ORIGINAL ARTICLE

Determinants of quality of life among patients with breast cancer in Africa: A systematic review

Déterminants de la qualité de vie des patients atteints de cancer du sein en Afrique: Une revue systématique

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Abstract

Aim: To detect and describe determinants influencing the quality of life among patients with breast cancer across Africa.
Methods: Applying the PRISMA methodology, we searched the PubMed, Scopus, and Web of Science databases from inception through January 2024 using the following search terms: breast cancer, quality of life, and Africa. The studies selected aimed to identify the factors that impact the quality of life of African women with breast cancer. The methodological rigour of each publication was assessed using the Newcastle-Ottawa Scale, which was adjusted for both cohort and cross-sectional study designs.
Results: 22 studies were included in this systematic review, consisting of 15 (68%) cross-sectional studies and 7 (32%) prospective studies. These studies investigated more than 34 different determinants influencing the quality of life among breast cancer. Comorbidities, chemotherapy, anxiety, and depression generally reported poorer quality of life initially, though it often showed improvement over time. Research findings varied regarding how age, marital status, income, and treatment types influence the quality-of-life outcomes among patients with breast cancer in Africa.
Conclusion: Breast cancer patients frequently experience a worse quality of life, particularly if they are receiving chemotherapy and have additional medical conditions. This situation highlights the importance of offering patients additional therapies to improve their overall quality of life, together with comprehensive psychological and social support.

Key words: Breast cancer, quality of life, determinants, HRQoL, Africa, systematic review

Résumé

Objectif: Détecter et décrire les déterminants influençant la qualité de vie des patientes atteintes du cancer du sein en Afrique.
Méthodes: En appliquant la méthodologie PRISMA, nous avons recherché dans les bases de données PubMed, Scopus et Web of Science depuis leur création jusqu'à janvier 2024 en utilisant les termes de recherche suivants : cancer du sein, qualité de vie et Afrique. Les études incluses visaient à déterminer les variables influençant la qualité de vie des femmes africaines atteintes de cancer du sein. La rigueur méthodologique de chaque publication a été évaluée à l'aide de l'échelle de Newcastle-Ottawa, ajustée pour les conceptions d'études de cohorte et transversales.
Résultats: 22 études ont été incluses dans cette revue systématique, dont 15 (68 %) étaient des études transversales et 7 (32 %) des études prospectives. Ces études ont examiné plus de 34 déterminants différents influençant la qualité de vie des patientes atteintes du cancer du sein en Afrique. Les comorbidités, la chimiothérapie, l'anxiété et la dépression ont généralement été associées à une qualité de vie initialement plus faible, bien qu'une amélioration ait souvent été observée au fil du temps. Les résultats de recherche variaient quant à l'influence de l'âge, de l'état matrimonial, des revenus et des types de traitement sur les résultats de la qualité de vie des patientes atteintes du cancer du sein en Afrique.
Conclusion: Les patientes atteintes du cancer du sein connaissent souvent une qualité de vie basse, particulièrement si elles reçoivent une chimiothérapie et ont d'autres problèmes de santé. Cela souligne l'importance d'offrir aux patientes des thérapies supplémentaires visant à améliorer leur qualité de vie globale, ainsi qu'un soutien psychologique et social complet.

Mots clés: Cancer du sein, qualité de vie, déterminants, HRQoL, Afrique, revue systématique.

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What is known: Cancer of the breast is the most common cancer affecting women in Africa, with 198,553 new cases and 91,252 deaths reported in 2022.

What this article adds: In this systematic review, we identified the determinants of quality of life (QoL) among breast cancer patients in Africa through an in-depth search. It categorised 34 distinct determinants influencing QoL in Africa. It provides scientific evidence to develop a comprehensive and integrated plan incorporating the identified factors with the aim of improving the QoL for BC survivors in Africa.

