while moderate levels were observed in Switzerland (Marino et al., 2021) and Mexico (Balderas-Peña et al., 2019).

Literature indicates that higher satisfaction among BC patients is significantly associated with better psychological well-being and improved long-term QoL (Ghilli et al., 2023; Shiraishi et al., 2022). Similar results showed that higher satisfaction after breast-conserving surgery improved emotional and social functioning, while lower satisfaction was linked to poorer psychosocial health (Krzos et al., 2019; Stolpner et al., 2021). Baumbach et al. (2023) reported that satisfaction with physician and nursing care was positively correlated with QoL and self-rated health (Baumbach et al., 2023). Additionally, a 5-year scoping review emphasized that both satisfaction and QoL are influenced by cultural, social, and methodological factors (Saiga et al., 2023). These findings highlight that patient satisfaction is not only a key indicator of healthcare quality but also a critical determinant of adherence, psychosocial well-being, and QoL among BC patients.

2.8 Spiritual well-being (SWB) and QoL

Spiritual well-being (SWB) is defined as a person's sense of peace, meaning, purpose, and connection with self, others, nature, and the transcendent (Martoni et al., 2017; Puchalski et al., 2014). It goes beyond religious practice to include existential beliefs and values that help individuals cope with illness and life challenges (Forouzi et al., 2017; Fradelos et al., 2016). The World Health Organization (WHO) has identified spirituality as the fourth dimension of health, alongside physical, mental, and social well-being, emphasizing its role in enhancing coping mechanisms, reducing psychological distress, and supporting overall well-being during illness (Ahmad et al., 2022; Sepúlveda et al., 2002).

Recent research highlights SWB as a critical component of QoL in cancer care. Higher SWB is consistently associated with emotional stability, resilience, and improved QoL across physical, social, and functional domains (Abou Chaar et al., 2018; Munoz et al., 2015; Muzdalifah et al., 2023; Yilmaz & Cengiz, 2020). Its protective role is especially evident among newly diagnosed patients coping with the psychological impact of cancer (Bai et al., 2015; Rabitti et al., 2020). Cross-national findings show variation in SWB levels, with lower scores in Italy and China (Machul et al., 2023; Martoni et al., 2017) and higher scores in Japan and Taiwan (Kamijo & Miyamura, 2020; Wang & Lin, 2016), reflecting cultural and

healthcare differences. The association between SWB and QoL has been widely confirmed. Studies from Jordan, Turkey, China, and other countries consistently show that SWB, particularly the meaning and peace dimensions, enhances emotional and functional well-being and reduces symptom distress (Albusoul et al., 2022; Al-Natour et al., 2017; Yilmaz & Cengiz, 2020; Yu et al., 2023). Similar supportive evidence confirming that SWB positively influences various QoL dimensions, comes from Japan, Poland, USA, Mexico, and Brazil (Alvarado et al., 2019; Brandão et al., 2021; Kamijo & Miyamura, 2020; Machul et al., 2023; Munoz et al., 2015).

SWB is also linked to body image and symptom management. Higher SWB helps patients maintain self-acceptance and resilience despite bodily changes (Jafari et al., 2013; Sharifi et al., 2024; Tiggemann & Hage, 2019), and has been shown to reduce symptom severity and distress, particularly through the meaning and peace subscales (Wang & Lin, 2016) (Albusoul et al., 2022). Sociodemographic and cultural factors strongly influence SWB. Age, education, and cultural context shape spiritual coping, with faith-based approaches common in Palestine and Jordan, where they provide meaning and acceptance but may limit emotional expression (El Jabari et al., 2022; Seir & Kharroubi, 2017). Evidence from the U.S. and Japan similarly shows demographic correlates such as age, gender, and ethnicity influencing SWB (Kamijo & Miyamura, 2020; Munoz et al., 2015).

2.9 Social support in breast cancer care

Social support is widely recognized as a vital factor in enhancing the psychological and physical well-being of BC patients (Okati-Aliabad et al., 2022b). Many studies have emphasized that family members, especially close relatives, serve as the primary source of support during diagnosis, treatment, and survivorship (Ng et al., 2017; Okati-Aliabad et al., 2022b; Schmid-Büchi et al., 2013). Patients who report strong social support tend to experience a better QoL, reduced psychological distress, and greater fulfilment of basic psychological needs such as autonomy, competence, and relatedness, factors that significantly predict social well-being (Hubbeling et al., 2018; Leow et al., 2021; Okati-Aliabad et al., 2022b). In contrast, interpersonal conflict or a lack of support is associated with more unmet needs and poorer emotional outcomes (Ng et al., 2017; Schmid-Büchi et al., 2013).

Several studies underline the broader impact of social support beyond emotional well-being. Strong correlations have been observed between social support and the fulfilment of physical, daily living, and even sexual needs (Okati-Aliabad et al., 2022b; Villarreal-Garza et al., 2020). Comparisons illustrate disparities in the accessibility and quality of support systems. For example, a study in Turkey found that participants reported considerable gaps in informational, psychological, and social support, often caused by personal constraints and a lack of responsiveness from healthcare professionals (Şengün İnan et al., 2023). Similarly, a study in Germany revealed that 78% of partners of BC patients reported at least one unmet need. Although they experienced high levels of distress, the patients themselves expressed even

greater support needs, particularly concerning healthcare services and access to information (Goerling et al., 2020). In contrast, patients in Mexico reported high satisfaction with support services, particularly psychological and genetic counseling, and this satisfaction was strongly linked to the extent of service utilization (Villarreal-Garza et al., 2020). These findings affirm that effective social support must be multidimensional and culturally sensitive, involving not only family and friends but also other survivors and healthcare professionals (Davis et al., 2018).

The literature indicates that the SCNs of BC patients encompass several dimensions, including physical health, psychological well-being, patient care and support, and sexual health. Addressing these varied SCNs for care is crucial for achieving complete BC care. Unmet needs in any of these domains may negatively impact QoL, impair emotional resilience, and prevent adherence to treatment (Kim & Lee, 2023). While previous studies offer significant insights, persistent gaps continue, especially in contexts where cultural norms, limited healthcare resources, and a lack of organised supportive care programs can worsen these challenges (Abate et al., 2020; Abdelsalam & Bayomi, 2022; Jie et al., 2020). In Palestine, where BC is the most common cancer among women (MOH, 2024), and healthcare systems face significant resource limitations, addressing these domains in a coordinated and culturally appropriate way is essential to improving patient outcomes and QoL (Rosenthal, 2021).

2.10 Effect of treatment on SCNs and QoL

Several studies have shown that treatment intensity and phase influence SCNs and QoL (QoL). Each cancer therapy presents unique challenges that can significantly affect patients' overall health (Goerling et al., 2020; Rizalar et al., 2024). In Germany, physical and emotional functioning declined and fatigue increased during chemotherapy, especially among younger patients and those with chronic disease, leading to poorer QoL (Schwentner & Kreienberg, 2017). Similarly, French data indicate that chemotherapy reduces global health status and impairs physical and social functioning, while both chemotherapy and radiotherapy increase fatigue (Zhou et al., 2022a). In Denmark, BC patients receiving chemotherapy reported higher unmet physical and daily living needs compared with those undergoing radiation, especially in the first six months after diagnosis, suggesting that unmet needs peak in the early treatment phase (Jensen-Johansen et al., 2021). Consistent findings were reported in Turkey, where younger women and those receiving combined chemotherapy and radiotherapy had significantly higher total unmet need scores, including elevated physical, daily living, and sexuality needs (Rizalar et al., 2024). These findings reinforce the link between symptom burden, unmet needs, and QoL deterioration, highlighting the need for supportive care services for patients with BC, particularly during the chemotherapy and hormone therapy phases, to reduce physical needs and empower family caregivers (Nimekari et al., 2019).

2.11 Determinants of Supportive Care Needs and QoL

Contextual factors modulate both unmet needs and QoL. Australian women living in remote or socioeconomically disadvantaged areas reported more unmet needs in patient care and information alongside poorer QoL (Eggins et al., 2022). In Spain, comorbidities, low education, and advanced disease stage were associated with poorer pre-treatment QoL; despite improvements in emotional functioning and future outlook after treatment, physical role, fatigue, pain, and financial concerns worsened (Villar et al., 2017). Chinese data similarly identified younger age, recent diagnosis, advanced stage, lower income, and severe pain as predictors of higher unmet needs and poorer QoL (Bu et al., 2022), echoing the moderators highlighted by the systematic reviews (Fan et al., 2023; Khajoei et al., 2023).

Education also plays a critical role. Higher education levels have been consistently associated with improved QoL outcomes, likely due to enhanced understanding of disease and coping resources, while lower education levels predict poorer QoL (Socha & Sobiech, 2021) (Klein et al., 2011; Konieczny et al., 2020). In addition, social and family support are pivotal determinants of well-being. Longitudinal and cross-sectional studies from India, China, Spain, and Ghana confirm that strong family and social networks significantly improve global QoL, reduce emotional distress, and strengthen coping strategies (Benson et al., 2020; Calderon et al., 2021; Mishra & Saranath, 2019; Yan et al., 2016). Financial concerns and employment are also factors associated with patients overall well-being (Villar et al., 2017; Klungrit et al., 2019; Nimekari et al., 2019; Konieczny et al., 2020).

2.12 Gap in the Literature

This chapter reviewed the literature on supportive care needs (SCNs), coping strategies, patient satisfaction, spiritual well-being (SWB), and social support, and their associations with QoL in women with BC. Evidence consistently shows that unmet SCNs, especially in the psychological, informational, and physical domains, are strongly linked to poorer QoL, while adaptive coping, high satisfaction, strong SWB, and adequate social support act as protective factors that enhance resilience and improve well-being. Validated tools such as the SCNS-SF34, EORTC QLQ-C30 and QLQ-BR23, IN-PATSAT32, and FACIT-Sp-12 have been widely used to assess these dimensions across diverse populations.

Although international studies have examined SCNs, coping strategies, patient satisfaction, spiritual well-being (SWB), and social support among women with BC, several limitations remain. First, the majority of evidence comes from high-income countries, with very limited research from low-resource and culturally conservative settings such as Palestine. Second, most studies investigate these domains separately, rather than integrating them into a comprehensive framework to understand their combined impact on QoL. Third, sensitive but crucial areas, particularly sexuality and spirituality, are often underexplored due to stigma, despite their significant influence on patient well-being. Finally, and most importantly, newly diagnosed BC patients are underrepresented, even though this stage is marked by high

psychological distress, complex SCNs, and critical decisions that shape treatment experiences and outcomes. These gaps highlight the need for context-specific, integrative research to guide patient-centered supportive care in Palestine.

Chapter Three

Conceptual Framework

3.1 Introduction

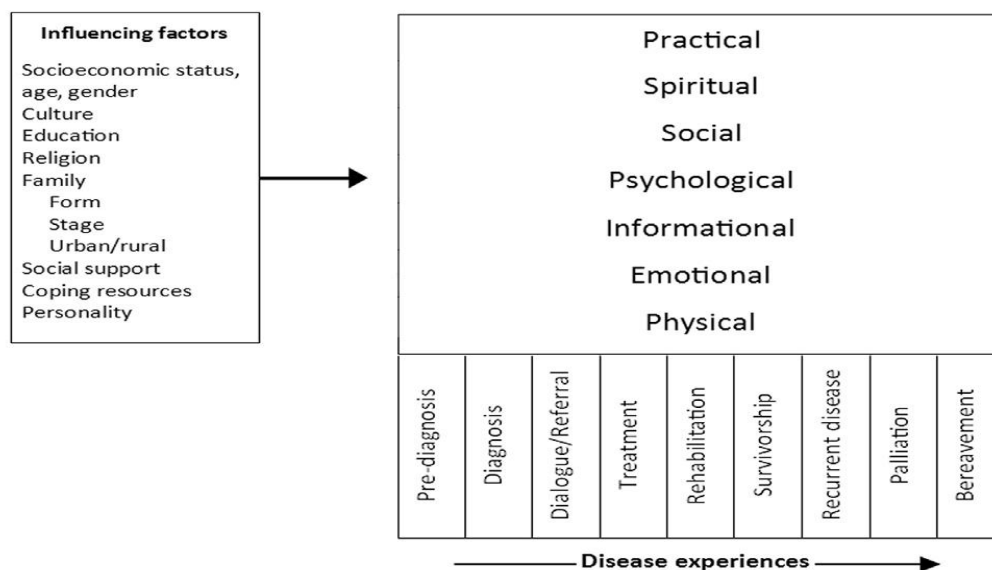
We adopt the Fitch **Supportive Care Framework for Cancer Care** (Fitch, 2008) to organize the influencing factors, such as sociodemographic characteristics, illness and treatment course, coping, satisfaction, and social support, together with SCNs across the physical, informational, psychosocial, functional, sexual, and spiritual domains, and the outcome, QoL. The framework specifies pathways from influencing factors to needs and symptoms, which in turn affect the outcome, QoL. Patients' care needs come in many forms, including physical, economic, environmental, cultural, knowledge, communication, emotional, psychosocial, functional, daily life activities, and spiritual (Asadi-Lari et al., 2004). As cancer patients' unmet care needs tend to arise in the early stages of cancer survival and negatively impact patients' QoL, the framework applied here to newly diagnosed Palestinian women with BC (Klafke et al., 2019; Mirzaei et al., 2019).

3.2 Oncology Supportive Care Models

Supportive care in oncology involves a comprehensive, multidisciplinary approach aimed at meeting the diverse needs of cancer patients, encompassing physical, emotional, social, spiritual, and informational aspects during their treatment. It requires the collaborative efforts of various clinical specialties working as a unified team. Recently, there's been an increased focus on creating models for this type of care (Hui et al., 2021). Supportive care in cancer treatment is crucial for enhancing patients' QoL. It involves addressing physical symptoms, providing education, and offering social, psychological, and spiritual support, and rehabilitation. Tailored to individual needs based on disease stage, age, and cultural background, this care varies as the illness progresses. Its benefits include reduced morbidity, potentially lower mortality, and improved healthcare efficiency by optimizing resource use and treatment outcomes (Loibl & Lederer, 2014; Berman et al., 2020).

3.3 Fitch Supportive Care Cancer Framework

The Fitch Supportive Care Framework for Cancer Care was originally formulated in 1994 by Margaret I Fitch. The framework is a tool designed for cancer care professionals and program managers. It helps conceptualize the types of assistance cancer patients might need and guides the planning of service delivery. This framework is used in various contexts, including service or program planning, organizing educational approaches in cancer care, and as a model for research projects. The Fitch supportive care framework is composed of three parts: influencing factors (socioeconomic status, age, culture, education, religion, cancer stage, urban/rural, social/family support, coping resources, and personality) and SCNs (physical, emotional, social, psychological, spiritual, informational, and practical changes), and outcome (QoL, survival, and health, patient satisfaction) (Fitch, 2008; MacIsaac et al., 2011; Pelentsov et al., 2015). The supportive care needs framework presented in Figure 3.1 and Figure 3.2.



Conceptual view of the supportive care needs and influencing factors of individuals living with cancer along their spectrum of disease (Fitch, 1994)

Figure 3.1: The supportive care needs framework

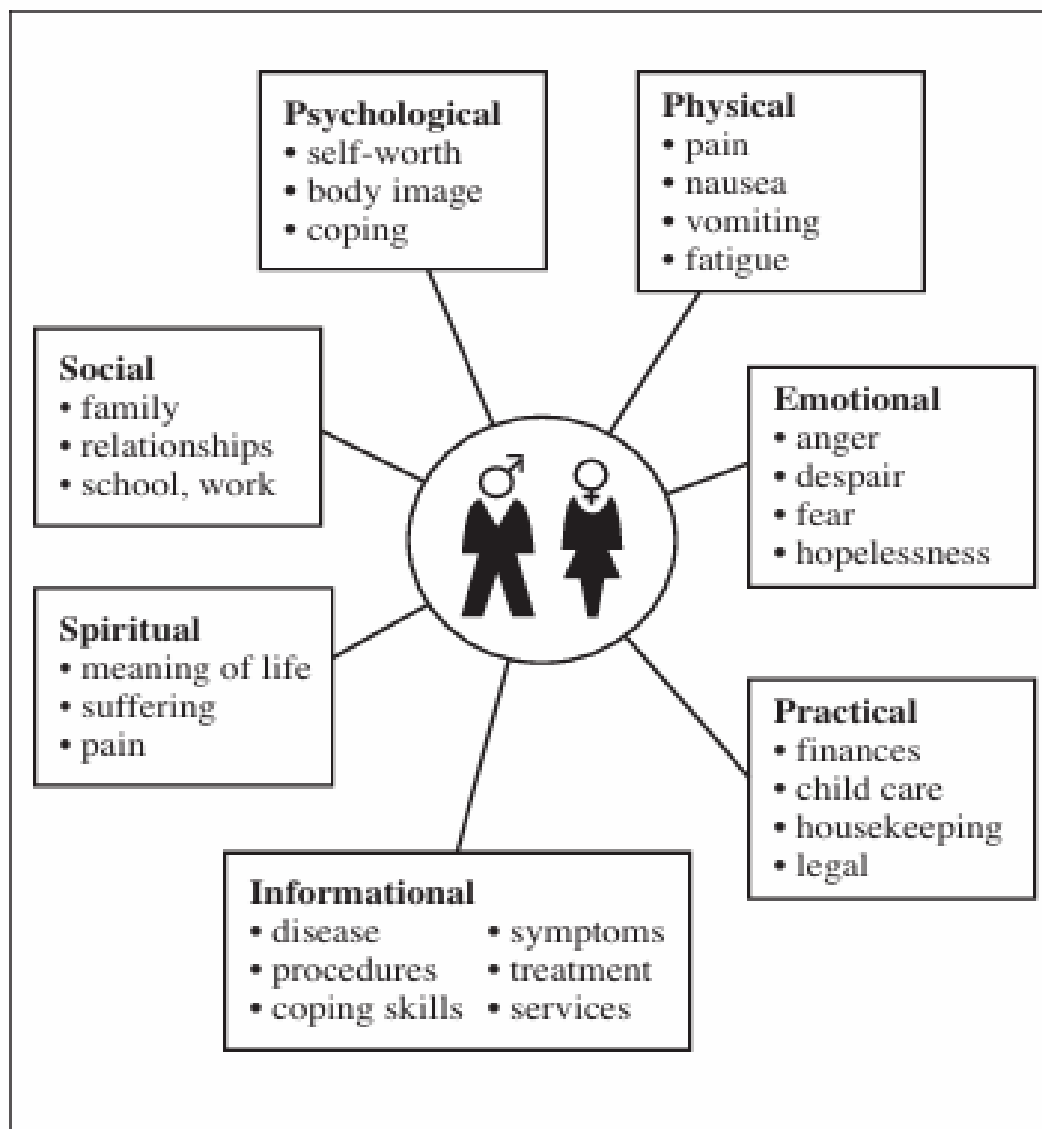


Figure 3.2: Examples of needs of individuals living with cancer

3.4 Supportive Care Cancer Framework: Need Assessment

A modified Supportive Care Framework for Cancer Care (SCNF) was adopted to guide the design of the study and the selection of the outcome variables using an evidence based approach (Abu-Odah et al., 2022). A modified Conceptual Supportive Care Needs Framework presented in Figure 3.3.

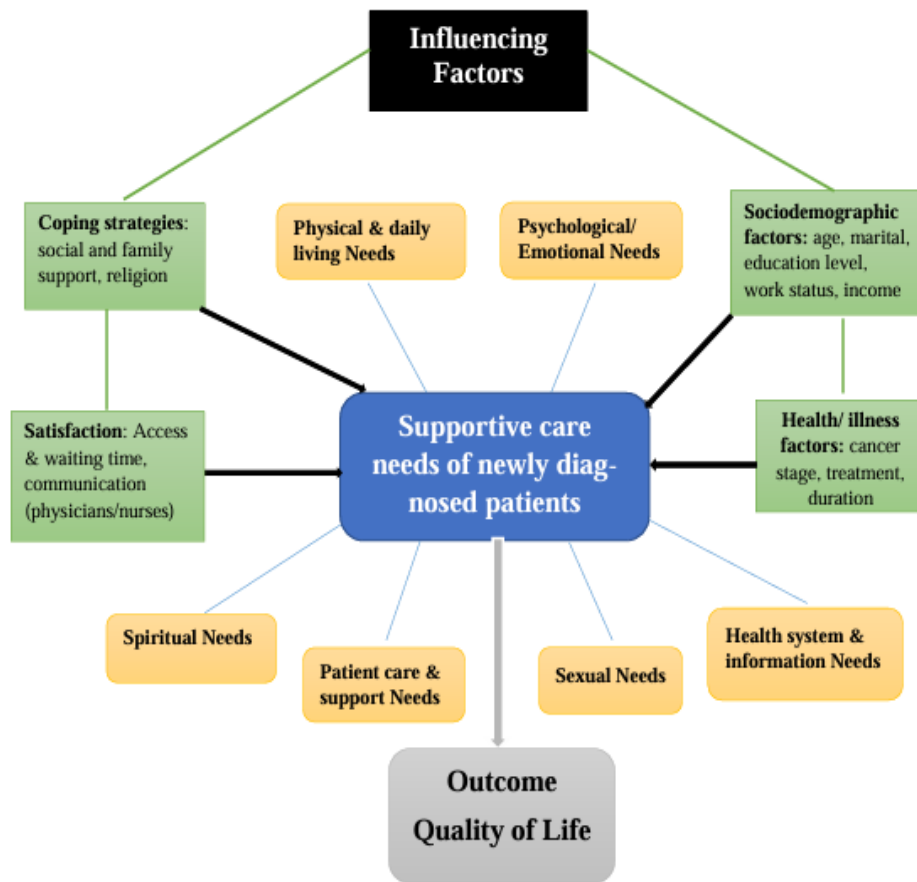


Figure 3.3: A modified Conceptual Supportive Care Needs Framework

3.5 Influencing Factors definitions

3.5.1 Socioeconomic status (SES): is a major predictor of healthcare quality and accessibility. People with lower socioeconomic status frequently receive poorer medical care and have more difficulty accessing healthcare than those with higher socioeconomic status. Moreover, the ability to engage in health activities, afford medical care and housing, and manage stress is influenced by one's socioeconomic status (Al-Tell et al., 2022). On the other hand, many studies have revealed that BC patients with high economic status have a high survival rate. Higher SES, is expected to correlate with access to better medical services, leading to improved overall health (Coughlin, 2019). Studies also show that high household income is associated with a better QoL and with many aspects of better care for patients, such as proper care, access to comprehensive rehabilitation, taking time off from work, and reducing concerns about financial constraints (McMaughan et al., 2020).

3.5.2 Age: Age plays a pivotal role in healthcare decisions. Older individuals, in contrast to younger ones, may encounter different challenges and have specific healthcare needs that

require careful consideration and adapted strategies. Research indicates that the incidence of BC increases with age, and the effectiveness of screening similarly fluctuates based on age, showing greater benefits for women between 50 to 70 years. Furthermore, age plays a critical role in influencing survival rates, treatment efficacy, and the impact of genetic factors in BC cases (McGuire et al., 2015).

Unmet care needs for elderly people, according to research, include their physical and psychological health, social life, and the environment in which they live and interact (Abdi et al., 2020). In a separate study, patients above the age of 66 had significantly higher nutritional needs than younger patients, and patients aged 46-55 had significantly higher treatment needs than those under the age of 45 (Chou et al., 2020).

3.5.3 Cultural norms: cultural beliefs significantly impact healthcare perceptions and decisions. Culture can affect how people understand and deal with their illnesses, as well as how they communicate with their doctors. Specific cultural norms, beliefs, and practices within are identified as critical affect women's health-seeking behaviour, particularly regarding BC screening (Ferreira et al., 2021).

Cancer in general and BC, in particular, is associated with significant social stigmatization in many the Arab world societies, regardless of socio-economic and educational development in these countries. Women with BC often feel shame, guilt, and fear of having cancer. Moreover, women struggle to prioritize health, maintain cultural norms, and define their social identity (Al-shamsi, 2022).

3.5.4 Education: education level can influence understanding and management of illness. It impacts an individual's engagement in healthcare decisions and their ability to comprehend health information, thereby affecting health outcomes. Studies found that women with higher education desire more regular examinations to detect cancer early. Also, education affects cancer stage, BC screening awareness, and early detection. Furthermore, the level of education can contribute to the patient's survival after being diagnosed with BC (Azriful et al., 2021).

Additionally, studies indicate that patients with higher education, such as academic degrees, tend to have longer survival times when facing illnesses like BC. This correlation is due to the fact that higher-educated individuals have greater awareness of BC symptoms. Educated women are more likely to get frequent check-ups, which helps detect cancer earlier. Also, she can better discuss and understand her health matters, further contributing to improving health outcomes (Elshami et al., 2022).

3.5.5 Residency: rural cancer patients face considerable healthcare inequities as a result of structural urbanization, which limits their access to critical services such as financial and

mental health assistance. This gap results in unmet needs, such as financial stress and increased worry. Rural patients frequently travel long distances to urban centres for care, adding to their responsibilities. Despite the availability of supportive services, there is an obvious absence of awareness and integration in rural areas. Although telemedicine provides some solutions, it falls short of addressing wider psychosocial consequences and perception worries in rural areas (Lewis-Thames et al., 2022).

A Research showed that urban cancer survivors report a greater health-related QoL than rural survivors, especially during lung and prostate cancer. Rural residents have challenges with energy, social functioning, and physical capacities. The study points to inadequate healthcare access and heightened stigma in rural regions as key contributors to these disparities, underscoring the necessity for focused interventions to bridge these urban-rural differences in cancer care (Moss et al., 2021).

3.5.6 Cancer Stage: the stage of cancer at diagnosis affects treatment choices, prognosis, and psychological impact on the patient and their family. Obviously, the SCNs are not the same for every BC patient and differ according to the stage of the disease (early, advanced, or metastatic BC (Loibl & Lederer, 2014).

Research shows different unmet needs across cancer stages, from stage II to stage IV. They found that newly diagnosed patients had significantly higher unmet needs in health information, patient care, treatment, and nutritional domains compared to those in later stages. Notably, patients in stages II, III, and IV had significantly lower nutritional needs compared to stage I patients. In addition, patients with Stage II and III BC had lower treatment needs compared to Stage I patients (Chou et al., 2020).

3.5.7 Coping strategies: Individual coping mechanisms and resources influence how patients manage stress, adhere to treatment, and handle the emotional impact of cancer. Coping techniques are critical in understanding the impact of illness perceptions on cancer care implementation. Those who have a greater sense of personal control and use problem-focused coping mechanisms are more likely to engage in supportive care. Similarly, the employment of emotion-focused coping mechanisms is linked to increased engagement with supportive care services (Stephenson et al., 2021).

Most BC patients tend to employ active coping strategies, among which religious coping is notably predominant. The coping mechanisms these women utilize when dealing with the challenges of BC diagnosis and treatment are significantly influenced by the level of social support they receive (Benson et al., 2020).

3.5.8 Social and family support: BC can lead to social isolation, affecting relationships with family and friends. Support from partners, balancing work-life commitments, and dealing with social expectations and potential stigmatization are essential areas where patients need

understanding and assistance (Eggins et al., 2022; Kim & Lee, 2023; Okati-Aliabad et al., 2022b; Zhou et al., 2022a). Recent research suggests that social support and group connection, can improve health outcomes and is essential for emotional well-being for patients. Strong Social support and family relationships are a main source of social support and economic assistance (La Frinere-Sandoval et al., 2022). Furthermore, studies showed that Inadequate social support in BC patients leads to a significant increase in cancer-related mortality, as socially isolated individuals experience worsening treatment demands (Hinzey et al., 2016). In the Palestinian community, patients greatly value family cohesion and support as fundamental components of their lives. The concept of family is highly respected, and the traditional family structure remains the foundation of society. The extended family network significantly contributes to the support and care of sick family members (Almuhtaseb & Alby, 2021).

3.5.9 Religion: religious beliefs can provide comfort, hope, and meaning to patients but may also influence decisions regarding treatment options and end-of-life care. The role of religion in healthcare decisions can be significant. Religious beliefs can provide comfort and meaning, but they may also influence decisions about treatment options and end-of-life care. Religious and spiritual beliefs can reduce neuro-immune inflammation, affect stress management, and improve cancer survivor's health and outcomes (Hulett et al., 2021). In Arab word, women undergoing a medical examination are in a situation in which they expose themselves to a cultural discontinuity with traditional values and with their own social identity. (Al-shamsi, 2022). While Islamic teachings do not prohibit women from visiting male doctors, societal standards around privacy, especially around the breast, can make medical exams difficult for women. On the whole, they tend to not be involved in group activities or public events (Almuhtaseb & Alby, 2021).

3.5.10 Patient satisfaction: The association between QoL and satisfaction with healthcare services is well-established in oncology patients (Asadi-Lari et al., 2004; Djambazov et al., 2019). The determinants of patient satisfaction in healthcare are multifaceted, with healthcare service quality, interpersonal care provided by healthcare providers, the technical care provided, the accessibility of access to healthcare services, and the demographic characteristics of the patients being the most relevant (Batbaatar et al., 2017). Positive, supportive communication, combined with respectful behaviour from healthcare workers, also increases patient satisfaction (Kleeberg et al., 2005). Patients views of the effectiveness and management of their treatment have an impact on satisfaction. Additionally, patients who reported complete satisfaction with the overall service quality had a significantly lower risk of mortality compared to those who were not completely satisfied (Gupta et al., 2014). The treatment environment, which includes characteristics such as facilities, comfort, and privacy, also plays an important role in forming patient experiences in cancer care settings (Abdelsalam & bayomi, 2022).

3.6 Supportive care Framework definitions

This section defines the core concepts of the supportive care framework guiding BC care

3.6.1 Psychological and Emotional Needs

Breast cancer can lead to psychological struggles, including depression, heightened stress, and anxiety. Addressing these issues is vital, as they can affect a patient's sense of self-worth and their ability to cope with the disease and its treatment (Edib et al., 2016; Ellawindi et al., 2021; Elsous et al., 2023; Gálvez-Hernández et al., 2021; Kim & Lee, 2023; Şengün İnan et al., 2023). Patients with BC often face a mix of complex emotions, including stress, anxiety, feelings of guilt or blame, and uncertainty about the future. The initial shock of the diagnosis could also lead to denial and fear (Ahmed et al., 2018; Hong-Li et al., 2014; Maleki et al., 2021; Martínez Arroyo et al., 2019; Şengün İnan et al., 2023).

3.6.2 Physical Needs

The physical challenges associated with BC, like pain, fatigue, and exhaustion, significantly impact daily life. These symptoms, along with poor sleep and changes in appetite leading to weight loss, require attentive care and management to improve the patient's QoL (Gangane et al., 2017; Klungrit et al., 2019; Konieczny et al., 2020; Ling et al., 2019; Schwentner & Kreienberg, 2017; Şengün İnan et al., 2023; Shin et al., 2017; Villar et al., 2017).

3.6.3 Informational Needs

Access to clear and relevant information about symptoms, side effects of treatments, and available healthcare services empowers patients. It helps them make informed decisions about their care and understand what to expect throughout their treatment journey (Chen et al., 2022; Fong & Cheah, 2016; Klungrit et al., 2019; Nguyen, 2023; Pérez-Fortis et al., 2017; Sleight et al., 2018).

3.6.4 Patient care and support Needs

Patient care and support needs refer to the practical and emotional assistance that enables BC patients to cope with the challenges of their illness and treatment. These include help with daily activities, management of treatment side effects, physical comfort, and emotional reassurance provided by healthcare professionals, family members, and caregivers (Al-Azri et al., 2022; Dhakal et al., 2021; Ozbayir et al., 2017; Wang et al., 2024).

3.6.5 Sexual needs domain

Sexual health is an important aspect of a woman's overall well-being and a significant determinant of QoL in BC survivors (Lee et al., 2015). Cultural norms strongly influence whether sexuality is addressed in cancer care (Brajkovic et al., 2021; Ljungman et al., 2018).

3.6.6 Spiritual Needs

Studies indicate that meeting spiritual needs improves BC patients' QoL. Spiritual needs are essential to BC supportive care, contributing to patients' holistic well-being and being

acknowledged as a part of modern oncology. Respecting BC patients' spiritual needs is crucial for patient-centred care. Understanding the patient's values, beliefs, and spirituality is part of treatment and support (Abu-Odah et al., 2022; Davis et al., 2018; Er & Erkan, 2023).

3.6.7 Quality of Life

The World Health Organization defines QoL as an individual's perception of their position in life, shaped by culture, values, goals, expectations, standards, and concerns (WHO, 2013). QoL is a multidimensional construct comprising interacting objective and subjective elements. It relates to the opportunities available to meet human need, such as built, human, social, and natural capital, as well as time, and combines indicators of human needs with subjective well-being or happiness (Costanza et al., 2007).

The QoL of women with BC has been extensively studied because the disease's impact extends beyond physical symptoms. Integrative medical–psychosocial care can improve QoL by reducing physical symptoms, alleviating psychological distress, and strengthening social support (Ferrell et al., 2017). Growing evidence supports a multimodal approach to optimize QoL across treatment and survivorship (Harbeck et al., 2016). A systematic review and meta-analysis showed that patients who had completed treatment reported higher QoL scores than those still undergoing therapy, underscoring the need for ongoing supportive care and targeted interventions during active treatment (Javan Biparva et al., 2022).

This section presents a testable framework for newly diagnosed Palestinian women with BC. Influencing factors, including SCNs domains, treatment-related symptoms, coping mechanisms, and patient experience/satisfaction, are modelled as predictors of women's QoL. Spiritual well-being and body image are included as buffering resources that may weaken the adverse effects of needs and symptoms on daily functioning and well-being. The section specifies variable roles, directional pathways, and measurement choices to assess these factors and their associations with QoL. The section 3 specifies variable roles, directional pathways, and measurement choices to assess these factors and their associations with QoL.

Chapter Four:

Research methodology

4.1 Introduction

Early identification and management of cancer patients' SCNs is crucial for optimizing patient outcomes with appropriate utilization of resources. Nonetheless, cumulative evidence indicates unmet SCNs, indicating a disparity between patient needs and actual care offered (Moghaddam et al., 2016; Wang et al., 2018). In this chapter, we will detail the specific research design, including the selection of the study population, sampling techniques, data collection methods, the data collection tools that will be used, and the data analysis plan. In addition to ethical considerations, including participant confidentiality and privacy, ensure the research adheres to the highest ethical standards.

4.2 Study setting

The research carried out at the governmental hospitals in the southern region of the West Bank, which provide BC care for patients. There are three hospitals: Palestine Military Al Harmalah Hospital, Biet Jala Hospital and Dura Governmental Hospital.

4.2.1 Palestine Military Hospital – Harmala: A governmental military hospital, is located east of Bethlehem City. It is a health facility that consists of four floors with a capacity of 56 beds. It provides various services, including specialized outpatient clinics, medical laboratories, pharmacies, physiotherapy, and an emergency department. The hospital, geographically located in Harmalah, serves the rural communities around Bethlehem and Beit Sahour, with a population of over 130,000. This hospital is part of the Military Medical Services of Palestine, established to coordinate medical care for Palestinian Armed Forces, military personnel, and their families. These services are also extended to civilians through hospitals and clinics. They actively participate in national events and provide medical aid during accidents and disasters (Military Medical Services, 2025). In 2022, the oncology department of Beit

Jala-Al Hussein Hospital in Bethlehem was moved to Palestine Military Al Harmalah Hospital to provide cancer treatment services for patients from the south-West Bank. Palestine Military Al Harmalah hospital currently has 5 oncologists, 1 blood specialist, and 16 nurses who work in 24-hour shifts. Additionally, 5 nurses are assigned to daily care duties. The hospital offers a total of 24 beds designed specifically for cancer patients (Personal Communication, 2023). Harmalah Hospital is currently providing cancer care to more than one million people in the southern area of the West Bank with the opening of its oncology department (PCBS, 2023).

4.2.2 Dura Governmental Hospital: Is a Palestinian government hospital established in the city of Dura, located in the southern West Bank, through a grant from the Italian government, contributions from the local community, and the Palestinian Ministry of Health. Its built-up area is about 6,000 square meters spread over four floors, with a clinical capacity of 60 beds and around 54 staff members (Wikipedia). The hospital began providing services on June 24, 2020, initially focusing on treating COVID-19 cases in Palestine. The Ministry of Health temporarily designated it as a COVID-19 treatment centre for the southern West Bank, increasing its bed capacity to 120, including 20 beds for intensive and intermediate care. In 2022, its bed capacity decreased to 43 beds after the end of the COVID-19 pandemic. It now offers emergency services, operations, outpatient clinics, laboratory services, pharmacy, radiology, obstetrics and gynaecology, paediatrics, and neonatal care service departments. The cancer department in the hospital was opened in December 2023 due to the conditions of the war on Gaza and the challenging situation in the West Bank, including road closures between Hebron and Bethlehem, which made accessing Palestine Military Al Harmalah Hospital in Bethlehem very difficult for patients. The oncology department currently operates as a day-care service mainly for newly diagnosed patients and provides most cancer treatments, including chemotherapy and surgery, except radiotherapy. The department is now in the process of increasing its staff and capacity to develop cancer care for BC patients in the Hebron governorate (MOH, 2023a, 2023b).

4.2.3 Beit Jala Governmental Hospital: It is a significant government hospital in the occupied Palestinian territory (OPT) which provides a large part of diagnostic and therapeutic services for oncology patients (Almuhtaseb et al., 2021). It was established in 1955 in the city of Beit Jala to provide medical services to the residents of the region due to population growth and the population's need for modern and accessible medical services. The hospital has undergone various stages of development and expansion, with a bed capacity of 153 beds and 406 staff. It serves more than 250,000 patients through its various departments, including emergency, general surgery and vascular surgery, operations, gastroenterology and colonoscopy unit, intensive care unit, internal medicine, obstetrics and gynaecology, neonatal care, paediatrics, oncology, industrial kidney unit, outpatient clinics, otolaryngology, physical therapy, radiology, pharmacy, laboratory, and blood bank. In 2022, the oncology department of

Beit Jala Hospital in Bethlehem was moved to Palestine Military Al Harmalah military hospital and currently, the role of Beit Jala Hospital in serving cancer patients is primarily focused on diagnosis, conducting tests, and referrals (MOH,2022).

In the West Bank's public sector, surgery and chemotherapy are generally available in hospital oncology units; radiotherapy and advanced diagnostics are not available within MoH West Bank hospitals, so patients are commonly referred to Augusta Victoria Hospital (AVH) in East Jerusalem, the main comprehensive cancer Palestine (Mitwalli et al., 2023).

4.3 Study design

This section describes the overall study design and methodological approach used to address the research objectives.

4.3.1 Stage 1: Baseline stage

In this phase we conducted a baseline assessment included the demographic information (age; patient governorate; place of residence; marital status; number of children; family size; religion; education level; employment status; monthly salary), clinical data (diagnosis duration; stage at diagnosis; treatment type; chronic diseases; pain-medication use; family history of cancer; social and family support) for the whole sample, 362 women with BC.

4.3.1.1 Study one: To assess the supportive care services provided at the governmental hospitals in the southern area of the West Bank and to determine the factors associated with the unmet needs of these services we conducted across sectional study. This design is suitable for performing population-based studies to estimate prevalence and identify risk variables. Moreover, it is advantageous for planning, monitoring, and evaluating public health measures area.

4.3.1.2. Study two and three: To determine the association between supportive care needs (SCNs), quality of life (QoL), and coping strategies among newly diagnosed Palestinian women with breast cancer (BC) in the Southern West Bank, we conducted two cross-sectional studies. Both studies included 147 newly diagnosed women with BC. The cross-sectional design was chosen for its efficiency in exploring associations between variables and subgroups, making it well-suited for public health surveillance, policy development, and quick, cost-effective research. Specifically, Study 2 focused on the association between SCNs and QoL, while Study 3 examined the relationship between QoL and coping strategies.

4.3.2 Stage 2: Follow-Up stage

From the baseline cohort, we reassessed 144 newly diagnosed women with BC at T2 (≥ 12 months of medical intervention); three deaths occurred between T1 and T2.

4.3.2.1. Study four: This study followed newly diagnosed women with breast cancer to evaluate their quality of life (QoL) at diagnosis (T1) and again one year after treatment initiation (T2). It also examined their satisfaction with care and its association with QoL.

4.3.2.2. Study five: In this study, we also followed newly diagnosed women with BC to evaluate their spiritual well-being and its association with QoL one year after treatment.

4.4 Study population

The total population of the West Bank is 3,291,406. The southern area of the West Bank covers two main governorates out of eleven. Bethlehem governorate with a total population of 247,197 and Hebron governorate with a total population of 832,702. This area comprises around 40% of the West Bank population of whom 50% are women (PCBS, 2023). The Ministry of Health (MoH) is the primary healthcare provider for cancer patients. MoH collaborates with the United Nations Relief and Works Agency (UNRWA) and Non-Governmental Healthcare Organizations (NGOs) and the private sector to promote cancer prevention and control (Jubran et al., 2018). All cancer cases in the southern area of the West Bank are referred to the two governmental hospitals located in Bethlehem governorate and one hospital located in Hebron governorate. The three hospitals provide diagnosis, treatment, and inpatient services.

In the first stage, we included all women who had been diagnosed with breast cancer (BC) and were attending hospitals for treatment or follow-up. In the second stage, we focused specifically on women who were newly diagnosed with BC. According to the Division of Cancer Control and Population Sciences (DCCPS, 2024), newly diagnosed cancer patients are individuals with a first-time cancer diagnosis who are currently undergoing treatment. Accordingly, any woman who was diagnosed and registered as a new case between August 2023 and July 2024 was recruited as a “newly diagnosed BC” patient.

4.5 Sampling and Sample Size

In the first stage mainly in the first study we used an online sample size calculator (<https://www.calculator.net/sample-size>, accessed on 22 October 2024) estimated the required sample size to be 333, using a 5% error and a power of 95% confidence interval, assuming that 50% of females with BC had unmet SCNs. We added a 10% non-response rate to the 333 patients, resulting in a final sample size of 362 women including newly diagnosed cases. After that, in the next four studies, we restricted participants to the same newly diagnosed women we enrolled at baseline. A total of 2,502 invasive BC cases were registered in the West Bank between 2017 and 2021. Therefore, approximately 500 new women are diagnosed yearly. The Ministry of Health annual report (2024) indicated that 546 new cases of BC were diagnosed in the West Bank in 2023, with 161 of these cases occurring in

the Bethlehem and Hebron governorates (MOH, 2024). There were 147 women at baseline (T1) and 144 at follow-up (T2, ≥ 12 months), because 3 had died.

4.6 Inclusion Criteria: Female patients with confirmed diagnosis of BC at any age and stage who accept to participate, capable of completing the study questionnaires, and have the ability to understand and communicate in the study. Participants are required to sign a consent form and be followed till the end of their treatment.

4.7 Exclusion Criteria: Patients with a combination of other malignancies. Patients will be excluded if they are unable to complete the survey due to cognitive impairment.

4.8 Data Collection

In the first stage, we tracked women with BC who undergoing treatment at government hospitals in the southern West Bank. Participants who were diagnosed and formally registered between August 2023 and July 2024 were eligible. Each participant was followed prospectively for one year after her diagnosis to evaluate changes in QoL with care. In the second stage, data collection was conducted between November 2024 and January 2025 and included only those participants who had completed the full one-year follow-up period.

4.8.1 Data Collection Tools

We used six standardized questionnaires. In addition, we collected data on demographics (age, education, area of residence), disease-related variables, socioeconomic status, cultural norms, beliefs, personality traits, cancer stage, and levels of social and family support. The questionnaires were created using the Kobo Toolbox software. Kobo Toolbox is a free toolkit for collecting, managing, and visualizing data in challenging environments (Olajide et al., 2019). All these questionnaires were collected through face-to-face interviews during both the baseline and 1-year follow-up phases at governmental hospitals in the southern West Bank. We used the validated Arabic versions of the following instruments.

4.8.1.1 The Supportive Care Needs Survey – Short Form (SCNS-SF34): The SCNS-SF34 is a widely used instrument designed to assess the SCNs of cancer patients. It's a shorter version of the original Supportive Care Needs Survey. The SCNS-SF34 contains 34 items covering five domains of need: psychological, health system and information, physical and daily living, patient care and support, and sexuality. Each item is scored on a 5-point Likert scale, ranging from 1 ('not applicable') to 5 ('very high need'). Higher scores indicate greater unmet needs. The SCNS-SF34 is scored using a Likert scale for each item, ranging from 1 (no need) to 5 (high need). To calculate standardized domain scores, the sum of scores for items within each domain is computed, subtracted by the number of items in the domain, and then multiplied by 100 over the product of the number of items and the maximum response value minus one. This scoring system provides a range of possible values from 0 to 100 for each domain, with higher scores indicating greater unmet need (Macleduff et al., 2004) (see Appendix 10).

4.8.1.2 Quality of Life at Diagnosis: The EORTC QLQ-C30 questionnaire: Includes 30 items divided into nine scales: five functional scales (physical, role, cognitive, emotional, and social), three symptom scales (fatigue, pain, and nausea/vomiting), and one global health and QoL scale (Bishop et al., 2015). Each scale is scored from 0 to 100, with higher scores indicating better QoL on the functional and global health scales but greater symptom severity on the symptom scales (Tan et al., 2014). The Arabic version of the EORTC QLQ-C30 used in this study has been validated for BC patients (Jassim & Alansari, 2020) (see Appendix 11).

4.8.1.3 Quality of Life after treatment: The EORTC QLQ-BR23: Is a 23-item BC-specific questionnaire developed by the European Organization for Research and Treatment of Cancer (EORTC) to assess QoL in BC patients, particularly across different stages of the disease and treatment modalities (Sprangers et al., 1996). The questionnaire has two main dimensions: a functional scale (body image, sexual function, sexual enjoyment, and future perspective) and a symptom scale (treatment side effects, breast and arm symptoms, and hair loss distress). Items are rated from 1 (not at all) to 4 (very much), with higher functional scores indicating better QoL and higher symptom scores reflecting greater distress (Kostic et al., 2020). The scoring method is similar to that of the EORTC QLQ-C30 questionnaire, providing a consistent approach for measuring QoL in cancer patients (Santo et al., 2023) (see Appendix 12).

4.8.1.4 Cancer Coping Questionnaire (CCQ): A self-rating scale developed to measure coping behaviors taught in Adjuvant Psychological Therapy for cancer patients. It includes 21 items assessing various coping strategies across different areas such as cognitive, emotional, behavioral, and interpersonal aspects. The scale has been validated for its reliability and construct validity. Each item on the questionnaire is rated on a Likert scale, typically ranging from 0 to 4, with higher scores indicating more frequent use of that coping strategy. The total score is calculated by summing the scores of individual items, providing an overall measure of a patient's coping behaviors. This total score helps in assessing the effectiveness and frequency of coping strategies used by the patient (Moorey et al., 2003(see Appendix 13).

4.8.1.5 Cancer In-Patient Satisfaction Questionnaire: The EORTC IN-PATSAT32 is a multidimensional, 32-item questionnaire developed by the European Organisation for Research and Treatment of Cancer (EORTC) to assess cancer patients' satisfaction with various aspects of oncology care, including the quality of medical services, hospital environment, and overall service organisation (Brédart et al., 2005). It was validated through a multi-centre study evaluating patients' perceptions of doctors, nurses, hospital staff, services, and the hospital environment (Obtel et al., 2017). The questionnaire consists of 11 multi-item scales and 3 single-item scales, measuring technical and interpersonal skills, information provision, and availability of doctors and nurses. Additionally, it assesses hospital personnel's communication, waiting times, hospital accessibility, information exchange, and hospital cleanliness and comfort. Each item is rated on a 5-point Likert scale (1 = poor to 5 = excellent), with

higher scores indicating greater patient satisfaction (Allah & Abdelsalam, 2020) (see Appendix 14).