Introduction

Breast cancer (BC) is the predominant cancer affecting women worldwide, with more than 2.3 million new cases in 2022 (1). It continues to be the leading cause of cancer-related deaths in women, particularly impacting those in developing countries (2,3). The diagnosis of BC represents a distressing event that profoundly impacts the lives of those affected, influencing every facet of their daily existence (4). As a result, it markedly reduces patients' health-related quality of life (HRQoL) during this critical phase (5). The incurable nature of BC and its potential for recurrence perpetuate ongoing psychological distress for patients, further diminishing their HRQoL (6). Presently, BC treatments are diverse and practical, yet the associated side effects from different treatment approaches can markedly influence the quality of life (QoL) in varying ways (7). Therefore, managing BC must focus on alleviating symptoms, preserving HRQoL, and prolonging survival (8). Cancer treatment goals must encompass both survival results and QoL, as the latter plays a critical role in advancing medical research and improving outcomes for BC (9). Over the past four decades, QoL has emerged as a central focus in both medical and psychological research (4). Recognising the importance of maintaining or enhancing QoL in BC patients is increasingly emphasised (10,11).

QoL is defined by how individuals personally perceive their own lives, influenced by cultural, personal, and environmental factors such as goals, expectations, and concerns (12). This multidimensional concept covers how patients respond to their illness and treatments across physical, psychological, and social dimensions, emphasising its crucial significance among BC patients (11). Therefore, QoL is influenced by a variety of determinants (13). Economic and social factors, including loneliness (14), poor socioeconomic status, and financial strain, have been associated with lower well-being outcomes among BC survivors (15,16). Conversely, increased social support (17) and meeting patient needs (18) have been shown to influence QoL positively. BC patients often experience decreased QoL due to various factors such as age, disease stage, economic challenges, work-related stress, and medical and psychological aspects like pain, anxiety, and depression. Evaluating QoL is now essential for assessing treatment efficacy and predicting outcomes for patients with BC (19). Additionally, it is critical to identify the factors affecting QoL to support patients in successfully transitioning to survival and coping with the challenging aspects of the disease (20).

Although there are several studies on the QoL of BC patients in Africa and the associated factors, research considering geographical variations in Africa, treatment stages, ages, and study periods is still limited. Identifying these factors could enable healthcare professionals to develop effective therapeutic strategies and promote the QoL of BC patients in Africa. Therefore, we conducted a systematic review to explore recent studies, fill the existing research gaps, and enhance current knowledge. The aim is to provide healthcare professionals and experts with a deeper understanding of the issue and, ultimately, improve the QoL for BC patients in Africa. These findings provide scientific evidence to develop a comprehensive and integrated plan that incorporates the identified factors to improve the QoL for African BC survivors.

Methods

Study Design

This study was undertaken in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to examine studies to ensure transparency and reproducibility thoroughly. Its goal is to explore recent research, address existing gaps, and enrich current knowledge on the determinants of QoL among BC patients in Africa (21). It enrolled in PROSPERO (CRD42024513999).

Search strategy

In January 2024, a systematic search was performed across 03 databases: PubMed, Scopus, and Web of Science using keywords such as "quality of life," "life quality," "health-related quality of life," "breast cancer," "breast carcinoma," "breast tumour," and "Africa. The search was restricted to original articles published from inception to January 2024. The systematic search received its last update on 27 January 2024.

Eligibility criteria

The following criteria were used to determine study inclusion: (a) women aged 18 years and above; (b) BC patients living in Africa; (c) measures concerning QoL and its domains or determinants; (d) study designs including prospective, cross-sectional, case-control, or cohort research. The review excluded studies published before 2000, those not in English, meta-analyses, systematic reviews, and studies employing qualitative analyses.

Data extraction

Upon identification, all articles were imported into Zotero software, where duplicates were meticulously eliminated. Subsequently, two researchers (LH and BB) independently assessed the titles and abstracts of the selected articles to determine their eligibility. Articles that fulfilled the predetermined requirements were then accessed in full-text format, and both reviewers independently

evaluated these texts against the established eligibility requirements. Any differences among the reviewers were resolved via discussion involving another reviewer (RSM/RS) to achieve consensus.

Extracted information from the articles included details such as author names, publication year, journal name, study location, study design, characteristics of the participants, data collection, sample size, instruments used, and primary outcomes. These outcomes focused on assessing overall QoL and its factors among patients with BC, covering physical, social, emotional, and cognitive functions, as well as symptoms related to the illness and its treatment like pain, fatigue, pain, dyspnea, appetite loss, and insomnia.

Quality assessment of studies

Critical appraisal was conducted using established tools: The Loney et al. scale, designed for cross-sectional studies (14) and the Newcastle-Ottawa Scale of Wells et al., tailored for cohort studies (22). Cross-sectional studies could score up to 8 points, focusing on sample selection (4 criteria), comparability (1 criterion), and outcome measurement (3 criteria). Cohort studies were evaluated based on sample selection (2 criteria), comparability (scored 0 to 2), and outcome measurement (1 criterion). Studies meeting all requirements within their respective study design categories were considered high quality. Those meeting more than 50% of the requirements, excluding comparability for cross-sectional studies, were classified as lower quality.

Results

This systematic review initially identified 627 records, with 492 unique articles retained following title and abstract screening based on predefined inclusion and exclusion requirements. After reviewing the complete text of 47 articles, 25 were excluded for not meeting the criteria (Figure 1).

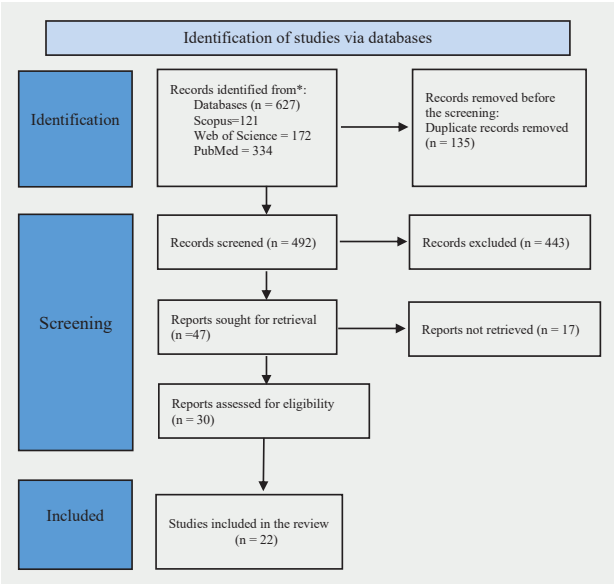

Figure 1. PRISMA flow diagram of selected study

Ultimately, 22 articles were included in the review, comprising 15 cross-sectional studies and seven prospective studies. These studies collectively involved 5958 women diagnosed with BC across nine countries: South Africa (n=4), Ghana (n=4), Ethiopia (n=3), Sub-Saharan Africa (n=2), Egypt (n=2), Nigeria (n=2), Morocco (n=2), Tunisia (n=2), and Senegal (n=1) (Table 1).

Quality assessment

Among the 22 cross-sectional studies reviewed, only one study achieved the highest score in quality assessment. Thirteen articles scored low (0-2) for sample selection due to non-probability sampling and limited sample sizes (Table 2). Every cross-sectional study provided detailed descriptions of their study populations, which contributed to high comparability scores. Additionally, each cross-sectional study reported confidence intervals or standard errors and had response rates exceeding 95% (Supplementary Table 1). Six of the seven prospective studies included were rated as good quality, scoring between 5 and 6 out of a possible 6 points. The one lower-quality prospective study received a score of 4, primarily due to its use of a non-representative sample of the target population (Table 3).

Most of the studied determinants showed consistency in their association or lack thereof with overall health status despite conflicting results for sociodemographic, clinical, and psychological factors (Table 4).

Demographic determinants

Age

Overall well-being tends to be lower among older BC patients (39,40). Advanced age is often associated with an increased prevalence of sleep disorders (29). Furthermore, the age at diagnosis appears to influence patients' QoL, with older women reporting significantly poorer physical QoL outcomes than their younger counterparts (40). However, nuances exist in these findings. For example, Okoli et al. found that among patients undergoing chemotherapy or mastectomy, older age is associated with better emotional well-being. In contrast, younger patients (under 40 years) report better physical and social well-being (37). Conversely, some studies suggest a limited impact of age on overall QoL among BC patients (42), while others report no significant association between age and overall health status (19,31,34,35,43).