4.8.1.6 The Functional Assessment of Chronic Illness Therapy–Spiritual Well-Being (FACIT-Sp) Scale: Developed in the 1990s, is a self-administered tool designed to measure spiritual well-being alongside health-related QoL. This comprehensive questionnaire is inclusive of various religious and spiritual traditions, making it versatile in research and clinical practice. The FACIT-Sp incorporates the Functional Assessment of Cancer Therapy—General (FACT-G) as its core, which evaluates HRQOL through four subscales: Physical, Social/Family, Emotional, and Functional Well-being. Additionally, it includes a dedicated 12-item spirituality scale, divided into three subdomains: Peace, Meaning, and Faith. A key feature of the FACIT-Sp is its five-point Likert-type scale, ranging from 0 (Not at all) to 4 (Very much), allowing individuals to self-assess the extent of their experiences (Jafari et al., 2012) (see Appendix 15).

4.9 Validation and Reliability

We used validated questionnaires and scales to assess supportive care services and QoL among women with BC. An expert of researchers and oncologists reviewed all tools for clarity and relevance. Two questionnaires did not have Arabic versions, so we sent them to the experts for translated and back translation, followed by linguistic adaptation and expert approval. We then conducted a pilot test with 30 women from the target group to confirm that the questions were understandable and feasible. Feedback from the expert review and the pilot led to minor wording and layout edits before data collection. To ensure reliability, we used standardized questionnaires and tools, as well as a statistical measurement such as Cronbach's alpha, to evaluate the quality of supportive care services and the overall QoL for patients with BC.

4.10 Ethical considerations

The approval was obtained from the AL Quds University Research Ethical Committee (reference number REF. 10/24) and approval from the Health Education and Scientific Research Department of the Ministry of Health (reference number 162/475/2024). In addition, all participants were informed about the study objectives and signed an informed consent form emphasizing participant confidentiality and their right to withdraw from the study at any time without impacting their clinical treatments.

4.11 Statistical Analysis

Data were analysed using SPSS for Windows (version 25). Continuous variables were summarized as means and standard deviations, and categorical variables as frequencies and percentages. We performed bivariate analyses to screen associations between individual predictors and outcomes (independent t-tests and ANOVA for continuous outcomes, chi-square

for categorical outcomes, and Pearson or Spearman correlations as appropriate). We then fitted regression models (linear for continuous outcomes and logistic for binary outcomes) to identify factors associated with the results. Key assumptions (normality and homogeneity of variance) were checked in a basic way. A p value < 0.05 was used for statistical significance. Scale scores were computed and transformed according to each instrument's scoring manual.

Chapter Five

Results

In this chapter we will present all data related to each objective as sections. The findings of each study are presented individually to illustrate the factors that are associated with women with breast cancer quality of life: i.e. supportive care needs, coping strategies, satisfaction with care, spiritual well-being, and QoL after one year of diagnosis particularly among the newly diagnosed BC patients.

5.1 Results of study one

Table 5.1 summarizes the demographic characteristics of the 362 female patients diagnosed with breast cancer. The mean age of participants was 48.83 years (SD $\pm$ 10.13), with the majority (51.4%) aged between 41 and 54 years, representing a middle-aged group commonly affected by the disease. Most participants were married (84.3%), indicating prevalent family support structures, and 67.4% resided in the Hebron governorate, reflecting regional representation.

Regarding family structure, 67% had five or fewer children, while 63.5% lived in households with more than five members, suggesting that extended family living arrangements were frequent. In terms of education, 45% had completed secondary school, and 29.3% held university-level education or higher. Most women were housewives (77.3%), with only 20.2% employed outside the home, and family income varied, with 45% earning less than 570 US dollars per month. Overall, these demographic characteristics provide essential context for understanding the study population and may have implications for factors such as access to healthcare, psychosocial support, and quality of life outcomes among women newly diagnosed with breast cancer.

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Table 5.1: Socio-demographic and economic characteristics of participants

Variables	No.	%
Age in years		
≤ 40	78	21.5%
41–54	186	51.4 %
≥55	98	27.1%
Patient governorate		
Hebron	244	67.4%
Bethlehem	118	32.6%
Place of residence		
Refugee camps	27	7.5%
Village	215	59.4%
City	120	33.1%
Marital status		
Unmarried	28	7.7%
Married	305	84.3%
Divorced/ Widow	29	8.0%
Number of children		
≤5 persons	245	67.7%
>5 persons	117	32.3%
Family size (extended family)		
≤5 persons	132	36.5%
>5 persons	230	63.5%
Patient religion		
Muslim	341	94.2%
Christian	21	5.8%
Education		
Primary and less	62	17.1%
Secondary	163	45.0%
Diploma	31	8.6%
University and above	106	29.3%
Working status		
Employee	73	20.2%
Housewife	280	77.3%
Retired	9	2.5%
Monthly salary (US \$)		
< 570	163	45.0%
570-1140	138	38.1%
> 1140	61	16.9%

Table 5.2 presents the participants' clinical characteristics. Of patients, 61.6% were diagnosed more than a year ago, 47.5% were diagnosed at stage 3, 40.2% underwent a total mastectomy, and 34.8% reported having chronic diseases other than cancer (thyroid disease, diabetes mellitus, heart disease, and hypertension). Approximately 50% of the patients indicated the use of painkillers and had a familial history of cancer, with 27.6% specifically having breast cancer.

Out of all the participants, only 2.8% (10 people) were referred to care providers who were not cancer specialists. These care providers included eight dietitians, one physiotherapist, and one ophthalmologist. Concerning the support patients received during their illness journey, the majority of them (84.5%) indicated receiving support from their family and sons, while 25.7% received support from their husband or partner, and only 6 individuals (1.7%) reported receiving support from medical staff.

Table 5.2a: Clinical characteristics and support for participants

Variables	No.	%
Diagnosis duration (months)		
Less than 6	90	24.9%
6 – 12	49	13.5%
More than 12	223	61.6%
Stage of disease at diagnosis		
Stage 1	24	6.6%
Stage 2	123	34.0%
Stage 3	172	47.5%
Stage 4	43	11.9%
Type of treatment		
Chemotherapy	347	95.9%
Radiotherapy	246	68.0%
Hormonal therapy	194	53.6%
Surgical therapy	295	81.5%
Biological treatment	136	37.5%
Surgical intervention		
Total mastectomy	119	40.2%
Partial mastectomy	177	48.9%
No surgical intervention	58	18.2%
Chronic diseases other than cancer		
No	236	65.2%
Yes	126	34.8%

Table 5.2b: Clinical characteristics and support for participants

Variables	No.	%
Taking pain medication		
No	180	49.7%
Yes	182	50.3%
History of relative cancer		
Breast cancer	100	27.6%
Other cancers	82	22.7%
No cancer history	180	49.7%
Referred to a non-cancer specialist		
No	352	97.2%
Yes	10	2.8%
Family and sons support		
No	56	15.5%
Yes	306	84.5%
Husband and partner support		
No	269	74.3%
Yes	93	25.7%
Medical staff support		
No	356	98.3%
Yes	6	1.7%
Other sources of support		
No	279	77.1%
Yes	83	22.9%

In Table 5.3, the results revealed that the participants expressed the highest need for support for the health system and information domain (mean 39.64, SD 10). However, they had the least need for support in the sexual needs domain (mean 6.31, SD 3.36).

Table 5.3: Supportive Care Need Domains: Descriptive statistics

Supportive care needs items	No.	Mean	SD	Min.	Max.	Range
Physical and Daily Living	362	17.98	5.00	5.00	25.00	20.00
Psychological	362	29.22	10.84	10.00	50.00	40.00
Sexuality	362	6.31	3.36	3.00	15.00	12.00
Patient care support	362	16.34	5.16	5.00	25.00	20.00
Health system information	362	39.64	10.00	11.00	55.00	44.00

SD: Standard Deviation, Min: Minimum, Max: Maximum

In Figure 5.1, based on the classified scale, the overall mean score for the physical and daily living domains was 17.98 (SD ± 5.00). The vast majority of participants needed help with work around the home (89.0%), 86.5% felt unwell a lot of the time, 85.9% were unable to do things they used to do, 78.2% complained of a constant feeling of lack of energy/tiredness, and 59.9% were need support in pain management.

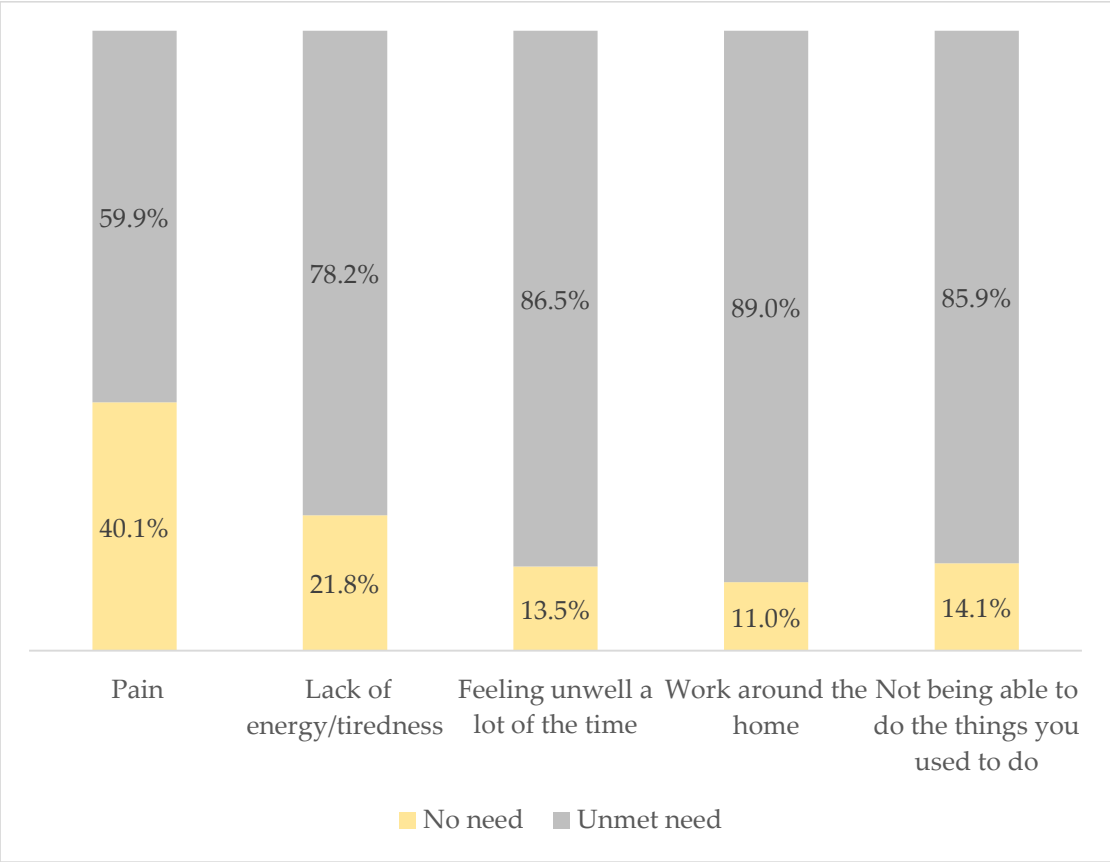


Figure 5.1: Physical and Daily Living needs of respondents

Furthermore, in Figure 5.2, the overall mean score for the psychological need domain was 29.22 (SD ± 10.48). Of the participants, 64.4% reported experiencing anxiety, 63% expressed fears about the cancer spreading, and 62.7% reported feeling down or depressed. Furthermore, 61.6% expressed worries that the treatment results were beyond their control, 61.3% expressed sadness, and 60.5% of participants expressed uncertainty about the future. These findings highlight that a substantial proportion of women newly diagnosed with breast cancer face significant psychological distress, underlining the need for early psychological support and interventions to improve their emotional well-being.

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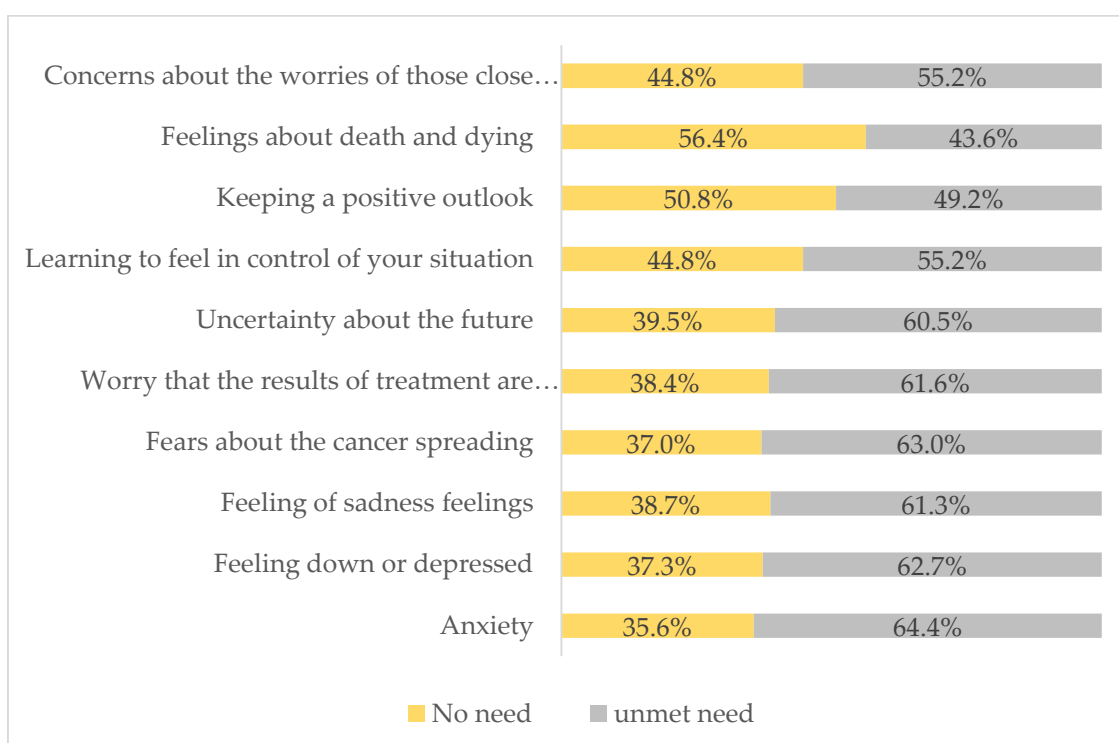


Figure 5.2: Psychological needs of respondents

In addition, the overall mean of the sexual need domain score was 6.31 (SD ± 3.36). Of the participants, 68.5% felt there was no need to be given information about sexual relationships, 36.5%, expressed a need for information about sexual relationships, and 34.5% reported experiencing changes in their sexual feelings (see Figure 5.3).

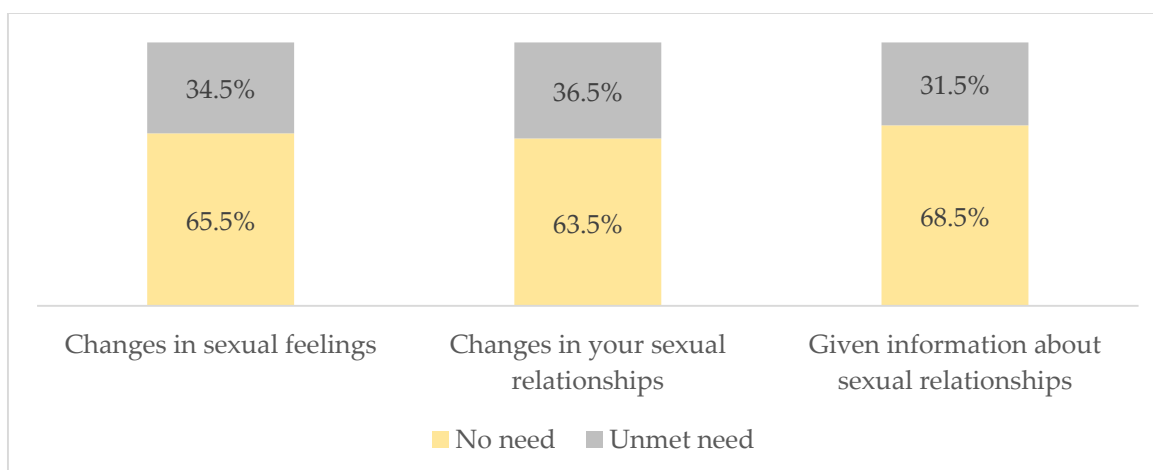


Figure 5.3: Sexual needs of respondents

Moreover, in Figure 5.4, the overall mean score for the patient support and care needs domain was 16.34 (SD ± 5.16). The most notable need identified was for hospital staff to acknowledge and demonstrate sensitivity to patients' feelings and emotions (80.1%) of participants. Hospital staff's prompt attention to participants' physical needs ranked second (78.2%), 74% needed reassurance from medical staff that what they felt was normal, 61.9% of participants required more choices regarding the hospital they attend, and 57.5% required more choices about their cancer specialists.

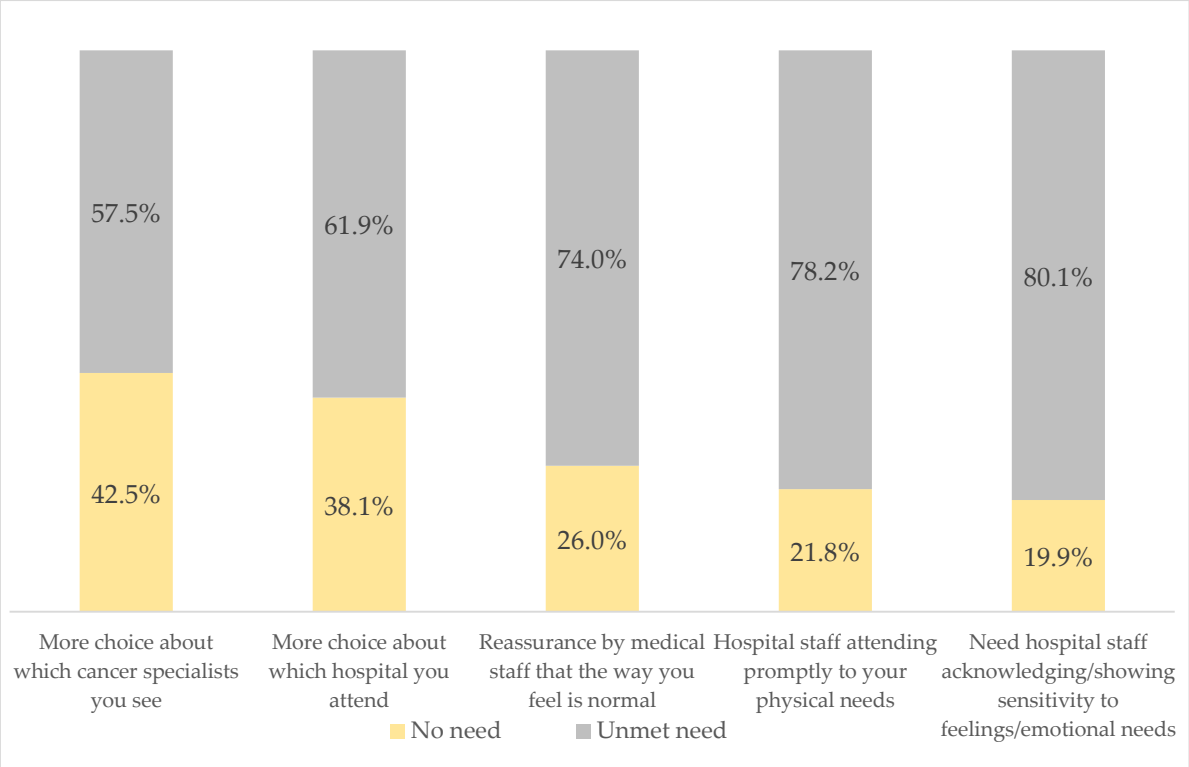


Figure 5.4: Patient support and care needs of respondents

In Figure 5.5, the overall mean score for the health system and information needs domain was 39.64 (SD± 10.0). Of the participants, 87% expressed a desire for more information and an explanation of the tests they must complete. Additionally, 86.70% of the participants expressed a need for written information about managing their illness and side effects at home; 84.0% expressed a need for written information about important aspects of their care; and 79.30% expressed a need for information about whether their cancer is under control or diminishing. The lowest reported need in this domain was being treated like a person, not just another case, 69.3% of the participants.

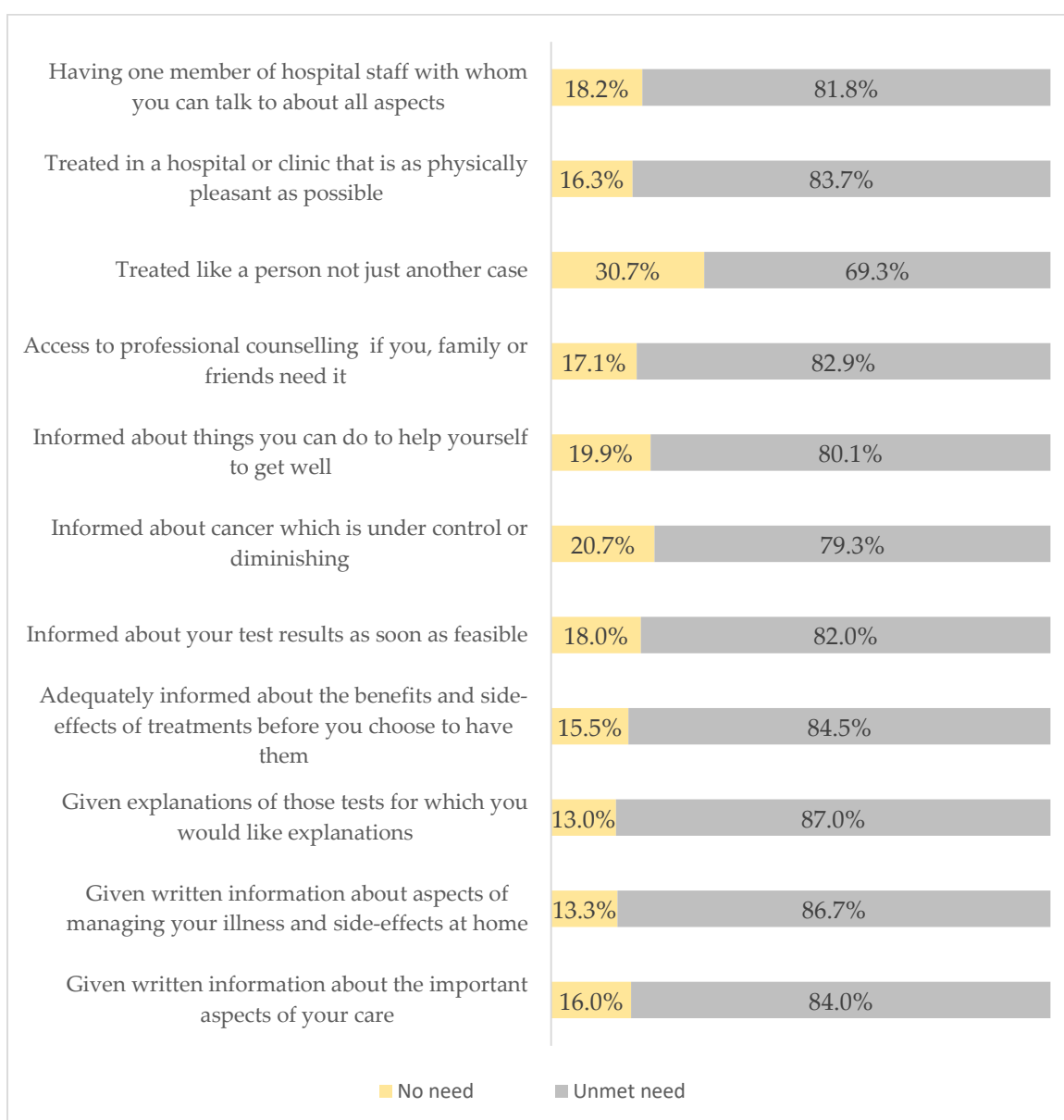


Figure 5.5: Health system and information needs

Figure 5.6 summarizes the overall prevalence of supportive care needs across all domains. The analysis reveals significant unmet needs in all domains. 61% of respondents reported unmet needs, and 39% reported no need for overall supportive care. The health system and information domain had the highest unmet needs (93.6%), followed by physical and daily living needs (89.8%), patient care and support (81.80%), psychological needs (75.1%), and sexuality needs (42.5%).

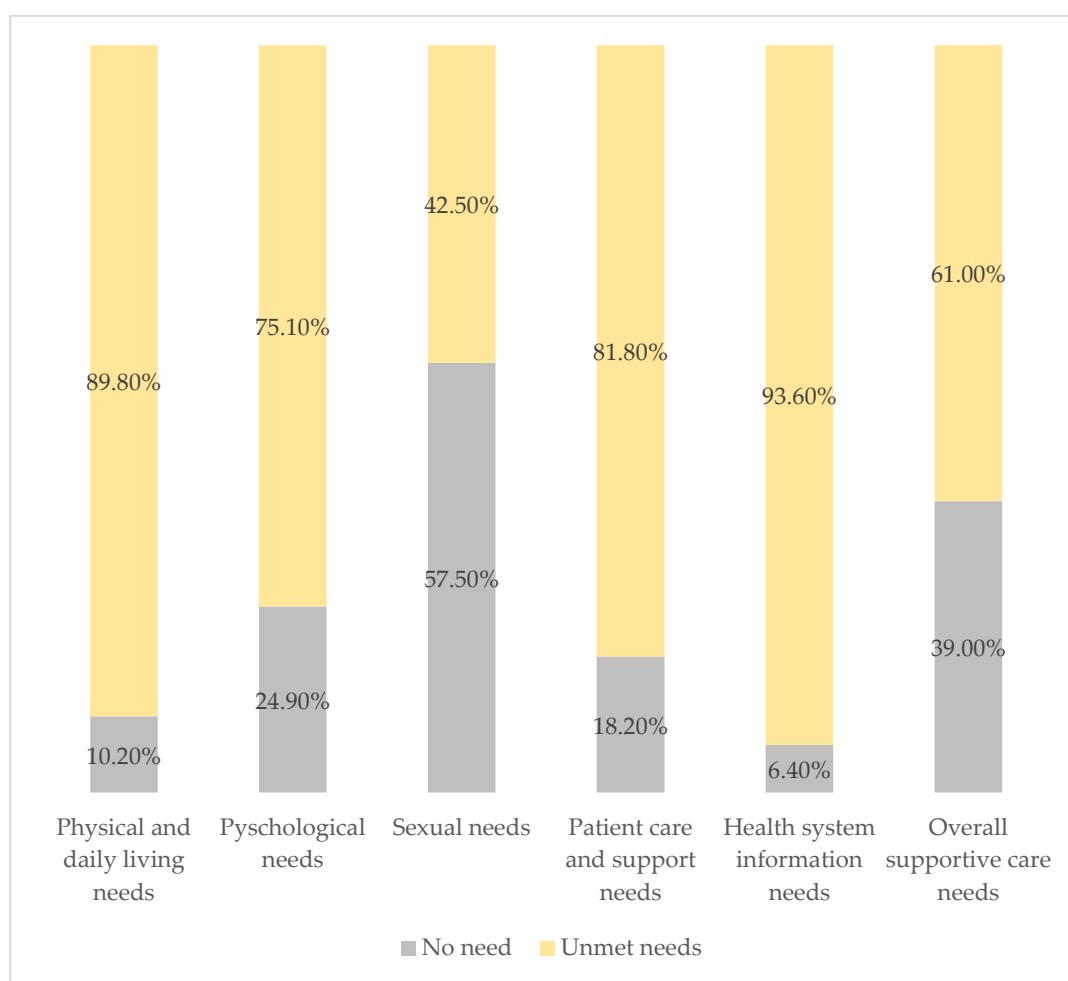


Figure 5.6: Prevalence of supportive care needs

Table 5.4 presents the multivariate analysis for the determinants of supportive care needs domains and the total supportive needs domains models. Multivariate analysis showed that age was a key determinant of supportive care needs. Younger women had fewer physical and daily living needs but markedly higher psychological, sexual, informational, and support-related unmet needs compared to older women. Marital status, family history of breast cancer, chemotherapy, recent diagnosis, painkiller use, and surgical interventions were associated with increased care demands, particularly in physical and daily living domains. In contrast, hormonal therapy, radiotherapy, and biological therapy were linked to reduced psychological, sexual, and overall support needs. Family and son support significantly lowered physical and total care needs, while a family history of breast cancer increased sexual care needs.

Overall, clinical and treatment-related factors played a major role in shaping supportive care demands. Social support and type of treatment emerged as important protective elements influencing patients' overall need burden.

Table 5.4a: Multivariate analysis -logistic regression analysis

Supportive care needs domains		95% CI		
	AOR	Lower	Upper	P value
Physical and daily living care needs				
Age (years)				
≤40	0.21	0.06	0.73	0.01
41-54	0.31	0.09	0.99	0.04
≥55	Reference			
Do you take pain medication? (Yes/No)	5.36	2.19	13.06	<0.001
Chemotherapy therapy (Yes/No)	4.49	1.08	18.55	0.03
Surgical therapy (Yes/No)	5.15	1.52	17.42	0.00
Family and sons support (Yes/No)	0.19	0.04	0.89	0.03
Psychological care needs				
Age (years)				
≤40	13.37	5.23	34.16	<0.001
41-54	5.84	3.29	10.38	<0.001
≥55	Reference			
Hormonal therapy (Yes/No)	0.361	0.20	0.63	<0.001
Sexual care needs				
Age (years)				
≤40	36.90	15.05	90.42	<0.001
41-54	5.40	2.69	10.82	<0.001
≥55	Reference			
Marital status				
Single	0.87	0.18	4.08	0.8
Married	4.62	1.44	14.82	0.01
Divorced/widow	Reference			
Family relative history of cancer				
Breast cancer	2.34	1.27	4.30	0.006
Other cancers	1.23	0.64	2.37	0.52
No cancer history	Reference			
Radiotherapy therapy(Yes/No)	0.42	0.24	0.74	0.003
Biological therapy(Yes/No)	0.40	0.22	0.70	0.001
Governorate				
Hebron	0.52	0.30	0.90	0.02
Bethlehem	Reference			
Patient care and support care needs				
Age (years)				
≤40	4.54	1.85	11.18	0.001
41-54	3.18	1.73	5.84	<0.001
≥55	Reference			

Table 5.4b: Multivariate analysis -logistic regression analysis

Supportive care needs domains		95% CI		
	AOR	Lower	Upper	P value
Monthly Income (US \$)				
<570	0.35	0.13	0.90	0.03
570-1140	0.62	0.23	1.68	0.35
>1140	Reference			
Hormonal therapy(Yes/No)	0.48	0.26	0.881	0.01
Health information care needs				
Age (years)				
≤40	5.30	1.15	24.44	0.03
41-54	2.74	1.11	6.76	0.02
≥55	Reference			
Total care needs				
Age (years)				
≤40	8.20	3.81	17.61	<0.001
41-54	2.34	1.37	4.00	0.002
≥55	Reference			
Do you take pain medication? (Yes/No)	2.01	1.24	3.26	0.004
Hormonal therapy (Yes/No)	0.45	0.27	0.75	0.002
Biological therapy (Yes/No)	0.47	0.28	0.80	0.006
Surgical intervention				
Complete mastectomy	1.31	0.65	2.63	0.44
Partial mastectomy	2.27	1.18	4.35	0.01
No surgical intervention	Reference			
Family and sons support(Yes/No)	0.50	0.25	1.00	0.05

5.2 Results of Study Two

Table 5.5 shows the characteristics of the 147 participants. Most lived in villages (62.6%) and were 45 years old or younger (53.2%). Most participants were married (87.1%) and

housewives (72.1%), with 45.5% having a college or university education. Clinically, 45.6% received a stage three diagnosis, 33.3% had chronic diseases, and 59.9% used pain medication. A family history of cancer was reported by 51%, of whom 29.3% had a history of BC. While 84.4% received family support, only 32.7% reported husband support.

Table 5.5: Socio-demographic, and clinical characteristics of participants

Socio-demographic variables	No	%	Clinical variables	No.	%
Place of residence			Stage of disease at diagnosis		
Refugee camps	11	7.5%	Stage 1	11	7.5%
Village	92	62.6%	Stage 2	58	39.5%
City	44	29.9%	Stage 3	67	45.6%
Age in years			Stage 4	11	7.5%
≤45	77	53.2%	Chronic diseases		
>45	70	47.8%	Yes	49	33.3%
Marital status			No	98	66.7%
Unmarried	19	12.9%	Taking pain medication		
Married	128	87.1%	Yes	88	59.9%
Education			No	59	40.1%
Primary and less	20	13.6%	History of relative cancer		
Secondary	60	40.8%	Yes	75	51.0%
College/University	67	45.5%	No	72	49.0%
Working status			Type of relative cancer		
Employee	41	27.9%	Breast cancer	43	29.3%
Housewife	106	72.1%	Other cancers	32	21.7%
Number of children			No cancer history	72	49.0%
≤5 persons	100	68.0%	Family support		
>5 persons	47	32.0%	Yes	124	84.4%
Family size			No	23	15.6%
≤5 persons	53	36.1%	Husband support		
>5 persons	94	63.9%	Yes	48	32.7%
Monthly salary (US \$)			No	99	67.3%
< 570	54	36.7%	Other support		
570-1140	61	41.5%	Yes	28	19.0%
> 1140	32	21.8%	No	119	81.0%

Figure 5.7 shows that health information needs had the highest mean (70.34), followed by Physical (mean, $\mu=65.80$). Psychological needs ($\mu=57.86$) and patient care needs ($\mu=59.58$) were moderate, whereas sexual needs had the lowest mean ($\mu=33.97$). Highly unmet SCN needs were found among BC patients. Health information needs were the most unmet SCN needs (95.2%), followed by physical (93.2%), patient care support (87.1%), and psychological needs (86.4%). Sexuality needs were the least unmet needs reported.

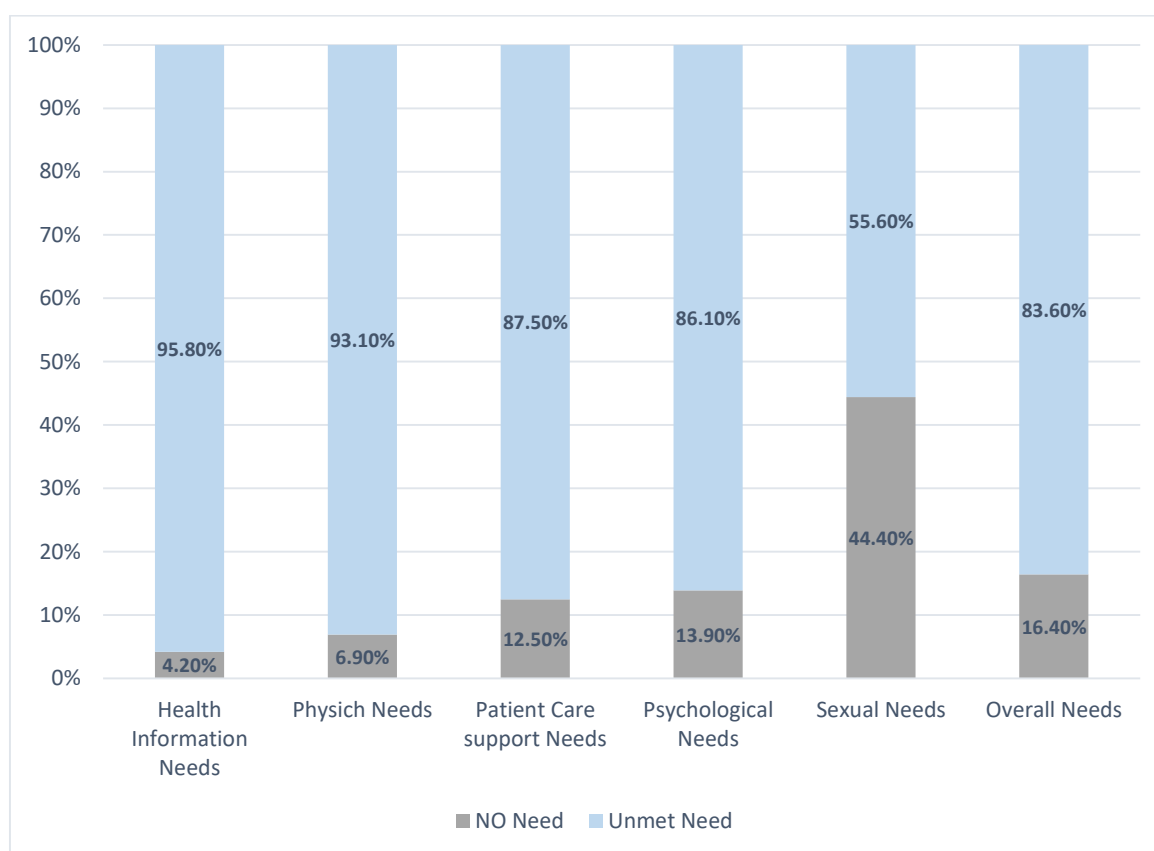


Figure 5.7: Prevalence of SCNS-34 domains among newly diagnosed BC women

In Table 5.6, The analysis of the EORTC QLQ-C30 scales revealed variations across functional and symptom domains. In the functional scales, physical functioning had the highest mean score (mean, μ , =67.13), followed by cognitive functioning ($\mu=62.85$), role functioning ($\mu=58.56$), emotional functioning ($\mu=49.19$), and social functioning ($\mu=34.49$). For symptom scales, fatigue had the highest mean score of 44.68, followed by insomnia ($\mu=42.59$). The global health status mean score was 45.78, indicating a moderate overall QoL.

Table 5.6: SCN-SF34 domains and EORTC QLQ- C30 scale

Scales	Mean (μ)	Standard Deviation
Supportive Care Need (SCN-SF34) domains		
– Health information needs	70.34	19.73
– Physical needs	65.80	24.20
– Patient care and support needs	59.58	25.22
– Psychological needs	57.86	25.16
– Sexual needs	33.97	29.07
EORTC QLQ-C30 Functional scale		
– Physical Functioning	67.13	23.75
– Cognitive Functioning	62.85	30.07
– Role Functioning	58.56	25.24
– Emotional Functioning	49.19	25.91
– Social Functioning	34.49	24.43
EORTC QLQ-C30 symptoms scale		
– Fatigue	44.68	21.21
– Insomnia	42.59	36.86
– Dyspnea	40.05	36.47
– Pain	39.81	22.40
– Financial difficulties	37.50	33.65
– Constipation	24.07	34.01
– Appetite loss	23.38	29.52
– Diarrhoea	21.30	31.44
– Nausea Vomiting	19.10	26.52
EORTC QLQ-C30 Global health status	45.78	17.68

Bivariate analysis showed that in functional scales, age was significantly associated with most domains. Younger women (≤ 40 years) had significantly better physical, role, and social functioning, whereas emotional functioning was higher among older women (41–54) ($p < 0.05$). Being employed and having a university-level education also showed better physical and social functioning ($p < 0.05$). Married women and those with husband support had better social functioning, and women without chronic disease showed higher physical, role, and social functioning ($p < 0.05$). Social functioning was lower among those using pain medication, and emotional functioning was worse in patients diagnosed at stage IV ($p < 0.05$) (see supplementary table S1) (Appendices 2).

Older women (41–54 years) and those with more than five children reported more dyspnea ($p < 0.05$). Housewives experienced significantly more pain than employed women ($p < 0.05$). Women earning less than \$570 reported more pain and insomnia ($p < 0.05$). Chronic disease was significantly associated with more fatigue and dyspnea ($p < 0.05$). Pain medication was strongly associated with higher levels of fatigue, pain, and dyspnea ($p < 0.05$). Global health status was significantly higher among university-educated women ($p < 0.05$). Income was linked to financial difficulties, with women earning less than \$570 reporting more problems ($p < 0.05$). Appetite loss was associated with cancer stage 1 and use of pain medication ($p < 0.05$) (see supplementary tables S2, S3 and S4) (Appendices 2).

Table 5.7 shows that QoL scale domains were significantly correlated with SCNs. In the QoL functional domains, the most significant negative correlations were found between emotional functioning and SCNs (psychological correlation coefficient, $r = -0.630$, health system and information $r = -0.406$), except for physical and daily living. Physical and daily living needs were negatively correlated with physical, role, cognitive, social functioning, and global health domains ($r = -0.450, -0.372, -0.231, -0.234, -0.370$). Positive correlations were found between SCNs needs and fatigue, pain, dyspnea, insomnia, and financial difficulties. Psychological needs domain was positively correlated with physical functioning ($r = 0.234$), insomnia ($r = 0.255$), nausea/vomiting ($r = 0.180$), appetite loss ($r = 0.185$), and fatigue symptoms ($r = 0.172$), and negatively correlated with emotional functioning domain ($r = -0.630$) and global health domain ($r = -0.240$). Health information needs adversely affected the emotional functioning domain ($r = -0.406$) and positively affected nausea/vomiting, insomnia, and appetite loss symptoms. Patient care and support needs were positively associated with nausea/vomiting ($r = 0.301$), insomnia ($r = 0.238$), and appetite loss symptoms ($r = 0.190$) and negatively associated with the emotional functioning domain, in addition to role functioning domains ($r = -0.191$). Finally, sexuality needs were positively correlated with social ($r = 0.453$) and physical domains ($r = 0.209$), but negatively associated with emotional functioning ($r = -0.283$).

Tables 5.7: Spearman's correlation between SCN-SF34 and QoL domains

Quality of life domains	Supportive care needs domains				
	Physical and daily living	Psychological	Health system and information	Patient care and support	Sexuality
EORTC QLQ-C30 Functional scale					
Physical Functioning	-0.450**	0.234**	-0.069	0.009	0.209*
Role Functioning	-0.372**	-0.033	-0.132	-0.191*	0.020
Emotional Functioning	-0.102	-0.630**	-0.406**	-0.380**	-0.283**
Cognitive Functioning	-0.231**	-0.095	-0.119	-0.124	0.110
Social Functioning	-0.234**	0.162	0.156	0.201*	0.453**
EORTC QLQ-C30 symptoms scale					
Fatigue	0.390**	0.172*	0.121	0.159	-0.015
Nausea Vomiting	0.071	0.180*	0.227**	0.301**	0.133
Pain	0.460**	0.118	0.085	0.045	-0.012
Dyspnea	0.283**	-0.065	0.007	0.087	-0.133
Insomnia	0.170*	0.255**	0.180*	0.238**	0.068
Appetite loss	0.063	0.185*	0.146	0.190*	0.060
Constipation	0.105	-0.018	0.071	0.084	0.080
Diarrhoea	0.157	0.046	0.068	0.057	0.062
Financial difficulties	0.323**	0.020	0.039	0.049	-0.034
Global health Status	-0.370**	-0.240**	-0.123	-0.103	-0.016

Bold are Significant values (2-tailed) * p <0.05, **p <0.01)

Table 5.8 presents the results of the multiple regression analysis for the QoL global health status domain. BC women at diagnosis had significant negative associations between physical needs ($B = -0.19$) and psychological needs ($B = -0.20$) and their overall QoL ($p < 0.05$). However, higher education was associated with better perceived global health ($B = 5.68$, $p < 0.05$). The regression model was highly significant ($p < 0.001$). Also, having a surgical intervention was positively associated with a better QoL in the past week ($B = 6.63$, $p < 0.05$). However, the adjusted R^2 for this model was 0.21, which means 21% variability of the outcome is explained by this model.

Table 5.8: Association between global QoL, SCN-SF34 and participants' characteristics

Variables	B	SE	Beta	CI 95%	P
Global health					
Education level	5.676	1.926	.225	(1.86, 9.48)	0.004
Physical needs	-.189	.055	-.259	(-0.29, -0.08)	0.001
Psychological needs	-.202	.053	-.287	(-0.30, -0.09)	<0.001
Surgical intervention	6.632	2.727	.185	1.24-12.02	0.016

CI: Confidence Interval, SE: Standard Error

Linear regression model: METHOD=STEPWISE: Variables in the model were physical needs, psychological needs, health information needs, patient care and support needs, sexuality needs and controlling for place of residence, age, marital status, education, job, children number, family size, income, diagnosis duration, stage of disease, chronic diseases, pain medications, family history, relative cancer types, family support, husband support, other support.

5.3 Results of study Three

Table 5.9 presents the sociodemographic characteristics of the study participants. A significant proportion (71.4%) reside in the Hebron governorate. The participants' mean age was 47 years ($SD \pm 10$), with an age range of 25 to 70 years, and nearly half (49.0%) fell within the 41 to 54 age group. The majority of participants (87.1%) were married, 72.1% were housewives, 45.5% had attained a university or college degree, 68.0% had five or fewer children, and 63.9% lived in extended households consisting of more than five individuals. Of participants, 41.5% reported a monthly income ranging from \$570 to \$1,140.

Table 5.9.: Socio-demographic characteristics of study participants

Variables	No.	%
Patient governorate		
Hebron	105	71.4%
Bethlehem	42	28.6%
Place of residence		
Refugee camps	11	7.5%
Village	92	62.6%
City	44	29.9%
Age in years		
≤ 40	40	27.2%
41–54	72	49.0%
≥55	35	23.8%
Marital status		
Unmarried	19	12.9%
Married	128	87.1%
Education		
Primary and less	20	13.6%
Secondary	60	40.8%
Colleague/ University	67	45.5%
Working status		
Employee	41	27.9%
Housewife	106	72.1%
Number of children		
≤5 persons	100	68.0%
>5 persons	47	32.0%
Family size		
≤5 persons	53	36.1%
>5 persons	94	63.9%
Monthly salary (US \$)		
< 570	54	36.7%
570-1140	61	41.5%
> 1140	32	21.8%

Table 5.10 summarizes the clinical characteristics and supportive systems of the participants. Of the participants, 25.9% had been diagnosed within the past three months, 41.5% between three and six months, and 32.7% between six and twelve months. Half of the participants (45.6%) were diagnosed at stage 3, most of them (96.6%) underwent chemotherapy, 29.9%

received radiation therapy, 9.5% received hormonal therapy, 19.0% underwent biological (immune therapy) treatment, and 59.2% had surgery. Among those who had surgery, 46.3% underwent a total mastectomy. Additionally, 33.3% of participants reported having chronic diseases other than breast cancer, and 59.9% used pain medications. Of the participants, 51.0% reported a family history of cancer, of whom 29.3% reported a history of breast cancer. BC patients reported receiving good social support (84.4%) from their families, but only 32.7% reported receiving support from their husbands

Table 5.10a: Clinical characteristics and support for participants

Variables	No.	%
Diagnosis duration (months)		
Less than 3	38	25.9%
3–6	61	41.5%
6–12	48	32.7%
Stage of disease at diagnosis		
Stage 1	11	7.5%
Stage 2	58	39.5%
Stage 3	67	45.6%
Stage 4	11	7.5%
Type of treatment		
Chemotherapy		
Yes	142	96.6%
No	5	3.4%
Radiotherapy		
Yes	44	29.9%
No	103	70.1%
Hormonal therapy		
Yes	14	9.5%
No	133	90.5%
Biological (immune) therapy		
Yes	28	19.0%
No	119	81.0%
Surgical treatment		
Yes	87	59.2%
No	60	40.8%

Table 5.10b: Clinical characteristics and support for participants

Variables	No.	%
Surgical intervention		
Total mastectomy	68	46.3%
Partial mastectomy	19	12.9%
No surgical intervention	60	40.8%
Yes	49	33.3%
No	98	66.7%
Taking pain medication		
Yes	88	59.9%
No	59	40.1%
Type of relative cancer		
Breast cancer	43	29.3%
Other cancers	32	21.7%
No cancer history	72	49.0%
Family support		
Yes	124	84.4%
No	23	15.6%
Husband support		
Yes	48	32.7%
No	99	67.3%
Other sources of support		
Yes	28	19.0%
No	119	81.0%

Table 5.11 presents the descriptive statistics for the QoL scale. The transformed QoL scores provide detailed insights into the physical, emotional, and social well-being of breast cancer patients. The overall QoL score was moderate (57). Among the functional scales, physical functioning received the highest transformed score of 67, while emotional functioning had the lowest score at 49. For the symptom scales, fatigue emerged as the most prominent issue with a transformed score of 45, whereas nausea/vomiting (19) was less frequent. These scores highlight the significant challenges patients face in managing their physical and emotional health, with fatigue being a prevalent issue, along with financial difficulties.