Marital status

Unmarried women (single, divorced, or widowed) generally report higher overall QoL (4,40). In contrast, Getu et al. suggested that marriage is associated with better overall QoL and higher cognitive function scores (19). Having children is linked to improved overall health status among patients (40). Divorced women are often recognised for having lower health-related QoL compared to their married or single counterparts (37). However, one study concluded that marital status does not significantly influence overall QoL among patients (34).

Table 1. Characteristics of the selected studies

Authors	Journal	Country	Age	Study design	Size of sample	Period of recruitment	Questionnaire	Time of assessment	Stage of tumour
Kennedy et al., 2023 (23)	Annals of Surgery	Sub-Saharan Africa	Ethiopia: 43.5 (11.3) Ghana: 50,5 (13)	A prospective study	133	-	BREAST-Q questionnaire, Generalized Anxiety Disorder Scale (GAD-7), Patient Health Questionnaire (PHQ-9)	Before and after the mastectomy (3 months and 6 months after the operation).	-
Ofei et al., 2023 (24)	Cancer Investigation	Ghana	24,82 (32,07)	A cross- sectional study	128	-	Duke University Religion Index (DUREL), Perceived Social Support (PSS) subscale, Received Social Support (RSS) subscale, Benefit Finding Scale (BFS), Optimism dimension of the Life Orientation Test-Revised (LOT-R), State Hope Scale (SHS),	After undergoing treatment at least 3 months prior to the commencement of the study	-
Shabangu et al., 2023 (25)	BMC Women's Health	South Africa	60,5 (49.5-67.5)	A cross-sectional study	44	2019	the EQ-5D (European Quality of Life 5 Dimensions) the IPAQ (the International Physical Activity Questionnaire) the PHQ4 (the four-item Patient Health) Questionnaire the Pain Catastrophizing Scale	4 months since the completion of treatment	-
Wilkinson & Smith 2023 (26)	South African Journal of Sports Medicine	South Africa	55	A cross-sectional study	100.	2021-2022	International Global Physical Activity-Questionnaire (2002)		Stage1, 2, 3 and 4
Getu et al., 2022 (19)	BMC Cancer	Ethiopia	44,7 (11,2)	A cross-sectional study	240	January-March 2021	EORTC QLQ-BR45 and EORTC QLQ-C30 questionnaires	-	Stage1, 2, 3 and 4
Boucheron et al., 2021 (27)	Sub-Saharan Africa	Sub-Saharan Africa	53 (13,7)	A prospective Study	1476	2014-2017	EORTC-QLQ-Br23 questionnaire	Each 3 months	Stage 1, 2, 3 and 4
Kugbey et al., 2020 (28)	Current Problems in Cancer	Tunisia	52,49 (11,14).	A cross-sectional study	50	March – July 2017	Pittsburgh Sleep Quality Index (PSQI)	-	-
Fekih-Romdhane et al., 2020 (29)	Journal of Mind and Medical Sciences	South Africa	52,49 (11,14).	A cross-sectional study	160	2017-2018	Beck Depression Inventory, Rosenberg Self-Esteem Scale, Stress Symptom Checklist, Body Image Scale	After surgery	In situ, Stage1, 2 and 3
Oers & Schlebusch, 2020 (30)	PLoS ONE	Ethiopia	44 (30-70)	A cross-sectional study	404	-	EORTC QLQ-BR35 and EORTC QLQ-C30 questionnaires	-	-
Hassen et al., 2019 (4)	Journal of Global Oncology	Senegal	44 (11,78)	A prospective study	120	February-April 2018	FACT-B questionnaire	After chemotherapy cycles	Stage1, 2, 3 and
Dano et al., 2019 (31)	Patient Education and Counseling	Ghana	45 (38-55)	A cross-sectional study	205	2017-2018	Health literacy scale, healthcare information, depression and anxiety scale, and the Functional Assessment of Cancer Therapy-Breast Cancer.	Prior to the operation, and subsequently at 3 and 6 months	Stage1, 2, 3 and 4
Kugbey et al., 2019a (32)	Supportive Care in Cancer	Ghana	52,49 (11,14).	A cross-sectional study	205	March – July 2017	Functional Assessment of Cancer Therapy-Breast Cancer Scale (FACT-B), Multidimensional Perceived Social Support Scale (PSSS), Santa Clara Strength of Religious Faith Questionnaire (SCSRFQ), Hospital Anxiety and Depression Scale (HADS).	-	-
Kugbey et al., 2019 b (33)	Health and Quality of Life Outcomes	Ethiopia	43.94 ± 11.72	A cross-sectional study	404	March – July 2017	EORTC QLQ-BR35 and EORTC QLQ-C30 questionnaires	-	-
Sibhat et al., 2019 (34)	Asian Pacific Journal of Cancer Prevention.	Tunisia	59,32 (22,94)	A cross- sectional study	70	2017-2018	SF-36 questionnaire, Hospital Anxiety and Depression Scale (HAD-S).	-	Stage1, 2, 3 and 4
Daldoul et al., 2018 (35)	Journal of cancer research and therapeutics	Egypt	50.32 (8.54)	A cross-sectional study	172.	2016-2017	EORTC QLQ-BR23and EORTC QLQ-C30 questionnaires	-	Stage1, 2, 3 and 4
Enien et al., 2018 (36)	International Journal of Psychiatry in Medicine	Ghana	52.49	A cross-sectional study	205	-	Mini-Mental Adjustment to Cancer Scale and FACT-B scale	-	After a modified radical mastetomy or breast consevatrice surgery

Table 1. Characteristics of the selected studies (continued)

Authors	Journal	Country	Age	Study design	Size of sample	Period of recruitment	Questionnaire	Time of assessment	Stage of tumour
Okoli et al., 2018 (37)	World Journal of Surgery	Nigeria	50 (11,92)	A prospective study	60	2015-2018	FACT-B scale version 4	3 months after surgery	Stage1, 2, 3 and 4
Traore et al., 2018 (38)	BMC Cancer	Marocco	50,51 (10,92)	A prospective study	1463	2009-2011	European Organization for Research and Treatment of Cancer QOL Questionnaire (EORTC QLQ-C30) Version 3 with its breast-specific supplement (QLQ-BR-23)	At the 1st month of the study and 12 months	Stage 1, 2, 3 and 4
Fatiregun et al., 2017 (39)	The breast	South Africa	49.6 (11,2)	A cross-sectional study	100	-	EORTC QLQ-BR35 and EORTC QLQ-C30 questionnaires	-	Stage 1, 2, 3 and 4
Shouman et al., 2016 (40)	International Journal of Health Care Quality Assurance	Egypt	51.05±9.25	A cross-sectional study	64	-	Fact-G Fact-B	-	-
Sbitti et al., 2011(41)	BMC Women's Health	Morocco	from 25 to 58 years	A prospective study	120	2009-2010	Body Image Scale (BIS), Female Sexual Function Index (FSFI)	-	-
Jaiyesimi et al., 2007 (42)	African Journal of Medicine and Medical Sciences	Nigeria	between 18 and 65 years	A Prospective Study	35	-	EORTC QLQ-BR35 and EORTC QLQ-C30 questionnaires	-	-

Income

A clear link between higher income and improved overall QoL (4,34,36,37,40), although Daldoul et al. found the opposite trend (35). Several studies have reported that higher family income correlates with better overall well-being, higher physical scores and role functions, and reduced issues like constipation and financial challenges (34). None of the five studies examining income (4,34–37,40) investigated the impact of income during treatment. In Morocco, concerns about income among low-income patients might be mitigated by access to social assistance through mandatory mutual insurance (a coverage plan tailored for vulnerable populations). Furthermore, Hassen et al. found that higher incomes among chemotherapy patients in Ethiopia were associated with better physical and social functioning (4).

Education level

Higher education (secondary or above) is associated with enhanced QoL and better scores in physical, social, emotional, cognitive functions, and symptom management (4,19). However, conflicting findings arise, with some studies suggesting that educational attainment does not significantly affect overall health status and its various domains (31,34,35).

Clinic determinants

Tumor Characteristics

Advanced stages of the disease are consistently linked with poorer overall QoL and diminished well-being across multiple studies (4,19,31,37,39). Conversely, early disease detection has been shown to enhance QoL (40). Stage IV cancer notably exacerbates pain intensity, anorexia, and symptoms such as brachial pain and swelling (19). Moreover, metastatic sites are consistently associated with a decline in QoL (31). However, findings from a study conducted in Tunisia suggest that the disease stage may not significantly impact QoL and its various aspects (35).