Table 5.11: Descriptive analysis of EORTCQLQ-30 scales for women with BC

Scales items	Mean	Standard Deviation	Median	Range	Transformed Score (0–100)
Overall QLQ-30 Score	2.01	0.54	2.04	2.32	57
Functional scales					
Emotional functioning	2.54	0.78	2.5	3	49
Role functioning	2.26	0.77	2.00	3	58
Social function	2.22	0.91	2.00	3	59
Cognitive function	2.14	0.91	2.00	3	62
Physical functioning	2.00	0.73	2.00	3	67
Symptom scales / items					
Fatigue	2.36	0.65	2.33	3	45
Insomnia	2.31	1.11	2.00	3	44
Dyspnoea	2.22	1.09	2.00	3	41
Pain	2.21	0.69	2.00	3	40
Financial difficulties	2.14	1.01	2.00	3	38
Constipation	1.72	1.02	1.00	3	24
Appetite loss	1.71	0.91	1.00	3	23
Diarrhoea	1.65	0.96	1.00	3	22
Nausea and vomiting	1.58	0.82	1.00	3	19
Global health status	3.72	1.08	3.50	6.00	45

Table 5.12 presents the Cancer Coping Questionnaire (CCQ) scales provide valuable insights into the coping mechanisms employed by newly diagnosed breast cancer women in this study. The highest mean score was observed in the CCQ diversion techniques scale (mean = 2.23, SD = 0.67), identifying it as the most frequently used method. This was followed by the CCQ positive focus# scale (mean = 2.02, SD = 0.80), suggesting a moderate reliance on optimistic thinking. The CCQ planning scale (mean = 1.92, SD = 0.81) showed slightly lower engagement, reflecting some variability in forward-thinking strategies. The CCQ interpersonal scale had the lowest mean (mean = 1.61, SD = 0.76), indicating limited use of interpersonal relationships as a coping mechanism. The CCQ total individual scale (mean = 2.00, SD = 0.66) demonstrates moderate use of individual coping strategies, with noticeable differences among participants.

Table 5.12: Cancer Coping Questionnaire (CCQ) Scales Analysis

Scales	Mean	Standard Deviation	Median	Range
CCQ- Coping	1.95	0.64	1.80	2.60
CCQ- Positive Focus	2.02	0.80	2.00	3.00
CCQ- Diversion Techniques	2.23	0.67	2.00	3.00
CCQ- Planning	1.92	0.81	2.00	3.00
CCQ- Total Individual scale (1–14)	2.00	0.66	2.00	2.86
CCQ- Interpersonal scale (15–21)	1.61	0.76	1.29	3.00

In this study, correlation coefficients (r) were below 0.3, indicating weak correlations between QoL domains and coping strategy variables, except for the global QoL health status that had better correlations with all coping strategies ($r > 0.3$).

In Table 5.13, we observed significant negative correlations between coping strategies and multiple QoL domains. Physical functioning was negatively correlated with CCQ positive focus, CCQ planning, and the CCQ individual scale (p -value < 0.05). Role functioning also had negative correlations with CCQ positive focus, CCQ diversion, CCQ planning, and the CCQ individual scale (p -value < 0.05). In the domain of emotional functioning, CCQ diversion showed a significant negative correlation ($r = -0.204$, p -value 0.013) with QoL. Cognitive functioning was negatively associated with CCQ positive focus, CCQ diversion, CCQ planning, and the CCQ individual scale (p -value < 0.05). A similar correlation was found for social functioning, with significant negative correlations for CCQ positive focus, CCQ diversion, CCQ planning, and the CCQ individual scale (p -value < 0.05). Symptom items, including fatigue, pain, and dyspnoea, also had negative correlations with all these coping strategies, ranging from $r = -0.169$ to $r = -0.266$ (p -value < 0.05). CCQ positive focus, CCQ diversion techniques, CCQ planning, and the CCQ individual scales had negative correlations with financial difficulties (p -value = 0.001). Conversely, we found positive correlations between coping strategies and specific QoL dimensions. Emotional functioning was significantly positively correlated with CCQ coping ($r = 0.180$, p -value = 0.029). In the symptom domain, nausea and vomiting had positive correlations with coping, the CCQ individual scale, CCQ interpersonal factors, and CCQ planning, while there were weaker positive correlations with CCQ positive focus (p -value < 0.05).

Table 5.13: Spearman's correlation, quality of life variables, and coping strategies.

QOL variables	Coping	Positive Focus	Diver-sion	Planning	Individual scale	Interpersonal scale
Physical function	-0.102	-0.162*	-0.111	-0.204*	-0.163*	-0.121
Role function	-0.086	-0.179*	-0.222**	-0.202*	-0.173*	-0.035
Emotional function	0.180*	-0.039	-0.204*	-0.036	-0.003	0.056
Cognitive function	-0.102	-0.22**	-0.189*	-0.228**	-0.197*	-0.120
Social function	-0.095	-0.21**	-0.265**	-0.215**	-0.197*	-0.006
Fatigue	-0.077	-0.197*	-0.256**	-0.231**	-0.192*	-0.015
Nausea/vomiting	0.287**	0.185*	0.071	0.200*	0.223**	0.202
Pain	-0.132	-0.25**	-0.236**	-0.249**	-0.227**	-0.070
Dyspnoea	-0.188*	-0.215*	-0.169*	-0.266**	-0.235**	-0.158
Insomnia	0.093	-0.041	-0.193*	-0.092	-0.031	-0.039
Appetite loss	0.203*	0.097	-0.028	0.076	0.108	0.072
Constipation	-0.078	-0.102	-0.051	-0.101	-0.088	-0.003
Diarrhoea	-0.012	-0.038	-0.073	-0.057	-0.037	0.012
Financial difficulties	-0.21*	-0.29**	-0.288**	-0.273**	-0.275**	-0.123
Global health status	0.407**	0.57**	0.597**	0.500**	0.545**	0.318**

Bold are Significant values (2-tailed) * p-value <0.05, **p-value <0.01).

Table 5.14 presents the multivariate analysis. A stepwise hierarchical multiple regression analysis identified key predictors of global quality of life (QoL) among participants. The model's explanatory power increased cumulatively. Education was a significant predictor, with a small positive effect ($B = 0.070$, $R^2 = 0.052$, $p = 0.005$). Family support also emerged as a moderate predictor, with higher levels of support associated with better global QoL (B

= 0.249, $R^2 = 0.080$, $p = 0.041$). In contrast, the CCQ coping score had a negative association with global QoL ($B = -0.538$, $R^2 = 0.186$, $p < 0.001$), suggesting that maladaptive coping strategies reduce global QoL. Furthermore, both CCQ positive focus ($B = 0.612$, $R^2 = 0.342$, $p < 0.001$) and CCQ diversion techniques ($B = 0.689$, $R^2 = 0.406$, $p < 0.001$) had substantial positive effects on global QoL.

Table 5.14: Multiple regression analyses of QOL, sociodemographic, medical, social support variables, and coping strategies with the global health status scale

Variables	B	β	R^2	F change	p-value / Sig. F Change
(Constant)	1.537				
Education	0.070	0.046	0.052	8.032	0.005
Family support	0.249	0.084	0.080	4.237	0.041
CCQ Coping	-0.538	-0.319	0.186	18.797	0.000
CCQ Positive focus	0.612	0.458	0.342	33.589	0.000
CCQ Diversion	0.689	0.432	0.406	15.295	0.000

Method = Stepwise: Residence, Age, Marital status, Education, Work status, Children number, Family size, Income, Diagnosis duration, Stage of disease, Chemotherapy, Radiotherapy, Hormonal therapy, Biological therapy Surgical therapy, Surgery Type, Chronic diseases, Pain medication, Family History, Relative cancer types Family support, Husband support, Other support. Method = Stepwise Coping 2. Method =Stepwise Positive Focus. Method = Stepwise Diversion.

5.4 Results of study Four

Table 5.15 displays the demographic characteristics of the participants. This study included 144 newly diagnosed females with breast cancer, predominantly from Hebron (70.8%), with a majority (91.7%) identifying as Muslim. Participants' residences varied, with 62.5% residing in villages, 29.9% in cities, and 7.6% in refugee camps. Nearly half of the participants were aged ≤ 45 years (52.1%), and the majority were married (86.1%). In terms of education, 46.5% held a college degree, and most (71.5%) were housewives. The majority of families were large (64.6%), and 68.1% had ≤ 5 children. Income levels varied, with 36.1% earning < 570 US dollars monthly.

Table 5.15: Socio-demographic and economic characteristics of participants

Variables	No.	%
Patient governorate		
Hebron	102	70.8%
Bethlehem	42	29.2%
Patient religion		
Muslim	132	91.7%
Christian	12	8.3%
Place of residence		
Refugee camps	11	7.6%
Village	90	62.5%
City	43	29.9%
Age in years		
≤45	75	52.1%
>45	69	47.9%
Marital status		
Unmarried	20	13.9%
Married	124	86.1%
Education		
Primary and less	19	13.2%
Secondary	58	40.3%
College/University	67	46.5%
Working status		
Employee	41	28.5%
Housewife	103	71.5%
Number of children		
≤5 persons	98	68.1%
>5 persons	46	31.9%
Family size (extended family)		
≤5 persons	51	35.4%
>5 persons	93	64.6%
Monthly salary (US \$)		
Low (< 570)	52	36.1%
Moderate (570-1140)	60	41.7%
High (> 1140)	32	22.2%

Table 5.16 presents the participants' clinical characteristics. At diagnosis, 45.1% were in Stage 3. Regarding treatment, 97.2% received chemotherapy, 72.9% radiotherapy, and all underwent surgery (40.3% complete mastectomy, 59.7% partial mastectomy). Chronic diseases were present in 32.6%, and 52.1% had a family history of cancer, with 27.8% having a relative with breast cancer. Social support varied, with 86.1% receiving family support, but 69.4% lacked husband support, and only 18.1% had other forms of support.

Table 5.16: Clinical characteristics and support for participants

Variables	No.	%
Stage of disease at diagnosis		
Stage 1	11	7.6%
Stage 2	58	40.3%
Stage 3	65	45.1%
Stage 4	10	6.9%
Type of treatment		
Chemotherapy	347	97.2%
Radiotherapy	246	72.9%
Hormonal therapy	194	85.4%
Surgical therapy	295	100%
Biological treatment	136	51.4%
Surgical intervention		
Total mastectomy	58	40.3%
Partial mastectomy	86	59.7%
Chronic diseases other than cancer		
Yes	47	32.6%
No	97	67.4%
History of relative cancer		
Breast cancer	40	27.8%
Other cancers	35	24.3%
No cancer history	69	47.9%
Family support		
Yes	124	86.1%
No	20	13.9%
Husband/partner support		
Yes	44	30.6%
No	100	69.4%
Other sources of support*		
Yes	26	18.1%
No	118	81.9%

Table 5.17 presents data from the EORTC QLQ-C30 scale revealed variations across functional and symptom domains at the time of diagnosis. Among the functional domains, physical functioning and cognitive scale exhibited the highest mean score of 67.13 (SD=23.75), indicating a relatively higher level of physical capacity.

However, role functioning and emotional functioning were reported at moderate levels. In contrast, social functioning had the lowest mean score of 34.49 (SD = 24.43), indicating significant challenges in this domain. In terms of symptom domains, fatigue, insomnia, and dyspnea were reported at moderate levels. Other symptoms, such as diarrhea and nausea/vomiting, had relatively low mean scores, 19.10 (SD = 26.52), suggesting that these symptoms were either less frequent or less severe. The mean score for global health status was 45.78 (SD=17.68), reflecting a moderate overall QoL among the newly diagnosed breast cancer patients at the beginning of their treatment journey.

The QLQ-BR23 functional domain data indicated moderate concerns regarding body image, with mean score of 43.17 (SD = 30.67) one year after treatment. However, participants reported low scores for sexual functioning, sexual enjoyment, with the lowest score observed for future perspective (mean = 23.38, SD = 29.52), suggesting significant uncertainty about the future. For the symptoms domain, systemic therapy side effects, breast symptoms, and arm symptoms were relatively low. Notably, the mean score for being upset by hair loss was the lowest, at 14.81 (SD = 28.37)

The EORTC IN-PATSAT32 analysis revealed the highest level of satisfaction with doctors' technical skills, with a mean of 68.13 (SD = 25.18). However, satisfaction scores with doctors' interpersonal skills (mean = 40.20, SD =27.47) and information provision (mean =45.99, SD=26.14) were moderate. Nurse technical skills were highly rated at 63.27 (SD=27.00), while nurses' interpersonal skills and information provision were moderately rated. However, nurses' availability showed the lowest rating score (mean =39.47, SD=30.71). Additionally, moderate satisfaction scores were reported for information exchange, general satisfaction, comfort and cleanliness, and nurses' kindness and helpfulness. In contrast, the lowest satisfaction scores were recorded for waiting time (mean = 33.68, SD = 23.11) and access to care (mean = 35.42, SD = 26.21)

Table 5.17a: Quality of life at diagnosis, QoL after one-year treatment and Patients satisfaction means scales

QoL Before Treatment	
EORTC QLQ-C30 Functional Scale	Mean ± SD
Physical Functioning	67.13±23.75
Cognitive Functioning	62.85±30.07
Role Functioning	58.56±25.24
Emotional Functioning	49.19±25.91
Social Functioning	34.49±24.43
EORTC QLQ-C30 Symptoms Scale	
Fatigue	44.68±21.21
Insomnia	42.59±36.86
Dyspnea	40.05±36.47
Pain	39.81±22.40
Constipation	24.07±34.01
Appetite Loss	23.38±29.52
Diarrhea	21.30±31.44
Nausea Vomiting	19.10±26.52
Financial Difficulties	37.50±33.65
Global Health	45.78±17.68
QoL one year after treatment	
EORTC QLQ-C23 Functional Scale	
Body Image	43.17±30.67
Sexual Functioning	34.49±24.43
Sexual Enjoyment	34.72±28.39
Future Perspective	23.38±29.52

Table 5.17b: Quality of life at diagnosis, QoL after one-year treatment and Patients satisfaction means scales

QoL before treatment	
EORTC QLQ-C23 Symptoms Scale	
Arm Symptoms	37.19±28.41
Breast Symptom	33.33±25.24
Systemic Therapy Side Effects	26.22±20.34
Upset by Hair Loss	14.81±28.37
Patient satisfaction	
EORTC IN-PATSAT32 - Doctors	
Technical Skills	68.13±25.18
Information Provision	45.99±26.14
Availability	42.36±27.59
Interpersonal Skills	40.20±27.47
EORTC IN-PATSAT32 - Nurses	
Technical Skills	63.27±27.00
Interpersonal Skills	53.09±30.55
Information Provision	42.44±30.78
Availability	39.47±30.71
EORTC IN-PATSAT32 - Others	
Exchange Information	53.94±25.55
General Satisfaction	45.60±28.90
Comfort/Cleanliness	44.44±31.78
Kindness, Helpfulness, Info Giving	43.90±23.41
Access	35.42±26.21
Waiting Time	33.68±23.11

In Table 5.18, we present the multiple linear regression analysis of the study's various factors associated with QoL after one year of treatment (QLQ-BR23) among newly diagnosed Palestinian women with breast cancer.

Age exhibited a positive association with body image ($B = 22.61$, 95% CI: 14.6 to 30.5), suggesting a potential tendency for older individuals to report a more positive perception of their body image, although the model explained a modest proportion of the variance ($R^2 = 0.21$). Notably, support from the husband demonstrated a strong and significant positive effect on body image ($B = 11.80$, 95% CI: 3.5 to 20.0, $R^2 = 0.47$), underscoring the crucial role of spousal support in this domain. Conversely, surgical intervention was associated with a negative impact on body image ($B = -15.03$, 95% CI: -25.1 to -4.1, $R^2 = 0.30$), while receiving biological treatment correlated with better body image ($B = 11.75$, 95% CI: 4.1 to 19.3, $R^2 = 0.40$). Furthermore, lower role functioning (QoL-Role Functioning) was linked to poorer body image ($B = -0.25$, 95% CI: -0.4 to 0.0, $R^2 = 0.44$), and greater satisfaction with doctors' interpersonal skills was associated with improved body image ($B = 0.34$, 95% CI: 0.2 to 0.4, $R^2 = 0.37$).

QoL Sexual Functioning Domain: Age was negatively associated with sexual functioning ($B = -14.44$, 95% CI: -20.4 to -8.4, $R^2 = 0.34$), while being married showed a strong positive association ($B = 33.89$, 95% CI: 25.2 to 42.5, $R^2 = 0.23$). Receiving biological treatment negatively affects sexual functioning ($B = -9.51$, 95% CI: -15.5 to -3.4, $R^2 = 0.43$). Conversely, better global health QoL was associated with improved sexual functioning ($B = 0.199$, 95% CI: 0.003 to 0.39, $R^2 = 0.47$). Fatigue emerged as a negative predictor ($B = -8.29$, 95% CI: -15.0 to -1.5, $R^2 = 0.39$), and satisfaction with doctors' interpersonal skills again demonstrated a beneficial effect ($B = 0.19$, 95% CI: 0.01 to 0.3, $R^2 = 0.46$).

QoL-Sexual Enjoyment Domain: Older age was associated with reduced sexual enjoyment ($B = -13.66$, 95% CI: -21.1 to -6.1, $R^2 = 0.25$), while being married was linked to increased enjoyment ($B = 26.50$, 95% CI: 15.5 to 37.4, $R^2 = 0.17$). Interestingly, and perhaps counter-intuitively, the husband's support was associated with reduced enjoyment ($B = -13.92$, 95% CI: -22.1 to -5.7, $R^2 = 0.31$), a finding that warrants further exploration. Interestingly, our findings revealed a negative association between husbands' support and women's sexual enjoyment. This may be explained by the complex emotional and relational changes that occur following a cancer diagnosis. In some cases, women may perceive their husband's support as a reminder of their illness or as a shift in the dynamics of their relationship, which can adversely affect intimacy. In other instances, support may be experienced as a sense of obligation rather than genuine affection, leading to feelings of emotional distance or disconnection. These complexities highlight the importance of gaining a deeper understanding of how women perceive and experience spousal support, particularly in relation to body image and intimacy during cancer treatment.

Positive cognitive functioning and global health were associated with increased enjoyment ($B = 0.13$ and 0.29 , respectively; $R^2 = 0.45$ and 0.34). Moreover, gastrointestinal symptoms (diarrhea) had a small positive effect ($B = 0.12$, 95% CI: 0.01 to 0.2 , $R^2 = 0.43$). Satisfaction with doctor availability had a negative effect ($B = -0.30$, 95% CI: -0.46 to -0.1 , $R^2 = 0.362$), while satisfaction with information exchange showed a positive relationship ($B = 0.26$, 95% CI: 0.1 to 0.4 , $R^2 = 0.38$).

QoL Future Perspective Domain: Husband support contributed positively to women's future perspective ($B = 7.76$, 95% CI: 0.3 to 15.2 , $R^2 = 0.54$). Pain and receiving chemotherapy ($B = 23.46$, 95% CI: 2.0 to 44.8 , $R^2 = 0.53$) were identified as significant positive predictors of future perspective ($B = 0.32$, 95% CI: 0.1 to 0.5 , $R^2 = 0.44$), whereas biological treatment ($B = -11.43$, 95% CI: -18.4 to -4.4 , $R^2 = 0.47$) and having a chronic disease ($B = -10.14$, 95% CI: -17.6 to -2.6 , $R^2 = 0.49$) were negatively associated with patients' future perspectives. Conversely, patients had a positive future perspective. Among QoL, better scores in nausea/vomiting ($B = 0.47$, $R^2 = 0.32$), insomnia ($B = 0.21$, $R^2 = 0.41$), and fewer financial difficulties ($B = -0.12$, $R^2 = 0.51$) were associated with more optimistic future perspectives.

QoL Systemic Therapy Side Effects: Age was positively associated with systemic therapy side effects ($B = 12.57$, 95% CI: 6.8 to 18.3 , $R^2 = 0.22$), while global health QoL was negatively associated ($B = -0.41$, 95% CI: -0.5 to -0.2 , $R^2 = 0.11$). Satisfaction with hospital comfort/cleanliness negatively predicted side effects ($B = -0.24$, 95% CI: -0.3 to -0.1 , $R^2 = 0.25$), and access to services had a small positive effect ($B = 0.25$, 95% CI: 0.01 to 0.4 , $R^2 = 0.30$).

QoL Breast and Arm Symptom: Breast symptoms were negatively influenced by a lack of family support ($B = -18.39$, 95% CI: -29.4 to -7.3 , $R^2 = 0.16$), while surgical intervention was a positive predictor ($B = 9.50$, 95% CI: 1.7 to 17.2 , $R^2 = 0.20$). QoL related to pain had a weak positive effect ($B = 0.30$, $R^2 = 0.11$), and comfort/cleanliness satisfaction again showed a negative association ($B = -0.22$, $R^2 = 0.05$). For arm symptoms, surgical intervention was a major positive predictor ($B = 22.26$, $R^2 = 0.08$), followed by biological treatment ($B = 10.69$, $R^2 = 0.200$). Lower education level also contributed to increased symptoms ($B = -6.32$, $R^2 = 0.22$), and global health again showed a negative relationship ($B = -0.41$, $R^2 = 0.15$).

3.6.7. QoL Upset of Hair Loss: Upset due to hair loss was significantly associated with personal and clinical characteristics. A family history of cancer ($B = -6.08$, 95% CI: -11.15 to -1.0 , $R^2 = 0.15$) and having a chronic disease ($B = 11.70$, $R^2 = 0.18$) were both predictors of upset of hair loss. Employment status also played a role ($B = 9.64$, $R^2 = 0.21$), and hormonal therapy was strongly associated with more upset ($B = 23.79$, $R^2 = 0.08$). Additionally, dissatisfaction with nurses' technical skills was negatively associated with this upset ($B = -0.197$, $R^2 = 0.12$).

Table 5.18a: Multiple linear regression of QoL, sociodemographic, medical, social support variables, and patient's satisfaction

	B	Std. Error	95% CI (Lower, Upper)	R²
Body image				
Age	22.61	4.02	(14.6, 30.5)	0.21
Husband support	11.80	4.15	(3.5, 20.0)	0.47
Surgical intervention	-15.02	5.07	(-25.1, -4.1)	0.30
Biological treatment	11.75	3.85	(4.1, 19.3)	0.40
QoL-Role Functioning	-0.25	0.07	(-0.4, -0.0)	0.44
Satisfaction-Doc. interpersonal skills	0.34	0.07	(0.2, 0.4)	0.37
Sexual functioning				
Age	-14.44	3.04	(-20.4, -8.4)	0.34
Marital status	33.89	4.37	(25.2, 42.5)	0.23
Biological treatment	-9.51	3.05	(-15.5, -3.4)	0.43
QoL Global health	0.19	0.09	(0.003, 0.394)	0.47
QoL-Fatigue	-8.29	3.41	(-15.0, -1.5)	0.39
Satisfaction-Doc. interpersonal skills	0.19	0.09	(0.01, 0.3)	.046
Sexual enjoyment				
Age	-13.66	3.78	(-21.1, -6.1)	0.25
Marital status	26.50	5.52	(15.5, 37.4)	0.17
Husband_ support	-13.92	4.15	(-22.1, -5.7)	0.31
QoL-Cognitive Functioning	0.13	0.06	(0.00, 0.3)	0.45
QoL-Diarrhea	0.12	0.06	(0.01, 0.2)	0.43
QoL-Global health	0.29	0.11	(0.06, 0.5)	0.34
Satisfaction-Doctor Availability	-0.30	0.08	(-0.46, 0.1)	0.36
Satisfaction-Exchange information	0.26	0.09	(0.1, 0.4)	0.38
Future perspective				
Pain	0.32	0.10	(0.1, 0.5)	0.44
Biological treatment	-11.43	3.53	(-18.4, -4.4)	0.47
Chronic disease	-10.14	3.77	(-17.6, -2.6)	0.49
Chemotherapy treatment	23.46	10.80	(2.0, 44.80)	0.53
Husband support	7.76	3.77	(0.3, 15.2)	0.54

Table 5.18b: Multiple linear regression of QoL, sociodemographic, medical, social support variables, and patient's satisfaction

	B	Std. Er- ror	95% CI (Lower, Upper)	R²
QoL-Nausea Vomiting	0.47	0.07	(0.3, 0.6)	0.32
QoL-Insomnia	0.21	0.05	(0.1, 0.3)	0.41
QoL-Financial difficulties	-0.12	0.06	(-0.2, -0.01)	0.51
Systemic therapy side effect				
Age	12.57	2.89	(6.8, 18.3)	0.22
QoL-Global health	-0.41	0.08	(-0.5, -0.2)	0.11
Satisfaction-Comfort/cleanliness	-0.24	0.06	(-0.3, -0.1)	0.25
Satisfaction-Access_	0.25	0.07	(0.01, 0.4)	0.30
Breast symptom				
Family support	-18.39	5.57	(-29.4, -7.3)	0.16
Surgical intervention	9.50	3.93	(1.7, 17.2)	0.20
QoL-Pain	0.30	0.08	(0.1, 0.40)	0.11
Satisfaction-Comfort/cleanliness	-0.22	0.06	-(0.3, -0.1)	0.05
Arm symptoms				
Surgical intervention	22.26	4.48	(13.4, 31.1)	0.08
Biological treatment	10.69	4.39	(2.0, 19.3)	0.20
Education level	-6.32	3.17	(-12.5, -0.0)	0.22
QoL-Global health	-0.41	0.12	(-0.6, -0.1)	0.15
Upset of hair loss				
Family history of cancer	-6.08	2.56	(-11.15, -1.0)	0.15
Chronic disease	11.70	4.61	(2.57, 20.8)	0.18
Work stats	9.64	4.82	(0.11, 19.1)	0.21
Hormonal therapy	23.79	6.22	(11.48, 36.1)	0.08
Satisfaction-Nurse -Technical skills	-0.19	0.08	(-0.35, -0.0)	0.12

5.5 Results of study five

Table 5.19 displays participants' demographic characteristics. This study included 144 newly diagnosed females with breast cancer, mostly from Hebron (70.8%), with 91.7% being Muslim. Residence varied, with 62.5% in villages, 29.9% in cities, and 7.6% in refugee camps. Nearly half were aged ≤ 45 years (52.1%), and the majority were married (86.1%). Regarding education, 46.5% had a college degree, and 71.5% were housewives. Most families were large (64.6%), and 68.1% had ≤ 5 children. Income levels varied, with 36.1% earning < 570 US dollars monthly. Normality.

Table 5.19: Socio-demographic and economic characteristics of participants

Variables	No.	%
Patient governorate		
Hebron	102	70.8%
Bethlehem	42	29.2%
Patient religion		
Muslim	132	91.7%
Christian	12	8.3%
Place of residence		
Refugee camps	11	7.6%
Village	90	62.5%
City	43	29.9%
Age in years		
≤45	75	52.1%
>45	69	47.9%
Marital status		
Unmarried	20	13.9%
Married	124	86.1%
Education		
Primary and less	19	13.2%
Secondary	58	40.3%
College/University	67	46.5%
Working status		
Employee	41	28.5%
Housewife	103	71.5%
Number of children		
≤5 persons	98	68.1%
>5 persons	46	31.9%
Family size (extended family)		
≤5 persons	51	35.4%
>5 persons	93	64.6%
Monthly salary (US \$)		
Low (< 570)	52	36.1%
Moderate (570-1140)	60	41.7%
High (> 1140)	32	22.2%

Table 5.20 presents the participants' clinical characteristics. At diagnosis, 45.1% were in Stage 3. Regarding treatment, 97.2% received chemotherapy, 72.9% radiotherapy, and all underwent surgery (40.3% complete mastectomy, 59.7% partial mastectomy). Chronic diseases were present in 32.6%, and 52.1% had a family history of cancer, with 27.8% having a relative with breast cancer. Support systems varied, with 86.1% receiving family support, but 69.4% lacked husband support, and only 18.1% had other forms of support.

Table 5.20: Clinical characteristics and support for participants

Variables	No.	%
Stage of disease at diagnosis		
Stage 1	11	7.6%
Stage 2	58	40.3%
Stage 3	65	45.1%
Stage 4	10	6.9%
Type of treatment		
Chemotherapy	347	97.2%
Radiotherapy	246	72.9%
Hormonal therapy	194	85.4%
Surgical therapy	295	100%
Biological treatment	136	51.4%
Surgical intervention		
Total mastectomy	58	40.3%
Partial mastectomy	86	59.7%
Chronic diseases other than cancer		
Yes	47	32.6%
No	97	67.4%
Taking pain medication		
Yes	85	59.0%
No	59	41.0%
History of relative cancer		
Breast cancer	40	27.8%
Other cancers	35	24.3%
No cancer history	69	47.9%
Family and sons support		
Yes	124	86.1%
No	20	13.9%
Husband and partner support		
Yes	44	30.6%
No	100	69.4%
Other support (friends, colleagues and others)		
Yes	26	18.1%
No	118	81.9%

Table 5.21 presents the descriptive analysis of QLQ-BR23 scores: The QLQ-BR23 analysis revealed moderate concerns regarding body image ($M = 43.17$, $SD = 30.67$), along with low scores for sexual functioning ($M = 34.49$, $SD = 24.43$) and sexual enjoyment ($M = 34.72$, $SD = 28.39$). Future perspective had the lowest functional score ($M = 23.38$, $SD = 29.52$), indicating substantial uncertainty about the future. Among the symptom scales, participants reported systemic therapy side effects ($M = 26.22$, $SD = 20.34$), breast symptoms ($M = 33.33$, $SD = 25.24$), and arm symptoms ($M = 37.19$, $SD = 28.41$). The lowest symptom score was for upset by hair loss ($M = 14.81$, $SD = 28.37$) (see Table 5.22).

Spiritual Well-Being Scale (FACIT-Sp-12): Table 3 presents the means and standard deviations for the FACIT-Sp-12 subscales. The Meaning subscale recorded a mean of 11.04 ($SD = 2.90$), while the Peace subscale showed a lower mean of 7.40 ($SD = 3.46$). The Faith subscale had a mean of 11.26 ($SD = 3.43$), and the total spiritual well-being score was 29.70 ($SD = 8.21$) (see Table 5.22).

Table 5.21: Means and standard deviations of QLQ-BR23 and FACIT-Sp-12 scales

EORTC QLQ-C23 Functional Scale	M (SD)
Body Image	43.17±30.67
Sexual Functioning	34.49±24.43
Sexual Enjoyment	34.72±28.39
Future Perspective	23.38±29.52
EORTC QLQ-C23 Symptoms Scale	
Systemic Therapy Side Effect	26.22±20.34
Breast Symptom	33.33±25.24
Arm Symptoms	37.19±28.41
Upset by Hair Loss	14.81±28.37
FACIT-Sp Scale	
Meaning	11.04±2.90
Peace	7.40±3.46
Faith	11.26±3.43
Total score	29.70±8.21

Table 5.22 shows the spearman correlations between Spiritual Well-Being and QLQ-BR23 Scales. The correlation analysis between spiritual well-being and quality of life domains revealed specific relationships across FACIT-Sp-12 subscales. Among the functional domains, body image was significantly correlated with all three spiritual subscales, Meaning ($r = .206$, $p < .05$), Peace ($r = .513$, $p < .01$), and Faith ($r = .489$, $p < .01$), as well as with the total spiritual well-being score ($r = .493$, $p < .01$). For sexual functioning and sexual enjoyment, only the Meaning subscale showed positive correlations ($r = .297$ and $r = .259$, respectively; $p < .01$).

Regarding symptom-related domains, the Meaning subscale demonstrated consistent negative associations with all four: systemic therapy side effects ($r = -.306$, $p < .01$), breast symptoms ($r = -.337$, $p < .01$), arm symptoms ($r = -.296$, $p < .01$), and upset by hair loss ($r = -.180$, $p < .05$). Furthermore, the total FACIT-Sp score was significantly and negatively correlated with breast symptoms ($r = -.179$, $p < .05$) and hair loss distress ($r = -.202$, $p < .05$). In addition, Peace was also associated with lower distress related to hair loss ($r = -.215$, $p < .01$).

Table 5.22: Spearman's correlation between FACIT-Sp-12 scales and QLQ-BR23

QLQ-BR23	FACIT-sp. Meaning	FACIT-sp. Peace	FACIT-sp. Faith	FACIT-sp. Total Score
Body image	0.206*	0.513**	0.489**	0.493**
Sexual functioning	0.297**	0.057	-0.065	0.102
Sexual enjoyment	0.259**	0.035	-0.035	0.092
Future perceptive	-0.156	-0.078	-0.126	-0.140
Systemic therapy side effect	-0.306**	0.031	0.144	-0.035
Breast symptom	-0.337**	-0.112	-0.029	-0.179*
Arm symptoms	-0.296**	-0.137	0.028	-0.151
Upset by hair loss	-0.180*	-0.215**	-0.115	-0.202*

Bold are Significant values (2-tailed) * p-value <0.05, **p-value <0.01)

Table 5.23 presents the multiple linear regression of QLQ-BR23 with sociodemographic, clinical, support and spiritual wellbeing variables. Body Image: Spiritual well-being demonstrated a notable impact on body image. The peace subscale had a strong positive association

($B = 5.434$, $p < .001$) with body image among newly diagnosed patients. Additionally, the faith subscale also showed a significant positive effect ($B = 5.194$, $\beta = .580$, $p < .001$). In addition, older age ($B = 15.273$, $p < .001$), surgical intervention ($B = 16.828$, $p < .001$), and receiving biological treatment ($B = 9.422$, $\beta = .154$, $p = .012$) were also significantly associated with improved body image (see Table 5.24).

Sexual Functioning and Sexual Enjoyment: Marital status was a strong positive predictor in both domains ($B = 32.260$ and $B = 26.018$, $p < .001$), indicating that married women reported better sexual outcomes. In contrast, older age had a negative effect on both functioning ($B = -15.733$, $p < .001$) and enjoyment ($B = -15.413$, $p < .001$). The meaning subscale of spiritual well-being positively predicted sexual functioning ($B = 1.837$, $p = .001$) and enjoyment ($B = 2.224$, $p = .001$). Biological treatment was negatively associated with both outcomes, as was employment for functioning. Husband support was negatively associated to sexual enjoyment ($B = -15.262$, $p < .001$), possibly reflecting emotional or relational tensions (see Table 5.24).

Systemic Therapy Side Effects: Older age was associated with increased systemic therapy side effects ($B = 8.560$, $p = .010$). Spiritual well-being showed strong protective effects against treatment-related symptoms. The meaning subscale had a negative association ($B = -5.393$, $p < .001$), indicating that women with a deeper sense of purpose experienced fewer systemic therapy side effects (see Table 5.24).

Breast Symptoms: In the breast symptoms domain, the meaning subscale had a negative association with breast symptom ($B = -5.030$, $p < .001$). Surgical intervention was associated with more symptoms ($B = 9.287$, $p = .019$). Family support ($B = -12.312$, $p = .029$) had a protective effect (see Table 5.24).

Arm Symptoms: Spiritual meaning played a significant protective role ($B = -4.608$, $p < .001$) and the faith subscale was positively associated ($B = 2.102$, $p = .003$) with arm symptom. Surgical intervention ($B = 20.963$, $p < .001$) and biological treatment ($B = 10.066$, $\beta = .178$, $p = .016$), both contributing to increased symptoms (see Table 5).

Upset by Hair Loss: The peace subscale was significantly associated with lower emotional distress from hair loss ($B = -2.117$, $p = .001$). In contrast, hormonal therapy was the strongest predictor of greater distress ($B = 23.805$, $p < .001$). A family history of cancer was linked to reduced upset ($B = -5.984$, $p = .022$), possibly due to prior exposure or emotional preparedness (see Table 5.24).

Table 5.23: Multiple linear regression of QLQ-BR23 with sociodemographic, clinical, support and spiritual wellbeing variables

QLQ-BR23 Scales	B	Std. Error	Beta	Sig.	CI 95%	R ²
Body image						
Peace	5.434	1.407	.613	.000	(2.65, 8.21)	.263
Age	15.273	4.154	.250	.000	(7.06, 23.49)	.351
Surgical intervention	16.828	3.833	.270	.000	(9.25, 24.41)	.397
Faith	5.194	1.278	.580	.000	(2.67, 7.72)	.443
Biological treatment	9.422	3.701	.154	.012	(2.10, 16.74)	.498
Husband support	9.432	3.994	.142	.020	(1.53, 17.33)	.518
Sexual functioning						
Marital status	32.260	4.491	.458	.000	(23.38, 41.14)	.237
Age	-15.733	3.075	-.323	.000	(-21.81, -9.65)	.341
Meaning	1.837	.556	.218	.001	(0.74, 2.94)	.403
Biological treatment	-9.058	3.077	-.186	.004	(-15.14, -2.97)	.444
Sexual enjoyment						
Marital status	26.018	5.754	.318	.000	(14.64, 37.40)	.178
Age	-15.41	3.807	-.27	.000	(-22.94, -7.88)	.251
Husband support	-15.262	4.271	-.24	.000	(-23.71, -6.82)	.312
Meaning	2.224	.665	.227	.001	(0.91, 3.54)	.361
Systemic therapy side effect						
Age	8.560	3.287	.211	.010	(2.06, 15.06)	.102
Meaning	-5.393	.965	-.770	.000	(-7.30, -3.49)	.215
Breast symptom						
Meaning	-5.030	1.201	-.579	.000	(-7.41, -2.65)	.114
Surgical intervention	9.287	3.919	.181	.019	(1.54, 17.04)	.175
Family support	-12.312	5.598	-.169	.029	(-23.38, -1.25)	.203
Arm symptoms						
Meaning	-4.608	.834	-.471	.000	(-6.26, -2.96)	.088
Surgical intervention	20.963	4.231	.363	.000	(12.60, 29.33)	.193
Faith	2.102	.705	.254	.003	(0.71, 3.50)	.247
Biological treatment	10.066	4.143	.178	.016	(1.88, 18.26)	.278
Upset by hair loss						
Hormonal therapy	23.805	6.259	.297	.000	(11.43, 36.18)	.086
Peace	-2.117	.632	-.258	.001	(-3.37, -0.87)	.151
Type of relative cancer	-5.984	2.589	-.179	.022	(-11.10, -0.86)	.182

Chapter Six:

Discussion

6.1 introduction: summary of findings

This is the first follow up research for newly diagnosed women with breast cancer in Palestine. Women were followed for one year after diagnosis in the southern region of West Bank. The goal of this research is to have a baseline research that targets a better management of BC in Palestine.

The research data are presented in the dissertation articles section. The research objectives are all covered in these articles. A comprehensive presentation shows the factors that are associated with women with breast cancer quality of life: i.e. supportive care needs, coping strategies, satisfaction with care, spiritual well-being, and QoL after one year of diagnosis particularly among the newly diagnosed BC patients.

Unmet SCNs were highly prevalent, affecting 61% of the overall sample and 83.5% of newly diagnosed women, with the most significant gaps identified in the domains of information, physical/daily living, and psychological support. Poorer QoL, particularly appeared predominantly through increased fatigue, pain, and emotional distress, was strongly associated with these unmet needs. Patients reported a moderate use of coping strategies; however, positive coping techniques, such as maintaining a positive focus and engaging in diversion activities, were strongly linked to higher global QoL. In contrast, maladaptive coping strategies were predictive of poorer outcomes.

Women who expressed satisfaction with their healthcare providers, as well as with clean and comfortable facilities and skilled nursing staff, reported better body image, improved sexual functioning, and fewer side effects from therapy. Conversely, inadequate access to services or substandard infrastructure aggravated systemic side effects and emotional distress. Overall spiritual well-being was moderate, with Faith and Meaning scoring higher and Peace lowest. SWB was positively associated with body image and sexual functioning, while

Meaning and Peace predicted lower symptom burden and reduced distress related to treatment side effects.

Sociodemographic and clinical characteristics also significantly influenced outcomes. Enhanced QoL, particularly in terms of body image, social interactions, and sexual functioning, was associated with younger age, higher education, employment, and marital status. Conversely, older age, advanced disease stage, comorbidities, and intensive treatments, such as chemotherapy or mastectomy, were linked to poorer QoL outcomes, including a higher symptom burden and lower sexual functioning. Notably, family and social support consistently emerged as protective factors.

6.2 Supportive Care needs services at Governmental Hospitals

This study indicates a significant gap in supportive care services at governmental hospitals in the southern region of the West Bank and demonstrates that BC patients suffer a considerable burden of unmet SCNs. These indicators, particularly regarding health information, physical and daily living, and psychological needs, align with findings from Singapore (Cheng et al., 2014), Germany (Goerling et al., 2020), Mexico (Gálvez-Hernández et al., 2021), and China (Chen et al., 2022), and higher than those reported in other contexts, such as Switzerland (Schmid-Büchi et al., 2013), Iran (Abdollahzadeh1 et al., 2014), Malaysia (Edib et al., 2016), Turkey (Erdoğan Yüce et al., 2021), and Fan et al.'s systematic scoping review (Fan et al., 2023). This emphasises the severity of the problem in Palestine and highlights a systematic deficiency in the Ministry of Health (MoH) facilities. The health situations in Palestine are similar to those of other low-income countries, where income, access to healthcare, and overall social determinants of health represent significant challenges. (Rosenthal, 2021). Cancer care in Palestine is focused primarily on treatment, with little emphasis on other essential elements of cancer care (Al-Shamsi et al., 2022). The lack of integrated, multidisciplinary care teams at MoH facilities hinders the delivery of comprehensive supportive care, leading to fragmented services and delays in accessing needed interventions (Mitwalli et al., 2023).

Additionally, Palestine faces unique socio-political and economic challenges that further impact the availability and accessibility of healthcare services, including those related to cancer (Ammar-Shehada & Bracke, 2023; Rosenthal, 2021). This gap is exacerbated by the absence of specific protocols or recommendations for supportive cancer care, particularly regarding informational and psychological assistance (Jubran et al., 2018). As a result, many patients are left without adequate informational, psychological, or practical support, which intensifies the physical and emotional consequences they are already struggling with due to cancer diagnosis and treatment.

6.3 Objective 1 and 2: Supportive Care Needs Influencing Factors

6.3.1 Sociodemographic determinants of supportive care needs: The study demonstrated that sociodemographic characteristics play a key role in predicting unmet needs among BC patients. In particular, older women (≥ 55 years) reported significantly higher physical and daily

living needs. These findings are consistent with previous research, which has similarly shown that age is an important determinant of supportive care requirements among BC survivors (Mayer & Engle, 2022; Mohile et al., 2018; Muhandiramge et al., 2022). In contrast, younger and married patients reported significantly greater unmet sexual and psychological needs. This aligns with evidence from Malaysia, Australia, Switzerland, Iran, and broader reviews showing that younger age and marriage are strongly associated with unmet sexual needs (Abdollahzadeh et al., 2014; Boyes et al., 2012; Fong & Cheah, 2016; Okediji et al., 2017; Schmid-Büchi et al., 2013). Similar results have been confirmed in Gaza, the UK, and Turkey, where younger women consistently reported higher psychological and sexual needs (Elsous et al., 2023; Lidington et al., 2021; Rizalar et al., 2024). Abdollahzadeh et al. study, which emphasized that younger BC patients have higher unmet needs in all supportive care domains (Abdollahzadeh et al. 2014).

These findings due to the fact that Older women often need more help with daily tasks because age and chronic illness increase physical difficulties, while younger women face higher sexual and psychological demands linked to body image, fertility, and relationships. Our study identified education as a significant predictor of global QoL, with higher education linked to improved overall well-being. Education plays a crucial role in improving women's health outcomes, as those with higher levels of education tend to have a deeper understanding of their illnesses and are more adept at seeking appropriate support. This aligns with previous findings that higher education is associated with fewer unmet supportive care needs and better QoL (Cheng et al., 2018; Nguyen, 2023; Wang et al., 2018). The positive effect can be explained by greater health literacy, which improves access to information and coping strategies (Wei et al., 2021). Moreover, women with higher education have been shown to report better health utility (Ngan et al., 2022). The unmet needs observed in Palestine are not random; rather, they follow patterns influenced by age, social roles, and access to information, mirroring findings from around the world. Sociodemographic factors such as age, marital status, and education significantly shape psychological, physical, and informational needs, which merit independent consideration. Understanding these influences is crucial for designing tailored interventions that address specific vulnerabilities and enhance the quality of care for BC patients.

6.3.2 Clinical determinants of supportive care needs: Findings showed that unmet supportive care needs (SCNs) were the highest during the initial phase of BC, notably within the first 6 months and in the subsequent 6–12 months post-diagnosis. During this phase, patients reported the most significant physical and daily life difficulties, which gradually decreased over time. These results align with previous studies that showed that needs decline with survivorship but remain significant in the first few years (Chou et al., 2020; Elsous et al., 2023; Fan et al., 2023). Another important determinant is chemotherapy treatment, which in our study increased the odds of unmet physical and daily living needs by more than fourfold. These findings are consistent with previous international studies from Australia, the Netherlands, and Turkey, showing that chemotherapy is associated with a higher symptom burden and greater unmet needs across physical, psychological, and sexuality domains (Boyes et al., 2012; Lo-Fo-Wong et al., 2020; Rizalar et al., 2024). Additionally, the presence of chronic

diseases further intensified unmet needs. Chronic illnesses such as hypertension, diabetes, and arthritis were associated with poorer physical and social functioning, greater fatigue, and pain, ultimately reducing QoL (Fu et al., 2015; Pérez-Fortis et al., 2017; Wu et al., 2019). Moreover, our study revealed that 59.9% of participants needed support in pain management. This finding is lower than local studies conducted in Gaza, where 75.5% (Elsous et al., 2023) and 87.3% (Abu-Odah et al., 2022) of participants reported a need for support in pain management under the physical and daily living needs domain. In comparison to global studies, our findings reveal higher rates of pain. For example, in Singapore (Cheng et al., 2014), Malaysia (Edib et al., 2016) and Fan et al large systematic review among BC patients (Fan et al., 2023). Clinical factors affect supportive care needs as treatments and disease stage directly influence patients' symptoms and functioning. Chemotherapy, surgery, and other therapies often increase pain, fatigue, and daily living difficulties, while comorbidities add further strain. These factors explain why unmet needs are greatest during active treatment and highlight the importance of integrating supportive care into clinical management.

6.3.3 Social support and supportive care domains: The study indicated that a significant percentage of women (84.5%) relied mainly on their families as the primary source of support during illness. This study emphasises the importance of familial engagement in the Palestinian context, where family relationships are deeply integrated into social life and become increasingly vital during health crises. Previous studies have highlighted the importance of family support, indicating that weak or unstable family relationships are strongly linked to increased unmet needs. Furthermore, a lack of sufficient support places patients at a greater risk of experiencing emotional and practical difficulties (Okati-Aliabad et al., 2022b; Schmid-Büchi et al., 2013). Consistent with this, other research has demonstrated that close relatives play an indispensable role in providing support during diagnosis, treatment, and survivorship (Ng et al., 2017).

Similarly, research has drawn attention to the close relationship between social support and multiple supportive care domains, indicating that when social networks are lacking, the demand for care intensifies across physical, psychological, and informational areas (Wabula et al., 2020). In the United States, Davis et al. (2018) noted that women with BC commonly turned to family members, friends and husbands for help, reflecting the broad spectrum of support that contributes to coping with illness (Davis et al., 2018). Moreover, Fan et al. (2023) in a large systematic reviews found that unmet needs related to social support accounted for nearly three-quarters of all reported needs, showing that this domain is a dominant and recurring concern for BC patients across settings (Fan et al., 2023). In Palestine, family support assumes even greater weight, as it provides emotional reassurance, reduces feelings of isolation, and offers practical help with daily responsibilities and treatment adherence. In this way, cultural expectations and family structures operate as protective resources that shape how women experience and navigate their illness. This evidence illustrates that social support, especially within the family, directly shapes how women manage their illness. Strong support networks buffer the strain of treatment, reduce psychological distress, and lessen unmet needs, whereas limited support magnifies these challenges. In this

way, social support emerges as a core determinant of whether patients' supportive care requirements are adequately addressed.

6.3.4 Spiritual well-being (SWB) among BC patients and QoL: Spiritual well-being (SWB) strongly associated with emotional and functional well-being (Al-Natour et al., 2017; Albusoul et al., 2022; Yilmaz & Cengiz, 2020). In our study of newly diagnosed Palestinian women one year after treatment, overall SWB was moderate ($M = 29.70$), with higher scores for Faith and Meaning but notably low scores for Peace, slightly below previous Palestinian findings (Abu-Odah et al., 2022; Jetan et al., 2023). Higher SWB was linked to a more positive body image and fewer symptoms. Women with stronger faith and sense of meaning felt less upset by treatment side effects and were more accepting of changes in their bodies. This is understandable, as faith and meaning can help them see illness as purposeful and manageable, thereby reducing emotional distress and promoting resilience.

This is consistent with evidence from Iran, where SWB supported coping with altered body image (Jafari et al., 2013), Jordan, where meaning and peace reduced symptom distress (Albusoul et al., 2022), and international findings showing that spirituality-based interventions improve body satisfaction and overall QoL (Akrawi et al., 2015; Machul et al., 2023; Muzdalifah et al., 2023; Sharifi et al., 2024; Tiggemann & Hage, 2019). SWB emerged as a key predictor of QoL, shaped by demographic and clinical factors such as age, education, employment, chronic illness, and family size, while QoL also varied by marital status, surgery type, and social support. Similar associations have been reported in Jordan, where meaning and peace enhanced SWB despite limited psychological care (Albusoul et al., 2022), in the U.S., where older age, female gender, and Black ethnicity predicted higher SWB (Munoz et al., 2015), and in Japan, where meaning and peace were linked to age and appetite (Kamijo & Miyamura, 2020). In the Palestinian context, spirituality is deeply rooted in religion, with illness often viewed as a divine test that fosters acceptance and resilience but may also reinforce stigma and silence around emotions (El Jabari et al., 2022; Seir & Kharroubi, 2017). The particularly low Peace scores in our study likely reflect this gap in emotional support, underscoring the need for culturally sensitive psychosocial care alongside spiritual coping.

6.4 Objective 3: Association between supportive care and QoL

6.4.1 Unmet supportive care needs and quality of life (QoL): The study findings revealed a strong negative association between unmet SCNs and several QoL domains, with psychological and health information needs showing the strongest links to poorer physical, emotional, and functional well-being. These results not only highlight the vulnerability of Palestinian women at the early stages of their cancer trajectory but also demonstrate higher levels of unmet needs compared with previous local studies conducted in the Gaza Strip (Abu-Odah et al., 2022; Elsous et al., 2023). At the same time, our findings consistent with regional and international results reporting similar associations between unmet needs and diminished QoL outcomes (Aghajari et al., 2024; Al-Omari et al., 2022; Cheng et al., 2016; Li et al.,

2022). Similar results from China also highlighted that 84% of patients reported at least one unmet need, with physical and psychological domains being predominant and strongly linked to poorer (So et al., 2014). However, compared to international data, the unmet needs in our study were higher than those reported in Malaysia and Mexico (Doubova et al., 2018; Edib et al., 2016). The evidence indicates that insufficient information and psychological support for women exacerbates their symptoms and reduces their functional capacity. The particularly high levels observed in Palestine reflect gaps in the healthcare system and highlight structural barriers in cancer care delivery, where limited resources, fragmented communication, and underdeveloped supportive services leave women more vulnerable to unmet needs.

In strengthening the practical implications of the study findings, it is essential to explicitly link key results to evidence-based mental health interventions. International psycho-oncology guidelines recommend integrating systematic psychological screening, individualized counseling, and structured anxiety-management programs into routine cancer care, as these interventions have been shown to reduce distress, improve coping capacity, and enhance overall quality of life. Incorporating such mental health services within oncology departments is particularly critical in resource-constrained settings such as Palestine, where emotional needs are high and access to psychological care remains limited. Supporting this need, a large meta-analysis from China synthesizing 63 studies and over 53,000 breast cancer patients demonstrated that anxiety and depression are highly prevalent, with each affecting nearly 38% of women. Breast cancer patients experienced substantially greater psychological distress than healthy controls, and symptom severity varied significantly across regions, with the highest levels observed in Northeast China. These findings underscore the importance of routine mental-health screening and targeted psychosocial interventions as fundamental components of breast cancer care and prognosis (Tao et al., 2021).

6.4.2 Newly diagnosed BC women unmet needs and QoL: Evidence indicates that women in the early stages of BC, whether newly diagnosed or beginning treatment, experience a decline in health-related QoL, especially in relation to pain, fatigue, and physical functioning, compared to their pre-diagnosis levels (Leung et al., 2014; Roszkowska & Białczyk, 2023; Zhou et al., 2022b). This is the first study in Palestine to examine the association between supportive care needs (SCNs) and QoL among newly diagnosed BC patients. It was conducted in two governmental hospitals in the southern West Bank, Bethlehem and Hebron, and defined “newly diagnosed BC” as women who were registered as new cases between August 2023 and July 2024. Our study showed that unmet supportive care needs were associated with poorer overall QoL. In particular, women with unmet physical and psychological needs reported significantly lower QoL. Women who experienced higher levels of fatigue, pain, dyspnoea, and insomnia reported more physical and psychological SCNs. This aligns with previous literature showing that newly diagnosed BC patients often face unique and intense SCNs that can severely reduce their QoL (Gutiérrez-Hermoso et al., 2022; Yan et al., 2016). In addition, in Switzerland and Iran, results showed that psychological and physical needs were identified as the most common unmet SCNs among newly diagnosed women

(Aghajari et al., 2024; Schmid-Büchi et al., 2013). Similarly, a study from Taiwan showed that supportive care needs peak at the time of diagnosis, with newly diagnosed women reporting the highest levels of unmet needs, which then decline significantly during follow-up (Chou et al. 2020). This aligns with our findings, where women in the early stages of BC also reported particularly elevated needs.

Moreover, our study reveals a significant positive association between surgery and QoL, as women who underwent surgical treatment reported higher global health scores. This improvement can be attributed to the reassurance of tumor removal and a renewed sense of hope. These findings are consistent with earlier studies showing that surgical interventions enhance emotional recovery, help women regain a sense of control and stability after diagnosis, and ultimately improve overall QoL in BC patients (Akca et al., 2014; Jay et al., 2020; Sinaei et al., 2017). Similarly, Akezaki et al. (2021) found that during the three months following BC surgery, patients' global health and functional domains, including physical, role, emotional, and social functioning, improved, largely due to the recovery of upper limb function, which is vital for daily activities and overall well-being (Akezaki et al., 2021). Despite these functional improvements, sexual well-being remains one of the most vulnerable dimensions of survivorship. A clinical practice review highlights that sexual health problems are highly prevalent among breast cancer survivors and arise from a combination of physical, psychological, and treatment-related factors. Survivors frequently experience dyspareunia, vaginal dryness, and pain during intercourse, alongside psychosocial challenges such as depression, body-image concerns, and relationship strain. These difficulties often interact bidirectionally, where sexual dysfunction exacerbates emotional distress and emotional distress further worsens sexual well-being. While available treatments include vaginal moisturizers, lubricants, topical estrogen, hyaluronic acid preparations, psychological counseling, and couples-based therapy, the review underscores major research and clinical gaps, especially related to age, ethnicity, and socioeconomic differences. The authors emphasize the need for holistic survivorship models that integrate sexual health as a core component of recovery rather than treating it as a secondary concern (Kennedy et al., 2024).

6.5. Objective 4: Quality of Life (QoL)

6.5.1 QoL Domains Assessment: The study showed that newly diagnosed women reported moderate global health, with physical functioning relatively preserved but emotional and social functioning considerably lower. Fatigue, insomnia, and pain were the most distressing symptoms. Similar patterns have been observed in Arab countries such as Egypt, Tunisia, and Sudan, where emotional difficulties and fatigue were among the strongest predictors of reduced QoL (Aldaak et al., 2022; Charfi et al., 2018; Ram et al., 2018). However, our scores were lower than those reported in the United Arab Emirates, Saudi Arabia, Lebanon, and Jordan (Abu-Helalah et al., 2014; Abu-Helalah et al., 2022; El Haidari et al., 2023; Smail et

al., 2023). International findings from Brazil, Germany, South Korea, and Ghana also confirm that early in the cancer trajectory, patients face declines in physical and role functioning alongside heightened fatigue (Costa et al., 2017; Nsafu et al., 2024; Silva & Lancellotti, 2021; Sun et al., 2014). In Palestine, comparable moderate QoL levels and similar symptom burdens have been documented in both the West Bank and Gaza Strip (Maraqa and Ahmead 2021; ElMokhallalati et al. 2022). These findings suggest that while Palestinian women maintain resilience in some functional domains, substantial challenges remain in the emotional and social dimensions of QoL. This underscores the need for interventions that address not only symptom management but also psychological and social support within the unique socio-political and healthcare context of Palestine.

Beyond the observed reductions in emotional and social functioning, the findings of this study also reveal the substantial psychological burden experienced by Palestinian women with breast cancer, including heightened anxiety, disturbed body image, and illness-related uncertainty. These psychosocial challenges are central to understanding variations in QoL, as global evidence consistently demonstrates that anxiety and depression are highly prevalent among breast cancer patients and strongly associated with poorer emotional, cognitive, and social functioning. Incorporating a mental health perspective is therefore essential for fully contextualizing the QoL outcomes observed in this population.

International literature further supports the long-term impact of psychological distress on survivorship outcomes. A longitudinal study from Germany found that anxiety and depression increased significantly 5–6 years after diagnosis compared with earlier follow-up periods. Poorer mental health outcomes were predicted by younger age, lower vocational status, the presence of comorbidities, having children, and type of surgery. Depression was more likely to worsen over time among women with comorbidities or parental responsibilities, whereas recurrence was associated with a lower likelihood of increasing anxiety. These findings underscore that psychological burden often persists long after active treatment, highlighting the need for sustained psychosocial support throughout survivorship (Breidenbach et al., 2023).

6.5.2 Quality of Life at Diagnosis (EORTC QLQ-C30): The study highlights notable variations in the QoL among newly diagnosed Palestinian women with BC. At diagnosis, physical and cognitive functioning were relatively well-preserved, while social functioning was significantly compromised. This reflects not only the physical burden of symptoms such as fatigue, insomnia, and dyspnea, but also the social stigma surrounding cancer that often leads to isolation (Ganz, 2006; Quattropani et al., 2017). The mean global health status score was moderate (45.78). This was lower than results from Brazil, India, and Iraq (Rashid et al., 2022; Saleh & Narjes, 2021; Santos et al., 2023; Shinde et al., 2020). Functional domain scores were highest for physical functioning, followed by cognitive, role, emotional, and lowest for social functioning. Regarding symptoms, fatigue and insomnia were most frequently reported, while nausea and vomiting were least common. When compared with earlier Palestinian findings, our participants reported higher physical functioning but lower

emotional scores than women in the West Bank and Gaza (ElMokhallalati et al., 2022; Maraqa & Ahmead, 2021). This decline may reflect reduced psychosocial support due to prolonged instability in the region.

In line with our results, previous studies across Bosnia and Herzegovina, Brazil, Tunisia, Egypt, and Saudi Arabia also reported fatigue and pain as the most prominent symptoms affecting QoL (Charfi et al., 2018; Costa et al., 2017; Gavric & Vukovic-Kostic, 2015; Imran et al., 2019; Shimozuma, 2022; Silva & Lancellotti, 2021). At the regional level, our findings of moderate global health scores are consistent with reports from Tunisia, Egypt, and Sudan (Alawadi & Ohaeri, 2009; Aldaak et al., 2022; Charfi et al., 2018; Rahou et al., 2017; Ram et al., 2018). Similar patterns of reduced QoL at diagnosis were also reported in Ethiopia, Iran, and China (Abebe et al., 2020; Mirzaei1 et al., 2019; Qi et al., 2018). In contrast, higher QoL scores have been observed in Ghana, South Korea, and the Netherlands (Nsaful et al., 2024; Vrancken Peeters et al., 2024). Importantly, evidence consistently shows that newly diagnosed women report worse QoL, particularly in pain, fatigue, and physical functioning, compared with their pre-diagnosis state (Leung et al., 2014; Zhou et al., 2022b).

In Palestine, similar QoL scores were reported in the West Bank (Maraqa & Ahmead, 2021; Thweib, 2011), while slightly higher scores were observed in the Gaza Strip (ElMokhallalati et al., 2022). A moderate QoL level among BC patients in Palestine suggests a mid-range state of well-being, indicating resilience in coping but also highlighting substantial unmet SCN needs, particularly in the physical, emotional, and social domains. These findings highlight the urgent need for targeted interventions within the unique socio-political and healthcare context of Palestine to enhance QoL for women at the point of diagnosis.

6.5.3 Quality of Life One Year Post-Treatment (EORTC QLQ-C23): One year after treatment, moderate body image concerns persisted among our participants ($M = 43.2$). Our score was lower than that reported in Iraq (Abdulhadi et al., 2022; Saleh & Narjes, 2021), Brazil (Campos et al., 2024; Santos et al., 2023), Saudi Arabia (Imran et al., 2019), and Pakistan (Malik, 2020). This suggests that although Palestinian women may cope with body image changes better than women in some other countries, possibly due to strong family ties and cultural resilience, they still face gaps that leave them more vulnerable to long-term emotional distress. However, the scores were higher than those reported in Iran (Tahmasebi-Ghorrabi et al., 2024) and Poland (Słowik et al., 2017). Furthermore, our results align with a recent Palestinian study conducted in the West Bank, which indicated that a significant proportion of women with BC experienced body image dissatisfaction, 43.1% were dissatisfied, and 58.8% did not see their body image as attractive, particularly among those undergoing major surgery or advanced therapies (Omari et al., 2024). These findings indicate that many Palestinian women continue to experience significant distress related to appearance and self-perception even after completing active treatment. Although they may adapt with some resilience, supported by strong family and community connections such as close family networks, shared caregiving, and cultural values, persistent gaps in healthcare and psychosocial services leave them vulnerable to ongoing emotional challenges.

Sexual functioning and enjoyment remained low in our sample (means = 34.5 and 34.7), consistent with findings from Brazil (Santos et al., 2023), however lower than those documented in Iraq and Saudi Arabia (Abdulhadi et al., 2022; Imran et al., 2019; Saleh & Narjes, 2021; Shimosuma, 2022). This may be explained by the side effects of treatment such as hormonal therapy, fatigue, and pain, combined with social norms against discussing sexuality and the absence of counseling services in cancer care, which make Palestinian women less likely to seek help for sexual concerns. Castelo-Branco and Mension (2024) report that sexual dysfunction is one of the most prevalent long-term complications among breast cancer survivors, affecting approximately 40–80% of women. Despite its high burden, sexual dysfunction remains largely underdiagnosed and undertreated, especially in sociocultural contexts where discussing sexuality is sensitive or stigmatized. According to their review, these difficulties are multifactorial, resulting from treatment-related changes, such as vaginal dryness, fatigue, and joint pain, alongside psychological distress, altered body image, and relationship strain. Evidence supports the effectiveness of targeted interventions, including vaginal moisturizers, lubricants, topical estrogen, psychoeducational programs, and couples-based therapy, whereas systemic treatments and general psychological interventions show limited benefit. The authors emphasize the urgent need for systematic assessment of sexual function and the integration of evidence-based sexual-health interventions into survivorship care to improve long-term well-being and overall quality of life (Castelo-Branco & Mension, 2024).

Hernández-Blanquissett et al. (2022) further emphasize that sexual dysfunction is a major yet frequently overlooked concern among breast cancer survivors, affecting up to 75% of women after treatment. Their findings indicate that even women with no prior sexual difficulties are at substantial risk of developing new dysfunction following chemotherapy, surgery, or radiotherapy, which can negatively impact body image, self-esteem, sexual desire, and physical comfort. Despite its high prevalence, sexual dysfunction is rarely evaluated in routine oncology practice, partly because many oncologists lack sufficient training to identify risk factors, provide anticipatory guidance, or refer patients to specialized sexual-health services. The study highlights the need for systematic screening, risk stratification, and specialized management of sexual dysfunction as essential components of survivorship care, aiming to improve overall quality of life for breast cancer survivors.

In this study, systemic therapy side effects were moderate, lower than in Iraq, Saudi Arabia, and Egypt (Imran et al., 2019; Saleh & Narjes, 2021; Shimosuma, 2022), but higher than in Brazil and Pakistan (Malik, 2020; da Silva et al., 2022). Arm and breast symptoms were higher than reported in Iraq (Saleh & Narjes, 2021) and Brazil (Barbosa et al., 2017), but similar to Saudi Arabia (Imran et al., 2019), underscoring the need for improved rehabilitation and symptom management. Women also reported ongoing sexual difficulties, shaped by both treatment effects and cultural taboos, alongside persistent worries about the future. Distress related to hair loss was Brazil (Santos et al., 2023), Poland (Konieczny & Fal, 2023),

and Egypt (Shimozuma, 2022). These variations may be explained by differences in treatment protocols, access to rehabilitation, and cultural attitudes toward reporting symptoms. However, the low score for distress about hair loss likely reflects that most women had completed chemotherapy by the time of data collection and had begun to regrow their hair. Over the years, many may have emotionally adapted to this change, turning their focus to concerns regarding body image, relationships, and long-term health.

A UK population-based study comparing long-term breast cancer survivors with women without a cancer history found that survivors, on average eight years post-diagnosis, continued to experience poorer cognitive functioning, greater fatigue, reduced sexual functioning, and higher odds of borderline-probable anxiety (Carreira et al., 2020). Although depression and social avoidance did not differ significantly, more advanced cancer stage and chemotherapy were strongly associated with worse outcomes. These findings reinforce the importance of integrating long-term psychosocial follow-up into breast cancer survivorship care. Evidence-based mental health interventions, such as fatigue-management programs, cognitive rehabilitation training, anxiety-reduction approaches (mindfulness-based stress reduction, CBT), and sexual-health counseling, are essential to address persistent symptoms that continue years after diagnosis. Incorporating these interventions into survivorship plans can enhance resilience, reduce chronic distress, and improve functional recovery

6.5.4 Determinants of QoL among BC: Sociodemographic characteristics such as age, education, marital status, and income play an important role in shaping QoL (Socha & Sobiech, 2021). In our study, several sociodemographic and clinical factors were significantly associated with women's QoL. Education showed a modest but positive relationship with QoL, as women with secondary or higher education reported better outcomes. This is consistent with evidence that education enhances knowledge of disease and treatment, leading to improved coping strategies and healthier lifestyles (Klein et al., 2011; Konieczny et al., 2020). Age was significantly associated with most QoL domains in our study. Younger women (≤ 40 years) reported better physical, role, and social functioning, whereas emotional functioning was higher among older women. These results are consistent with previous studies showing that younger women experience better recovery in physical and social domains, while older women face more persistent side effects and lower QoL, particularly in cognitive and physical functioning (El Battioui et al., 2025; Li et al., 2025; Park et al., 2011). Such differences are likely due to the higher comorbidity burden and greater treatment-related vulnerability in older patients. At the same time, older women generally adapted better to appearance-related changes, particularly when supported by spouses, yet they were more vulnerable in sexual functioning and enjoyment. By contrast, younger women reported more challenges related to body image, intimacy, and concerns about future health. This pattern is supported by international evidence indicating that younger age is often linked with poorer QoL following BC, while maturity in older age contributes to greater emotional stability and coping (Campos et al., 2024; Tan et al., 2014). Further studies confirm that younger women frequently experience poorer QoL after treatment, especially in domains of cognitive functioning, sexual health, and body image (Kostic et al., 2020; Omari et al., 2024; Santos et al.,

2023). Additionally, mastectomy was strongly associated with poorer body image, supporting evidence that breast-conserving surgery and reconstructive options enhance psychological outcomes (Barbosa et al., 2017; Konieczny & Fal, 2023).

Marital status emerged as an important factor influencing the QoL among BC patients. Women who were married reported better sexual functioning and greater sexual enjoyment; being married appeared to offer some protective effect in both areas. These findings line with previous studies that have highlighted that women in marital relationships reported higher levels of life satisfaction compared to their unmarried counterparts (Acil & Cavdar, 2014; Cobo-Cuenca et al., 2019). This supported by other studies that showed being in a supportive marital relationship can positively affect coping, intimacy, and overall well-being during cancer treatment (Ștefănuț et al., 2021; Valente et al., 2021).

Regarding partner or family support, our findings underscore the significant role of partner support in enhancing the QoL among women with BC. Husband/partner, plays a crucial role in improving resilience and treatment outcomes (Konieczny et al., 2020). According to Su et al. (2017) and da Silva et al. (2022), married women with BC who receive support from their partners and families during treatment are less likely to develop major depressive disorder. This emotional support contributes positively to their psychological well-being and, in turn, enhances their overall QoL (da Silva et al., 2022; Su et al., 2017). Family support was another strong determinant of QoL in our study. Women who reported strong family support experienced better resilience, greater hope, and overall improved well-being. This finding is consistent with previous research showing that emotional support from relatives strengthens psychological health (Meunier et al., 2007; Mishra & Saranath, 2019). Evidence from India (Wani et al., 2012), China (Yan et al., 2016), Spain (Calderon et al., 2021), and Malaysia (Ng et al. 2015), further confirms that strong family and community support reduces distress, enhances coping strategies, and leads to higher global and social functioning over time. These results highlight that family support is not only a source of emotional comfort but also a crucial resource that directly

Surgical treatment in our study was significantly associated with poorer body image and increased breast and arm symptoms, which negatively affected sexual relations and social activities. This aligns with previous evidence showing that mastectomy, in particular, has a strong negative impact on body image and overall QoL (Kostic et al., 2020; Papadopoulos et al., 2011; Słowik et al., 2017). At the same time, women who underwent surgery reported higher global health scores, possibly due to the reassurance of tumor removal, renewed hope, and closer interaction with healthcare providers. These findings are consistent with studies showing that surgical interventions, while challenging, can support emotional recovery, help women regain a sense of control, and ultimately improve long-term QoL (Akca et al., 2014; Jay et al., 2020; Sinaei et al., 2017). These results can be explained by the fact that surgery simultaneously creates physical and psychological challenges while also providing relief and hope through definitive treatment.

Chronic diseases were a significant factor influencing QoL in our study. Women with chronic diseases reported poorer physical functioning, a more negative outlook on the future, and greater emotional distress. They also experienced a heavier burden of systemic side effects, including fatigue, pain, dyspnoea, insomnia, and appetite loss, particularly among older women. These findings highlight how the presence of additional health problems adds to the overall challenges of cancer treatment and recovery. Our results are consistent with previous studies from India, USA and Indonesia showing that comorbidities significantly were strongly correlated with lower QoL in BC patients and complicate cancer care (Fu et al., 2015; Sebastian & Mathews, 2023; Yuliawati et al., 2024). In the Palestinian context, various factors are influenced by daily conditions that extend beyond the medical environment. Women frequently face limited access to specialised treatment, ongoing stress due to political instability, and cultural taboos regarding issues such as sexuality. Additionally, societal expectations place significant demands on women, alongside their domestic responsibilities. These challenges increase the physical and emotional burdens associated with BC, profoundly affecting how women perceive their treatment, relationships, and recovery journey.

6.6 Objective 5: Satisfaction and QoL

Patient satisfaction is a critical indicator of healthcare quality, strongly influencing treatment adherence and health outcomes (Manjali et al., 2020). In our study, overall satisfaction was low (45.6%), with higher ratings for doctors' and nurses' technical competence, but poor scores for waiting times and access to care. These findings align with results from Egypt, Ethiopia (Abate et al., 2020; Abdelsalam & Bayomi, 2022), and several European countries such as France, Slovakia, and Poland, where competent staff were valued but systemic delays and poor communication reduced satisfaction (Brédart et al., 2013; Obročníková & Majerníková, 2017; Skręt-Magierło et al., 2016). Compared internationally, our scores were lower than those in Italy and Poland (Djambazov et al., 2019; Rudzińska et al., 2025), but comparable to Iran, Switzerland, and Mexico (Balderas-Peña et al., 2019; Marino et al., 2021; Pishkuhi et al., 2014).

The low levels in Palestine highlight the need for healthcare improvements, particularly in accessibility, waiting times, and communication, to enhance patient satisfaction in BC. Long waiting times and limited access to care are likely due to resource shortages and referral delays. Poor communication may be caused by stressed employees and a lack of training. Patients' trust and adherence may suffer due to these variables, underscoring the need for more responsive and patient-centered treatment in this context. Also, patients with BC in Palestine frequently complain about the quality of healthcare services because of a fragmented and disorganized system that is made worse by political limitations that seriously delay or prevent them from receiving necessary specialized treatments like radiotherapy or necessary drugs.

5.7. Objective 6: Coping Strategies and QoL

Coping strategies significantly shape the survivorship journey of women with BC, with adaptive strategies such as acceptance, planning, emotional support, and positive thinking linked to improved QoL, while maladaptive strategies like denial, self-blame, and avoidance predict poorer outcomes (Ardakani et al., 2020; Elsheshtawy et al., 2014; Islam et al., 2023; Lake et al., 2019; Sharif & Khanekharab, 2017).

Among newly diagnosed patients, coping responses vary, with emotional support and acceptance associated with better QoL, and denial and self-blame associated with worse outcomes (Nipp et al. 2016; Greer et al. 2018). In our study, coping strategies also played a key role in shaping QoL. Although overall coping levels were moderate, specific strategies such as positive focus and diversion were strongly associated with better global QoL, explaining 34% and 41% of the variance, respectively. These results are consistent with international evidence demonstrating that coping strategies strongly predict QoL in BC patients. For example, in Iran, problem-focused coping explained 26.2% of the variance in functional QoL (Maleknia & Kahrazei, 2015), in Malaysia, effective coping and positive behaviors improved well-being (Dewi et al., 2023), in Spain, positive coping accounted for 34.2% of the variance in global QoL (Velasco et al., 2020), and in Turkey, positive focus reduced stress and improved adaptation, while distraction showed mixed but still meaningful effects on QoL (Bahcivan et al., 2021).

The most significant finding in our study is that global health QoL status showed strong positive correlations with all coping strategies, as well as with emotional functioning, nausea and vomiting, and appetite loss. This indicates that, despite all the different physical and social challenges they face, women who adopt coping strategies can maintain a more positive perception of their overall health and well-being (Lan et al. 2019; Dewi et al. 2023). Coping appears to provide psychological relief, enhance emotional stability, and allow women a sense of control in the midst of illness (Ośmiałowska et al., 2021; Sharif & Khanekharab, 2017).

At the same time, our study also revealed negative associations between coping strategies and several QoL domains, including physical, role, cognitive, and social functioning, alongside symptoms such as fatigue and pain, in addition to financial challenges. These negative associations probably show that women depend more on coping when they are already experiencing higher levels of distress and functional decline. In other words, coping does not create poorer outcomes but rather signals the intensity of the challenges women are facing. These findings underscore the double role of coping: although it may not eliminate the physical and financial challenges of cancer, it provides an essential defence that improves emotional well-being and supports women in maintaining a more optimistic perspective on their health and future.

Ineffective coping styles were closely linked with poorer psychological outcomes, whereas adaptive coping was associated with better emotional adjustment and higher overall quality of life. These results reinforce that coping, functional limitations, and psychological well-

being are deeply interconnected, as deterioration in physical or functional status often exacerbates distress when women rely on ineffective coping strategies (Hassanein et al., 2005). Beyond emotional functioning, mounting evidence shows that coping strategies also play a decisive role in shaping the physical symptom burden experienced by breast cancer patients. Physical symptoms such as pain, fatigue, and restricted mobility interact closely with coping behaviours, where maladaptive strategies tend to intensify somatic distress, while adaptive coping helps buffer its impact. Supporting this, a large prospective study from Poland showed that destructive coping was strongly associated with worse physical functioning and higher pain intensity, whereas constructive strategies correlated with better physical well-being and quality of life. Severe pain significantly impaired multiple QoL domains—including physical, cognitive, emotional, social, and sexual functioning—highlighting that physical discomfort is not an isolated outcome but closely intertwined with how women cope with illness-related challenges (Ośmiałowska et al., 2021).

Further evidence demonstrates that strengthening coping abilities may reduce the negative impact of treatment-related physical symptoms. A well-designed study among breast cancer survivors receiving adjuvant endocrine therapy found that coping self-efficacy plays a protective role against symptom burden. Although joint pain, fatigue, and hot flashes commonly reduced functional and emotional well-being, women with higher self-efficacy for coping experienced better outcomes despite similar symptom severity. High self-efficacy attenuated the link between physical symptoms and lower QoL—meaning that when women believed in their ability to manage symptoms, physical discomfort had far less influence on their functioning and emotional stability (Shelby et al., 2014). Recent evidence from a randomized clinical trial further reinforces the moderating power of coping. Higher symptom distress was strongly linked to poorer mood, reduced QoL, and lower therapy satisfaction; however, coping skills significantly buffered these associations. Among women with weaker coping, symptom distress predicted marked declines in QoL and higher depression levels, while those with stronger coping showed a much weaker link between distress and psychological outcomes. Self-efficacy also moderated the effects of symptom burden on depression and adherence, suggesting that women who feel more capable of managing symptoms are better able to maintain treatment adherence and emotional balance despite substantial physical discomfort. These findings underscore that coping and self-efficacy are critical psychological resources that can mitigate the adverse impact of physical symptoms and should therefore be integrated into routine supportive care interventions for breast cancer survivors (Post et al., 2024).

6.8 Limitations

This dissertation has several limitations that should be acknowledged. First, although it employed a follow-up design, the one-year observation period may not fully capture the long-term evolution of supportive care needs, coping strategies, satisfaction, spiritual well-being, and quality of life among women with breast cancer. Longer follow-up is needed to better understand the persistence of unmet needs and changes over the survivorship trajectory. Second, although the data were collected directly from patients using validated and standardized instruments, the reliance on self-reported questionnaires may still have introduced a limited degree of recall or social desirability bias, particularly in sensitive domains such as sexuality, spirituality, and body image. Third, the study's findings are context-specific to governmental hospitals in the southern West Bank, which may limit generalizability to other Palestinian regions or healthcare settings where service structures and socio-political conditions differ. Fourth, while instruments were carefully translated and culturally adapted, certain constructs, such as spirituality and coping, may not have been fully captured within the cultural and linguistic context, potentially affecting response accuracy. Finally, systemic and political barriers, including fragmented referral pathways, staff shortages, and mobility restrictions, may have influenced both patients' access to services and the representativeness of the sample.

6.9 Conclusions

The research findings emphasize the systemic shortcomings in the supportive care services available to women with BC in governmental hospitals. Social and political factors further exacerbate the challenges of delivering timely and comprehensive services to these patients. Such shortcomings directly affect the QoL of women with BC, both at diagnosis and throughout the treatment trajectory.

Across the first year after diagnosis, QoL was found to be moderate: while physical and cognitive functioning was relatively preserved, emotional, social, and sexual functioning were low, with fatigue, insomnia, and pain remaining highly prevalent. Older women reported greater physical and daily-living needs, often exacerbated by comorbidities, whereas younger and married women expressed more psychological and sexual concerns. This research also demonstrated that satisfaction with care is a strong determinant of QoL. Although participants expressed confidence in clinical competence, barriers such as limited access, prolonged waiting times, and inadequate information provision contributed to dissatisfaction and further unmet supportive care needs. These gaps highlight the importance of patient-centered, accessible, and responsive healthcare.

Furthermore, coping strategies and spiritual well-being were critical to women's adaptation. Positive coping strategies, particularly positive focus and diversion, were associated with

better global QoL, while family and partner support consistently buffered distress. SWB was moderate overall, with Faith and Meaning scoring higher than Peace, yet higher SWB was strongly linked to improved body image, sexual functioning, and fewer symptoms. In summary, the prevalence of unmet SCNs, low satisfaction with care, and challenges in coping and SWB were all key determinants of QoL among Palestinian women with BC. These factors, in interaction with sociodemographic and clinical characteristics, ultimately shaped treatment experiences and management outcomes. Addressing these needs through integrated, culturally sensitive, and patient-centered supportive care is essential to improving the QoL and health outcomes of women with BC in Palestine.

6.10 Recommendations

In light of the overall findings of this thesis, the following recommendations are proposed to inform clinical practice, guide supportive care strategies, and direct future research.

6.10.1 Policy-Level Recommendations

1. Mandate unified national oncology protocols to standardize cancer care across all hospitals, ensuring equity, minimizing fragmentation, and reducing regional disparities in service delivery.
2. Establish comprehensive cancer centers in each region (north, middle, and south) that integrate diagnosis, treatment, psychosocial support, and rehabilitation within a single facility, thereby reducing travel burdens and delays for patients, particularly under the political and mobility restrictions in Palestine.
3. Institutionalize psycho-oncology, social, and sexual-health counseling as essential components of national cancer policies to address stigma, meet unmet needs, and improve overall quality of life.
4. Create a national, patient-centered quality dashboard that requires all healthcare institutions to report on unmet supportive care needs, symptom burdens, satisfaction scores, and treatment delays, ensuring transparency, accountability, and equitable benchmarking across the health system.
5. Invest in workforce development through specialized oncology education and continuous training in supportive care, communication, and cultural competence to enhance patient-centered care.
6. Strengthen national mental health integration within cancer care, develop an official national framework for integrating mental health into oncology care, including mandatory psychological assessment at hospitals, accreditation standards for psycho-oncology units, and dedicated funding streams to ensure sustainability of mental health services across all cancer centres.

6.10.2 Management and Practice Recommendations

1. Introduce routine screening for supportive care needs (SCNs) at key stages (diagnosis, treatment, and follow-up) using validated tools, enabling early identification and timely interventions.
2. Assign nurse navigators or care coordinators to act as a single point of contact across specialties, improving care coordination, reducing fragmentation, and enhancing patient satisfaction.
3. Expand psycho-oncology services within hospitals and primary healthcare by embedding multidisciplinary teams (psychologists, social workers, counsellors) to address psychological distress and coping challenges.
4. Design and implement an acute oncology service model in partnership with key stakeholders to ensure timely, appropriate, and equitable care. Such a model will minimize differences in access and outcomes, and guarantee that patients receive the right care, in the right setting, at the right time.
5. Enhance coordination with emergency, ambulatory, and supportive care services, where appropriate, to ensure equitable access, strengthen system resilience, and align with national and clinical standards.
6. Provide standardized, culturally appropriate Arabic-language educational resources on treatment, side effects, and self-care practices, supplemented by family training sessions to promote active caregiver involvement.
7. Adopt interoperable electronic health record (EHR) systems across hospitals and primary care centers to ensure continuity of care, reduce duplication, and allow real-time access to supportive care data.
8. Implement standardized sexual-health assessment and counseling pathways: introduce structured clinical pathways for assessing and managing sexual dysfunction in breast cancer patients, including routine screening, clinician training, and referral mechanisms to sexologists or specialized counsellors, ensuring culturally sensitive and evidence-based care.

6.10.3 Research Recommendations

1. Develop validated patient-reported outcome measures (PROMs) tailored to the Palestinian context to better capture quality of life, supportive care needs, and well-being, guiding patient-centered interventions.
2. Conduct longitudinal studies tracking supportive care needs and quality of life across the care trajectory, from diagnosis through treatment to survivorship, to identify peak demand periods and persistent unmet needs.
3. Perform subgroup analyses focusing on under-researched populations such as younger
4. women, rural residents, and patients in palliative versus curative care, to address inequities in supportive care.

5. Undertake system-level assessments of the availability, accessibility, and quality of supportive care services across different regions and facility types, identifying gaps and resource limitations.
6. Employ advanced statistical and computational methods, such as structural equation modelling and machine learning, to explore complex interactions among sociodemographic, clinical, and psychosocial factors influencing quality of life and treatment outcomes.
7. Examine mental-health, sexual-health, and coping trajectories using mixed-methods research: conduct mixed-methods research to explore how psychological distress, sexual health concerns, and coping strategies evolve over time among Palestinian women with breast cancer, integrating qualitative insights to better understand sociocultural influences and guide targeted interventions.

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Appendices

Appendix 1: Study 1 Supplementary Tables

Table S1: Supportive care needs and socio-demographic variables (N=362)

Variables		Physical and daily living needs					Psychological needs					Sexuality needs				
		No need		Unmet needs		Chi-square	No need		Unmet needs		Chi-square	No need		Unmet needs		Chi-square
		N	%	N	%	P-value	N	%	N	%	P-value	N	%	N	%	p-value
Governorate	Hebron	24	64.9%	220	67.7%	0.73	60	66.7%	184	67.6%	0.86	144	69.2%	100	64.9%	0.38
	Bethlehem	13	35.1%	105	32.3%		30	33.3%	88	32.4%		64	30.8%	54	35.1%	
Residency	Refugee Camps	5	13.5%	22	6.8%	0.33	11	12.2%	16	5.9%	0.12	18	8.7%	9	5.8%	0.54
	Village	20	54.1%	195	60.0%		53	58.9%	162	59.6%		124	59.6%	91	59.1%	
	City	12	32.4%	108	33.2%		26	28.9%	94	34.6%		66	31.7%	54	35.1%	
Age (years)	≤40	13	35.1%	65	20.0%	0.02	6	6.7%	72	26.5%	<0.001	17	8.2%	61	39.6%	<0.001
	41-54	20	54.1%	166	51.1%		33	36.7%	153	56.3%		107	51.4%	79	51.3%	
	≥55	4	10.8%	94	28.9%		51	56.7%	47	17.3%		84	40.4%	14	9.1%	
Marital status	Single	6	16.2%	22	6.8%	0.07	7	7.8%	21	7.7%	0.45	21	10.1%	7	4.5%	0.001
	Married	30	81.1%	275	84.6%		73	81.1%	232	85.3%		163	78.4%	142	92.2%	
	Di-vorced/widow	1	2.7%	28	8.6%		10	11.1%	19	7.0%		24	11.5%	5	3.2%	
Education	Primary and less	4	10.8%	58	17.8%	0.72	29	32.2%	33	12.1%	<0.001	47	22.6%	15	9.7%	<0.001
	Secondary	19	51.4%	144	44.3%		33	36.7%	130	47.8%		96	46.2%	67	43.5%	
	Diploma	3	8.1%	28	8.6%		8	8.9%	23	8.5%		20	9.6%	11	7.1%	
	University and above	11	29.7%	95	29.2%		20	22.2%	86	31.6%		45	21.6%	61	39.6%	
Working status	Employee	11	29.7%	62	19.1%	0.21	12	13.3%	61	22.4%	0.004	35	16.8%	38	24.7%	0.01
	Housewife	26	70.3%	254	78.2%		72	80.0%	208	76.5%		164	78.8%	116	75.3%	
	Retired	0	0.0%	9	2.8%		6	6.7%	3	1.1%		9	4.3%	0	0.0%	
Number of children	≤5	27	73.0%	218	67.1%	0.47	60	66.7%	185	68.0%	0.81	133	63.9%	112	72.7%	0.08
	>5	10	27.0%	107	32.9%		30	33.3%	87	32.0%		75	36.1%	42	27.3%	
Family size	≤5	19	51.4%	113	34.8%	0.04	31	34.4%	101	37.1%	0.65	67	32.2%	65	42.2%	0.05
	>5	18	48.6%	212	65.2%		59	65.6%	171	62.9%		141	67.8%	89	57.8%	
Monthly Income (US \$)	<570	12	32.4%	151	46.5%	0.21	45	50.0%	118	43.4%	0.34	106	51.0%	57	37.0%	0.03
	570-1140	16	43.2%	122	37.5%		34	37.8%	104	38.2%		72	34.6%	66	42.9%	
	>1140	9	24.3%	52	16.0%		11	12.2%	50	18.4%		30	14.4%	31	20.1%	

Table S2: Supportive care needs and socio-demographic variables (N=362)

Variables		Patient care and support needs					Health information needs					Total				
		No need		Unmet needs		Chi-square	No need		Unmet needs		Chi-square	No need		Unmet needs		Chi-square
		N	%	N	%	p-value	N	%	N	%	p-value	N	%	N	%	p-value
Governorate	Hebron	40	60.6%	204	68.9%	0.19	16	69.6%	228	67.3%	0.82	94	66.7%	150	67.9%	0.81
	Bethlehem	26	39.4%	92	31.1%		7	30.4%	111	32.7%		47	33.3%	71	32.1%	
Residency	Refugee Camps	5	7.6%	22	7.4%	0.03	2	8.7%	25	7.4%	0.25	12	8.5%	15	6.8%	0.29
	Village	48	72.7%	167	56.4%		17	73.9%	198	58.4%		89	63.1%	126	57.0%	
	City	13	19.7%	107	36.1%		4	17.4%	116	34.2%		40	28.4%	80	36.2%	
Age (years)	≤40	7	10.6%	71	24.0%	<0.001	2	8.7%	76	22.4%	0.01	14	9.9%	64	29.0%	<0.001
	41-54	27	40.9%	159	53.7%		9	39.1%	177	52.2%		72	51.1%	114	51.6%	
	≥55	32	48.5%	66	22.3%		12	52.2%	86	25.4%		55	39.0%	43	19.5%	
Marital status	Single	7	10.6%	21	7.1%	0.22	4	17.4%	24	7.1%	0.11	14	9.9%	14	6.3%	0.46
	Married	51	77.3%	254	85.8%		16	69.6%	289	85.3%		116	82.3%	189	85.5%	
	Divorced/widow	8	12.1%	21	7.1%		3	13.0%	26	7.7%		11	7.8%	18	8.1%	
Education	Primary and less	19	28.8%	43	14.5%	0.004	9	39.1%	53	15.6%	0.03	32	22.7%	30	13.6%	0.04
	Secondary	27	40.9%	136	45.9%		8	34.8%	155	45.7%		66	46.8%	97	43.9%	
	Diploma	9	13.6%	22	7.4%		1	4.3%	30	8.8%		11	7.8%	20	9.0%	
	University and above	11	16.7%	95	32.1%		5	21.7%	101	29.8%		32	22.7%	74	33.5%	
Working status	Employee	11	16.7%	62	20.9%	0.61	4	17.4%	69	20.4%	0.67	27	19.1%	46	20.8%	0.56
	Housewife	54	81.8%	226	76.4%		19	82.6%	261	77.0%		109	77.3%	171	77.4%	
	Retired	1	1.5%	8	2.7%		0	0.0%	9	2.7%		5	3.5%	4	1.8%	
Number of children	≤5	48	72.7%	197	66.6%	0.33	16	69.6%	229	67.6%	0.84	94	66.7%	151	68.3%	0.74
	>5	18	27.3%	99	33.4%		7	30.4%	110	32.4%		47	33.3%	70	31.7%	
Family size	≤5	25	37.9%	107	36.1%	0.79	6	26.1%	126	37.2%	0.28	47	33.3%	85	38.5%	0.32
	>5	41	62.1%	189	63.9%		17	73.9%	213	62.8%		94	66.7%	136	61.5%	
Monthly Income (US \$)	<570	40	60.6%	123	41.6%	0.01	14	60.9%	149	44.0%	0.16	67	47.5%	96	43.4%	0.65
	570-1140	20	30.3%	118	39.9%		8	34.8%	130	38.3%		53	37.6%	85	38.5%	
	>1140	6	9.1%	55	18.6%		1	4.3%	60	17.7%		21	14.9%	40	18.1%	

Table S3a. Clinical characteristics, social support and supportive care needs (N=362)

Variables		Physical and daily living needs					Psychological needs					Sexuality needs				
		No need		Unmet needs		Chi-square	No need		Unmet needs		Chi-square	No need		Unmet needs		Chi-square
						p-value					p-value					p-value
		N	%	N	%		N	%	N	%		N	%	N	%	
Duration of having breast cancer	< 6 months	10	27.0%	80	24.6%	0.125	10	11.1%	80	29.4%	<0.001	37	17.8%	53	34.4%	<0.001
	6 months-1 year	1	2.7%	48	14.8%		9	10.0%	40	14.7%		23	11.1%	26	16.9%	
	> 1 year	26	70.3%	19	60.6%		71	78.9%	15	55.9%		148	71.2%	75	48.7%	
Stage of breast cancer at time of diagnosis	Stage 1	3	8.1%	21	6.5%	0.43	10	11.1%	14	5.1%	0.16	12	5.8%	12	7.8%	0.157
	Stage 2	16	43.2%	10	32.9%		27	30.0%	96	35.3%		62	29.8%	61	39.6%	
	Stage 3	16	43.2%	15	48.0%		40	44.4%	13	48.5%		108	51.9%	64	41.6%	
	Stage 4	2	5.4%	41	12.6%		13	14.4%	30	11.0%		26	12.5%	17	11.0%	
Family relative history of cancer	Breast cancer	10	27.0%	90	27.7%	0.97	24	26.7%	76	27.9%	0.95	48	23.1%	52	33.8%	0.07
	Other cancers	8	21.6%	74	22.8%		20	22.2%	62	22.8%		51	24.5%	31	20.1%	
	No cancer history	19	51.4%	16	49.5%		46	51.1%	13	49.3%		109	52.4%	71	46.1%	
Do you have chronic diseases?	No	30	81.1%	20	63.4%	0.03	45	50.0%	19	70.2%	<0.001	12	58.7%	11	74.0%	0.002
	Yes	7	18.9%	11	36.6%		45	50.0%	81	29.8%		86	41.3%	40	26.0%	
Do you take pain medication?	No	29	78.4%	15	46.5%	<0.001	44	48.9%	13	50.0%	0.85	103	49.5%	77	50.0%	0.93
	Yes	8	21.6%	17	53.5%		46	51.1%	13	50.0%		105	50.5%	77	50.0%	
Chemotherapy	No	4	10.8%	11	3.4%	0.03	4	4.4%	11	4.0%	0.87	7	3.4%	8	5.2%	0.39
	Yes	33	89.2%	31	96.6%		86	95.6%	26	96.0%		201	96.6%	14	94.8%	
Radiation therapy	No	12	32.4%	10	32.0%	0.96	20	22.2%	96	35.3%	0.02	52	25.0%	64	41.6%	0.001
	Yes	25	67.6%	22	68.0%		70	77.8%	17	64.7%		156	75.0%	90	58.4%	

Table S3b. Clinical characteristics, social support and supportive care needs (con.)

Variables		Physical and daily living needs					Psychological needs					Sexuality needs				
		No need		Unmet needs		Chi-square	No need		Unmet needs		Chi-square	No need		Unmet needs		Chi-square
		N	%	N	%	p-value	N	%	N	%	p-value	N	%	N	%	p-value
Hormone therapy	No	16	43.2%	15	46.8%	0.68	28	31.1%	14	51.5%	0.001	83	39.9%	85	55.2%	0.004
	Yes	21	56.8%	17	53.2%		62	68.9%	13	48.5%		12	60.1%	69	44.8%	
Biological therapy	No	27	73.0%	19	60.6%	0.14	50	55.6%	17	64.0%	0.15	11	54.3%	11	72.1%	0.001
	Yes	10	27.0%	12	39.4%		40	44.4%	98	36.0%		95	45.7%	43	27.9%	
Surgical therapy	No	11	29.7%	56	17.2%	0.06	12	13.3%	55	20.2%	0.14	31	14.9%	36	23.4%	0.04
	Yes	26	70.3%	26	82.8%		78	86.7%	21	79.8%		17	85.1%	11	76.6%	
Surgical intervention	Complete mastectomy	17	45.9%	10	31.4%	0.19	28	31.1%	91	33.5%	0.58	64	30.8%	55	35.7%	0.12
	Partial mastectomy	15	40.5%	16	49.8%		48	53.3%	12	47.4%		11	53.4%	66	42.9%	
	No surgical intervention	5	13.5%	61	18.8%		14	15.6%	52	19.1%		33	15.9%	33	21.4%	
Family and sons support	No	2	5.4%	54	16.6%	0.07	12	13.3%	44	16.2%	0.51	30	14.4%	26	16.9%	0.52
	Yes	35	94.6%	27	83.4%		78	86.7%	22	83.8%		17	85.6%	12	83.1%	
Husband or partner support	No	25	67.6%	24	75.1%	0.32	68	75.6%	20	73.9%	0.75	17	82.2%	98	63.6%	<0.001
	Yes	12	32.4%	81	24.9%		22	24.4%	71	26.1%		37	17.8%	56	36.4%	
Medical staff support	No	37	100.0%	31	98.2%	0.40	89	98.9%	26	98.2%	0.64	20	99.0%	15	97.4%	0.22
	Yes	0	0.0%	6	1.8%		1	1.1%	5	1.8%		2	1.0%	4	2.6%	
Other sources of support	No	32	86.5%	24	76.0%	0.15	69	76.7%	21	77.2%	0.91	15	76.4%	12	77.9%	0.74
	Yes	5	13.5%	78	24.0%		21	23.3%	62	22.8%		49	23.6%	34	22.1%	

Table S4a: Clinical characteristics, social support and supportive care needs(N=362)

Variables		Patient care and support needs					Health information needs					Total				
		No need		Unmet needs		Chi-square	No need		Unmet needs		Chi-square	No need		Unmet needs		Chi-square
		N	%	N	%	p-value	N	%	N	%	p-value	N	%	N	%	p-value
Duration of having breast cancer	< 6 months	10	15.2%	80	27.0%	0.09	4	17.4%	86	25.4%	0.45	18	12.8%	72	32.6%	<0.001
	6 months-1 year	8	12.1%	41	13.9%		2	8.7%	47	13.9%		19	13.5%	30	13.6%	
	> 1 year	48	72.7%	175	59.1%		17	73.9%	206	60.8%		104	73.8%	119	53.8%	
Stage of breast cancer at time of diagnosis	Stage 1	4	6.1%	20	6.8%	0.78	1	4.3%	23	6.8%	0.82	11	7.8%	13	5.9%	0.91
	Stage 2	26	39.4%	97	32.8%		7	30.4%	116	34.2%		47	33.3%	76	34.4%	
	Stage 3	29	43.9%	143	48.3%		13	56.5%	159	46.9%		66	46.8%	106	48.0%	
	Stage 4	7	10.6%	36	12.2%		2	8.7%	41	12.1%		17	12.1%	26	11.8%	
Family relative history of cancer	Breast cancer	13	19.7%	87	29.4%	0.19	3	13.0%	97	28.6%	0.21	32	22.7%	68	30.8%	0.23
	Other cancers	14	21.2%	68	23.0%		5	21.7%	77	22.7%		33	23.4%	49	22.2%	
	No cancer history	39	59.1%	141	47.6%		15	65.2%	165	48.7%		76	53.9%	104	47.1%	
Do you have chronic diseases?	No	36	54.5%	200	67.6%	0.04	13	56.5%	223	65.8%	0.36	83	58.9%	153	69.2%	0.04
	Yes	30	45.5%	96	32.4%		10	43.5%	116	34.2%		58	41.1%	68	30.8%	
Do you take pain medication?	No	35	53.0%	145	49.0%	0.55	12	52.2%	168	49.6%	0.80	79	56.0%	101	45.7%	0.05
	Yes	31	47.0%	151	51.0%		11	47.8%	171	50.4%		62	44.0%	120	54.3%	
Chemotherapy	No	2	3.0%	13	4.4%	0.62	1	4.3%	14	4.1%	0.09	6	4.3%	9	4.1%	0.93
	Yes	64	97.0%	283	95.6%		22	95.7%	325	95.9%		135	95.7%	212	95.9%	
Radiation therapy	No	15	22.7%	101	34.1%	0.07	7	30.4%	109	32.2%	0.86	34	24.1%	82	37.1%	0.01

Table S4b. Clinical characteristics, social support and supportive care needs (con.)

Variables		Patient care and support needs					Health information needs					Total				
		No need		Unmet needs		Chi-square	No need		Unmet needs		Chi-square	No need		Unmet needs		Chi-square
		N	%	N	%	p-value	N	%	N	%	p-value	N	%	N	%	p-value
Hormone therapy	No	21	31.8%	147	49.7%	0.009	7	30.4%	161	47.5%	0.11	48	34.0%	120	54.3%	<0.001
	Yes	45	68.2%	149	50.3%		16	69.6%	178	52.5%		93	66.0%	101	45.7%	
Biological therapy	No	35	53.0%	189	63.9%	0.10	15	65.2%	209	61.7%	0.73	75	53.2%	149	67.4%	0.007
	Yes	31	47.0%	107	36.1%		8	34.8%	130	38.3%		66	46.8%	72	32.6%	
Surgical therapy	No	8	12.1%	59	19.9%	0.14	4	17.4%	63	18.6%	0.88	20	14.2%	47	21.3%	0.09
	Yes	58	87.9%	237	80.1%		19	82.6%	276	81.4%		121	85.8%	174	78.7%	
Surgical intervention	Complete mastectomy	17	25.8%	102	34.5%	0.24	9	39.1%	110	32.4%	0.63	44	31.2%	75	33.9%	0.48
	Partial mastectomy	33	50.0%	144	48.6%		9	39.1%	168	49.6%		67	47.5%	110	49.8%	
	No surgical intervention	16	24.2%	50	16.9%		5	21.7%	61	18.0%		30	21.3%	36	16.3%	
Family and sons support	No	9	13.6%	47	15.9%	0.65	1	4.3%	55	16.2%	0.13	17	12.1%	39	17.6%	0.15
	Yes	57	86.4%	249	84.1%		22	95.7%	284	83.8%		124	87.9%	182	82.4%	
Husband or partner support	No	51	77.3%	218	73.6%	0.54	18	78.3%	251	74.0%	0.65	107	75.9%	162	73.3%	0.58
	Yes	15	22.7%	78	26.4%		5	21.7%	88	26.0%		34	24.1%	59	26.7%	
Medical staff support	No	64	97.0%	292	98.6%	0.33	22	95.7%	334	98.5%	0.29	137	97.2%	219	99.1%	0.16
	Yes	2	3.0%	4	1.4%		1	4.3%	5	1.5%		4	2.8%	2	0.9%	
Other support	No	51	77.3%	228	77.0%	0.96	18	78.3%	261	77.0%	0.88	109	77.3%	170	76.9%	0.93

Appendix 2: Study 2 Supplementary Tables

Table S1a: Supportive care needs and socio-demographic variables (N=147)

Variables	Physical & daily living	Psych ological	Health information	Patient care & support	Sexual needs
	Mean	Mean	Mean	Mean	Mean
Residence					
Refugee camp	101.50	105.68	96.91	89.41	68.41
Village	72.96	67.50	64.54	64.98	73.75
City	64.13	74.48	82.92	83.91	70.93
P-value	0.029	0.015	0.008	0.01	0.88
Age in years					
≤ 40	68.55	88.07	80.10	81.17	91.52
41–54	76.80	55.57	64.24	63.07	51.83
P-value	0.23	0.001	0.022	0.009	0.001
Marital status					
Unmarried	67.00	74.83	67.65	60.55	53.15
Married	73.39	72.13	73.28	74.43	75.62
P-value	0.52	0.78	0.57	0.16	0.02
Education					
Primary and less	85.55	46.53	61.66	60.87	47.45
Secondary	68.74	77.10	72.70	70.98	71.02
Colleague/University	72.05	75.88	75.40	77.11	80.89
P-value	0.30	0.014	0.44	0.30	0.007
Working status					
Employee	69.33	74.52	79.12	78.29	77.87
Housewife	73.76	71.69	69.86	70.19	70.36
P-value	0.56	0.71	0.22	0.29	0.32
NO. of children					
≤5 persons	71.66	76.35	73.76	74.17	76.67
>5 persons	74.28	64.30	69.82	68.95	63.62
P-value	0.72	0.10	0.59	0.48	0.07
Family size					
≤5 persons	70.25	71.28	62.88	67.76	72.54
>5 persons	73.73	73.17	77.77	75.10	72.48
P-value	0.63	0.79	0.04	0.31	0.99
Income (US \$)					
< 570	86.19	74.05	86.19	71.70	71.13
570-1140	65.84	70.73	65.84	72.24	68.91
> 1140	62.73	73.30	62.73	74.28	81.45
P-value					

Table S1b: Supportive care needs, clinical and social support variables (N=147) (con.)

Variables	Physical & daily living	Psychological	Health information	Patient care & support	Sexual needs
	Mean	Mean	Mean	Mean	Mean
Stage at diagnosis					
Stage 1	75.73	73.68	71.18	74.86	78.09
Stage 2	71.99	73.78	72.00	67.80	75.65
Stage 3	69.35	72.26	74.35	77.09	70.41
Stage 4	92.35	65.30	64.80	67.30	61.70
P-value	0.43	0.94	0.92	0.63	0.70
Chronic disease					
Yes	74.48	56.20	65.77	67.89	56.78
No	71.54	80.40	75.76	74.73	80.12
P-value	0.69	0.001	0.17	0.35	0.001
Pain Medication					
Yes	83.13	74.62	75.54	73.39	72.29
No	57.19	69.44	68.13	71.22	72.81
P-value	0.001	0.46	0.29	0.75	0.94
Relatives cancer					
Breast Cancer	68.03	79.43	82.38	79.30	79.65
Other Cancers	70.13	62.37	76.26	72.96	72.49
No history of cancer	76.30	73.62	64.87	68.33	68.36
P-value	0.56	0.20	0.08	0.41	0.38
Family support					
Yes	70.67	72.29	71.33	71.55	73.75
No	83.88	73.78	79.75	78.40	64.73
P-value	0.18	0.88	0.40	0.49	0.36
Husband support					
Yes	70.08	76.97	73.51	81.76	86.58
No	73.57	70.54	72.06	68.43	66.31
P-value	0.64	0.39	0.84	0.07	0.007
Other support					
Yes	76.63	62.85	72.00	66.19	63.92
No	71.59	74.63	72.61	73.89	74.39
P-value	0.57	0.19	0.94	0.39	0.24

Table S2a: QLQ-C30 Functional scales and socio-demographic variables (N=147)

Variables	Physical function	Role function	Emotional function	Cognitive function	Social function
	Mean	Mean	Mean	Mean	Mean
Residence					
Refugee camp	62.14	63.95	42.45	63.95	68.73
Village	72.51	74.53	77.99	71.98	70.36
City	75.13	70.44	68.70	75.78	77.95
P-value	0.65	0.64	0.021	0.68	0.57
Age in years					
≤ 40	84.65	83.05	64.49	78.59	86.03
41–54	59.29	61.04	81.20	65.88	57.80
P-value	0.001	0.001	0.001	0.06	0.001
Marital status					
Unmarried	69.55	80.73	67.08	64.38	20.00
Married	72.98	71.17	73.38	73.81	80.97
P-value	0.73	0.30	0.52	0.34	0.001
Education					
Primary and less	53.79	63.89	89.47	58.29	47.50
Secondary	73.48	71.72	68.75	73.16	72.73
Colleague/University	76.96	75.61	70.93	75.96	79.39
P-value	0.09	0.50	0.15	0.25	0.01
Working status					
Employee	86.44	72.15	75.73	79.95	85.50
Housewife	66.95	72.64	71.21	69.53	67.33
P-value	0.01	0.94	0.55	0.16	0.01
Number of children					
≤5 persons	76.32	73.30	72.47	77.06	73.22
>5 persons	64.37	70.79	72.57	62.79	70.97
P-value	0.10	0.71	0.99	0.05	0.75
Family size					
≤5 persons	75.95	74.42	75.19	78.95	67.50
>5 persons	70.61	71.45	71.03	68.96	75.24
P-value	0.46	0.66	0.56	0.16	0.27
Income (US \$)					
< 570	61.73	64.23	69.70	65.53	70.00
570-1140	76.64	77.03	73.97	74.29	72.13
> 1140	82.23	77.45	74.30	80.47	77.27
P-value	0.05	0.15	0.82	0.24	0.72

**Table S2b: QLQ-C30 Functional scales, clinical and social support variables (N=147)
(con.)**

Variables	Physical function	Role function	Emotional function	Cognitive function	Social function
	Mean	Mean	Mean	Mean	Mean
Stage at diagnosis					
Stage 1	87.32	65.09	69.27	70.14	81.86
Stage 2	71.20	70.16	64.09	70.86	69.34
Stage 3	73.17	75.05	76.02	72.70	75.25
Stage 4	59.40	77.70	101.90	83.30	62.60
P-value	.480	.780	.040	.840	.610
Chronic disease					
Yes	53.30	61.26	77.74	63.54	52.56
No	81.80	77.95	69.96	76.84	82.16
P-value	0.001	0.01	0.28	0.06	0.001
Pain Medication					
Yes	67.11	69.78	68.72	70.65	64.71
No	80.26	76.42	77.94	75.16	83.73
P-value	0.06	0.314	0.18	0.51	0.006
Relatives cancer					
Breast Cancer	75.33	72.99	59.83	68.79	77.78
Other Cancers	64.09	69.27	80.47	68.41	73.73
No history of cancer	75.13	73.86	75.80	76.72	68.82
P-value	0.38	0.84	0.06	0.49	0.53
Family support					
Yes	72.42	72.63	72.28	72.79	74.11
No	73.00	71.68	73.85	70.73	62.53
P-value	0.95	0.91	0.87	0.83	0.24
Husband support					
Yes	80.91	72.00	68.41	80.93	89.88
No	68.80	72.72	74.30	68.79	64.86
P-value	0.10	0.91	0.43	0.10	0.001
Other support					
Yes	73.44	72.88	79.42	72.08	68.62
No	72.29	72.42	70.97	72.59	73.36
P-value	0.89	0.95	0.34	0.95	0.59

Table S3a: QLQ-C30 Symptom scales and socio-demographic variables (N=147)

Variables	Fatigue	Nausea/ Vomiting	Pain	Dyspnoea	Insomnia
	Mean	Mean	Mean	Mean	Mean
Residence					
Refugee camp	91.18	76.77	80.00	62.41	84.77
Village	69.93	68.01	69.84	76.43	67.75
City	73.10	80.80	76.15	66.85	79.30
P-value	0.27	0.16	0.57	0.29	0.17
Age in years					
≤ 40	68.74	77.39	66.79	62.04	73.78
41–54	76.59	67.18	78.71	83.87	71.11
P-value	0.25	0.09	0.07	0.001	0.69
Marital status					
Unmarried	75.25	82.28	73.50	77.80	74.88
Married	72.06	70.92	72.34	71.65	72.12
P-value	0.74	0.20	0.90	0.52	0.77
Education					
Primary and less	84.63	63.45	86.00	90.61	77.32
Secondary	73.40	70.67	76.30	71.24	74.15
Colleague/University	68.28	76.65	65.38	68.46	69.71
P-value	0.30	0.34	0.09	0.09	0.70
Working status					
Employee	62.65	74.52	61.51	68.82	66.02
Housewife	76.42	71.69	76.87	73.97	75.08
P-value	0.07	0.68	0.04	0.48	0.22
Number of children					
≤5 persons	68.67	71.70	71.46	67.69	73.27
>5 persons	80.65	74.21	74.72	82.75	70.86
P-value	0.10	0.70	0.65	0.03	0.73
Family size					
≤5 persons	70.85	75.86	71.34	68.70	74.74
>5 persons	73.40	70.66	73.13	74.59	71.27
P-value	0.72	0.42	0.80	0.39	0.62
Income (US \$)					
< 570	77.89	73.23	84.13	80.38	83.40
570-1140	68.59	76.08	64.44	69.93	63.78
> 1140	71.06	64.61	68.70	64.52	71.13
P-value	0.48	0.36	0.03	0.17	0.03

Table S3b: QLQ-C30 Symptom, clinical and social support variable (N=147) (con.)

Variables	Fatigue	Nausea/ Vomiting	Pain	Dyspnoea	Insomnia
	Mean	Mean	Mean	Mean	Mean
Stage at diagnosis					
Stage 1	75.05	84.00	70.41	69.64	86.05
Stage 2	76.09	73.84	74.92	74.33	71.84
Stage 3	69.02	69.68	69.46	73.66	71.78
Stage 4	71.50	70.45	80.50	57.50	66.15
P-value	.810	.670	.800	.650	.670
Chronic disease					
Yes	82.18	74.57	78.13	85.87	71.98
No	67.81	71.49	69.77	66.02	72.75
P-value	0.04	0.64	0.24	0.004	0.91
Pain Medication					
Yes	80.10	72.89	81.46	78.39	77.68
No	61.55	71.93	59.59	64.01	65.03
P-value	0.008	0.87	0.002	0.03	0.06
Relatives cancer					
Breast Cancer	79.64	74.60	79.86	65.26	75.86
Other Cancers	69.80	75.06	72.77	78.54	62.69
No history of cancer	69.73	69.99	68.09	73.63	75.53
P-value	0.43	0.73	0.34	0.33	0.25
Family support					
Yes	73.15	72.04	72.63	71.06	74.50
No	68.48	75.33	71.73	81.40	60.13
P-value	0.63	0.71	0.92	0.28	0.13
Husband support					
Yes	75.90	76.97	69.95	63.97	68.89
No	71.01	70.54	73.62	76.26	74.09
P-value	0.51	0.33	0.61	0.09	0.47
Other support					
Yes	66.54	73.62	67.52	63.85	62.23
No	73.81	72.25	73.60	74.41	74.76
P-value	0.41	0.86	0.49	0.22	0.15

Table S4a: QLQ-C30 Symptom scales and socio-demographic variables (N=147)

Variables	Appetite Loss	Constipation	Diarrhoea	Financial Difficulties	Global health status
	Mean	Mean	Mean	Mean	Mean
Residence					
Refugee camp	73.59	74.23	65.73	71.14	40.32
Village	67.49	70.61	73.38	76.07	75.35
City	82.71	76.01	72.38	65.37	74.77
P-value	0.71	0.91	0.49	0.11	0.96
Age in years					
≤ 40	71.38	72.81	74.46	74.57	72.63
41–54	73.72	72.17	70.37	70.40	72.36
P-value	0.71	0.91	0.49	0.11	0.96
Marital status					
Unmarried	77.33	76.00	69.30	69.28	65.68
Married	71.72	71.94	73.02	73.02	73.60
P-value	0.53	0.64	0.66	0.69	0.42
Education					
Primary and less	68.45	69.29	84.00	80.05	53.97
Secondary	73.99	70.71	65.48	75.72	67.36
Colleague/University	72.36	74.96	75.31	67.57	82.20
P-value	0.85	0.73	0.09	0.35	0.01
Working status					
Employee	70.22	67.26	77.71	64.68	81.16
Housewife	73.41	74.59	70.43	75.61	69.05
P-value	0.648	0.270	0.269	0.137	0.112
Number of children					
≤5 persons	71.59	71.03	72.72	69.01	71.71
>5 persons	74.43	75.63	72.03	79.93	74.17
P-value	0.67	0.47	0.91	0.12	0.73
Family size					
≤5 persons	75.60	68.79	73.97	70.59	74.90
>5 persons	70.80	74.53	71.69	73.55	71.18
P-value	0.46	0.36	0.71	0.66	0.60
Income (US \$)					
< 570	73.77	77.04	78.92	83.24	63.54
570-1140	72.34	65.43	67.35	68.05	76.77
> 1140	70.73	78.38	71.72	63.39	79.06
P-value	0.93	0.13	0.22	0.04	0.14

Table S4b: QLQ-C30 Symptom, clinical and social support (N=147) (con.)

Variables	Appetite Loss	Constipa tion	Diarrhoea	Financial Difficulties	Global health status
	Mean	Mean	Mean	Mean	Mean
Stage at diagnosis					
Stage 1	89.50	56.95	72.27	86.23	86.23
Stage 2	72.23	77.78	71.82	72.19	72.19
Stage 3	66.68	71.19	73.04	69.54	69.54
Stage 4	80.00	67.50	73.20	78.45	78.45
P-value	0.03	0.31	0.99	0.59	0.42
Chronic disease					
Yes	78.34	75.67	73.50	78.97	68.70
No	69.67	70.96	72.02	69.37	74.34
P-value	0.197	0.462	0.815	0.174	0.44
Pain Medication					
Yes	78.19	76.16	73.54	73.93	68.19
No	64.31	67.23	71.01	70.44	78.70
P-value	0.030	0.143	0.676	0.605	0.13
Relatives cancer					
Breast Cancer	78.69	72.60	70.99	69.55	75.55
Other Cancers	70.94	70.36	77.01	83.20	77.26
No history of cancer	69.70	73.53	71.09	68.78	68.32
P-value	0.47	0.91	0.69	0.18	0.49
Family support					
Yes	72.22	72.19	74.09	71.48	70.84
No	74.25	74.40	62.63	78.80	82.80
P-value	0.82	0.79	0.18	0.44	0.22
Husband support					
Yes	67.50	71.50	66.10	70.65	79.35
No	74.70	72.94	75.32	73.32	69.49
P-value	0.29	0.82	0.15	0.71	0.18
Other support					
Yes	67.29	73.42	70.04	72.85	85.35
No	73.65	72.30	73.04	72.42	69.67
P-value	0.43	0.88	0.69	0.96	0.07

Appendix 3: Study 3 Supplementary Tables

Table S1: QLQ-C30 functional scales and socio-demographic variables (N=147)

Variables	Physical function	Role function	Emotional function	Cognitive function	Social function
	Mean	Mean	Mean	Mean	Mean
Place of residence*					
Refugee camp*	84.41	82.00	103.7	81.91	81.82
Village	73.41	71.59	68.33	74.27	72.96
City	72.63	77.03	78.42	71.45	74.23
Z or X²	4.95	1.45	7.54	1.98	0.59]
P-value	0.69	0.59	0.02	0.75	0.79
Age in years*					
≤ 40	64.49	76.18	90.83	70.21	78.26
41–54	67.51	65.03	74.86	71.82	73.53
≥55	98.23	89.96	53.00	82.81	70.09
Z or X²	8.635	6.386	12.309	1.487	0.35
P-value	0.001	0.01	0.001	0.35	0.68
Marital status**					
Unmarried	80.53	67.82	78.29	84.61	66.71
Married	73.03	74.92	73.36	72.43	75.08
Z or X²	-0.71	-0.72	-0.47	-1.18	-0.82
P-value	0.472	0.467	0.635	0.237	0.410
Education*					
Primary and less	95.10	85.18	60.25	90.45	72.40
Secondary	73.65	74.57	78.04	73.24	78.58
Colleague/University	68.01	70.16	74.49	69.77	70.37
Z or X²	6.70	1.60	1.38	4.33	1.18#
P-value	0.043	0.330	0.261	0.150	0.526
Working status**					
Employee	59.54	73.70	69.78	65.40	70.17
Housewife	79.59	74.12	75.63	77.33	75.48
Z or X²	-2.53	-0.05	-0.75	-1.54	-0.69
P-value	0.01	0.95	0.45	0.12	0.48
Number of children**					
≤5 persons	70.44	73.68	74.08	69.77	72.85
>5 persons	81.59	74.68	73.83	83.00	76.46
Z or X²	-1.48	-0.14	-0.03	-1.78	-0.49
P-value	0.13	0.88	0.97	0.07	0.621
Family size **					
≤5 persons	72.87	73.62	72.46	68.82	68.85
>5 persons	74.64	74.21	74.87	76.92	76.90
Z or X²	-0.24	-0.08	-0.33	-1.12	-1.13
P-value	0.80	0.93	0.74	0.26	0.25
Monthly salary (US \$)*					
< 570	86.65	83.58	77.76	81.84	79.44
570–1140	68.60	68.52	72.11	71.77	73.79
> 1140	62.95	68.27	71.27	65.02	65.23
Z or X²	11.09	7.22	0.82	2.77	5.38
P-value	0.01	0.08	0.70	0.17	0.30

Significant p-value at $p < 0.05$ (2 tailed). *Variables were tested by Kruskal Wallis test and presented as Chi-square

**Variables were tested by Mann Whitney U test and presented as z value

Table S2. QLQ-C30 symptom scales and socio-demographic variables (N=147)

Variables	Fatigue	Nausea/Vomiting	Pain	Dyspnoea	Insomnia
	Mean	Mean	Mean	Mean	Mean
Place of residence*					
Refugee camp*	92.00	78.23	81.36	63.05	85.59
Village	71.19	69.93	70.82	77.63	69.21
City	75.38	81.45	78.81	69.16	81.13
Z or X²	2.56	2.16	2.49	0.95	1.35
P-value	0.29	0.23	0.47	0.34	0.17
Age in years*					
< 40	74.98	78.25	78.64	70.24	81.20
41–54	71.65	76.19	67.48	69.67	72.75
≥55	77.73	64.64	82.11	87.21	68.34
Z or X²	0.72	1.02	4.46	4.69	1.37
P-value	0.77	0.23	0.16	0.09	0.37
Marital status**					
Unmarried	76.03	85.97	73.45	79.32	74.08
Married	73.70	72.22	74.08	73.21	73.99
Z or X²	-0.22	-1.47	-0.06	-0.60	-0.00
P-value	0.82	0.14	0.95	0.544	0.99
Education*					
Primary and less	88.18	63.70	90.28	94.08	80.75
Secondary	75.52	72.83	78.24	72.62	76.10
Colleague/University	68.41	78.12	65.34	69.25	70.10
Z or X²	6.62	1.77	5.49	5.28	1.84
P-value	0.17	0.31	0.03	0.05	0.52
Working status**					
Employee	63.09	75.98	62.37	69.61	66.39
Housewife	78.22	73.24	78.50	75.70	76.94
Z or X²	-1.95	-0.39	-2.10	-0.81	-1.39
P-value	0.05	0.69	0.03	0.41	0.16
Number of children**					
≤5 persons	70.35	73.55	73.26	69.16	74.95
>5 persons	81.78	74.96	75.57	84.31	71.99
Z or X²	-1.53	-0.21	-0.31	-2.09	-0.40
P-value	0.12	0.83	0.75	0.04	0.68
Family size **					
≤5 persons	73.99	78.02	75.08	70.75	77.42
>5 persons	74.01	71.73	73.39	75.83	72.07
Z or X²	-0.00	-0.96	-0.23	-0.72	-0.76
P-value	0.99	0.33	0.81	0.47	0.44
Monthly salary (US \$)*					
< 570	80.80	75.42	87.48	82.23	85.89
570-1140	69.21	77.00	64.30	71.34	64.70
> 1140	71.66	65.89	69.75	65.19	71.66
Z or X²	1.06	3.03	8.35	2.37	7.44
P-value	0.31	0.38	0.01	0.14	0.02

Significant p-value at $p < 0.05$ (2 tailed). *Variables were tested by Kruskal Wallis test and presented as Chi-square

**Variables were tested by Mann Whitney U test and presented as z value

Table S3. QLQ-C30 symptom, global health and socio-demographic (N=147)

Variables	Appetite Loss	Constipation	Diarrhoea	Financial Difficulties	Global health status
	Mean	Mean	Mean	Mean	Mean
Place of residence*					
Refugee camp*	75.09	75.82	67.00	71.91	42.27
Village	68.37	72.39	75.24	77.24	70.55
City	85.50	76.92	73.16	67.74	77.05
Z or X²	4.140	0.902	0.599	2.083	8.997
P-value	0.053	0.786	0.765	0.436	0.033
Age in years*					
< 40	84.49	67.93	78.98	71.50	70.98
41–54	67.36	80.31	70.40	75.06	76.34
≥55	75.67	67.96	75.73	74.67	72.64
Z or X²	4.313	4.287	1.266	1.126	1.458
P-value	0.076	0.124	0.465	0.900	0.792
Marital status**					
Unmarried	76.03	79.26	71.87	67.87	69.53
Married	73.70	73.22	74.32	74.91	74.66
Z or X²	-0.246	-0.669	-0.274	-0.705	-0.497
P-value	0.806	0.503	0.784	0.481	0.619
Education*					
Primary and less	73.48	69.55	83.63	84.00	53.63
Secondary	75.93	71.37	67.73	77.07	69.10
College/University	72.43	77.69	76.74	68.27	84.47
Z or X²	0.049	1.882	2.769	3.580	12.886
P-value	0.875	0.528	0.169	0.237	0.008
Working status**					
Employee	71.59	68.70	79.17	65.39	83.80
Housewife	74.93	76.05	72.00	77.33	70.21
Z or X²	-0.472	-1.089	-1.071	-1.597	-1.757
P-value	0.637	0.276	0.284	0.110	0.079
Number of children**					
≤5 persons	73.49	72.79	79.17	70.47	73.07
>5 persons	75.10	76.59	72.00	81.52	75.99
Z or X²	-0.236	-0.585	-0.265	-1.538	-0.393
P-value	0.813	0.559	0.791	0.124	0.694
Family size **					
≤5 persons	79.51	69.37	76.16	72.66	75.72
>5 persons	70.89	76.61	72.78	74.76	73.03
Z or X²	-1.301	-1.148	-0.540	-0.300	-0.372
P-value	0.193	0.251	0.589	0.764	0.710
Monthly salary (US \$)*					
< 570	77.69	77.49	80.95	85.08	64.64
570-1140	71.74	67.74	68.33	69.42	78.22
> 1140	72.09	80.05	73.08	64.03	81.75
Z or X²	0.684	1.827	2.822	10.677	3.364
P-value	0.676	0.209	0.176	0.035	0.112

Significant p-value at p < 0.05 (2 tailed). *Variables were tested by Kruskal Wallis test and presented as Chi-square

**Variables were tested by Mann Whitney U test and presented as z value

Table S4. Coping scales (CCQ) and socio-demographic variables (N=147)

Variables	Coping	Positive Focus	Diversion	Planning	Individual scale	Interpersonal scale
	Mean	Mean	Mean	Mean	Mean	Mean
Place of residence*						
Refugee camp*	63.50	62.23	41.95	58.73	56.82	69.64
Village	68.97	70.97	75.57	70.83	70.83	70.58
City	87.15	83.27	78.73	84.45	84.92	82.24
Z or X²	4.49	3.83	2.40	3.56	3.76	2.30
P-value	0.04	0.17	0.02	0.09	0.07	0.29
Age in years*						
≤ 40	87.51	76.14	74.84	80.39	80.75	79.13
41–54	75.60	79.04	73.83	77.22	77.33	77.81
≥55	55.27	61.19	73.40	60.07	59.44	60.30
Z or X²	4.94	1.57	0.07	3.51	0.77	1.476
P-value	0.01	0.11	0.98	0.07	0.06	0.08
Marital status**						
Unmarried	65.42	53.66	61.71	58.34	57.95	27.68
Married	75.27	77.02	75.82	76.32	76.38	80.88
Z or X²	-0.94	-2.25	-1.36	-1.75	-1.76	-5.189
P-value	0.34	0.02	0.17	0.08	0.07	0.01
Education*						
Primary and less	36.93	40.23	47.85	32.03	35.38	55.38
Secondary	70.60	69.11	70.61	67.73	69.60	69.91
Colleague/University	88.11	88.46	84.84	92.15	89.47	83.22
Z or X²	11.46	17.28	14.37	27.78	19.86	4.507
P-value	0.000	0.000	0.001	0.000	0.000	0.001
Working status**						
Employee	80.07	86.45	80.22	89.52	84.67	80.34
Housewife	71.65	69.18	71.59	68.00	69.87	71.55
Z or X²	-1.081	-2.228	-1.114	-2.803	-1.892	-1.14
P-value	0.280	0.02	0.265	0.005	0.059	0.25
Number of children**						
≤5 persons	77.59	75.13	76.61	77.39	77.08	74.44
>5 persons	66.37	71.60	68.46	66.79	67.45	73.07
Z or X²	-1.49	-0.47	-1.09	-1.43	-1.28	-0.18
P-value	0.13	0.63	0.27	0.15	0.20	0.85
Family size **						
≤5 persons	70.22	70.47	68.03	70.56	69.46	65.66
>5 persons	76.13	75.99	77.37	75.94	76.56	78.70
Z or X²	-0.81	-0.76	-1.29	-0.75	-0.97	-1.82
P-value	0.41	0.44	0.19	0.45	0.33	0.06
Monthly salary (US \$)*						
< 570	72.41	68.88	73.95	65.36	70.27	63.26
570-1140	74.61	72.81	73.86	78.57	74.08	78.87
> 1140	75.53	84.91	74.34	79.86	80.14	82.84
Z or X²	0.51	2.92	0.13	2.22	1.69	3.21
P-value	0.93	0.22	0.99	0.15	0.58	0.05

Significant p-value at $p < 0.05$ (2 tailed). *Variables were tested by Kruskal Wallis test and presented as Chi-square **Variables were tested by Mann Whitney U test and presented as z value

Table S5a. QLQ-C30 functional scales, clinical and social support variables (N=147)

Variables	Physical function	Role function	Emotional function	Cognitive function	Social function
	Mean	Mean	Mean	Mean	Mean
Diagnosis duration (months)*					
Less than 3	73.09	73.88	93.20	81.12	78.91
3– 6	73.14	73.36	76.72	73.21	68.21
6-12	75.81	74.91	55.34	69.36	77.47
Z or X²	1.24	0.18	17.79	3.434	2.405
P-value	0.93	0.98	0.01	0.42	0.35
Stage at diagnosis*					
Stage 1	58.64	80.82	76.41	75.45	76.36
Stage 2	73.67	75.70	81.42	74.99	76.44
Stage 3	73.96	71.64	71.22	74.10	71.72
Stage 4	91.32	72.59	49.36	66.68	72.64
Z or X²	5.45	1.55	4.74	0.28	1.73
P-value	0.35	0.87	0.11	0.94	0.92
Chemotherapy**					
Yes	74.20	73.12	72.84	73.52	73.56
NO	68.30	99.10	106.90	87.60	86.50
Z or X²	-0.30	-1.43	-1.77	-0.73	-0.68
P-value	0.76	0.15	0.07	0.46	0.49
Radiotherapy**					
Yes	73.49	72.20	64.69	65.84	71.23
NO	74.22	74.77	77.98	77.49	75.18
Z or X²	-0.09	-0.35	-1.74	-1.54	-0.53
P-value	0.924	0.720	0.08	0.123	0.59
Hormonal therapy**					
Yes	67.75	79.54	57.00	56.71	71.79
NO	74.66	73.42	75.79	75.82	74.23
Z or X²	-0.58	-0.54	-1.58	-1.62	-0.21
P-value	0.56	0.58	0.11	0.10	0.83
Biological therapy**					
Yes	59.91	74.27	72.34	69.66	66.00
NO	77.32	73.94	74.39	75.02	75.88
Z or X²	-1.95	-0.04	-0.23	-0.60	-1.14
P-value	0.051	0.96	0.81	0.54	0.25
Surgical treatment**					
Yes	74.85	75.30	65.95	71.72	71.34
NO	72.77	72.12	85.68	77.31	77.86
Z or X²	-0.29	-0.47	-2.78	-0.79	-0.94
P-value	0.77	0.63	0.01	0.42	0.34

Significant p-value at $p < 0.05$ (2 tailed). *Variables were tested by Kruskal Wallis test and presented as Chi-square

**Variables were tested by Mann Whitney U test and presented as z value

**Table S5b. QLQ-C30 functional scales, clinical and social support variables
(N=147) (con.)**

Variables	Physical function	Role function	Emotional function	Cognitive function	Social function
	Mean	Mean	Mean	Mean	Mean
Surgical intervention*					
Total mastectomy	76.23	75.18	64.98	72.07	72.43
Partial mastectomy	69.92	75.71	69.42	70.47	67.42
No surgical intervention	72.77	72.12	85.68	77.31	77.86
Z or X²	0.09	0.98	5.37	4.23	1.27
P-value	0.813	0.89	0.01	0.72	0.57
Chronic diseases**					
Yes	85.87	80.52	68.51	79.15	79.69
NO	68.07	70.74	76.74	71.42	71.15
Z or X²	-2.40	-1.40	-1.11	-1.05	-1.18
P-value	0.01	0.16	0.26	0.29	0.23
Taking pain medication**					
Yes	79.56	77.13	78.28	76.56	75.36
NO	65.71	69.33	67.62	70.19	71.97
Z or X²	-1.94	-1.16	-1.50	-0.904	-0.48
P-value	0.052	0.24	0.133	0.366	0.62
History of relative cancer**					
Yes	76.72	75.21	76.31	77.72	78.64
NO	71.17	72.74	71.59	70.13	69.17
Z or X²	-0.79	-0.03	-0.67	-1.09	-1.39
P-value	0.42	0.70	0.49	0.27	0.16
Type of relative cancer*					
Breast cancer	72.42	75.88	83.70	77.65	82.48
Other cancers	83.98	72.84	66.39	76.44	73.48
No cancer history	70.51	73.39	71.59	70.74	69.17
Z or X²	2.64	0.69	5.36	2.11	3.814
P-value	0.31	0.93	0.16	0.64	0.24
Family support**					
Yes	75.24	74.26	73.32	73.48	73.72
NO	67.33	72.59	77.67	76.83	75.50
Z or X²	-0.82	-0.18	-0.45	-0.35	-0.19
P-value	0.41	0.85	0.64	0.72	0.85
Husband support**					
Yes	61.17	74.82	85.21	68.24	82.17
NO	80.22	73.60	68.57	76.79	70.04
Z or X²	-2.55	-0.17	-2.24	-1.16	-1.67
P-value	0.01	0.86	0.02	0.24	0.09
Other sources of support**					
Yes	73.68	78.25	69.07	77.21	70.43
NO	74.08	73.00	75.16	73.24	74.84
Z or X²	-0.04	-0.62	-0.68	-0.45	-0.50
P-value	0.96	0.52	0.49	0.65	0.61

Significant p-value at $p < 0.05$ (2 tailed). *Variables were tested by Kruskal Wallis test and presented as Chi-square
 **Variables were tested by Mann Whitney U test and presented as z value

Table S6a. QLQ-C30 symptom scales, clinical and social support variables (N=147)

Variables	Fatigue	Nausea/ Vomiting	Pain	Dyspnoea	Insomnia
	Mean	Mean	Mean	Mean	Mean
Diagnosis duration (months)*					
Less than 3	83.22	81.93	78.70	78.49	81.38
3– 6	73.75	77.57	72.70	70.54	73.95
6-12	67.02	63.18	71.93	74.84	68.22
Z or X²	1.96	6.53	2.82	0.22	3.41
P-value	0.20	0.04	0.71	0.63	0.33
Stage at diagnosis*					
Stage 1	75.64	85.68	71.41	70.36	86.68
Stage 2	76.30	75.29	74.91	75.26	72.29
Stage 3	71.10	70.21	71.46	75.95	73.62
Stage 4	77.91	78.59	87.23	59.14	72.64
Z or X²	0.20	3.97	2.12	1.74	0.01
P-value	0.89	0.58	0.69	0.62	0.76
Chemotherapy**					
Yes	72.88	73.81	72.46	73.57	73.38
NO	105.90	79.50	117.80	86.10	91.70
Z or X²	-1.72	-.33	-2.39	-0.67	-0.98
P-value	0.08	0.74	0.01	0.50	0.32
Radiotherapy**					
Yes	69.11	65.76	73.15	68.43	70.39
NO	76.09	77.52	74.36	76.38	75.54
Z or X²	-0.92	-1.72	-0.16	-1.07	-0.69
P-value	0.35	0.08	0.87	0.28	0.48
Hormonal therapy**					
Yes	57.57	67.39	72.18	87.39	65.75
NO	75.73	74.70	74.19	72.59	74.87
Z or X²	-1.53	-0.68	-0.17	-1.28	-0.79
P-value	0.12	0.49	0.86	0.19	0.42
Biological therapy**					
Yes	68.52	68.32	72.71	65.66	66.93
NO	75.29	75.34	74.30	75.96	75.66
Z or X²	-0.76	-0.88	-0.18	-1.19	-1.01
P-value	0.44	0.37	0.85	0.23	0.31
Surgical treatment**					
Yes	71.83	66.92	74.67	75.37	68.12
NO	77.14	84.27	73.03	72.02	82.53
Z or X²	-0.752	-2.729	-0.234	-0.488	-2.091
P-value	0.45	0.01	0.81	0.62	0.03

Significant p-value at p < 0.05 (2 tailed). *Variables were tested by Kruskal Wallis test and presented as Chi-square

**Variables were tested by Mann Whitney U test and presented as z value

**Table S6b. QLQ-C30 symptom scales, clinical and social support variables (N=147)
(con.)**

Variables	Fatigue	Nausea/ Vomiting	Pain	Dyspnoea	Insomnia
	Mean	Mean	Mean	Mean	Mean
Surgical intervention*					
Total mastectomy	69.60	68.22	74.56	76.91	67.85
Partial mastectomy	79.84	62.26	75.05	69.84	69.11
No surgical intervention	77.14	84.27	73.03	72.02	82.53
Z or X²	3.82	6.34	0.56	1.88	1.91
P-value	0.48	0.02	0.97	0.71	0.11
Chronic diseases**					
Yes	81.26	73.15	74.38	80.11	68.34
NO	70.37	74.42	73.81	70.94	76.83
Z or X²	-1.47	-0.19	-0.07	-1.28	-1.18
P-value	0.13	0.84	0.93	0.20	0.23
Taking pain medication**					
Yes	82.02	74.43	83.09	80.22	79.80
NO	62.04	73.36	60.44	64.73	65.36
Z or X²	-2.82	-0.16	-3.23	-2.25	-2.09
P-value	0.01	0.86	0.001	0.02	0.03
History of relative cancer**					
Yes	75.01	75.69	76.36	74.43	72.18
NO	72.94	72.24	71.54	73.56	75.90
Z or X²	-0.29	-0.55	-0.70	-0.12	-0.54
P-value	0.76	0.58	0.48	0.89	0.58
Type of relative cancer*					
Breast cancer	79.56	77.88	81.74	70.15	76.62
Other cancers	69.73	74.77	70.25	82.64	68.61
No cancer history	72.58	71.34	71.04	72.46	74.83
Z or X²	2.36	1.43	4.79	2.31	2.72
P-value	0.56	0.66	0.34	0.38	0.68
Family support**					
Yes	75.06	73.70	74.65	73.72	75.81
NO	68.26	75.61	70.52	75.50	64.22
Z or X²	-0.71	-0.22	-0.43	-0.19	-1.24
P-value	0.47	0.82	0.66	0.84	0.21
Husband support**					
Yes	78.28	80.88	73.38	71.21	74.03
NO	71.92	70.67	74.30	75.35	73.98
Z or X²	-0.85	-1.53	-0.12	-0.57	-0.01
P-value	0.39	0.12	0.89	0.56	0.99
Other sources of support**					
Yes	69.29	81.52	70.61	62.89	67.95
NO	75.11	72.23	74.80	76.61	75.42
Z or X²	-0.65	-1.16	-0.48	-1.59	-0.86
P-value	0.51	0.24	0.63	0.11	0.38

Significant p-value at $p < 0.05$ (2 tailed). *Variables were tested by Kruskal Wallis test and presented as Chi-square

**Variables were tested by Mann Whitney U test and presented as z value

Table S7a. QLQ-C30 symptom, global health status, financial difficulties, clinical and social support (N=147)

Variables	Appetite Loss	Constipation	Diarrhoea	Financial Difficulties	Global health status
	Mean	Mean	Mean	Mean	Mean
Diagnosis duration (months)*					
Less than 3	90.63	63.74	71.87	71.05	72.05
3– 6	75.10	83.47	75.82	70.45	79.65
6-12	59.44	70.09	73.38	80.84	68.36
Z or X²	16.28	7.01	0.62	1.07	2.60
P-value	0.01	0.02	0.86	0.36	0.36
Stage at diagnosis*					
Stage 1	103.14	58.18	73.68	87.27	90.05
Stage 2	72.09	80.73	73.20	72.98	77.41
Stage 3	68.72	71.93	73.62	71.95	68.20
Stage 4	87.14	66.91	80.86	78.59	75.32
Z or X²	8.652	4.56	0.48	2.48	4.35
P-value	0.03	0.20	0.93	0.67	0.35
Chemotherapy**					
Yes	72.91	73.76	74.38	74.07	74.30
NO	105.00	80.80	63.30	72.10	65.50
Z or X²	-1.83	-0.42	-0.66	-0.10	-0.46
P-value	0.06	0.67	0.50	0.91	0.64
Radiotherapy**					
Yes	65.14	74.00	73.55	76.26	70.55
NO	77.79	74.00	74.19	73.03	75.48
Z or X²	-1.82	0.01	-0.0	-0.44	-0.65
P-value	0.06	1.00	0.92	0.65	0.51
Hormonal therapy**					
Yes	61.43	77.11	66.86	71.36	81.50
NO	75.32	73.67	74.75	74.28	73.21
Z or X²	-1.28	-0.33	-0.77	-0.25	-0.70
P-value	0.19	0.73	0.44	0.79	0.48
Biological therapy**					
Yes	66.14	70.98	71.09	68.73	71.13
NO	75.85	74.71	74.68	75.24	74.68
Z or X²	-1.19	-0.48	-0.47	-0.76	-0.40
P-value	0.23	0.62	0.63	0.44	0.68
Surgical treatment**					
Yes	66.44	77.53	75.08	75.98	72.45
NO	84.96	68.88	72.43	71.13	76.25
Z or X²	-2.86	-1.40	-0.43	-0.71	-0.53
P-value	0.01	0.16	0.66	0.47	0.59

Significant p-value at $p < 0.05$ (2 tailed). *Variables were tested by Kruskal Wallis test and presented as Chi-square

**Variables were tested by Mann Whitney U test and presented as z value

Table S7b. QLQ-C30 symptom, global health status, financial difficulties, clinical and social support (N=147) (con.)

Variables	Appetite Loss	Constipation	Diarrhoea	Financial Difficulties	Global health status
	Mean	Mean	Mean	Mean	Mean
Surgical intervention*					
Total mastectomy	65.08	79.57	76.48	76.41	70.95
Partial mastectomy	71.32	70.24	70.08	74.45	77.82
No surgical intervention	84.96	68.88	72.43	71.13	76.25
Z or X²	9.851	0.232	0.751	0.142	0.976
P-value	0.014	0.078	0.724	0.763	0.710
Chronic diseases**					
Yes	71.29	72.78	75.72	79.12	70.21
NO	75.36	74.61	73.14	71.44	75.89
Z or X²	-0.60	-0.28	-0.40	-1.08	-0.77
P-value	0.546	0.775	0.685	0.280	0.44
Taking pain medication**					
Yes	79.64	77.57	75.09	75.88	69.03
NO	65.59	68.67	72.38	71.19	81.42
Z or X²	-2.16	-1.44	-0.44	-0.68	-1.75
P-value	0.03	0.15	0.65	0.49	0.08
History of relative cancer**					
Yes	75.29	74.09	74.90	77.34	77.80
NO	72.66	73.90	73.06	70.52	70.04
Z or X²	-0.41	-0.03	-0.30	-1.01	-1.11
P-value	0.68	0.97	0.76	0.30	0.26
Type of relative cancer*					
Breast cancer	80.37	72.93	77.30	75.79	75.87
Other cancers	71.20	75.66	71.67	79.42	80.98
No cancer history	71.44	73.90	73.06	70.52	69.78
Z or X²	1.58	0.19	0.54	1.77	0.86
P-value	0.43	0.95	0.76	0.55	0.42
Family support**					
Yes	73.83	74.77	75.64	74.57	71.40
NO	74.89	69.83	65.17	70.91	88.02
Z or X²	-0.12	-0.59	-1.26	-0.397	-1.740
P-value	0.90	0.55	0.205	0.692	0.082
Husband support**					
Yes	76.84	72.39	66.91	76.93	77.38
NO	72.62	74.78	77.44	72.58	72.36
Z or X²	-0.62	-0.37	-1.64	-0.60	-0.67
P-value	0.53	0.71	0.10	0.54	0.49
Other sources of support**					
Yes	72.93	73.75	73.11	77.93	87.39
NO	74.25	74.06	74.21	73.08	70.85
Z or X²	-0.16	-0.04	-0.14	-0.56	-1.87
P-value	0.87	0.96	0.88	0.57	0.06

Significant p-value at $p < 0.05$ (2 tailed). *Variables were tested by Kruskal Wallis test and presented as Chi-square

**Variables were tested by Mann Whitney U test and presented as z value

Table S8a. Coping scales (CCQ) and clinical and social support (N=147)

Variables	Coping	Positive Focus	Diversion	Planning	Individual scale	Interpersonal scale
	Mean	Mean	Mean	Mean	Mean	Mean
Diagnosis duration (months)*						
Less than 3	77.00	73.55	71.59	71.30	72.37	74.58
3– 6	81.45	80.47	81.26	79.66	81.29	76.65
6-12	62.16	66.14	66.68	68.95	66.03	70.18
Z or X²	3.637	5.185	5.869	2.510	1.534	1.118
P-value	0.05	0.21	0.18	0.37	0.17	0.72
Stage at diagnosis*						
Stage 1	3.637	95.95	84.05	100.55	95.77	97.82
Stage 2	0.054	74.26	69.65	71.49	70.83	73.22
Stage 3	3.637	71.40	76.13	72.19	73.92	71.12
Stage 4	0.05	66.55	73.9	71.73	69.45	71.82
Z or X²	4.04	3.46	0.25	1.90	0.67	2.37
P-value	0.34	0.31	0.70	0.18	0.34	0.26
Chemotherapy**						
Yes	73.22	73.60	73.65	73.55	73.46	73.62
NO	96.10	85.50	84.00	86.80	89.30	84.80
Z or X²	-1.18	-0.62	-0.54	-0.69	-0.81	-0.58
P-value	0.23	0.53	0.58	0.48	0.41	0.55
Radiotherapy**						
Yes	66.70	66.73	72.97	68.06	68.32	74.66
NO	77.12	77.11	74.44	76.54	76.43	73.72
Z or X²	-1.36	-1.36	-0.19	-1.12	-1.05	-0.12
P-value	0.17	0.17	0.84	0.25	0.29	0.90
Hormonal therapy**						
Yes	83.57	80.32	83.50	82.43	83.61	75.00
NO	72.99	73.33	73.00	73.11	72.99	73.89
Z or X²	-0.88	-0.59	-0.88	-0.79	0-.88	-0.09
P-value	0.37	0.55	0.37	0.42	0.37	0.92
Biological therapy**						
Yes	79.84	77.13	76.46	77.75	78.80	69.54
NO	72.63	73.26	73.42	73.12	72.87	75.05
Z or X²	-0.81	-0.43	-0.34	-0.52	-0.66	-0.63
P-value	0.41	0.66	0.73	0.59	0.50	0.52
Surgical treatment**						
Yes	68.34	70.71	73.44	71.13	70.07	71.31
NO	82.21	78.77	74.81	78.16	79.70	77.90
Z or X²	-1.95	-1.13	-0.19	-1.00	-1.34	-0.94
P-value	0.05	0.25	0.84	0.31	0.17	0.34

Significant p-value at $p < 0.05$ (2 tailed). *Variables were tested by Kruskal Wallis test and presented as Chi-square

**Variables were tested by Mann Whitney U test and presented as z value

Table S8b Coping scales (CCQ) and clinical and social support (N=147) (con.)

Variables	Coping	Positive Focus	Diversion	Planning	Individual scale	Interpersonal scale
	Mean	Mean	Mean	Mean	Mean	Mean
Surgical intervention*						
Total mastectomy	70.79	70.90	74.85	73.43	71.71	70.55
Partial mastectomy	59.55	70.05	68.42	62.92	64.21	74.03
No surgical intervention	82.21	78.77	74.81	78.16	79.70	77.90
Z or X²	5.023	5.533	1.435	2.691	5.041	1.143
P-value	0.08	0.52	0.82	0.37	0.31	0.60
Chronic diseases**						
Yes	62.35	65.15	71.26	61.88	64.30	65.54
NO	79.83	78.42	75.37	80.06	78.85	78.23
Z or X²	-2.35	-1.80	-0.55	-2.48	-1.95	-1.74
P-value	0.01	0.07	0.57	0.01	0.05	0.08
Taking pain medication**						
Yes	72.43	70.88	69.47	71.11	70.53	70.70
NO	76.34	78.65	80.76	78.31	79.17	78.92
Z or X²	-0.54	-1.09	-1.59	-1.02	-1.20	-1.17
P-value	0.58	0.27	0.11	0.30	0.22	0.24
History of relative cancer**						
Yes	76.44	77.04	78.83	73.50	76.32	77.75
NO	71.46	70.83	68.97	74.52	71.58	70.09
Z or X²	-0.71	-0.89	-1.42	-0.14	-0.67	-1.11
P-value	0.47	0.37	0.15	0.88	0.50	0.26
Type of relative cancer*					76.32	
Breast cancer	78.69	80.43	81.10	73.71	78.85	80.17
Other cancers	75.25	75.88	79.27	75.81	75.78	74.50
No cancer history	70.65	69.33	67.42	73.37	70.31	70.09
Z or X²	0.66	3.45	1.07	1.10	0.61	6.32
P-value	0.60	0.37	0.17	0.96	0.56	0.45
Family support**						
Yes	71.88	72.04	70.58	72.68	71.67	73.25
NO	85.41	84.57	92.46	81.13	86.54	78.02
Z or X²	-1.40	-1.30	-2.28	-0.89	-1.54	-0.50
P-value	0.16	0.19	0.02	0.37	0.12	0.61
Husband support**						
Yes	85.45	86.33	78.32	86.24	86.06	99.66
NO	68.45	68.02	71.90	68.07	68.15	61.56
Z or X²	-2.21	-2.47	-0.86	-2.47	-2.39	-5.19
P-value	0.023	0.013	0.386	0.013	0.017	0.000
Other sources of support**						
Yes	81.66	86.46	88.09	84.71	87.16	76.61
NO	72.20	71.07	70.68	71.48	70.90	73.39
Z or X²	-1.06	-1.74	-1.96	-1.50	-1.82	-0.36
P-value	0.28	0.08	0.05	0.13	0.06	0.71

Significant p-value at $p < 0.05$ (2 tailed). *Variables were tested by Kruskal Wallis test and presented as Chi-square

**Variables were tested by Mann Whitney U test and presented as z value

Appendix 4: Study 4 Supplementary Tables

Table S1a: QLQ-C30 functional scales, socio-demographic, clinical and social support variables (N=144)

Variables	Physical function	Role function	Emotional function	Cognitive function	Social function
	Mean	Mean	Mean	Mean	Mean
Residence					
Refugee camp	62.14	63.95	42.45	63.95	68.73
Village	72.51	74.53	77.99	71.98	70.36
City	75.13	70.44	68.70	75.78	77.95
P-value	0.651	0.63	0.02	0.68	0.57
Age in years					
≤ 40	84.65	83.05	64.49	78.59	86.03
41–54	59.29	61.04	81.20	65.88	57.80
P-value	0.001	0.001	0.01	0.06	0.01
Marital status					
Unmarried	69.55	80.73	67.08	64.38	20.00
Married	72.98	71.17	73.38	73.81	80.97
P-value	0.73	0.30	0.52	0.34	0.001
Education					
Primary and less	53.79	63.89	89.47	58.29	47.50
Secondary	73.48	71.72	68.75	73.16	72.73
Colleague/University	76.96	75.61	70.93	75.96	79.39
P-value	0.09	0.50	0.15	0.25	0.01
Working status					
Employee	86.44	72.15	75.73	79.95	85.50
Housewife	66.95	72.64	71.21	69.53	67.33
P-value	0.01	0.94	0.55	0.16	0.01
Number of children					
≤5 persons	76.32	73.30	72.47	77.06	73.22
>5 persons	64.37	70.79	72.57	62.79	70.97
P-value					
Family size	0.10	0.71	0.99	0.05	0.75
≤5 persons					
>5 persons	75.95	74.42	75.19	78.95	67.50
P-value	70.61	71.45	71.03	68.96	75.24
Income (US \$)	0.46	0.66	0.56	0.16	0.27
< 570					
570-1140	61.73	64.23	69.70	65.53	70.00
> 1140	76.64	77.03	73.97	74.29	72.13
P-value	82.23	77.45	74.30	80.47	77.27
Stage at diagnosis					
Stage 1	87.32	65.09	69.27	70.14	81.86
Stage 2	71.20	70.16	64.09	70.86	69.34
Stage 3	73.17	75.05	76.02	72.70	75.25
Stage 4	59.40	77.70	101.90	83.30	62.60
P-value	0.48	0.78	0.04	0.84	0.61

Table S1b: QLQ-C30 functional scales, socio-demographic, clinical and social support variables (N=144) (con.)

Variables	Physical function	Role function	Emotional function	Cognitive function	Social function
	Mean	Mean	Mean	Mean	Mean
Chemotherapy					
Yes	70.92	72.16	72.83	71.60	72.09
No	127.88	84.38	61.13	103.88	86.88
P-value	0.01	0.53	0.57	0.12	0.47
Radiotherapy					
Yes	75.77	72.36	71.83	76.23	74.00
No	63.69	72.88	74.31	62.45	68.47
P-value	0.12	0.94	0.74	0.07	0.47
Hormonal therapy					
Yes	72.41	73.21	74.43	74.85	74.22
No	73.05	68.33	61.21	58.71	62.40
P-value	0.94	0.59	0.17	0.09	0.22
Biological treatment					
Yes	76.78	70.43	63.67	69.14	81.22
No	67.97	74.69	81.84	76.05	63.28
P-value	0.20	0.51	0.01	0.31	0.01
Surgical intervention					
Complete Mastectomy	66.28	69.04	73.03	65.22	64.97
Partial Mastectomy	76.69	74.83	72.14	77.41	77.58
P-value	0.14	0.38	0.89	0.08	0.07
Chronic disease					
Yes	53.30	61.26	77.74	63.54	52.56
No	81.80	77.95	69.96	76.84	82.16
P-value	0.01	0.01	0.28	0.06	0.01
Pain Medication					
Yes	67.11	69.78	68.72	70.65	64.71
No	80.26	76.42	77.94	75.16	83.73
P-value	0.06	0.31	0.18	0.51	0.01
Relatives cancer					
Breast Cancer	75.33	72.99	59.83	68.79	77.78
Other Cancers	64.09	69.27	80.47	68.41	73.73
No history of cancer	75.13	73.86	75.80	76.72	68.82
P-value	0.38	0.84	0.06	0.49	0.53
Family support					
Yes	72.42	72.63	72.28	72.79	74.11
No	73.00	71.68	73.85	70.73	62.53
P-value	0.95	0.91	0.87	0.83	0.24
Husband support					
Yes	80.91	72.00	68.41	80.93	89.88
No	68.80	72.72	74.30	68.79	64.86
P-value	0.10	0.91	0.43	0.10	0.001
Other support					
Yes	73.44	72.88	79.42	72.08	68.62
No	72.29	72.42	70.97	72.59	73.36
P-value	0.89	0.95	0.34	0.95	0.59

Table S2a: QLQ-C30 symptom, socio-demographic, clinical and social support variables (N=144)

Variables	Fatigue	Nausea/ Vomiting	Pain	Dyspnoea	Insomnia
	Mean	Mean	Mean	Mean	Mean
Residence					
Refugee camp	91.18	76.77	80.00	62.41	84.77
Village	69.93	68.01	69.84	76.43	67.75
City	73.10	80.80	76.15	66.85	79.30
P-value	0.27	0.164	0.57	0.29	0.17
Age in years					
≤ 40	68.74	77.39	66.79	62.04	73.78
41–54	76.59	67.18	78.71	83.87	71.11
P-value	0.25	0.09	0.07	0.001	0.69
Marital status					
Unmarried	75.25	82.28	73.50	77.80	74.88
Married	72.06	70.92	72.34	71.65	72.12
P-value	0.74	0.20	0.90	0.52	0.77
Education					
Primary and less	84.63	63.45	86.00	90.61	77.32
Secondary	73.40	70.67	76.30	71.24	74.15
Colleague/University	68.28	76.65	65.38	68.46	69.71
P-value	0.30	0.34	0.09	0.09	0.70
Working status					
Employee	62.65	74.52	61.51	68.82	66.02
Housewife	76.42	71.69	76.87	73.97	75.08
P-value	0.07	0.68	0.04	0.48	0.22
Number of children					
≤5 persons	68.67	71.70	71.46	67.69	73.27
>5 persons	80.65	74.21	74.72	82.75	70.86
P-value	0.10	0.70	0.65	0.03	0.73
Family size					
≤5 persons	70.85	75.86	71.34	68.70	74.74
>5 persons	73.40	70.66	73.13	74.59	71.27
P-value	0.72	0.42	0.80	0.39	0.62
Income (US \$)					
< 570	77.89	73.23	84.13	80.38	83.40
570-1140	68.59	76.08	64.44	69.93	63.78
> 1140	71.06	64.61	68.70	64.52	71.13
P-value	0.48	0.36	0.032	0.17	0.03
Stage at diagnosis					
Stage 1	75.05	84.00	70.41	69.64	86.05
Stage 2	76.09	73.84	74.92	74.33	71.84
Stage 3	69.02	69.68	69.46	73.66	71.78
Stage 4	71.50	70.45	80.50	57.50	66.15
P-value	0.81	0.67	0.80	0.65	0.67

Table S2b: QLQ-C30 Symptom, socio-demographic, clinical and social support variables (N=144) (con.)

Variables	Fatigue	Nausea/ Vomiting	Pain	Dyspnoea	Insomnia
	Mean	Mean	Mean	Mean	Mean
Chemotherapy					
Yes	72.30	72.72	71.77	72.75	72.50
No	79.50	64.75	98.13	63.88	72.63
P-value	0.73	0.67	0.20	0.66	0.99
Radiotherapy					
Yes	73.26	71.21	70.55	71.59	71.59
No	70.46	75.96	77.76	74.96	74.95
P-value	0.71	0.49	0.34	0.65	0.65
Hormonal therapy					
Yes	71.66	70.14	72.17	71.44	72.39
No	77.43	86.33	74.43	78.71	73.14
P-value	0.55	0.06	0.81	0.44	0.93
Biological treatment					
Yes	73.43	73.91	71.89	74.76	76.39
No	71.51	71.01	73.15	70.11	68.39
P-value	0.78	0.63	0.85	0.48	0.23
Surgical intervention					
Complete Mastectomy	78.34	75.57	78.22	72.41	75.16
Partial Mastectomy	68.56	70.43	68.65	72.56	70.70
P-value	0.16	0.41	0.16	0.98	0.51
Chronic disease					
Yes	82.18	74.57	78.13	85.87	71.98
No	67.81	71.49	69.77	66.02	72.75
P-value	0.05	0.64	0.24	0.00	0.91
Pain Medication					
Yes	80.10	72.89	81.46	78.39	77.68
No	61.55	71.93	59.59	64.01	65.03
P-value	0.01	0.87	0.002	0.03	0.06
Relatives cancer					
Breast Cancer	79.64	74.60	79.86	65.26	75.86
Other Cancers	69.80	75.06	72.77	78.54	62.69
No history of cancer	69.73	69.99	68.09	73.63	75.53
P-value	0.43	0.73	0.34	0.33	0.25
Family support					
Yes	73.15	72.04	72.63	71.06	74.50
No	68.48	75.33	71.73	81.40	60.13
P-value	0.63	0.71	0.92	0.28	0.13
Husband support					
Yes	75.90	76.97	69.95	63.97	68.89
No	71.01	70.54	73.62	76.26	74.09
P-value	0.51	0.33	0.61	0.09	0.47
Other support					
Yes	66.54	73.62	67.52	63.85	62.23
No	73.81	72.25	73.60	74.41	74.76
P-value	0.415	0.86	0.49	0.22	0.15

Table S3a: QLQ-C30 Symptom, socio-demographic, clinical and social support variables (N=144)

Variables	Appetite Loss	Constipation	Diarrhoea	Financial Difficulties	Global health status
	Mean	Mean	Mean	Mean	Mean
Residence					
Refugee camp	73.59	74.23	65.73	71.14	40.32
Village	67.49	70.61	73.38	76.07	75.35
City	82.71	76.01	72.38	65.37	74.77
P-value	0.71	0.91	0.49	0.11	0.96
Age in years					
≤ 40	71.38	72.81	74.46	74.57	72.63
41–54	73.72	72.17	70.37	70.40	72.36
P-value	0.71	0.91	0.49	0.11	0.96
Marital status					
Unmarried	77.33	76.00	69.30	69.28	65.68
Married	71.72	71.94	73.02	73.02	73.60
P-value	0.53	0.64	0.66	0.69	0.42
Education					
Primary and less	68.45	69.29	84.00	80.05	53.97
Secondary	73.99	70.71	65.48	75.72	67.36
Colleague/University	72.36	74.96	75.31	67.57	82.20
P-value	0.85	0.73	0.09	0.35	0.01
Working status					
Employee	70.22	67.26	77.71	64.68	81.16
Housewife	73.41	74.59	70.43	75.61	69.05
P-value	0.64	0.27	0.26	0.13	0.11
Number of children					
≤5 persons	71.59	71.03	72.72	69.01	71.71
>5 persons	74.43	75.63	72.03	79.93	74.17
P-value	0.67	0.47	0.91	0.12	0.73
Family size					
≤5 persons	75.60	68.79	73.97	70.59	74.90
>5 persons	70.80	74.53	71.69	73.55	71.18
P-value	0.46	0.36	0.71	0.66	0.60
Income (US \$)					
< 570	73.77	77.04	78.92	83.24	63.54
570-1140	72.34	65.43	67.35	68.05	76.77
> 1140	70.73	78.38	71.72	63.39	79.06
P-value	0.93	0.13	0.22	0.04	0.14
Stage at diagnosis					
Stage 1	89.50	56.95	72.27	86.23	86.23
Stage 2	72.23	77.78	71.82	72.19	72.19
Stage 3	66.68	71.19	73.04	69.54	69.54
Stage 4	80.00	67.50	73.20	78.45	78.45
P-value	0.03	0.31	0.99	0.59	0.42

Table S3b: QLQ-C30 symptom, socio-demographic, clinical and social support variables (N=144) (con.)

Variables	Appetite Loss	Constipation	Diarrhoea	Financial Difficulties	Global health status
	Mean	Mean	Mean	Mean	Mean
Chemotherapy					
Yes	71.57	72.60	73.24	73.22	72.13
No	105.13	69.00	46.50	47.25	85.38
P-value	0.08	0.84	0.13	0.19	0.52
Radiotherapy					
Yes	70.42	70.85	74.00	72.73	72.24
No	78.10	76.94	68.46	71.87	73.21
P-value	0.27	0.36	0.40	0.908	0.90
Hormonal therapy					
Yes	70.03	73.52	71.33	72.83	72.49
No	86.98	66.55	79.36	70.55	72.55
P-value	0.05	0.41	0.34	0.80	0.99
Biological treatment					
Yes	79.51	74.01	72.28	72.07	68.29
No	65.09	70.90	72.73	72.96	76.95
P-value	0.02	0.60	0.94	0.89	0.20
Surgical intervention					
Complete Mastectomy	74.47	73.33	76.53	76.84	62.24
Partial Mastectomy	71.17	71.94	69.78	69.57	79.42
P-value	0.60	0.82	0.26	0.28	0.01
Chronic disease					
Yes	78.34	75.67	73.50	78.97	68.70
No	69.67	70.96	72.02	69.37	74.34
P-value	0.19	0.46	0.81	0.17	0.44
Pain Medication					
Yes	78.19	76.16	73.54	73.93	68.19
No	64.31	67.23	71.01	70.44	78.70
P-value	0.03	0.14	0.67	0.60	0.13
Relatives cancer					
Breast Cancer	78.69	72.60	70.99	69.55	75.55
Other Cancers	70.94	70.36	77.01	83.20	77.26
No history of cancer	69.70	73.53	71.09	68.78	68.32
P-value	0.47	0.91	0.69	0.18	0.49
Family support					
Yes	72.22	72.19	74.09	71.48	70.84
No	74.25	74.40	62.63	78.80	82.80
P-value	0.82	0.79	0.18	0.44	0.22
Husband support					
Yes	67.50	71.50	66.10	70.65	79.35
No	74.70	72.94	75.32	73.32	69.49
P-value	0.29	0.82	0.15	0.71	0.18
Other support					
Yes	67.29	73.42	70.04	72.85	85.35
No	73.65	72.30	73.04	72.42	69.67
P-value	0.43	0.88	0.69	0.96	0.07

Table S4a: QLQ-C23 functional, socio-demographic, clinical and social support variables (N=144)

Variables	Body image	Sexual functioning-	Sexual enjoyment	Future perceptive
	Mean	Mean	Mean	Mean
Residence				
Refugee camp	54.77	68.73	72.14	73.59
Village	75.24	70.36	69.85	67.49
City	71.29	77.95	78.14	82.71
P-value	0.29	0.57	0.52	0.09
Age in years				
≤ 40	54.09	86.03	86.03	86.03
41–54	92.51	57.80	57.80	57.80
P-value	0.000	0.000	0.001	0.71
Marital status				
Unmarried	87.70	20.00	26.98	77.33
Married	70.05	80.97	79.84	71.72
P-value	0.04	0.000	0.000	0.53
Education				
Primary and less	99.95	47.50	48.87	68.45
Secondary	71.96	72.73	72.97	73.99
Colleague/University	65.19	79.39	78.80	72.36
P-value	0.01	0.01	0.01	0.856
Working status				
Employee	74.06	85.50	81.85	81.85
Housewife	71.88	67.33	68.78	68.78
P-value	0.77	0.01	0.07	0.64
Number of children				
≤5 persons	69.89	73.22	74.48	71.59
>5 persons	78.07	70.97	68.27	74.43
P-value	0.27	0.75	0.37	0.67
Family size				
≤5 persons	81.88	67.50	66.35	75.60
>5 persons	67.35	75.24	75.87	70.80
P-value	0.04	0.27	0.16	0.46
Income (US \$)				
< 570	69.07	70.00	66.60	73.77
570-1140	72.64	72.13	73.53	72.34
> 1140	77.81	77.27	80.17	70.73
P-value	0.64	0.72	0.29	0.93
Stage at diagnosis				
Stage 1	71.82	81.86	74.36	78.50
Stage 2	78.36	69.34	72.40	72.23
Stage 3	70.45	75.25	73.82	66.68
Stage 4	52.60	62.60	62.50	80.00
P-value	0.30	0.61	0.86	0.03

Table S4b: QLQ-C23 functional, socio-demographic, clinical and social support variables (N=144)

Variables	Body image	Sexual functioning-	Sexual enjoyment	Future perceptive
	Mean	Mean	Mean	Mean
Chemotherapy				
Yes	72.95	72.09	72.51	71.57
No	56.88	86.88	72.25	105.13
P-value	0.445	0.476	0.990	0.080
Radiotherapy				
Yes	74.43	74.00	72.95	70.42
No	67.31	68.47	71.28	78.10
P-value	0.360	0.472	0.820	0.278
Hormonal therapy				
Yes	71.15	74.22	72.95	70.03
No	80.43	62.40	69.86	86.98
P-value	0.343	0.221	0.738	0.057
Biological treatment				
Yes	65.56	81.22	79.51	79.51
No	79.84	63.28	65.09	65.09
P-value	0.039	0.009	0.027	0.022
Surgical intervention				
Complete Mastectomy	60.28	64.97	64.57	74.47
Partial Mastectomy	80.74	77.58	77.85	71.17
P-value	0.004	0.070	0.041	0.608
Chronic disease				
Yes	93.36	52.56	60.98	78.34
No	62.39	82.16	78.08	69.67
P-value	0.000	0.000	.014	.197
Pain Medication				
Yes	77.71	64.71	66.22	78.19
No	65.00	83.73	81.55	64.31
P-value	0.071	0.006	0.021	0.030
Relatives cancer				
Breast Cancer	71.65	77.78	76.55	78.69
Other Cancers	70.16	73.73	72.24	70.94
No history of cancer	74.18	68.82	70.28	69.70
P-value	0.886	0.534	0.722	0.470
Family support				
Yes	72.74	74.11	74.58	72.22
No	71.00	62.53	59.63	74.25
P-value	0.862	0.240	0.113	0.823
Husband support				
Yes	0.153	89.88	94.48	67.50
No	0.153	64.86	62.83	74.70
P-value	0.070	0.001	0.000	0.292
Other support				
Yes	83.31	68.62	65.02	67.29
No	70.12	73.36	74.15	73.65
P-value	0.142	0.593	0.281	0.437

Table S5a: QLQ-C 23 Symptom, socio-demographic, clinical and social support variables (N=144)

Variables	Systemic therapy side effect	Breast symptom	Arm symptoms	Upset by hair loss
	Mean	Mean	Mean	Mean
Residence				
Refugee camp	93.73	94.05	88.59	69.32
Village	71.92	69.69	69.26	73.59
City	68.29	72.87	75.16	71.03
P-value	0.189	0.183	0.301	0.857
Age in years				
≤ 40	60.13	68.67	68.93	72.74
41–54	85.94	76.67	76.38	72.24
P-value	0.000	0.247	0.279	0.924
Marital status				
Unmarried	81.10	73.08	71.78	79.40
Married	71.11	72.41	72.62	71.39
P-value	0.319	0.947	0.933	0.293
Education				
Primary and less	94.92	93.53	94.13	76.71
Secondary	71.45	68.28	72.62	66.76
Colleague/University	67.05	70.19	66.26	76.28
P-value	0.035	0.058	0.034	0.202
Working status				
Employee	68.15	69.56	67.07	69.26
Housewife	74.23	73.67	74.66	73.79
P-value	0.428	0.591	0.320	0.438
Number of children				
≤5 persons	71.05	69.23	69.46	71.83
>5 persons	75.59	79.47	78.98	73.93
P-value	.541	.167	.197	.709
Family size				
≤5 persons	69.23	65.00	70.11	70.07
>5 persons	74.30	76.61	73.81	73.83
P-value	0.484	0.108	0.607	0.495
Income (US \$)				
< 570	72.84	70.63	67.02	71.38
570-1140	73.18	68.76	71.81	75.45
> 1140	70.67	82.55	82.70	68.78
P-value	0.960	0.290	0.236	0.598
Stage at diagnosis				
Stage 1	76.59	55.91	60.77	72.50
Stage 2	74.73	79.02	80.84	77.55
Stage 3	71.09	69.20	67.26	67.32
Stage 4	64.20	74.40	71.10	76.90
P-value	0.862	0.304	0.230	0.332

Table S5b: QLQ-C 23 Symptom, socio-demographic, clinical and social support variables (N=144) (con.)

Variables	Systemic therapy side effect	Breast symptom	Arm symptoms	Upset by hair loss
	Mean	Mean	Mean	Mean
Chemotherapy				
Yes	73.14	72.74	72.42	72.58
No	50.25	64.00	75.38	69.75
P-value	0.277	0.677	0.888	0.860
Radiotherapy				
Yes	74.45	73.75	77.07	71.73
No	67.24	69.14	60.21	74.58
P-value	0.355	0.553	0.029	0.631
Hormonal therapy				
Yes	70.94	72.20	73.04	68.91
No	81.64	74.26	69.33	93.55
P-value	0.275	0.833	0.704	0.001
Biological treatment				
Yes	67.41	67.61	67.34	71.39
No	77.88	77.67	77.96	73.67
P-value	0.131	0.145	0.123	0.666
Surgical intervention				
Complete Mastectomy	75.59	65.82	57.09	69.57
Partial Mastectomy	70.41	77.01	82.90	74.48
P-value	0.463	0.112	0.000	0.361
Chronic disease				
Yes	84.27	77.33	79.01	65.01
No	66.80	70.16	69.35	76.13
P-value	0.018	0.330	0.188	0.048
Pain Medication				
Yes	77.38	76.12	72.62	74.54
No	65.47	67.29	72.32	69.57
P-value	0.091	0.209	0.966	0.354
Relatives cancer				
Breast Cancer	73.19	66.41	72.35	83.85
Other Cancers	76.57	76.96	75.41	70.79
No history of cancer	70.04	73.77	71.11	66.79
P-value	0.745	0.514	0.881	0.024
Family support				
Yes	72.71	75.92	73.92	71.70
No	71.20	51.33	63.68	77.45
P-value	0.880	0.014	0.303	0.451
Husband support				
Yes	65.55	72.02	80.31	70.11
No	75.56	72.71	69.07	73.55
P-value	0.183	0.927	0.132	0.548
Other support				
Yes	69.13	64.85	66.87	70.31
No	73.24	74.19	73.74	72.98
P-value	0.648	0.298	0.442	0.696

Table S6a: Doctor satisfaction scales, socio-demographic, clinical and social support variables (N=144)

Variables	Technical skills	Interpersonal skills	Information provision	Availability
	Mean	Mean	Mean	Mean
Residence				
Refugee camp	69.23	78.23	68.86	55.36
Village	72.00	69.86	71.46	72.31
City	74.38	76.57	75.60	77.28
P-value	0.917	0.604	0.813	0.272
Age in years				
≤ 40	67.23	67.41	67.13	65.89
41–54	78.23	78.03	78.34	79.69
P-value	0.108	0.121	0.091	0.040
Marital status				
Unmarried	79.98	89.20	80.65	82.33
Married	71.29	69.81	71.19	70.92
P-value	0.381	0.046	0.324	0.240
Education				
Primary and less	76.82	90.18	89.29	88.63
Secondary	75.54	68.51	66.59	67.38
College/University	68.64	70.94	72.85	72.36
P-value	0.572	0.124	0.097	0.136
Working status				
Employee	70.15	71.84	72.66	70.21
Housewife	73.44	72.76	72.44	73.41
P-value	0.665	0.903	0.976	0.666
Number of children				
≤5 persons	71.13	72.06	71.70	71.58
>5 persons	75.41	73.45	74.20	74.46
P-value	0.560	0.850	0.726	0.689
Family size				
≤5 persons	78.23	82.74	80.71	80.81
>5 persons	69.36	66.89	68.00	67.94
P-value	0.216	0.027	0.067	0.066
Income (US \$)				
< 570	69.12	69.00	66.18	71.29
570-1140	71.64	71.41	76.88	74.05
> 1140	79.61	80.23	74.55	71.56
P-value	.513	.459	.346	.926
Stage at diagnosis				
Stage 1	75.77	75.64	79.86	80.05
Stage 2	80.14	77.43	78.24	77.11
Stage 3	65.57	67.78	68.27	67.49
Stage 4	69.65	71.15	58.60	70.00
P-value	.265	.621	0.316	0.534

Table S6b: Doctor satisfaction scales and socio-demographic, clinical and social support variables (N=144) (con.)

Variables	Technical skills	Interpersonal skills	Information provision	Availability
	Mean	Mean	Mean	Mean
Chemotherapy				
Yes	73.68	73.75	73.50	73.50
No	31.25	28.63	37.38	37.38
P-value	0.040	0.030	0.073	0.229
Radiotherapy				
Yes	71.00	71.18	72.87	71.57
No	76.54	76.06	71.51	75.00
P-value	0.472	0.526	0.856	0.650
Hormonal therapy				
Yes	71.84	72.50	72.72	71.28
No	76.36	72.52	71.24	79.67
P-value	0.642	0.998	0.875	0.377
Biological treatment				
Yes	75.99	72.01	71.11	71.94
No	68.81	73.01	73.96	73.09
P-value	0.294	0.884	0.668	0.864
Surgical intervention				
Complete Mastectomy	70.07	70.39	72.91	72.65
Partial Mastectomy	74.14	73.92	72.22	72.40
P-value	0.560	0.612	0.918	0.971
Chronic disease				
Yes	74.07	79.77	78.79	77.80
No	71.74	68.98	69.45	69.93
P-value	0.749	0.139	0.187	0.272
Pain Medication				
Yes	74.87	75.36	73.59	74.62
No	69.08	68.38	70.93	69.45
P-value	0.406	0.316	0.694	0.449
Relatives cancer				
Breast Cancer	75.95	70.45	69.84	72.80
Other Cancers	65.51	64.74	69.36	67.50
No history of cancer	74.04	77.62	75.64	74.86
P-value	0.499	0.298	0.662	0.677
Family support				
Yes	74.35	73.97	73.82	74.99
No	61.05	63.38	64.33	57.08
P-value	0.179	0.284	0.322	0.065
Husband support				
Yes	74.69	74.72	76.07	76.07
No	71.54	71.53	70.93	70.93
P-value	0.671	0.667	0.476	0.961
Other support				
Yes	65.19	67.15	69.87	65.35
No	74.11	73.68	73.08	74.08
P-value	0.317	0.463	0.709	0.317

Table S7a: Nurse satisfaction, socio-demographic, clinical and social support variables (N=144)

Variables	Technical skills	Interpersonal skills	Information provision	Availability
	Mean	Mean	Mean	Mean
Residence				
Refugee camp	76.23	75.55	79.86	68.59
Village	72.22	73.01	71.90	71.86
City	72.14	70.66	71.87	74.85
P-value	0.951	0.924	0.817	0.872
Age in years				
≤ 40	68.05	69.46	67.37	67.78
41–54	77.33	75.80	78.08	77.63
P-value	0.173	0.357	0.109	0.143
Marital status				
Unmarried	74.15	81.30	80.85	87.18
Married	72.23	71.08	71.15	70.13
P-value	0.845	0.304	0.315	0.079
Education				
Primary and less	78.50	86.74	84.89	89.82
Secondary	70.01	68.83	67.07	68.65
Colleague/University	72.96	71.64	73.69	70.93
P-value	0.728	0.253	0.229	0.126
Working status				
Employee	75.22	68.46	68.50	67.04
Housewife	71.42	74.11	74.09	74.67
P-value	0.614	0.459	0.449	0.304
Number of children				
≤5 persons	72.26	71.95	72.58	72.14
>5 persons	73.02	73.67	72.33	73.26
P-value	0.916	0.815	0.971	0.877
Family size				
≤5 persons	77.37	78.68	78.22	76.95
>5 persons	69.83	69.11	69.37	70.06
P-value	0.288	0.184	0.204	0.326
Income (US \$)				
< 570	66.13	70.06	69.64	71.97
570-1140	76.80	73.76	74.71	73.03
> 1140	74.78	74.11	73.00	72.36
P-value	0.362	.867	.798	.990
Stage at diagnosis				
Stage 1	79.77	76.14	71.14	82.32
Stage 2	81.38	79.37	81.81	80.03
Stage 3	64.55	68.22	67.25	67.32
Stage 4	64.65	56.45	54.15	51.70
P-value	0.115	0.272	0.095	0.093

Table S7b: Nurse satisfaction, socio-demographic, clinical and social support variables (N=144) (con.)

Variables	Technical skills	Interpersonal skills	Information provision	Availability
	Mean	Mean	Mean	Mean
Chemotherapy				
Yes	73.04	73.06	73.49	72.67
No	53.50	53.00	38.00	66.63
P-value	0.345	0.338	0.080	0.767
Radiotherapy				
Yes	73.25	73.25	71.92	73.35
No	70.49	70.49	74.06	70.21
P-value	0.718	0.721	0.775	0.677
Hormonal therapy				
Yes	72.53	73.28	73.17	73.15
No	72.33	67.93	68.57	68.71
P-value	0.984	0.583	0.626	0.641
Biological treatment				
Yes	72.95	71.47	69.09	68.86
No	72.03	73.59	76.10	76.34
P-value	0.893	0.757	0.294	0.265
Surgical intervention				
Complete Mastectomy	69.35	67.77	70.52	70.48
Partial Mastectomy	74.62	75.69	73.84	73.86
P-value	0.447	0.259	0.625	0.622
Chronic disease				
Yes	76.88	73.72	78.27	78.39
No	70.38	71.91	69.71	69.64
P-value	0.369	0.805	0.229	0.222
Pain Medication				
Yes	74.49	76.39	73.69	74.45
No	69.64	66.89	70.79	69.69
P-value	0.483	0.174	0.669	0.485
Relatives cancer				
Breast Cancer	71.19	72.39	70.06	68.85
Other Cancers	67.07	63.87	69.87	66.97
No history of cancer	76.01	76.94	75.25	77.42
P-value	0.556	0.312	0.732	0.365
Family support				
Yes	74.55	73.08	74.15	74.73
No	59.78	68.90	62.28	58.68
P-value	0.133	0.674	0.218	0.098
Husband support				
Yes	79.64	80.78	76.53	77.42
No	69.36	68.86	70.73	70.34
P-value	0.164	0.110	0.422	0.331
Other support				
Yes	64.90	72.46	65.67	67.04
No	74.17	72.51	74.00	73.70
P-value	0.294	0.996	0.337	0.445

Table S8: Others satisfaction scales and socio-demographic, clinical and social support variables (N=144)

Variables	Exchange information	Kindness, helpfulness, information giving	Waiting Time	Access	Comfort/cleanliness	General satisfaction
	Mean	Mean	Mean	Mean	Mean	Mean
Residence						
Refugee camp	64.95	64.82	71.64	74.59	66.27	58.09
Village	73.93	74.58	75.03	74.64	76.56	74.83
City	71.44	70.10	67.43	67.48	65.60	71.31
P-value	0.74	0.67	0.57	0.61	0.27	0.40
Age in years						
≤ 40	65.82	66.81	70.35	70.53	73.75	67.65
41–54	79.76	78.68	74.84	74.64	71.14	77.77
P-value	0.02	0.07	0.49	0.53	0.69	0.12
Marital status						
Unmarried	81.23	77.08	72.10	68.95	61.73	78.25
Married	71.09	71.76	72.56	73.07	74.24	71.57
P-value	0.27	0.58	0.96	0.66	0.18	0.48
Education						
Primary and less	79.74	87.55	87.95	84.82	83.08	87.89
Secondary	73.42	69.26	68.97	68.68	72.56	66.73
Colleague/University	69.65	71.04	71.17	72.31	69.45	73.13
P-value	0.58	0.21	0.17	0.31	0.41	0.12
Working status						
Employee	69.88	69.06	65.01	70.13	64.15	73.02
Housewife	73.54	73.87	75.48	73.44	75.83	72.29
P-value	0.60	0.51	0.14	0.65	0.10	0.92
Number of children						
≤5 persons	70.81	74.15	73.11	73.11	70.78	71.52
>5 persons	76.11	68.99	71.21	71.21	76.16	74.59
P-value	0.43	0.47	0.78	0.37	0.44	0.66
Family size						
≤5 persons	74.61	80.75	78.84	79.21	73.35	79.10
>5 persons	71.34	67.97	69.02	68.82	72.03	68.88
P-value	0.62	0.06	0.15	0.13	0.84	0.13
Income (US \$)						
< 570	67.27	69.33	70.12	71.55	69.64	66.50
570–1140	78.56	73.88	73.68	71.87	73.98	75.64
> 1140	69.64	75.06	74.17	75.23	74.38	76.36
P-value	0.26	0.77	0.85	0.90	0.80	0.38
Stage at diagnosis						
Stage 1	80.64	63.09	61.68	57.14	54.18	71.77
Stage 2	75.42	81.35	78.68	84.65	79.05	79.03
Stage 3	70.15	68.75	70.26	65.58	71.08	68.11
Stage 4	61.90	55.90	63.10	63.90	63.85	63.95
P-value	0.60	0.13	0.38	0.02	0.20	0.40

Table S8b: Others satisfaction scales and socio-demographic, clinical and social support variables (N=144) (con.)

Variables	Exchange information	Kindness, helpfulness, information giving	Waiting Time	Access	Comfort/cleanliness	General satisfaction
	Mean	Mean	Mean	Mean	Mean	Mean
Chemotherapy						
Yes	73.08	73.14	73.17	73.17	73.23	73.35
No	52.38	50.00	49.00	49.00	46.88	42.75
P-value	0.28	0.25	0.22	0.23	0.18	0.12
Radiotherapy						
Yes	71.29	74.33	75.50	73.90	74.10	71.73
No	75.77	67.56	64.42	68.74	68.19	74.56
P-value	0.53	0.37	0.13	0.49	0.42	0.70
Hormonal therapy						
Yes	71.29	72.46	73.44	74.20	73.80	72.85
No	79.57	72.74	66.98	62.55	64.88	70.48
P-value	0.36	0.97	0.48	0.21	0.33	0.79
Biological treatment						
Yes	76.57	73.80	69.58	72.86	73.87	73.43
No	68.19	71.13	75.59	72.12	71.05	71.52
P-value	0.18	0.69	0.35	0.91	0.66	0.77
Surgical intervention						
Complete Mastectomy	74.15	71.13	69.33	64.36	73.64	71.30
Partial Mastectomy	71.39	73.42	74.64	77.99	71.73	73.31
P-value	0.67	0.73	0.42	0.04	0.77	0.76
Chronic disease						
Yes	78.53	80.70	79.81	74.44	70.04	76.98
No	69.58	68.53	68.96	71.56	73.69	70.33
P-value	0.18	0.09	0.12	0.68	0.60	0.34
Pain Medication						
Yes	73.95	72.75	73.57	72.79	69.99	74.19
No	70.42	72.14	70.96	72.08	76.12	70.06
P-value	0.58	0.92	0.69	0.91	0.35	0.53
Relatives cancer						
Breast Cancer	74.19	73.00	75.24	78.83	76.49	71.78
Other Cancers	77.04	66.54	67.24	60.66	62.91	69.74
No history of cancer	69.22	75.23	73.58	74.84	75.05	74.32
P-value	0.58	0.58	0.64	0.11	0.24	0.84
Family support						
Yes	74.46	73.04	75.16	73.89	74.45	73.94
No	60.38	69.15	56.00	63.90	60.43	63.58
P-value	0.12	0.68	0.04	0.29	0.13	0.27
Husband support						
Yes	72.80	80.48	80.80	80.67	80.92	79.09
No	72.37	68.99	68.85	68.91	68.80	69.60
P-value	0.95	0.11	0.09	0.10	0.08	0.18
Other support						
Yes	58.71	64.90	59.46	67.77	64.10	64.06
No	75.54	74.17	75.37	73.54	74.35	74.36
P-value	0.04	0.28	0.06	0.50	0.22	0.22

Appendix 5: Study 5 Supplementary Tables

Table S1a: Spiritual well-being and socio-demographic, clinical and social support variables (N=144)

Variables	Meaning	Peace	Faith	TOTAL score
	Mean	Mean	Mean	Mean
Residence				
Refugee camp	45.55	54.36	65.91	51.27
Village	74.53	76.93	75.00	76.72
City	75.15	67.87	68.95	69.10
P-value	0.08	0.16	0.63	0.13
Age in years				
≤ 40	68.95	57.69	58.85	59.66
>45	76.36	88.59	87.34	86.46
P-value	0.284	0.000	0.000	0.000
Marital status				
Unmarried	56.33	70.45	73.35	66.48
Married	75.11	72.83	72.36	73.47
P-value	0.06	0.81	0.92	90.4
Education				
Primary and less	50.05	76.92	92.05	75.32
Secondary	73.71	73.04	71.99	72.59
Colleague/University	77.82	70.78	67.40	71.62
P-value	0.03	0.84	0.07	0.94
Working status				
Employee	88.16	84.73	72.00	82.59
Housewife	66.27	67.63	72.70	68.49
P-value	0.004	0.02	0.92	0.06
Number of children				
≤5 persons	72.38	70.32	65.80	68.35
>5 persons	72.76	77.14	86.77	81.35
P-value	60.9	60.3	0.005	0.08
Family size				
≤5 persons	75.21	79.03	75.69	77.52
>5 persons	71.02	68.92	70.75	69.75
P-value	0.56	0.16	0.49	0.28
Income (US \$)				
< 570	66.96	69.34	70.28	67.28
570-1140	74.50	72.15	71.91	73.51
> 1140	77.75	78.30	77.22	79.09
P-value	0.45	0.62	0.74	0.43
Stage at diagnosis				
Stage 1	90.09	94.68	64.68	85.55
Stage 2	76.07	71.23	73.91	73.80
Stage 3	68.68	73.24	74.37	72.15
Stage 4	57.25	50.65	60.80	52.90
P-value	0.22	0.11	10.7	0.34

Table S1b: Spiritual well-being and socio-demographic, clinical and social support variables (N=144) (con.)

Variables	Meaning	Peace	Faith	TOTAL score
	Mean	Mean	Mean	Mean
Chemotherapy				
Yes	72.78	72.73	73.63	73.05
No	62.75	64.50	32.88	53.25
P-value	0.63	0.69	0.05	50.3
Radiotherapy				
Yes	74.08	74.78	73.81	73.96
No	68.24	66.37	68.96	68.58
P-value	0.45	0.28	0.53	0.49
Hormonal therapy				
Yes	72.48	70.15	71.66	71.10
No	72.64	86.26	77.43	80.71
P-value	0.98	0.10	0.55	0.32
Biological treatment				
Yes	71.56	70.83	68.29	70.26
No	73.49	74.26	76.95	74.86
P-value	0.78	0.62	0.20	0.50
Surgical intervention				
Complete Mastectomy	67.42	65.91	71.66	67.29
Partial Mastectomy	75.92	76.95	73.07	76.01
P-value	0.22	0.11	0.84	0.21
Chronic disease				
Yes	70.06	85.69	83.23	81.90
No	73.68	66.11	67.30	67.94
P-value	0.62	0.008	0.030	0.059
Pain Medication				
Yes	69.44	75.55	74.15	73.55
No	76.91	68.10	70.12	70.99
P-value	=0.28	0.290	0.565	0.717
Relatives cancer				
Breast Cancer	72.18	75.65	64.86	70.40
Other Cancers	73.06	66.11	72.71	69.10
No history of cancer	72.41	73.91	76.82	75.44
P-value	0.99	0.56	0.34	0.71
Family support				
Yes	71.11	72.52	73.57	72.29
No	81.10	72.35	65.88	73.83
P-value	0.31	0.98	0.44	0.87
Husband support				
Yes	74.40	70.81	70.95	72.23
No	71.67	73.25	73.18	72.62
P-value	0.71	0.74	0.76	0.95
Other support				
Yes	80.62	79.90	70.87	77.98
No	70.71	70.87	72.86	71.29
P-value	0.27	0.31	0.82	0.45

Table S2a: QLQ-C23 functional scales and socio-demographic, clinical and social support variables (N=144)

Variables	Body image	Sexual functioning-	Sexual enjoyment	Future perceptive
	Mean	Mean	Mean	Mean
Residence				
Refugee camp	54.77	68.73	72.14	73.59
Village	75.24	70.36	69.85	67.49
City	71.29	77.95	78.14	82.71
P-value	0.29	80.5	0.52	0.09
Age in years				
≤ 40	54.09	86.03	86.03	86.03
>45	92.51	57.80	57.80	57.80
P-value	0.000	0.000	0.001	0.71
Marital status				
Unmarried	87.70	20.00	26.98	77.33
Married	70.05	80.97	79.84	71.72
P-value	0.04	0.000	0.000	40.5
Education				
Primary and less	99.95	47.50	48.87	68.45
Secondary	71.96	72.73	72.97	73.99
Colleague/University	65.19	79.39	78.80	72.36
P-value	0.005	0.01	0.01	0.85
Working status				
Employee	74.06	85.50	81.85	81.85
Housewife	71.88	67.33	68.78	68.78
P-value	0.77	0.01	0.07	0.64
Number of children				
≤5 persons	69.89	73.22	74.48	71.59
>5 persons	78.07	70.97	68.27	74.43
P-value	0.27	0.75	0.37	0.67
Family size				
≤5 persons	81.88	67.50	66.35	75.60
>5 persons	67.35	75.24	75.87	70.80
P-value	0.04	0.27	0.16	0.46
Income (US \$)				
< 570	69.07	70.00	66.60	73.77
570-1140	72.64	72.13	73.53	72.34
> 1140	77.81	77.27	80.17	70.73
P-value	.640	.720	.290	.930
Stage at diagnosis				
Stage 1	71.82	81.86	74.36	78.50
Stage 2	78.36	69.34	72.40	72.23
Stage 3	70.45	75.25	73.82	66.68
Stage 4	52.60	62.60	62.50	80.00
P-value	0.30	0.61	0.86	0.03

Table S2b: QLQ-C23 functional scales and socio-demographic, clinical and social support variables (N=144) (con.)

Variables	Body image	Sexual functioning-	Sexual enjoyment	Future perceptive
	Mean	Mean	Mean	Mean
Chemotherapy				
Yes	72.95	72.09	72.51	71.57
No	56.88	86.88	72.25	105.13
P-value	.440	.470	.990	.080
Radiotherapy				
Yes	74.43	74.00	72.95	70.42
No	67.31	68.47	71.28	78.10
P-value	.360	.470	.820	.270
Hormonal therapy				
Yes	71.15	74.22	72.95	70.03
No	80.43	62.40	69.86	86.98
P-value	0.34	0.22	0.73	60.0
Biological treatment				
Yes	65.56	81.22	79.51	79.51
No	79.84	63.28	65.09	65.09
P-value	0.03	0.009	0.02	0.02
Surgical intervention				
Complete Mastectomy	60.28	64.97	64.57	74.47
Partial Mastectomy	80.74	77.58	77.85	71.17
P-value	0.004	0.07	0.04	0.60
Chronic disease				
Yes	93.36	52.56	60.98	78.34
No	62.39	82.16	78.08	69.67
P-value	0.000	0.000	0.01	0.19
Pain Medication				
Yes	77.71	64.71	66.22	78.19
No	65.00	83.73	81.55	64.31
P-value	0.07	10.0	0.02	0.03
Relatives cancer				
Breast Cancer	71.65	77.78	76.55	78.69
Other Cancers	70.16	73.73	72.24	70.94
No history of cancer	74.18	68.82	70.28	69.70
P-value	0.88	0.53	0.72	0.47
Family support				
Yes	72.74	74.11	74.58	72.22
No	71.00	62.53	59.63	74.25
P-value	.860	.240	.110	.820
Husband support				
Yes	0.153	89.88	94.48	67.50
No	0.153	64.86	62.83	74.70
P-value	0.07	0.001	0.000	0.29
Other support				
Yes	83.31	68.62	65.02	67.29
No	70.12	73.36	74.15	73.65
P-value	0.14	0.59	0.28	0.43

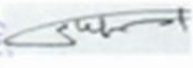
Table S3a: QLQ-C 23 Symptom, socio-demographic, clinical and social support variables (N=144)

Variables	Systemic therapy side effect	Breast symptom	Arm symptoms	Upset by hair loss
	Mean	Mean	Mean	Mean
Residence				
Refugee camp	93.73	94.05	88.59	69.32
Village	71.92	69.69	69.26	73.59
City	68.29	72.87	75.16	71.03
P-value	0.18	0.18	0.30	0.85
Age in years				
≤ 40	60.13	68.67	68.93	72.74
>45	85.94	76.67	76.38	72.24
P-value	0.000	0.24	0.27	0.92
Marital status				
Unmarried	81.10	73.08	71.78	79.40
Married	71.11	72.41	72.62	71.39
P-value	0.31	0.94	0.93	0.29
Education				
Primary and less	94.92	93.53	94.13	76.71
Secondary	71.45	68.28	72.62	66.76
Colleague/University	67.05	70.19	66.26	76.28
P-value	0.03	0.058	0.03	0.20
Working status				
Employee	68.15	69.56	67.07	69.26
Housewife	74.23	73.67	74.66	73.79
P-value	0.42	0.59	0.32	0.43
Number of children				
≤5 persons	71.05	69.23	69.46	71.83
>5 persons	75.59	79.47	78.98	73.93
P-value	.540	.160	.190	.700
Family size				
≤5 persons	69.23	65.00	70.11	70.07
>5 persons	74.30	76.61	73.81	73.83
P-value	0.48	0.10	0.60	0.49
Income (US \$)				
< 570	72.84	70.63	67.02	71.38
570-1140	73.18	68.76	71.81	75.45
> 1140	70.67	82.55	82.70	68.78
P-value	0.96	0.29	0.23	0.59
Stage at diagnosis				
Stage 1	76.59	55.91	60.77	72.50
Stage 2	74.73	79.02	80.84	77.55
Stage 3	71.09	69.20	67.26	67.32
Stage 4	64.20	74.40	71.10	76.90
P-value	0.86	0.30	0.23	0.33

Table S3b: QLQ-C 23 Symptom, socio-demographic, clinical and social support variables (N=144) (con.)

Variables	Systemic therapy side effect	Breast symptom	Arm symptoms	Upset by hair loss
	Mean	Mean	Mean	Mean
Chemotherapy				
Yes	73.14	72.74	72.42	72.58
No	50.25	64.00	75.38	69.75
P-value	.270	.670	.880	.860
Radiotherapy				
Yes	74.45	73.75	77.07	71.73
No	67.24	69.14	60.21	74.58
P-value	.350	.550	.020	.630
Hormonal therapy				
Yes	70.94	72.20	73.04	68.91
No	81.64	74.26	69.33	93.55
P-value	0.27	0.83	0.70	0.001
Biological treatment				
Yes	67.41	67.61	67.34	71.39
No	77.88	77.67	77.96	73.67
P-value	0.13	0.14	0.12	0.66
Surgical intervention				
Complete Mastectomy	75.59	65.82	57.09	69.57
Partial Mastectomy	70.41	77.01	82.90	74.48
P-value	0.46	0.11	0.000	0.36
Chronic disease				
Yes	84.27	77.33	79.01	65.01
No	66.80	70.16	69.35	76.13
P-value	0.01	0.33	0.18	0.04
Pain Medication				
Yes	77.38	76.12	72.62	74.54
No	65.47	67.29	72.32	69.57
P-value	0.09	0.20	0.96	0.35
Relatives cancer				
Breast Cancer	73.19	66.41	72.35	83.85
Other Cancers	76.57	76.96	75.41	70.79
No history of cancer	70.04	73.77	71.11	66.79
P-value	0.74	0.51	0.881	0.02
Family support				
Yes	72.71	75.92	73.92	71.70
No	71.20	51.33	63.68	77.45
P-value	.880	.010	.300	.450
Husband support				
Yes	65.55	72.02	80.31	70.11
No	75.56	72.71	69.07	73.55
P-value	0.18	0.92	0.13	0.54
Other support				
Yes	69.13	64.85	66.87	70.31
No	73.24	74.19	73.74	72.98
P-value	0.64	0.29	0.44	0.69

Appendix 6: Ethical Approval for Scientific Research – Al-Quds University

Al-Quds University Jerusalem School of Public Health		جامعة القدس القدس كلية الصحة العامة
		التاريخ: 2024/2/19 الرقم: REF. 10/24
		عزيزتي الطالبة ايلسالم الطيطي المحترمة برنامج الدكتوراة في الصحة العامة
		الموضوع: موافقة لجنة أخلاقيات البحث العلمي
		قامت اللجنة الفرعية لأخلاقيات البحث التابعة لكلية الصحة العامة بمراجعة مشروع الرسالة بعنوان:
		"Supportive Care Services and the Quality of Life for Breast Cancer Patients at the Governmental Hospitals in the Southern Area of the West Bank".
		المقدم من (مشرف البحث): د. نهي الشريف.
		يعتبر مشروعك مستوفياً لمتطلبات أخلاقيات البحث في جامعة القدس.
		نشكركم كل التوفيق في شسير المشروع.
		ملاحظة: في حالة الحاجة إلى موافقة من اللجنة المركزية في الجامعة، تستطيع التقدم باستخدام هذه
		الموافقة على الرابط: https://research.alquds.edu/en/ethics/48-how-to-apply.html
		عن رئيسة اللجنة الفرعية لأخلاقيات البحث
		كلية الصحة العامة
		
		
		د. نهي الشريف
		مستشار/ أستاذة لجنة البحث
		مستشار/ أستاذ

Jerusalem Branch/Telephone 02-2799234 Gaza Branch/Telephone 08-2644210-2644210 P.O. Box 15100 Jerusalem	فرع القدس / هاتف 02-2799234 فرع غزة / هاتف 08-2644210-2644210 ص. ب. 15100 القدس
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Appendix 7: Facilitating Research Task- Ministry of Health

State of Palestine Ministry of Health Education in Health and Scientific Research Unit		دولة فلسطين وزارة الصحة وحدة التعليم الصحي والبحث العلمي
Ref: Date:.....	رقم: ٤٧٥/٢٠٢٤ التاريخ: ٢٠٢٤/١١/١٨	
عطوفة الوكيل المساعد لشؤون المستشفيات والطوارئ المحترم... دعاه ولدعاه...		
<u>الموضوع: تسهيل مهمة بحث</u>		
يرجى تسهيل مهمة الطالبة: الهسام الطيطي - برنامج دكتوراه الصحة العامة/ جامعة القدس، وبإشراف د. نهى الشريف في عمل بحث بعنوان: تأثير خدمات الرعاية الداعمة على جودة الحياة لمرضى سرطان الثدي في المستشفيات الحكومية في المنطقة الجنوبية من الضفة الغربية من خلال السماح للطالبة بجمع معلومات عن طريق تعبئة استبانة من قبل الممرضات بعد أخذ موافقتهم وموافقة الطبيب المشرف على العلاج، وذلك في: - مستشفى بيت جالا - مستشفى دورا - مستشفى فلسطين العسكري (حرمة) على ان يتم الالتزام بالسياسات وأخلاقيات البحث العلمي، وعدم التعرض للمعلومات التعريفية للمرضى. على ان يتم تزويد الوزارة بنسخة PDF من نتائج البحث، التعمد بعدم النشر لحين الحصول على موافقة الوزارة على نتائج البحث. مع التحية...		
د. عبد الله القواسمي رئيس وحدة التعليم الصحي والبحث العلمي		
نسخة: عند كلية الصحة العامة -مستشفى جامعة القدس 		
Telfax: 09-2333901	scientificresearch.dep@mo.gov.ps	تلفاكس: 09-2333901

Appendix 8: Participant Consent Form



كلية الصحة العامة- جامعة القدس نموذج الموافقة على المشاركة في الدراسة

الدراسة: "خدمات الرعاية الداعمة وتأثيرها على جودة الحياة لمريضات سرطان الثدي في المستشفيات الحكومية في المنطقة الجنوبية من الضفة الغربية"

عزيزتي المشاركة في البحث:

انا الطالبة ابتسام الطيطي أقوم بإجراء بحث يهدف إلى معرفة أثر خدمات الرعاية الداعمة على جودة حياة مريضات سرطان الثدي في المنطقة الجنوبية من الضفة الغربية كمتطلب لرسالة الدكتوراة في الصحة العامة في جامعة القدس - كلية الصحة العامة تحت اشراف الدكتورة نهى الشريف. تتضمن هذه الدراسة تعبئة العديد من الاستبانات في مراحل عديدة من الدراسة. وسيتم استخدام المعلومات لتقييم وفهم وجهات نظر وتجارب مريضات سرطان الثدي فيما يتعلق بخدمات الرعاية الداعمة وتأثير هذه الخدمات على جودة حياة المريضة.

نؤكد بأنه سيتم التعامل بجميع المعلومات التي سيتم جمعها خلال هذه الدراسة بسرية تامة. لذا نرجو من حضرتكم التعاون بالإجابة على أسئلة الاستبانات، علماً بأن المشاركة طوعية وأن هذه المعلومات ستستخدم لغرض البحث العلمي فقط، ويمكنك اختيار الانسحاب في أي وقت دون مواجهة أي عواقب. تتضمن هذه مشاركتك في هذه الدراسة على التالي:

- 1- تعبئة استبيان عن مدى حاجتك لخدمات الرعاية الداعمة
- 2- تعبئة استبيان عن التكيف مع السرطان
- 3- تعبئة استبيان عن الرضى عن الخدمات الصحية
- 4- تعبئة استبيان عن جودة الحياة

نموذج الموافقة للمشاركة
الدراسة: "خدمات الرعاية الداعمة وتأثيرها على جودة الحياة لمريضات سرطان الثدي في
المستشفيات الحكومية في المنطقة الجنوبية من الضفة الغربية"

التوقيع على هذا النموذج يعني أنني أوافق على ما يلي		
1.	لقد تم إبلاغي عن هدف الدراسة من قبل الباحث	نعم لا
2.	تم إبلاغي بأن معلوماتي الشخصية والمعلومات التي سيتم جمعها من هذه الدراسة البحثية ستبقى سرية وسوف تستخدم من أجل البحث العلمي فقط	نعم لا
3.	أدرك أن لدي الحق في الانسحاب من الدراسة في أي وقت	نعم لا
4.	لدي خيار عدم الإجابة عن أي سؤال أحده	نعم لا

اسم المشاركة ----- التوقيع ----- التاريخ-----
 اسم الباحثة ----- التوقيع ----- التاريخ-----
 إذا كان لديك أي سؤال أو كنت بحاجة إلى أي معلومات، فيرجى الاتصال بـ
 ابتسام الطيطي - هاتف 0562401647
 إميل: ibtisam.titi@yahoo.com

Appendix 9: Patient File Questionnaire

ملف المريضة

أولاً: المعلومات التعريفية والاتصال

الاسم:	رقم الملف:	_____
رقم الهاتف:	العمر:	_____ سنة
المحافظة:	☐ الخليل ☐ بيت لحم ☐ القدس ☐ أريحا غير ذلك _____ :	
مكان السكن:	☐ مدينة ☐ قرية ☐ مخيم ☐ خربة/خيمة	

ثانياً: الحالة الاجتماعية والأسرة

الحالة الاجتماعية:	☐ عزباء ☐ متزوجة ☐ أرملة ☐ مطلقة ☐ منفصلة	
عدد أفراد الأسرة:	عدد الأبناء:	_____
الديانة:	☐ مسلم ☐ مسيحي ☐ غير ذلك _____ :	

ثالثاً: التعليم والعمل

المستوى التعليمي:	☐ ابتدائي ☐ ثانوي ☐ دبلوم ☐ جامعي ☐ دراسات عليا	
نوع عملك:	☐ موظفة حكومي ☐ القطاع الخاص ☐ عمل حر ☐ طالبة ☐ لا أعمل حالياً ☐ ربة منزل ☐ غير ذلك _____ :	
دخل العائلة (شيكل)	☐ < 2000 ☐ 2000-4000 ☐ > 4000	

رابعاً: الوزن والتشخيص

الوزن عند التشخيص:	الوزن حالياً:	_____ كغم
متى تم تشخيصك بسرطان الثدي:	☐ أقل من 3 أشهر ☐ من 3 أشهر - 6 شهور ☐ 6 أشهر - سنة ☐ 1-3 سنوات ☐ 3-5 سنوات ☐ أكثر من 5 سنوات	
مكان تشخيص المرض:	☐ مستشفى بيت جالا ☐ مستشفى فلسطين العسكري (حرمة) ☐ (مستشفى دورا الحكومي) ☐ مستشفى/مركز خاص ☐ غير ذلك _____	
مرحلة المرض عند التشخيص:	☐ المرحلة الأولى ☐ المرحلة الثانية ☐ المرحلة الثالثة ☐ المرحلة الرابعة	

خامسًا: العلاج والمستشفى

نوع العلاج الذي تلقينته:	☐ العلاج الكيميائي ☐ العلاج الإشعاعي ☐ العلاج الهرموني ☐ العلاج الجراحي ☐ العلاج البيولوجي ☐ غير ذلك _____ :
المستشفى التي تتلقى فيها العلاج:	☐ الحسين/مستشفى بيت جالا ☐ مستشفى فلسطين العسكري (حرملة) ☐ (مستشفى دورا الحكومي ☐ غير ذلك _____ :
تاريخ البدء بالعلاج:	_____ / _____ / _____
هل تم تحويلك إلى أي اختصاصي آخر غير اختصاصي علاج السرطان؟	☐ لا ☐ نعم إذا كانت الإجابة نعم، حدد نوع الاختصاص : _____

سادسًا: التاريخ الصحي

هل تم تشخيصك سابقًا بأي نوع آخر من السرطانات؟	☐ لا ☐ نعم إذا كانت الإجابة نعم، حدد النوع والتاريخ : _____
هل لديك مشاكل صحية أو أمراض أخرى غير السرطان؟	☐ لا ☐ نعم إذا كانت الإجابة نعم، حدد : _____
هل تتناولين علاجات لأمراض غير سرطان الثدي؟	☐ لا ☐ نعم إذا كانت الإجابة نعم، حدد نوع العلاج : _____
هل تتناولين علاجًا للألم؟	☐ لا ☐ نعم إذا كانت الإجابة نعم، حدد نوع علاج الألم : _____

سابعًا: التاريخ العائلي والإحالة والدعم

هل عانى أي من أفراد عائلتك من مرض السرطان؟	☐ لا ☐ نعم إذا كانت الإجابة نعم، حدد النوع ودرجة القرابة : _____
من أين تم تحويلك للعلاج؟	☐ عيادة حكومية ☐ عيادة خاصة ☐ مستشفى حكومي ☐ مستشفى خاص ☐ جمعية لمرضى السرطان ☐ غير ذلك _____ :
من ممن تتلقين الدعم الأكبر والمساعدة في مواجهة المرض؟	☐ الأهل ☐ الزوج ☐ الأبناء ☐ الأصدقاء ☐ الطاقم الطبي المعالج ☐ زملاء العمل ☐ مجموعات الدعم النسائية/المراكز الاجتماعية ☐ غير ذلك : _____

Appendix 10: Supportive Care Needs Survey (SCNS-SF34) Questionnaire

استطلاع احتياجات الرعاية الداعمة، النموذج القصير 34 (SCNS-SF34)



مركز البحوث الصحية
(CHERP) وعلم الأورام النفسية

تعليمات

لمساعدتنا في التخطيط لخدمات أفضل للأشخاص الذين تم تشخيص إصابتهم بالسرطان، نحن مهتمون بمعرفة ما إذا كانت الاحتياجات التي قد تكون واجهتها نتيجة لإصابتك بالسرطان قد تم تلبيتها أم لا. لكل عنصر في الصفحات التالية، وضح ما إذا كنت بحاجة إلى مساعدة بشأن هذه المشكلة خلال الشهر الماضي نتيجة لإصابتك بالسرطان. ضع دائرة حول الرقم الذي يصف بشكل أفضل ما إذا كنت بحاجة إلى مساعدة في هذا الشأن خلال الشهر الماضي. هناك 5 إجابات محتملة للاختيار من بينها:

لا حاجة	1	غير قابل للتطبيق - لم تكن هذه مشكلة بالنسبة لي نتيجة لذلك الإصابة بالسرطان.
	2	راضي - كنت بحاجة إلى مساعدة في هذا، ولكن حاجتي للمساعدة كانت راض في ذلك الوقت.
	3	حاجة منخفضة - هذا العنصر سبب لي القلق أو الانزعاج. لم يكن لدي سوى القليل الحاجة إلى مساعدة إضافية.
بعض يحتاج	4	حاجة معتدلة - هذا العنصر سبب لي القلق أو الانزعاج. أنا كان لديه بعض الحاجة إلى مساعدة إضافية.
	5	حاجة عالية - هذا العنصر سبب لي القلق أو الانزعاج. كان لدي حاجة قوية للحصول على مساعدة إضافية.

على سبيل المثال

في الشهر الماضي، ما هو مستوى حاجتك للمساعدة في:		لا حاجة		بعض الحاجة		
		غير قابل للتطبيق	راضي	حاجة منخفضة	معتدل يحتاج	حاجة عالية
2.	أن تكون على علم بالأشياء التي يمكنك القيام بها لمساعدة نفسك على التحسن	1	2	3	4	5
إذا وضعت الدائرة حيث لدينا، فهذا يعني أنك لم تتلق القدر الذي تريده من المعلومات حول الأشياء التي يمكنك القيام بها لمساعدة نفسك على التحسن، وبالتالي تحتاج إلى مزيد من المعلومات.						
الآن يرجى إكمال الاستبيان في الصفحتين التاليتين.						

في الشهر الماضي، ما هو مستوى حاجتك للمساعدة في:		لا حاجة		بعض الحاجة		
		راضي غير قابل للتطبيق		حاجة منخفضة	حاجة معتدلة	حاجة عالية
1.	ألم	1	2	3	4	5
2.	نقص الطاقة/التعب	1	2	3	4	5
3.	الشعور بالإعياء في كثير من الأحيان	1	2	3	4	5
4.	العمل في جميع أنحاء المنزل	1	2	3	4	5
5.	عدم القدرة على القيام بالأشياء التي اعتدت القيام بها	1	2	3	4	5
6.	قلق	1	2	3	4	5
7.	الشعور بالإحباط أو الاكتئاب	1	2	3	4	5
8.	مشاعر الحزن	1	2	3	4	5
9.	مخاوف من انتشار السرطان	1	2	3	4	5
10.	تقلق من أن نتائج العلاج خارجة عن إرادتك	1	2	3	4	5
11.	عدم اليقين بشأن المستقبل	1	2	3	4	5
12.	تعلم أن تشعر بالسيطرة على الوضع الخاص بك	1	2	3	4	5
13.	الحفاظ على النظرة الإيجابية	1	2	3	4	5
14.	مشاعر الموت والموت	1	2	3	4	5
15.	تغيرات في المشاعر الجنسية	1	2	3	4	5
16.	التغيرات في علاقاتك الجنسية	1	2	3	4	5
17.	مخاوف من هموم المقربين منك	1	2	3	4	5
18.	المزيد من الخيارات حول متخصصي السرطان الذين تراهم	1	2	3	4	5
19.	المزيد من الخيارات حول المستشفى الذي ستحضره	1	2	3	4	5
20.	طمأنة الطاقم الطبي بأن ما تشعر به طبيعي	1	2	3	4	5
21.	طاقم المستشفى يهتم على الفور باحتياجاتك الجسدية	1	2	3	4	5
22.	يعترف موظفو المستشفى بمشاعرك وعواطفك ويظهرون حساسيتهم لها الاحتياجات	1	2	3	4	5

في الشهر الماضي، ما هو مستوى حاجتك للمساعدة في:		لا حاجة		بعض الحاجة		
	غير قابل للتطبيق	راضٍ		حاجة منخفضة	حاجة معتدلة	حاجة عالية
23.	الحصول على معلومات مكتوبة حول الجوانب المهمة لرعايتك	1	2	3	4	5
24.	الحصول على معلومات (مكتوبة، ورسوم بيانية، ورسومات) حول جوانب إدارة مرضك والآثار الجانبية في المنزل	1	2	3	4	5
25.	الحصول على تفسيرات لتلك الاختبارات التي ترغب في الحصول على تفسيرات لها	1	2	3	4	5
26.	أن تكون على دراية كافية بفوائد العلاجات وآثارها الجانبية قبل أن تختار الحصول عليها	1	2	3	4	5
27.	أن تكون على علم بنتائج الاختبار الخاص بك في أقرب وقت ممكن	1	2	3	4	5
28.	أن تكون على علم بالسرطان الذي هو تحت السيطرة أو يتضاءل (أي مغفرة)	1	2	3	4	5
29.	أن تكون على علم بالأشياء التي يمكنك القيام بها لمساعدة نفسك على التحسن	1	2	3	4	5
30.	إمكانية الوصول إلى الاستشارة المهنية (على سبيل المثال، أخصائي نفسي، أخصائي اجتماعي، مستشار، ممرض متخصص) إذا كنت أنت أو عائلتك أو أصدقائك في حاجة إليها	1	2	3	4	5
31.	الحصول على معلومات حول العلاقات الجنسية	1	2	3	4	5
32.	أن يتم التعامل معه كشخص وليس مجرد حالة أخرى	1	2	3	4	5
33.	العلاج في مستشفى أو عيادة مريحة جسدياً قدر الإمكان	1	2	3	4	5
34.	وجود عضو واحد من طاقم المستشفى يمكنك التحدث معه حول جميع جوانب حالتك وعلاجك ومتابعتك	1	2	3	4	5

شكرا لك لاتمامك هذا الاستطلاع

Appendix 11: EORTC QLQ-C30 Questionnaire



EORTC QLQ-C30 (Version 3)

نحن مهتمون بمعرفة بعض المعلومات عنك وعن صحتك. الرجاء الإجابة بنفسك عن كل من الأسئلة التالية وذلك بوضع دائرة حول الإجابة الأكثر ملائمة لك. ال يوجد جواب "صحيح" أو "خطأ". جميع المعلومات ستعامل بسرية تامة.

الرجاء إدخال الحروف الأولى من اسمك: □ □ □ □

تاريخ ميلادك (اليوم، الشهر، السنة): □ □ □ □ □ □ □ □

تاريخ اليوم (اليوم، الشهر، السنة): □ □ □ □ □ □ □ □

كثيرا جدا	بما فيه الكفاية	قليلا	إطلاقا		
4	3	2	1	1. هل لديك صعوبة في بذل مجهود جسدي شاق (متعب) مثل حمل كيس مشريات ثقيل أو حقيبة؟	
4	3	2	1	2. هل لديك صعوبة بالمشي لمسافة طويلة؟	
4	3	2	1	3. هل لديك صعوبة بالمشي لمسافة قصيرة خارج البيت؟	
4	3	2	1	4. هل تحتاج للبقاء في السرير أو الكرسي خلال اليوم؟	
4	3	2	1	5. هل تحتاج للمساعدة في الأكل أو ارتداء الملابس أو اغتسال أو استخدام المرحاض؟	
كثيرا جدا	بما فيه الكفاية	قليلا	إطلاقا	خلال الاسبوع الماضي:	
4	3	2	1	6. هل كنت محدودا/ مقيدا عند القيام بعملك أو نشاطات يومية أخرى؟	
4	3	2	1	7. هل كنت محدودا/ مقيدا في ممارسة هواياتك أو نشاطات في أوقات الفراغ؟	
4	3	2	1	8. هل شعرت بضيق بالنفس؟	
4	3	2	1	9. هل شعرت بأي ألم؟	
4	3	2	1	10. هل كنت بحاجة للراحة؟	
4	3	2	1	11. هل عانيت من مشاكل في النوم (أرق/ صعوبة في النوم/ نوم متقطع)؟	
4	3	2	1	12. هل شعرت بالضعف؟	
4	3	2	1	13. هل فقدت شهيتك للطعام (القدرة على الأكل)؟	
4	3	2	1	14. هل شعرت بالغثيان (اللعان)؟	
4	3	2	1	15. هل تقيأت؟	
4	3	2	1	16. هل عانيت من إمساك؟	

انتقل إلى الصفحة التالية من فضل

خلل الأسبوع الماضي:	إطلاقاً	قليلاً	بما فيه الكفاية	كثيراً جداً
17. هل كان لديك إسهال؟	1	2	3	4
18. هل كنت متعباً؟	1	2	3	4
19. هل عانيت من ألم أثر سلبياً على نشاطاتك اليومية؟	1	2	3	4
20. هل كان لديك صعوبة بالتركيز في بعض الأمور مثل قراءة الجريدة أو مشاهدة التلفاز؟	1	2	3	4
21. هل شعرت بالتوتر؟	1	2	3	4
22. هل شعرت بالقلق؟	1	2	3	4
23. هل شعرت بالانزعاج؟	1	2	3	4
24. هل شعرت باكتئاب؟	1	2	3	4
25. هل كانت لديك صعوبة بتذكر الأشياء؟	1	2	3	4
26. هل حالتك الجسدية أو علاجك الطبي أثر سلبياً على حياتك العائلية؟	1	2	3	4
27. هل حالتك الجسدية أو علاجك الطبي أثر سلبياً على حياتك الاجتماعية؟	1	2	3	4
28. هل حالتك الجسدية أو علاجك الطبي أدى إلى مشاكل مالية؟	1	2	3	4

الأكثر ملائمة لـ 7 - 1 في الأسئلة التالية الرجاء الإشارة بدائرة حول الأرقام بين

29. كيف تقيّم صحتك عموماً خلال الأسبوع الماضي؟

1 2 3 4 5 6 7
سيء جداً ممتاز

30. كيف تقيّم جودة حياتك عموماً/ مستوى حياتك عموماً خلال الأسبوع الماضي؟

1 2 3 4 5 6 7
سيء جداً ممتاز



Appendix 12: EORTC QLQ –BR23 Questionnaire

EORTC QLQ –BR23

تبلغ المريضات بعض الأحيان باصابتهم بالأعراض أو المشاكل التالية، يرجى الإشارة الى الدرجة التي عانيتي فيها من مثل هذه الأعراض او المشاكل خلال الأسبوع الماضي

خلال الأسبوع الماضي:				
أبدا	قليلا	بعض الشيء	كثيرا جدا	
1	2	3	4	31. هل شعرت بجفاف في الفم؟
1	2	3	4	32. هل اختلف مذاق الأكل أو الشرب عن الطعام الاعتيادي؟
1	2	3	4	33. هل شعرت بالألم أو التهاب في العينين أو هل كانتا دامتين؟
1	2	3	4	34. هل تساقط شعرك؟
				35. أجبني على هذا السؤال فقط إذا كنتي تعانين من تساقط الشعر: هل كنت منزعج / منزعة بسبب تساقط شعرك؟
1	2	3	4	36. هل كنتي مريضة أو متوعدة الصحة؟
1	2	3	4	37. هل شعرتي باحمرار أو تورد الوجه؟
1	2	3	4	38. هل شعرتي بالصداع؟
				39. هل شعرتي انك اقل جاذبية (اقل مرغوبة/ لست مرغوبة جنسياً) بسبب مرضك أو عالجك؟
1	2	3	4	40. هل كنت تشعرين انك اقل أنوثة بسبب مرضك أو علاجك؟
1	2	3	4	41. هل كانت لديك صعوبة عند النظر إلى نفسك عارية؟
1	2	3	4	42. هل كنت غير راضية عن جسدك؟
1	2	3	4	43. هل كنت قلقة بخصوص صحتك في المستقبل؟
خلال الأسابيع الأربعة الماضية:				
أبدا	قليلا	بعض الشيء	كثيرا جدا	
1	2	3	4	44. إلى أي درجة كانت عندك رغبة بالجماع؟
1	2	3	4	45. إلى أي درجة كنت نشيطة جنسيا (بجماع أو بدونه)؟
				46. أجبني على هذا السؤال فقط إذا كنت نشيطة جنسيا: إلى أي درجة كان الجماع ممتعا بالنسبة لك؟
1	2	3	4	

انتقل إلى الصفحة التالية من فضلك

خلال الأسبوع الماضي				
أبدا	قليلًا	بعض الشيء	كثيرًا جدًا	
1	2	3	4	47. هل شعرت بأي ألم في الذراع أو في الكتف؟
1	2	3	4	48. هل عانيت من تورم في اليد أو الذراع؟
1	2	3	4	49. هل كان صعبًا عليك رفع ذراعك أو تحريكه جانبيًا؟
1	2	3	4	50. هل كنت تشعرين بالألم في منطقة ثديك المصاب؟
1	2	3	4	51. هل كانت منطقة ثديك المصاب متورمة؟
1	2	3	4	52. هل كانت منطقة ثديك المصاب شديدة الحساسية؟
				53. هل عانيت من مشاكل البشرة حول منطقة صدرك المصاب
1	2	3	4	أو فيها (مثال الحكة، الجفاف، التقشر)؟

Appendix 13: Cancer Coping Questionnaire

استبيان التكيف مع السرطان (النسخة مكونة من 21 بنداً)

الاسم..... رقم المستشفى.....

- لدى الناس طرق عديدة للتكيف مع مرض السرطان . إلى أي مدى كان الأسبوع الماضي مرهقاً بالنسبة لك؟

مرهقاً للغاية ☐	مرهقاً إلى حد ما ☐	مرهقاً قليلاً ☐	ليس مرهقاً على الإطلاق ☐
--	---	--	---

- هل شعرت بالقلق من السرطان في الأسبوع الماضي؟

معظم الوقت ☐	الكثير من الوقت ☐	بعض من الوقت ☐	لا شيء من الوقت ☐
-------------------------------------	--	---------------------------------------	--

توجد في الصفحات التالية قائمة بالطرق المختلفة للتكيف. فكري في كيفية تعاملك مع مرضك في الأسبوع الماضي، وحددي عدد المرات التي استخدمتي فيها كل طريقة . لا أحد يستخدم كل الطرق، لكن الجميع يستخدم بعضها.

الرقم	في الأسبوع الماضي:	مُطلقاً	أحياناً	غالباً	معظم الأحيان
1	هل وضعتي خطط واضحة للمستقبل؟	1	2	3	4
2	هل حاولتي التنفس ببطء وعمق للتكيف مع القلق؟	1	2	3	4
3	هل منعتي نفسك عن أفكار القلق؟	1	2	3	4
4	هل ذكرت نفسك بأن الأوجاع والآلام يمكن أن يكون سببها أشياء أخرى غير السرطان؟	1	2	3	4
5	هل وضعتي قائمة بالأولويات لهذا الأسبوع بحيث تنجز الأشياء المهمة؟	1	2	3	4
6	هل أخذتي خطوات أخرى بما يتناسب مع خطورة مرضك ؟	1	2	3	4
7	هل بحثتي عن نقاط القوة التي لديك للتكيف مع السرطان؟	1	2	3	4
8	هل تعاملتي مع الإحباط عن طريق التوجه إلى أشياء أخرى (مثل الأعمال المنزلية أو البستنة)؟	1	2	3	4

4	3	2	1	هل ذكرتني نفسك بالأشياء التي لا تزال موجودة لديك في الحياة على الرغم من وجود السرطان؟	9
4	3	2	1	هل نظمتي يومك بحيث تحصلي على أقصى استفادة منه، على الرغم من وجود السرطان؟	10
4	3	2	1	هل قمتي بممارسة الاسترخاء؟	11
4	3	2	1	هل تأثرتي بالأفكار المقلقة؟	12
4	3	2	1	هل خططتي لعمل بعض الأنشطة في يومك التي لا علاقة لها بالسرطان؟	13
4	3	2	1	هل فكرتي في بعض الجوانب الإيجابية في حياتك؟	14

العلاقة بالشريك

مُعظم الأحيان	غالباً	أحياناً	مطلقاً	في الأسبوع الماضي:	
4	3	2	1	هل تعاونتي مع شريك حياتك في أحد الأنشطة التي ساعدتك على التكيف مع السرطان؟	15
4	3	2	1	تحدثتي مع شريك حياتك عن تأثير السرطان على حياتكما ؟	16
4	3	2	1	هل سألتني شريكك بماذا كان يفكر حول السرطان وماذا يتوقع بدل من وضع الفرضيات ؟	17
4	3	2	1	هل نظرتني إلى السرطان على أنه تحدي يجب عليكي أنت وشريكك أن تواجهاه معاً؟	18
4	3	2	1	هل تناقشتني مع شريكك كيف يمكنه أن يساعدك وأن يدعمك؟	19
4	3	2	1	هل تحدثتي مع شريكك عن كيفية مساعدتك في تنظيم الأشياء لتخفيف الضغط عليكي (على سبيل المثال تغيير من يقوم بالأعمال المنزلية)؟	20
4	3	2	1	هل فكرتي كيف ان السرطان جعلك انتي وشريكك قريبين من بعضكما البعض ؟	21

إنتهت الاسئلة شكرا لك

Appendix 14: EORTC IN- PATSAT32 Questionnaire



EORTC IN - PATSAT32

نحن مهتمون في بعض الأشياء حولك وحول تجربتك عن الرعاية المقدمة خلال إقامتك في المستشفى. من فضلك اجب عن كل الأسئلة بنفسك بوضع دائرة حول الرقم الذي ينطبق عليك أفضل. لا توجد أجوبة "صحيحة" أو "خاطئة". المعلومات التي تقدمها ستبقى في طبي الكتمان.

خلال وجودك في المستشفى , كيف يمكنك تقييم الأطباء من حيث:					
ممتاز	جيد جدا	جيد	مقبول	ضعيف	
5	4	3	2	1	1 معرفتهم وخبراتهم عن مرضك؟
5	4	3	2	1	2 تقديمهم المعالجة والمتابعة الطبية؟
5	4	3	2	1	3 الانتباه الذي بذلوه لمشاكلك الجسمية؟
5	4	3	2	1	4 استعدادهم لإلصاف لكل تساؤلاتك؟
5	4	3	2	1	5 الاهتمام الذي أظهروه لك شخصيا؟
5	4	3	2	1	6 الراحة والدعم اللذان أعطوهما لك؟
5	4	3	2	1	7 المعلومات التي أعطوها لك عن مرضك ؟
5	4	3	2	1	8 المعلومات التي أعطوها لك عن فحوصاتك الطبية ؟
5	4	3	2	1	9 المعلومات التي أعطوها لك عن عالجتك؟
5	4	3	2	1	10 عدد مرات زياراتهم / استشاراتهم؟
5	4	3	2	1	11 الوقت الذي خصصوه لك خلال الزيارات/الاستشارات؟
خلال إقامتك في المستشفى ، كيف يمكنك تقييم الممرضين من حيث:					
ممتاز	جيد جدا	جيد	مقبول	ضعيف	12 الطريقة التي اتبعوها في تقييمك الجسماني (قياس حرارتك، قياس نبضك ،...)؟
5	4	3	2	1	
					13 الطريقة التي اتبعوها في رعايتك (اعطاء الدواء ، زرق الإبر،...)؟
5	4	3	2	1	
5	4	3	2	1	14 الانتباه الذي بذلوه لراحتك الجسمية ؟
5	4	3	2	1	15 الاهتمام الذي أظهروه لك شخصيا؟
5	4	3	2	1	16 الراحة والدعم اللذان أعطوهما لك؟

من فضلك انتقل الى الصفحة التالية

خال إقامتك في المستشفى، كيف يمكنك تقييم المرضى من حيث:					
ممتاز	جيد جدا	جيد	مقبول	ضعيف	
					17 صفاتهم الإنسانية (الأدب، الاحترام، الإحساس، اللطف التحمل، ...)؟
5	4	3	2	1	18 المعلومات التي أعطوها لك عن فحوصاتك الطبية ؟
5	4	3	2	1	19 المعلومات التي أعطوها لك عن رعايتك؟
5	4	3	2	1	21 المعلومات التي أعطوها لك عن عالجتك؟
5	4	3	2	1	21 سرعتهم في الإجابة على نداءاتك ؟
5	4	3	2	1	22 الوقت الذي خصصوه لك؟

خال إقامتك في المستشفى , كيف يمكنك تقييم الخدمات و الرعاية المؤسسية من حيث:					
ممتاز	جيد جدا	جيد	مقبول	ضعيف	
5	4	3	2	1	23 تبادل المعلومات بين مقدمي الرعاية؟
					24 لطف وتعاون التقنيون وموظفي الاستعلامات، والعاملون في المختبر؟
5	4	3	2	1	25 المعلومات المقدمة عند دخولك المستشفى؟
5	4	3	2	1	26 المعلومات المقدمة عند مغادرتك المستشفى؟
5	4	3	2	1	27 مدة الانتظار للحصول على نتائج الفحوصات الطبية؟
5	4	3	2	1	28 السرعة في تنفيذ الفحوصات الطبية و/أو المعالجات؟
5	4	3	2	1	29 سهولة الحصول (موقف السيارات ، وسائل النقل...) ؟
5	4	3	2	1	31 سهولة معرفة طريقك للأقسام الأخرى ؟
5	4	3	2	1	31 بيئة البناية (النظافة، الراحة ، الهدوء ،...)?
بشكل عام،					
					32
5	4	3	2	1	كيف يمكنك تقييم الرعاية المقدمة خلال إقامتك في المستشفى؟

Appendix 15: FACIT-Sp Questionnaire

FACIT-Sp Non-Illness (Version 4)

هذه قائمة بالعبارات التي ذكر أشخاص بنفس علتك أنها مهمة بالنسبة لهم. من فضلك ضع دائرة أو علامة على رقم واحد في كل سطر لبيان مدى انطباق إجابتك على حالتك في الأيام السبعة الأخيرة.

ليس على الإطلاق	مرات قليلة	نوعاً ما	غالباً	كثيراً جداً		
0	1	2	3	4	أشعر بالسلام	Sp1
0	1	2	3	4	يوجد لدي سبب للعيش	Sp2
0	1	2	3	4	حياتي ما تزال منتجة	Sp3
0	1	2	3	4	أواجه مشاكل في الإحساس براحة البال	Sp4
0	1	2	3	4	أشعر بأن لحياتي هدف	Sp5
0	1	2	3	4	أنا قادر على البحث عميقاً في نفسي للوصول إلى الراحة	Sp6
0	1	2	3	4	أشعر بالانسجام مع نفسي	Sp7
0	1	2	3	4	حياتي تفتقد للمعنى والهدف	Sp8
0	1	2	3	4	أجد الراحة في إيماني أو في معتقداتي الدينية	Sp9
0	1	2	3	4	أجد القوة في إيماني أو في معتقداتي الدينية	Sp10
0	1	2	3	4	لقد عزز المرض من إيماني أو معتقداتي الدينية	Sp11
0	1	2	3	4	أنا أعرف أنه مهما حصل مع مرضي، فإن الأمور ستكون على ما يرام	Sp12



Article

Factors Associated with Supportive Care Needs Among Palestinian Women with Breast Cancer in the West Bank: A Cross-Sectional Study

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Simple Summary: This study assessed the supportive care services offered to breast cancer (BC) patients in Palestinian government hospitals and identified characteristics related to unmet needs. We performed a cross-sectional study involving 362 women, utilizing the Supportive Care Needs Survey (SCNS-SF34) through face-to-face questionnaires, and gathered data on sociodemographic, clinical, and social support variables. The findings indicated that 61% of participants encountered unmet supportive care needs, especially in the areas of health system and information (93.6%), physical and daily living (89.8%), and psychological support (75.1%). Elevated unmet needs are associated with variables like age, marital status, illness duration, analgesic usage, cancer treatments, family cancer history, and social support. This research highlights the urgent need to enhance supportive care services of the health system and information, physical and daily living, and psychological support, to elevate the quality of life for BC patients in Palestine.

Abstract: Background: Breast cancer (BC) is the most common cancer among women in Palestine, where the need for supportive care frequently goes unmet. Therefore, this study aims to assess the supportive care services provided at the governmental hospitals in the southern area of the West Bank and to determine the factors associated with the unmet needs of these services. **Methods:** A cross-sectional study was conducted on 362 women with BC. Data were collected using a face-to-face questionnaire that included the Supportive Care Needs Survey (SCNS-SF34), patients' sociodemographic, economic, and clinical characteristics, as well as familial history of cancer and social support. **Results:** The study revealed that 61% of participants had unmet supportive care needs, with health system information, physical support, and psychological support being the most unmet needs. Factors contributing to unmet needs included age, marital status, familial support, and a family history of cancer. Chemotherapy and surgery increased the probability of physical care needs by fivefold, while hormone therapy reduced the probability of psychological needs (AOR = 0.36, $p < 0.001$) and patient care and support needs (AOR = 0.49, $p = 0.01$). Additionally, radiotherapy reduced sexual care needs by 58% and biological therapy by 60%. **Conclusions:** There is an urgent need for enhanced supportive care services for BC patients in the West Bank, especially regarding health system information, physical care, and psychological support. Addressing these needs through targeted interventions could significantly improve patients' quality of life.

Keywords: supportive care; breast cancer; services; unmet needs; Palestine



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1. Introduction

Breast cancer (BC) is a prominent type of cancer that affects women globally. Regardless of the economic condition of a country, BC presents a significant challenge in terms of its prevention, detection, and treatment [1]. In 2022, there were an estimated 2.3 million newly diagnosed cases with BC and 660,000 related deaths globally [2]. In Palestine, BC is

247,197 and the Hebron governorate has a total population of 832,702. This area comprises around 40% of the West Bank population of whom 50% are women [20]. The Ministry of Health (MoH) is the primary healthcare provider for cancer patients.

The MoH collaborates with the United Nations Relief and Works Agency (UNRWA), Non-Governmental Healthcare Organizations (NGOs), and the private sector to promote cancer prevention and control [5]. All cancer cases in the southern area of the West Bank are referred to two governmental hospitals located in the Bethlehem governorate and Hebron governorate. The three hospitals provide diagnosis, treatment, and inpatient services.

2.3. Sampling Method and Sample Size

An online sample size calculator (<https://www.calculator.net/sample-size>, accessed on 22 October 2024) estimated the required sample size to be 333, using a 5% error and a power of 95% confidence interval, assuming that 50% of females with BC had unmet supportive care needs. We added a 10% non-response rate to the 333 patients, resulting in a final sample size of 362 women. A complete list of all registered BC patients from the three hospitals was obtained. Eligibility for this study was restricted to newly registered BC cases and those currently undergoing medical treatment. The required data were retrieved from the patients' medical records. Women were contacted during their weekly or monthly hospital visits and invited to participate. Women who accepted to participate were interviewed on the day of their hospital visit. Only two women refused to participate.

2.4. Data Collection

To assess the predictors for factors affecting patients' unmet needs, we developed an additional questionnaire to collect patients' demographic data, disease-related information, socioeconomic status, age, cultural norms, educational background, beliefs, personality, cancer stage, residence area, and levels of social and familial support. The questionnaire was filled out through face-to-face interviews. Data were collected between March and July 2024. The questionnaire was created using the Kobo Toolbox software (<https://www.kobotoolbox.org>), a free toolkit for collecting, managing, and visualizing data in challenging environments [21]. We also utilized the available data from patient medical files.

Supportive care needs were measured using the short form of the Supportive Care Needs Survey (SCNS-SF34). The SCNS-SF34 is a widely used instrument designed to assess the supportive care needs of cancer patients. It is a shorter version of the original Supportive Care Needs Survey. The SCNS-SF34 contains 34 items covering five domains of need: psychological, health system and information, physical and daily living, patient care and support, and sexuality. Each item is scored on a 5-point Likert scale, ranging from 1 ("not applicable", "no need for help") to 5 ("very high need for help"), with higher scores indicating greater unmet needs. The SCNS-SF34 is scored using a Likert scale for each item, ranging from 1 (no need) to 5 (high need). To calculate standardized domain scores, the sum of scores for items within each domain is computed, subtracted by the number of items in the domain, and then multiplied by 100 over the product of the number of items and the maximum response value minus one. This scoring system provides a range of possible values from 0 to 100 for each domain, with higher scores indicating greater unmet needs [22].

We used the Arabic version of the Supportive Care Needs Survey (SCNS-SF34). The supportive care needs questionnaire was translated into Arabic and then back-translated into the English language. Three healthcare services and cancer care experts validated the study tool for its content validity. For reliability, we carried out a pilot study on 20 patients. The overall Cronbach's alpha of the SCNS-34 for the five domains was 0.957 (ranging from 0.860 to 0.961: physical and daily living needs domain = 0.909, psychological needs domain = 0.961, sexual needs domain = 0.860, patient care and support needs domain = 0.917, and health system and information needs domain = 0.958).

2.5. Statistical Analysis

Data analysis was conducted using the Statistical Package for the Social Sciences (SPSS), version 25. We utilized descriptive statistics to summarize the sociodemographic and clinical characteristics of the participants. Continuous variables, including age, were categorized into three groups, while the number of children and family size were categorized into two groups. For statistical analysis, marital status was divided into three categories, education into four categories, work status, and diagnosis duration into three categories (see Tables 1 and 2). A Chi-square test was used to investigate the associations between the domains of the Supportive Care Needs Survey-Short Form 34 (SCNS-SF34) and the sociodemographic and clinical characteristics of the participants. A *p*-value of less than 0.05 was considered statistically significant.

Table 1. Sociodemographic and economic characteristics of participants (*N* = 362).

Variables	No.	%
Age in years		
≤40	78	21.5%
41–54	186	51.4%
≥55	98	27.1%
Patient governorate		
Hebron	244	67.4%
Bethlehem	118	32.6%
Place of residence		
Refugee camps	27	7.5%
Village	215	59.4%
City	120	33.1%
Marital status		
Unmarried	28	7.7%
Married	305	84.3%
Divorced/widow	29	8.0%
Number of children		
≤5 persons	245	67.7%
>5 persons	117	32.3%
Family size (extended family)		
≤5 persons	132	36.5%
>5 persons	230	63.5%
Patient religion		
Muslim	341	94.2%
Christian	21	5.8%
Education		
Primary and less	62	17.1%
Secondary	163	45.0%
Diploma	31	8.6%
University and above	106	29.3%
Working status		
Employee	73	20.2%
Housewife	280	77.3%
Retired	9	2.5%
Monthly salary (USD)		
<570	163	45.0%
570–1140	138	38.1%
>1140	61	16.9%

We reclassified the five supportive care domains according to McElduff and colleagues, who presented two scoring systems. The first one depended on summing individual items within each domain (summated scale), while the second created standardized total scores for each domain, with scores ranging up to 100, where a higher score indicated a greater perceived need. In this study, we adapted the first scoring system [22]. Consequently, we converted the patients' responses on the 5-point SCNS-34 questionnaire to a 2-point scale, categorizing them as either "No needs" or "Unmet needs". "Unmet needs" included the low, moderate, or high needs, and those with "No needs" included those with no need or were satisfied with supportive care services. Therefore, we classified patients with scores of three or higher as having unmet needs, while those with scores of one or two had no need.

The prevalence of supportive care needs was calculated for each domain and the overall scale. Responses of participants to the SCNS were summed for each domain to determine the domains and the overall prevalence. Coding was also applied as 1 "no needs" and 2 "unmet needs". We conducted a logistic regression analysis to examine the associations between the independent variables (sociodemographic and clinical characteristics) and the dependent variables (domains of unmet supportive care needs). The adjusted odds ratio (AOR) and its 95% confidence interval are reported.

2.6. Ethical Considerations

We obtained approval from the Al-Quds University Research Ethical Committee (reference number REF. 10/24) and approval from the Health Education and Scientific Research Department of the Ministry of Health (reference number 162/475/2024). In addition, all participants were informed about the study objectives and signed an informed consent form emphasizing participant confidentiality and their right to withdraw from the study at any time without impacting their clinical treatments.

3. Results

3.1. Sociodemographic and Clinical Characteristics of the Participants

Table 1 displays participants' demographic characteristics. This study included a cohort of 362 female patients diagnosed with BC. Participants' mean age was 48.83 (SD $\pm$ 10.13) years and 51.4% were in the age group 41–54. The majority (84.3%) were married, and 67.4% were from the Hebron governorate. Furthermore, 67% of the participants had five or fewer children, and 63.5% lived in families with more than five members. Additionally, 45% of the participants completed their secondary education, 29.3% had a university education and above, 77.3% were housewives, and only 20.2% were employees. The participants' family income varied, with 45.0% receiving a monthly salary of less than 570 US dollars.

3.2. Clinical Characteristics of the Participants

Table 2 presents the participants' clinical characteristics. Of patients, 61.6% were diagnosed more than a year ago, 47.5% were diagnosed at stage 3, 40.2% underwent a total mastectomy, and 34.8% reported having chronic diseases other than cancer (thyroid disease, diabetes mellitus, heart disease, and hypertension). Approximately 50% of the patients indicated the use of painkillers and had a familial history of cancer, with 27.6% specifically having BC. Out of all the participants, only 2.8% (10 people) were referred to care providers who were not cancer specialists. These care providers included eight dietitians, one physiotherapist, and one ophthalmologist. Concerning the support patients received during their illness journey, the majority of them (84.5%) indicated receiving support from their family and sons/daughters, while 25.7% received support from their husband or partner, and only six individuals (1.7%) reported receiving support from medical staff (see Table 2).

Table 2. Clinical characteristics and support for participants (N = 362).

Variables	No.	%
Diagnosis duration (months)		
Less than 6	90	24.9%
6–12	49	13.5%
More than 12	223	61.6%
Stage of disease at diagnosis		
Stage 1	24	6.6%
Stage 2	123	34.0%
Stage 3	172	47.5%
Stage 4	43	11.9%
Type of treatment		
Chemotherapy	347	95.9%
Radiotherapy	246	68.0%
Hormonal therapy	194	53.6%
Surgical therapy	295	81.5%
Biological treatment	136	37.5%
Surgical intervention		
Total mastectomy	119	40.2%
Partial mastectomy	177	48.9%
No surgical intervention	58	18.2%
Chronic diseases other than cancer		
No	236	65.2%
Yes	126	34.8%
Taking pain medication		
No	180	49.7%
Yes	182	50.3%
History of relative cancer		
Breast cancer	100	27.6%
Other cancers	82	22.7%
No cancer history	180	49.7%
Referred to a non-cancer specialist		
No	352	97.2%
Yes	10	2.8%
Family and sons/daughters support		
No	56	15.5%
Yes	306	84.5%
Husband and partner support		
No	269	74.3%
Yes	93	25.7%
Medical staff support		
No	356	98.3%
Yes	6	1.7%
Other sources of support		
No	279	77.1%+
Yes	83	22.9%

3.3. Supportive Care Needs Using the SCNS-34 Short Form

The results revealed that the participants expressed the highest need for support for the health system and information domain (mean 39.64, SD 10). However, they had the least need for support in the sexual need domain (mean 6.31, SD 3.36) (see Table 3).

Table 3. Supportive Care Need (SCN-SF34) domains descriptive statistics.

Supportive Care Needs Items	No.	Mean	SD	Median	Min.	Max.	Range
Sexuality	362	6.31	3.36	6.00	3	15	12
Patient care support	362	16.34	5.16	16.00	5	25	20
Physical and daily living	362	17.98	5	19.00	5	25	20
Psychological	362	29.22	10.84	29.00	10	50	40
Health system information	362	39.64	10	41.00	11	55	44

SD: standard deviation, Min: minimum, Max: maximum.

3.3.1. Physical and Daily Living Needs

Based on the classified scale, the overall mean score for the physical and daily living domains was 17.98 (SD $\pm$ 5.00). The vast majority of participants needed help with work around the home (89.0%), 86.5% felt unwell a lot of the time, 85.9% were unable to do things they used to do, 78.2% complained of a constant feeling of lack of energy/tiredness, and 59.9% were in need of support related to pain management (see Figure 1).

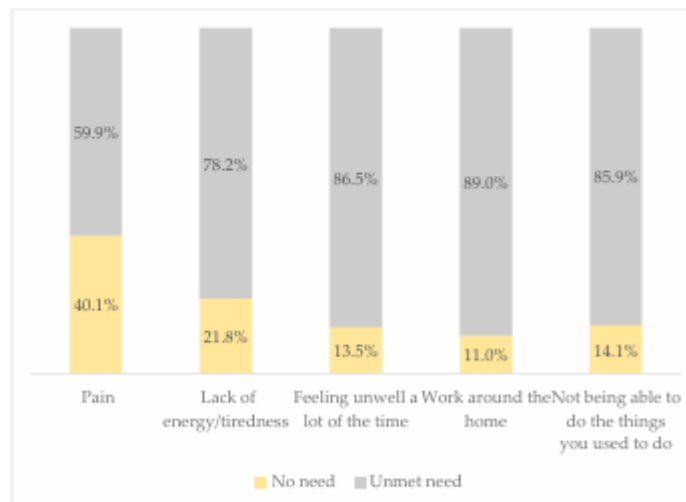


Figure 1. Physical and daily living needs (SCNS-34) of respondents.

3.3.2. Psychological Needs

Furthermore, the overall mean score for the psychological need domain was 29.22 (SD $\pm$ 10.48). Of the participants, 64.4% reported experiencing anxiety, 63% expressed fears about the cancer spreading, and 62.7% reported feeling down or depressed. Furthermore, 61.6% expressed worries that the treatment results were beyond their control, 61.3% expressed sadness, and 60.5% of participants expressed uncertainty about the future (see Figure 2).

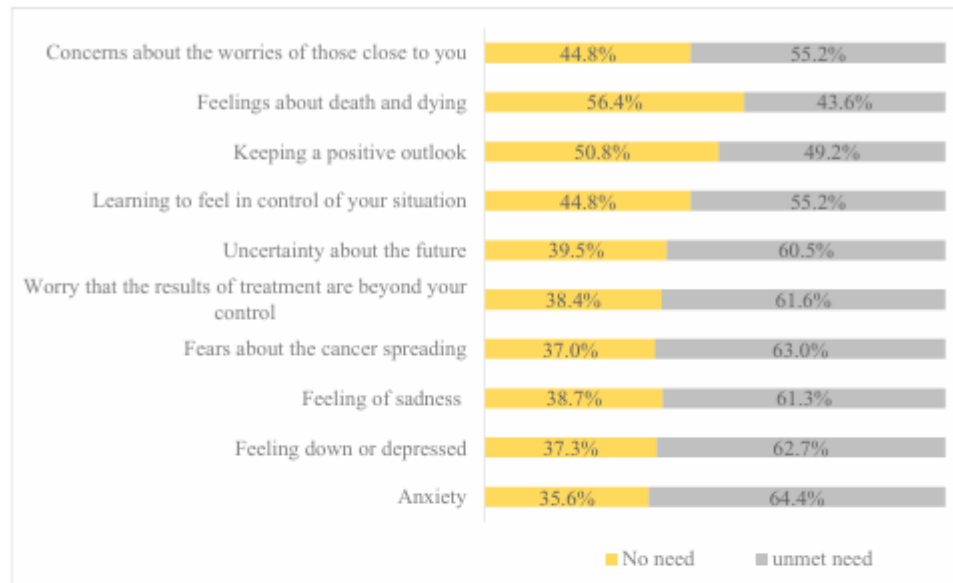


Figure 2. Psychological needs (SCNS-34) of respondents.

3.3.3. Sexual Need

In addition, the overall mean of the sexual need domain score was 6.31 (SD $\pm$ 3.36). Of the participants, 68.5% felt there was no need to be given information about sexual relationships, 36.5%, expressed a need for information about sexual relationships, and 34.5% reported experiencing changes in their sexual feelings (see Figure 3).

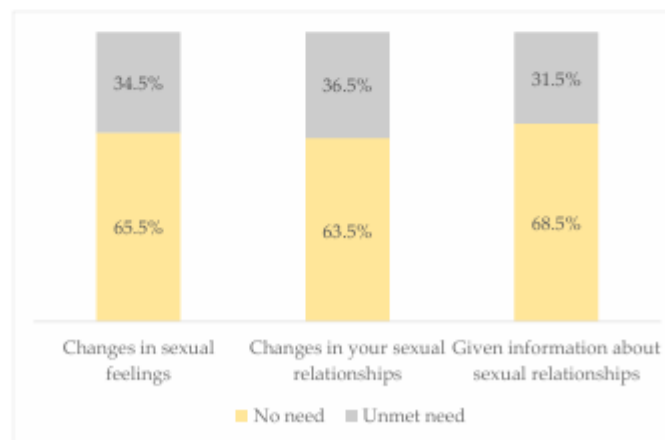


Figure 3. Sexual needs (SCNS-34) of respondents.

3.3.4. Patient Support and Care Needs

Moreover, the overall mean score for the patient support and care needs domain was 16.34 (SD $\pm$ 5.16). The most notable need identified of participants was for hospital staff to acknowledge and demonstrate sensitivity to patients' feelings and emotions (80.1%). Hospital staff's prompt attention to participants' physical needs ranked second (78.2%), 74% needed reassurance from medical staff that what they felt was normal, 61.9% of participants required more choices regarding the hospital they attend, and 57.5% required more choices about their cancer specialists (see Figure 4).

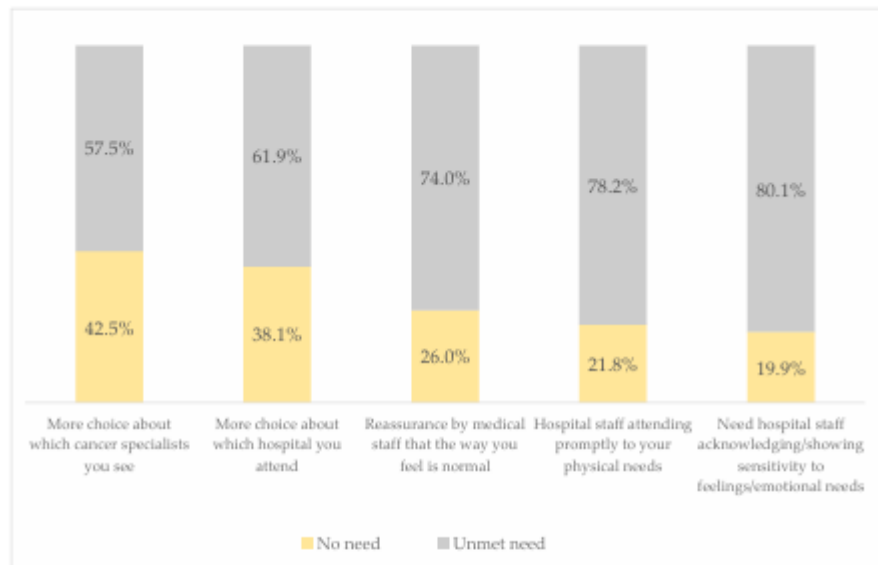


Figure 4. Patient support and care needs (SCNS-34) of respondents.

3.3.5. Health System and Information

Finally, the overall mean score for the health system and information needs domain was 39.64 (SD $\pm$ 10.0). Of the participants, 87% expressed a desire for more information and an explanation of the tests they must complete. Additionally, 86.70% of the participants expressed a need for written information about managing their illness and side effects at home; 84.0% expressed a need for written information about important aspects of their care; and 79.30% expressed a need for information about whether their cancer is under control or diminishing. The lowest reported need in this domain was the desire to be treated like a person, not just another case, with 69.3% of participants expressing this concern (see Figure 5).

3.4. Prevalence of Supportive Care Needs (SCNS-34)

Figure 6 summarizes the overall prevalence of supportive care needs across all domains. The analysis reveals significant unmet needs in all domains. A total of 61% of respondents reported unmet needs, and 39% reported no need for overall supportive care. The health system and information domain had the highest unmet needs (93.6%), followed by physical and daily living needs (89.8%), patient care and support (81.80%), psychological needs (75.1%), and sexual needs (42.5%).

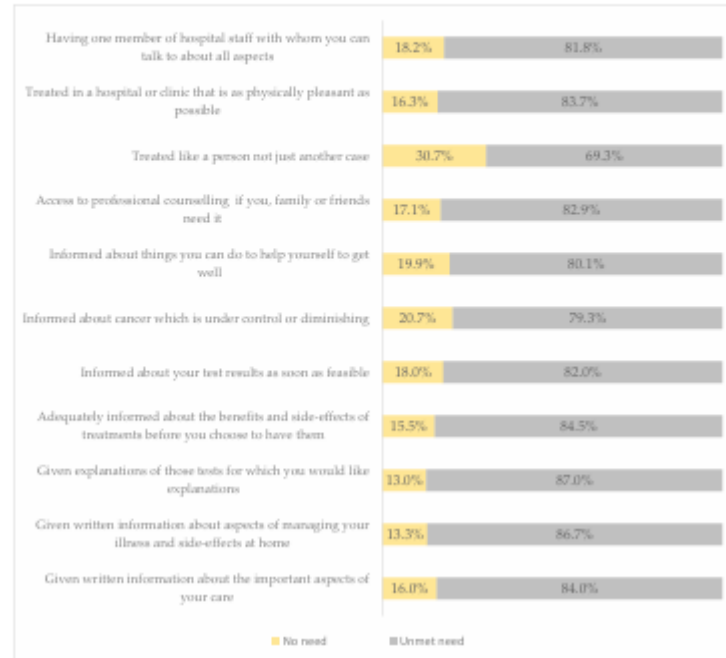


Figure 5. Health system and information needs (SCNS-34) of respondents.

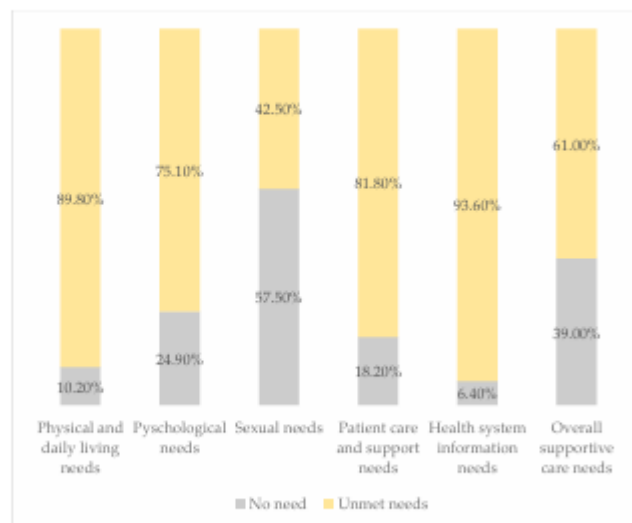


Figure 6. Prevalence of supportive care needs (SCNS-34).

3.5. Bivariate Analysis

3.5.1. Supportive Care Needs and Sociodemographic Factors

The study findings show that participant age was significantly associated with all supportive care needs domains (p -value < 0.05). However, the participant's governorate, place of residence, and marital status did not show any significant association with supportive care needs domains (p -value > 0.05) except that patient care and support care needs domains were significantly associated with place of residence (p -value = 0.033), and sexual care needs domain was significantly associated with marital status (p -value = 0.001) (see Supplementary Tables S1 and S2).

The participant's level of education was significantly associated with all supportive care needs domains (p -value < 0.05), except for the physical and daily living needs (p -value = 0.72). Results showed a significant association between patients' educational level with psychological needs domain (p -value < 0.001), sexual care needs domain (p -value < 0.001), patient care and support needs domain (p -value = 0.004), and health information needs domain (p -value = 0.04), with unmet needs being more common among those with secondary education. The findings also demonstrate that working status was only significantly associated with psychological needs care (p -value = 0.004) and sexual care needs (p -value = 0.01) compared to those working or retired women. Moreover, patients who are housewives had higher percentages of unmet needs in all supportive care needs domains compared to those working or retired women (see Supplementary Tables S1 and S2).

Furthermore, results showed that families with more than five members are more likely to have unmet physical care needs (65.2%) (p -value = 0.04) (see Supplementary Table S1), and women with a family monthly salary below USD 570 are more likely to have unmet sexual needs (p -value = 0.03) and to have unmet patient care and support needs (p -value = 0.014) compared to those with higher incomes (see Supplementary Tables S1 and S2).

3.5.2. Supportive Care Needs, Clinical, and Social Support Factors

The study results showed a significant association between BC duration and the psychological and sexual care needs domains (p -value < 0.001); patients with BC for more than a year had higher unmet needs compared to others. Also, findings revealed that individuals using pain medication had more unmet physical care needs (p -value < 0.001) (see supplementary Table S3). Furthermore, 36.6% of patients with chronic diseases had unmet physical and daily living needs, 29.8% psychological care needs, 26.0% sexual care needs, and 32.4% patient care and support care needs (p -value < 0.05) (see Supplementary Tables S3 and S4).

Cancer therapy was significantly associated with supportive care needs. Results also revealed that chemotherapy was associated with higher unmet physical and daily living care needs (p -value = 0.03). Moreover, radiation therapy is associated with higher psychological (p = 0.02) and sexual unmet care needs (p -value = 0.001) (see Supplementary Table S3). Also, patients not receiving hormone therapy had higher unmet psychological and sexual needs (p -value < 0.05) (see Supplementary Table S3). On the contrary, patients receiving hormone therapy had higher unmet patient care and support needs (p -value = 0.009) (see supplementary Table S4). In addition, patients without biological therapy (immunotherapy) had higher unmet sexuality needs (p -value = 0.001), while those who underwent surgical therapy had higher unmet sexuality needs (p -value = 0.04). Finally, lack of support from a husband or partner is strongly associated with unmet sexual needs (p -value < 0.001) (see Supplementary Table S3).

3.6. Multivariate Analysis

Table 4 presents the multivariate analysis for the determinants of supportive care needs domains and the total supportive needs domains models. The results showed a strong association between age and all supportive care needs domains. Younger age groups (≤ 40 years and 41–54 years) had lower odds of physical and daily living care needs (AOR = 0.21, p -value = 0.01; AOR = 0.31, p -value = 0.04, respectively) compared to

older age groups (≥ 55 years). On the other hand, younger age groups had significantly 13 times and 5.84 times higher odds, respectively, for the unmet psychological care needs compared to older age groups. Furthermore, these groups were also associated with higher odds of unmet sexual needs, patient care and support care needs, and health information unmet care needs compared to older ages. Also, married participants and individuals with a familial history of BC had higher sexual needs for care (AOR = 4.62, p -value = 0.01) and (AOR = 2.34, p -value = 0.006) in comparison to divorced or widowed women. The probability of needing physical and daily living care demands was 4.5 times greater with chemotherapy (AOR = 4.49, p -value = 0.03) than without it (Table 4).

Table 4. Multivariate analysis (logistic regression analysis).

Supportive Care Needs Domains	95% CI			
	AOR	Lower	Upper	p-Value
Physical and daily living care needs				
Age (years)				
≤40	0.21	0.06	0.73	0.01
41–54	0.31	0.09	0.99	0.04
≥55	Reference			
Do you take pain medication? (Yes/No)	5.36	2.19	13.06	<0.001
Chemotherapy therapy (Yes/No)	4.49	1.08	18.55	0.03
Surgical therapy (Yes/No)	5.15	1.52	17.42	0.00
Family and sons/daughters support (Yes/No)	0.19	0.04	0.89	0.03
Psychological care needs				
Age (years)				
≤40	13.37	5.23	34.16	<0.001
41–54	5.84	3.29	10.38	<0.001
≥55	Reference			
Hormonal therapy (Yes/No)	0.361	0.20	0.63	<0.001
Sexual care needs				
Age (years)				
≤40	36.90	15.05	90.42	<0.001
41–54	5.40	2.69	10.82	<0.001
≥55	Reference			
Marital status				
Single	0.87	0.18	4.08	0.8
Married	4.62	1.44	14.82	0.01
Divorced/widow	Reference			
Family relative history of cancer				
Breast cancer	2.34	1.27	4.30	0.006
Other cancers	1.23	0.64	2.37	0.52
No cancer history	Reference			
Radiotherapy therapy (Yes/No)	0.42	0.24	0.74	0.003
Biological therapy (Yes/No)	0.40	0.22	0.70	0.001
Governorate				
Hebron	0.52	0.30	0.90	0.02
Bethlehem	Reference			

Table 4. Cont.

Supportive Care Needs Domains	95% CI			
	AOR	Lower	Upper	p-Value
Patient care and support care needs				
Age (years)				
≤40	4.54	1.85	11.18	0.001
41–54	3.18	1.73	5.84	<0.001
≥55	Reference			
Monthly Income (USD)				
<570	0.35	0.13	0.90	0.03
570–1140	0.62	0.23	1.68	0.35
>1140	Reference			
Hormonal therapy (Yes/No)	0.48	0.26	0.881	0.01
Health information care needs				
Age (years)				
≤40	5.30	1.15	24.44	0.03
41–54	2.74	1.11	6.76	0.02
≥55	Reference			
Total care needs				
Age (years)				
≤40	8.20	3.81	17.61	<0.001
41–54	2.34	1.37	4.00	0.002
≥55	Reference			
Do you take pain medication? (Yes/No)	2.01	1.24	3.26	0.004
Hormonal therapy (Yes/No)	0.45	0.27	0.75	0.002
Biological therapy (Yes/No)	0.47	0.28	0.80	0.006
Surgical intervention				
Complete mastectomy	1.31	0.65	2.63	0.44
Partial mastectomy	2.27	1.18	4.35	0.01
No surgical intervention	Reference			
Family and sons/daughters support (Yes/No)	0.50	0.25	1.00	0.05

Moreover, the findings indicated that a BC diagnosis for less than 6 months (AOR = 3.63, p -value = 0.04) and between 6 and 12 months (AOR = 8.49, p -value = 0.045) is associated with an increased likelihood of needing physical and daily living care support. Furthermore, the use of painkillers doubles the likelihood of physical and daily living needs by almost five times and doubles the overall care demands. In addition, surgical intervention increases the odds of physical and daily living needs by over fivefold (OR = 5.15, p -value = 0.00), whereas partial mastectomy increases the likelihood of overall care needs by more than twofold (AOR = 2.27, p -value = 0.01) in comparison to no surgical intervention. However, hormonal treatment reduces the odds of psychological needs (AOR = 0.36, p -value < 0.001) and the odds of patient care and support needs (AOR = 0.48, p -value = 0.01) compared to not having a hormonal treatment. Also, radiotherapy lowers the odds of sexual care needs by 58% (AOR = 0.42, p -value = 0.003), and biological therapy lowers it by approximately 60% (AOR = 0.40, p -value = 0.001) compared to not having radiation or biological therapy (Table 4).

Finally, family and sons/daughters support decreases the likelihood of physical and daily living needs (AOR = 0.19, p -value = 0.03) and total needs (AOR = 0.50, p -value = 0.05) compared to patients without family and son support. Interestingly, a family history of BC

increased the likelihood of sexual care needs twofold compared to those without a family history of BC (Table 4).

4. Discussion

This study is the first to examine the prevalence and factors associated with unmet supportive care needs among breast cancer patients in the West Bank of Palestine. Our findings reveal a significant deficiency in the supportive care services at Palestinian Ministry of Health facilities, particularly with respect to information and psychological needs.

Overall, 61% of participants experienced unmet needs, with the most prevalent needs in the health system and information domain (93.6%), followed by physical and daily living needs (89.8%), and psychological needs (75.1%). These results align with previous research on supportive care challenges faced by breast cancer patients worldwide, especially in low- and middle-income countries (LMICs). In LMICs, cancer presents a major issue, and insufficient supportive care services can exacerbate patients' stress and their inability to cope with the psychological consequences of diagnosis and treatment. For example, patients may struggle to access necessary medications, understand their treatment options, or find reliable sources of information [23,24]. Cultural perspectives can also influence the types of supportive care needs that patients prioritize. For instance, in Malaysia, a study found that fewer patients expressed fear of cancer spreading compared to patients in other regions. However, there was a higher demand for written information and additional explanations about treatment procedures [18].

In Palestine, the lack of integrated and multidisciplinary care teams at Ministry of Health facilities hinders the delivery of comprehensive supportive care. This can lead to fragmented care and delays in treatment. Furthermore, the lack of explicit procedures or guidelines for cancer-supportive care can intensify these difficulties. Consequently, numerous patients may not receive sufficient assistance to tackle the physical, mental, and social challenges associated with breast cancer. This may significantly impact their quality of life, resulting in heightened anxiety, stress, and depression. Patients may also encounter challenges in sustaining their daily habits, managing their finances, and preserving relationships with loved ones. Although the MoH is responsible for providing cancer care, the political conflict in the region has resulted in a deterioration in the Ministry of Health's financing, putting the provision of essential health services for cancer patients at risk due to economic constraints. Therefore, collaboration with other healthcare providers or institutions can enhance the delivery of comprehensive services in regions where the Ministry of Health faces service shortages. Additionally, receiving support from donor organizations through financial and technical assistance will be advantageous.

4.1. Supportive Care Needs Sub-Domains

Our study reveals significant unmet needs across the five domains of supportive care, with the health system and information domain showing the highest unmet needs at 93.6%. These findings exceed those of two local studies conducted in the Gaza Strip to evaluate the supportive care needs of cancer patients [19,25]. Conversely, our findings are consistent with previous studies in Singapore [26], Germany [27], Mexico [15], and China [28], where the health system and information domain also accounted for the highest unmet needs. This suggests many patients may lack adequate knowledge about their disease and treatment options. Additionally, there is a significant need for written information on disease management (87%) and additional explanations for their laboratory tests (86.7%). Factors such as limited access to specialized healthcare providers, inadequate information about treatment options, and financial constraints may contribute to the high unmet needs in this domain. Although doctors and nurses strive to address patient's needs, they often lack specialized training, resources, and enough time to provide the necessary support. Additionally, Palestine has unique socio-political and economic challenges that may impact the availability and accessibility of healthcare services, including those related to cancer [29,30].

Participants reported a high prevalence of unmet needs (89.8%) in the physical and daily living domain, including frequent feelings of unwellness, persistent fatigue, and difficulty with pain management. These findings align with two local studies conducted in the Gaza Strip, which reported similarly high rates of unmet physical needs (91%) and specific symptoms such as chronic pain, muscle weakness, and sleep disturbances [19,25]. Our results exceed those of an Iranian study, suggesting that the challenges faced by our participants may be particularly severe [17]. These physical needs represent challenges with pain management, fatigue, mobility, and assistance in tasks like housekeeping and childcare. Furthermore, we found a negative correlation between physical function and symptoms like pain and fatigue, consistent with previous studies on these issues [31]. The higher unmet needs observed in our study may be attributed to the older age of our patients or the side effects of the disease and its treatments.

In the psychological needs domain, 75.1% of patients reported unmet needs. More than two-thirds experienced anxiety, depression, and fear of cancer recurrence, highlighting the significant psychological distress faced by these individuals. While our results align with previous studies that have identified high levels of psychological distress among cancer patients, there are variations across different regions. For example, studies conducted in the Gaza Strip reported lower percentages of worries about treatment outcomes and fears of cancer spreading. However, Elsous and colleagues found that psychological needs were the most significant unmet needs in their study, with higher rates of anxiety (75%), sadness (73%), and worries about close relationships (87.8%) [19,25]. Globally, our results exceed those of many studies, particularly in terms of anxiety, depression, and fear of cancer spreading as seen in Switzerland [32] and in Turkey, where three out of five BC patients may experience depression and one out of every five patients may suffer from anxiety [33]. Similarly, Fan et al.'s analysis of 77 studies revealed lower levels of worry over treatment outcomes being beyond one's control (54%), anxiety (48.7%), and fear of cancer recurrence (47.9%) [6]. However, a study in Malaysia reported even higher levels of psychological distress, including uncertainty about the future (78.6%), concerns about cancer spreading (76.1%), feelings of sadness (69.2%), and feelings about death and dying (68.4%), suggesting that the challenges faced by cancer patients can vary significantly across different cultural contexts [31].

Several factors may contribute to the high levels of unmet psychological needs, including fear of death, traumatic events, uncertainty about the future, family concerns, and financial stress. These challenges can make it difficult for patients to focus on recovery and maintain their mental well-being. Addressing these psychological needs is essential for improving the overall quality of life.

In the sexual care needs domain, 42% reported unmet sexual needs, with 34.5% experiencing changes in their sexual feelings such as decreased libido, pain during intercourse, or difficulty achieving orgasm. These findings align with a local study in the Gaza Strip, which identified sexual needs as a less frequently reported area of concern (15%) among breast cancer patients [19]. Several global studies have identified the sexuality domain as the least significant and least important among patients [31,34]. Furthermore, descriptive correlational research in Iran reported a similar percentage of unmet sexual care needs, indicating that this domain is more commonly identified as a concern in some regions [17]. In our study, sexual needs were the least unmet, possibly due to cultural norms, a lack of awareness, and the limited availability of cancer services. Marriage can increase concerns about sexuality-related issues, particularly in the Palestinian context, where cultural norms often cause females to feel uncomfortable or embarrassed when discussing their sexual needs. This may lead to underreporting of unmet sexual needs, as patients may be hesitant to disclose their concerns to healthcare providers. Addressing unmet sexual needs requires a sensitive and supportive approach that takes into account cultural factors and the specific needs of individual patients. Providing access to specialized healthcare professionals who can address sexual concerns and offer appropriate interventions can help improve the quality of life for breast cancer patients.

4.2. Sociodemographic and Supportive Care Domains

Sociodemographic characteristics had a significant role in predicting unmet needs for BC patients. This study revealed an association between age and all domains of supportive care needs. We found that patients who are 55 years old or older have significantly higher physical and daily living needs than younger patients. These results are in contrast with the Abdollahzadeh et al. study, which emphasized that younger BC patients have higher unmet needs in all supportive care domains [17]. Similarly, a Malaysian study reported that respondents under age 60 reported significantly higher unmet physical and daily living needs [18]. Older patients often have pre-existing health issues such as heart disease, diabetes, or arthritis, which can complicate BC treatment. Furthermore, as people age, their physical strength, endurance, and flexibility can change, making it more difficult to deal with the physical adverse effects of treatment. For example, older patients may experience fatigue, pain, and difficulty with mobility, which can impact their daily activities and overall quality of life.

Moreover, we found that younger patients and married patients reported higher unmet sexual needs compared to older and single participants. Our study findings are consistent with previous studies examining the impact of age and marital status on unmet sexual needs. For example, an Australian study of 444 adult cancer survivors found that younger patients had higher unmet sexual care needs, and married survivors were three times more likely to report unmet sexual needs than single or widowed survivors [35]. Similarly, in a Swiss study, married BC patients had higher unmet sexual needs than single individuals and that younger patients also reported higher unmet sexual needs [32]. Additionally, a broader review of unmet needs in cancer patients found that younger age and marriage are consistently related to larger unmet needs in the sexuality domain [36]. These findings can be explained by the fact that BC can disrupt these young patients' life goals, leading to confusion and distress. They may also have concerns about hair loss and having a mastectomy, which can negatively impact self-esteem and body perception. Furthermore, worries about the effects of medication on fertility and reproduction may contribute to their unmet needs. Married patients prioritize sexual health due to active relationships, which may highlight intimacy challenges caused by cancer therapies. This raises the need for an awareness of unmet sexual needs.

Additionally, our study indicates that younger age groups revealed significantly higher levels of unmet psychological and sexual needs. These findings align with previous research, including a local study from Gaza, which found that patients under the age of 40 need more extensive care and support, particularly in psychological and sexual needs, compared to older patients [19]. Furthermore, Lidington et al. (2021) conducted a comprehensive longitudinal study in the United Kingdom, which found that younger individuals diagnosed with BC exhibited the highest level of need in the psychological and sexual domains [37]. Similarly, recent cross-sectional research in Turkey, which supports these findings, revealed that younger women with BC required more supportive care, particularly in the areas of psychological and sexuality [38]. Therefore, younger BC patients experience more psychological distress due to life milestone disruptions, body image and fertility concerns, and isolation from being diagnosed with a condition typically associated with older age groups.

4.3. Clinical Characteristics and Supportive Care Domains

Our findings revealed that BC patients with less than 6 months of diagnosis and those with 6–12 months of diagnosis had higher physical and daily living needs. This aligns with previous research demonstrating a strong association between time since diagnosis and unmet physical and daily living needs in BC patients. In Gaza, BC duration was negatively associated with unmet needs, and those just diagnosed had the largest unmet needs for up to three years following diagnosis [19]. Studies from various regions, including Malaysia, Taiwan, Denmark, and China, consistently report higher unmet needs in newly diagnosed patients. These needs often persist for several years post-diagnosis, particularly during

the initial treatment phases [18,28,31,39,40]. In the Taiwanese retrospective study, cancer survivors' supportive care needs decreased with time, with considerably lower needs through treatment follow-up compared to the newly diagnosed stage [39]. Additionally, in Denmark, BC patients receiving chemotherapy had higher unmet physical and daily living needs than those receiving radiation, especially in the initial treatment phase, indicating that unmet needs are higher within the first six months of diagnosis [40]. Similarly, in China, each 6-month increase in the duration since diagnosis led to a 0.8% decrease in the ongoing care needs [28]. These findings are consistent with a comprehensive review of 77 studies that revealed an association between short periods of diagnosis and increased unmet needs regarding both physical and psychological dimensions. [6]. Common challenges associated with early-stage breast cancer include fatigue, pain, and limited mobility, which can significantly impact daily activities. Various cancer treatments, such as surgery, chemotherapy, radiation, and hormone therapy, can exacerbate these issues and contribute to unmet needs. The cumulative effect of these factors often hinders patients' ability to meet their physical and daily living needs [27,32,35,38].

Chemotherapy is a well-documented risk factor for unmet needs in breast cancer patients, particularly in the physical, daily living, psychological, and sexual domains [34]. Our study revealed that patients who received chemotherapy were 4.5 times more likely to experience an increase in unmet physical and daily living needs. In Gaza, chemotherapy treatment for BC and having at least one comorbid condition were associated with worse physical and social functioning, increased discomfort, poorer sleep, and fatigue [19]. Our study has similar findings to previous research from various regions, including Australia and Turkey, which consistently demonstrates that chemotherapy is associated with increased physical and daily living challenges [35,38]. Common side effects of chemotherapy, such as fatigue, nausea, and weakness, can significantly impair patients' ability to perform daily activities and meet their needs. These challenges are often more pronounced in younger patients and those who receive both chemotherapy and radiation.

Additionally, the study multivariate analyses showed that chronic diseases increased the burden on BC patients, resulting in higher physical and daily living unmet needs and worsening the challenges associated with BC care. Several studies showed that comorbidity, or multiple medical conditions, is a common occurrence among cancer patients and is becoming more common with increasing age [41,42]. For instance, Fu et al. (2015) found an association between chronic diseases such as hypertension, arthritis, and diabetes and a poorer quality of life across several domains in BC survivors, leading to reduced physical and social functioning [41]. Furthermore, Pérez-Fortis et al. (2017) show that having other health issues greatly increases the unmet care needs of BC patients related to physical and daily living activities compared to people who do not have any other health issues [11]. Comorbidities can significantly impact the progression, diagnosis, treatment, and outcomes of breast cancer. These conditions may also exacerbate symptoms like fatigue, pain, and weakness, leading to increased physical challenges and impaired daily living activities.

The presence of comorbid conditions, which are prevalent in cancer patients, leads to worse symptoms, particularly pain [43]. Furthermore, even with painkillers, these patients continue to experience increased physical needs, which significantly impact their daily activities. Our study indicated that 59.9% of participants needed support in pain management. This finding is lower than local studies conducted in Gaza, where 75.5% [19] and 87.3% [25] of participants reported a need for support in pain management under the physical and daily living needs domain. In comparison to global studies, our findings reveal higher rates of pain. For example, research in Singapore showed that 36% of BC survivors suffered pain [26], while a study in Malaysia revealed that 55.6% of BC patients had significant pain-related needs [31]. Additionally, a systematic review using a large sample size ($n = 1210$) across 77 studies revealed a pain prevalence of 45.5% among BC patients [6]. Another systematic review of 19 studies highlighted fatigue and pain as the most common symptoms among BC survivors [44]. There is a shortage of painkiller medications in Palestinian cancer oncology hospitals, and the available ones are in limited

results suggest that existing healthcare services may not adequately address the full range of patient needs. Therefore, the Ministry of Health should prioritize the delivery of comprehensive supportive care, including specialized services from professionals trained in psychology, nutrition, and social work. However, our study revealed that these services were often unavailable in the settings where the research was conducted.

Moreover, the findings indicate that sociodemographic and clinical characteristics, as well as social support, significantly influenced unmet needs and supportive care domains. This underscores the importance of personalized care approaches. Further research, particularly longitudinal studies, is needed to understand the long-term effects of breast cancer on supportive care needs and the impact of information provided by healthcare professionals.

Supplementary Materials: The following supporting information can be downloaded at: <https://www.mdpi.com/article/10.3390/cancers16213663/s1>, Table S1: Supportive care (physical and daily living, psychological, and sexual) needs and socio-demographic variables; Table S2: Supportive care (patient care and support, health information, and total) needs and socio-demographic variables; Table S3: Clinical characteristics, social support, and supportive care (physical and daily living, psychological, and sexual) needs; Table S4: Clinical characteristics, social support and supportive care (patient care and support, health information, and total) needs.

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خدمات الرعاية الداعمة وجودة الحياة لدى مريضات سرطان الثدي في المستشفيات الحكومية بجنوب الضفة الغربية

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مقدمة: تعدّ الرعاية الداعمة وجودة الحياة عنصرين محوريين في تحسين نتائج علاج سرطان الثدي. غير أنّ الاحتياجات المعلوماتية والجسدية والنفسية لدى المريضات ما تزال غير مُلبّاة على نطاق واسع، كما أنّ التقييم الروتيني لجودة الحياة نادر الإدماج في الممارسة السريرية في فلسطين. ويُعدّ سدّ هذه الفجوات أمرًا جوهريًا، إذ إنّ التقييم المنهجي لاحتياجات الرعاية الداعمة لا يكشف احتياجات المريضات فحسب، بل يُعدّ أيضًا مؤشرًا أساسيًا للتنبؤ بجودة الحياة.

الهدف: تهدف هذه الدراسة إلى تقييم خدمات الرعاية الداعمة المقدّمة للنساء المصابات بسرطان الثدي في المستشفيات الحكومية في جنوب الضفة الغربية، وقياس أثرها على جودة حياتهن، مع تحليل أثر محددات أخرى ذات صلة.

المنهجية: أجريت الدراسة في المستشفيات الحكومية في جنوب الضفة الغربية، واستندت إلى عدة دراسات فرعية مكّلة. جُمعت المرحلة الأولى من البيانات بين أغسطس 2023 ويوليو 2024 عبر مسح مقطعي شمل 362 امرأة مصابة بسرطان الثدي، إلى جانب متابعة 147 مريضة حديثة التشخيص خلال مسار علاج امتدّ عالمًا كاملاً. أما المرحلة الثانية فجرى تنفيذها بين نوفمبر 2024 ويناير 2025، أي بعد نحو عام من انتهاء العلاج. وجرى عبر المرحلتين تقييم احتياجات الرعاية الداعمة، واستراتيجيات التكيف، والرفاه الروحي، والرضا عن الخدمات، وعلاقتها بجودة الحياة عند التشخيص وأثناء العلاج. جُمعت البيانات من خلال مقابلات مباشرة باستخدام أدوات قياس مُعتمدة، وشملت التحليلات الإحصائية الإحصاءات الوصفية، والاختبارات الثنائية، والارتباطات، ونماذج الانحدار المتعدد، بمستوى دلالة $p < 0.05$.

النتائج: أظهرت النتائج انتشارًا مرتفعًا لاحتياجات الرعاية الداعمة غير المُلبّاة؛ إذ أفادت 61% من كامل العينة و83.5% من حديثات التشخيص بوجود حاجة واحدة غير مُلبّاة على الأقل. وتبيّن أنّ أكثر المجالات تأثرًا هي: النظام الصحي والمعلومات (93-95%)، والاحتياجات الجسدية واليومية (90-93%)، والاحتياجات النفسية (75-86%). كما ارتبطت العلاجات المكثفة مثل العلاج الكيميائي والجراحة بزيادة الاحتياجات الجسدية والنفسية، في حين خفّض الدعم الأسري والاجتماعي من حدّتها.

كانت جودة الحياة عند التشخيص متوسطة) متوسط الصحة العامة ($\mu = 45.8$ ، مع مستويات أعلى نسبياً في الأداء الجسدي ($\mu = 67.1$) ، والأداء المعرفي ($\mu = 62.8$) ، ودور الأداء الوظيفي ($\mu = 58.6$) ، بينما كانت مستويات الأداء العاطفي ($\mu = 49.2$) والاجتماعي ($\mu = 34.5$) منخفضة. وكانت أكثر أعراض شيوغاً: الإرهاق ($\mu = 44.67$) ، والأرق ($\mu = 44.7$) ، والألم ($\mu = 39.8$)

حققت النساء الأصغر سناً، والأكثر تعليماً، والعاملات، والمتزوجات، واللواتي يتمتعن بدعم أسري مستويات أفضل من جودة الحياة، في حين ارتبط المرض المتقدم، والأمراض المصاحبة، ومسكنات الألم، والعلاج الكيميائي، والاستئصال بمستويات أقل. وبعد عام من العلاج، بقيت صورة الجسد متوسطة ($\mu = 43.2$) ، في حين جاءت الوظائف الجنسية ($\mu = 34.5$) ، والرضا الجنسي ($\mu = 34.7$) ، ونظرة المستقبل ($\mu = 23.4$) منخفضة بشكل واضح.

وأظهرت النتائج أنّ الرضا عن الرعاية عامل حاسم في جودة الحياة؛ إذ ارتبط التواصل الجيد، وكفاءة التمريض، ونظافة المرافق بصورة جسد أفضل، ووظائف جنسية أعلى، وأعراض جهازية أقل، بينما ارتبط ضعف الوصول للخدمات بزيادة الأعراض. كما كان التكيف والدعم الأسري عاملين وقائين؛ إذ ارتبط "التركيز الإيجابي" و"الإلهاء" بجودة حياة أعلى، في حين خفّض التكيف غير البناء مستويات الأداء. وكان الرفاه الروحي متوسطاً ($\mu = 29.7$) ، الأعلى في بُعد الإيمان ($\mu = 11.3$) والمعنى ($\mu = 11.0$) ، والأدنى في السكينة ($\mu = 7.4$) وقد ارتبطت مستويات الرفاه الروحي الأعلى بصورة جسد أفضل، ووظائف جنسية أعلى، وأعراض أقل على مستوى الجهاز العام والثدي والذراع.

الاستنتاج:

تُعدّ هذه الدراسة أول تقييم شامل يستند إلى الأدلة لخدمات الرعاية الداعمة وجودة الحياة لدى النساء الفلسطينيات المصابات بسرطان الثدي. وقد أبرزت النتائج عبئاً كبيراً من الاحتياجات غير المُلبّاة، خصوصاً في الجوانب المعلوماتية والجسدية والنفسية، مع كون حديثات التشخيص الأكثر عرضة لذلك. كما أظهرت الدراسة بقاء جودة الحياة منخفضة بعد عام من العلاج، لا سيما فيما يتعلق بصورة الجسد، والوظائف الجنسية، والتوقعات المستقبلية. وأسهم الدعم الأسري والاجتماعي، والتعليم، واستراتيجيات التكيف الإيجابي، والرضا عن الرعاية، والرفاه الروحي المرتفع في تحسين النتائج. وتؤكد الدراسة ضرورة دمج الرعاية الداعمة والخدمات النفسية الاجتماعية والدعم الروحي الملائم ثقافياً في ممارسات الأورام، لتعزيز صحة ورفاه النساء في سياق يعاني من محدودية الموارد ويتأثر بعوامل الصراع.

الكلمات المفتاحية:

الرعاية الداعمة؛ سرطان الثدي؛ جودة الحياة؛ استراتيجيات التكيف؛ الرضا؛ فلسطين.