Types of Treatment

The influence of BC therapies on HQoL varies significantly across different studies. Patients undergoing breast-conserving surgery report higher QoL compared to those who opt for modified radical mastectomy, despite the latter group often maintaining good overall health and body image (36). Conversely, individuals who undergo total mastectomy or axillary dissection followed by adjuvant chemotherapy frequently experience poorer emotional health and sleep quality (39). These patients may also see a decline in body image related to their breasts. However, they may experience improvements in anxiety and depression post-mastectomy (23), possibly due to increased pain levels and other related symptoms. Chemotherapy significantly influences overall QoL and its various domains, as observed in multiple studies (4,19,29,31,35,40). Patients undergoing chemotherapy report heightened symptoms like loss of appetite, vomiting, diarrhoea, nausea, fatigue, anorexia, hair loss, and financial difficulties (19,34). Although radiotherapy generally correlates with better overall health status compared to other treatments, it is also associated with impaired QoL, disrupted role function, pain, insomnia, fatigue, anorexia, and vomiting (34). However, findings from studies in Tunisia suggest no clear association between radiotherapy, surgery, or hormone therapy and overall health status or well-being (35).

In general, all forms of cancer treatment tend to reduce QoL across various dimensions (34,41), often leading to sexual dysfunctions such as decreased sexual desire, lubrication difficulties, and dyspareunia, which negatively affect sexual QoL (41). Survivors typically experience improvements in functional aspects and symptoms like fatigue, pain, anorexia, and insomnia one-year post-treatment. However, challenges may persist in social activities, such as dyspnea, nausea, and vomiting (38).

Chronic Pain

Chronic pain poses a significant burden for BC survivors

in South Africa, often leading to unemployment or dependence on disability grants. This chronic pain not only significantly deteriorates their HRQoL but also increases their vulnerability to depression and anxiety (25).

Shoulder and Arm Problems

BC survivors in Sub-Saharan Africa commonly experience issues such as chronic arm and shoulder pain, stiffness, and swelling, which collectively contribute to a substantial burden (27). Predictors of these challenges include advanced cancer stage, older age, and low socioeconomic status, exacerbating the HRQoL issues, including heightened risks of depression and anxiety (27).

Lifestyle

Physical Activity

According to Wilkinson and Smith, South African BC survivors engage in regular physical activity, such as walking or cycling for transportation, 4 to 5 times per week. This physical activity is considered a promising and effective supplementary treatment, as it enhances QoL, improves treatment tolerance, and alleviates various symptoms and side effects associated with BC diagnosis and treatments (26).

Sleep

BC patients often struggle with poor sleep quality, moderate to severe depression, and high levels of despair (29).

Psychological determinants

Anxiety and Depression

There is an inverse relationship between depression and anxiety levels in women and their overall QoL. Anxiety and depression were found to decrease various aspects of functioning, such as physical, emotional, social and cognitive abilities, body image, future outlook, and sexual satisfaction (28,35). They also exacerbate treatment side effects like fatigue, pain, insomnia, loss of appetite, diarrhoea, brachial symptoms, and financial challenges (39). Notably, while anxiety disorders did not directly impact overall health status and sexual functioning (39), religiosity was noted to potentially enhance QoL by alleviating anxiety (28).

Coping Strategies

Religiosity, perceived social support, optimism, and hope were linked positively to experiencing post-traumatic growth (PTG). Moreover, religiosity, PTG, cognitive avoidance, fighting spirit, and fatalism positively influenced overall QoL and its multiple domains (24,28). Conversely, factors such as hopelessness, anxiety concerns, and apathy were identified as having a negative impact on overall well-being and its various dimensions (28).

Other treatment determinants

Comorbidities are often linked with a decrease in overall QoL, leading to lower social, cognitive, and physical functioning (19) and reduced emotional well-being (40). However, one study reported no significant association between comorbidities and overall QoL (34). Post-menopausal women generally report poorer QoL compared to their pre-menopausal counterparts (37). Employment typically enhances overall QoL among patients, except those working in agriculture, where it may decrease due to exacerbated symptoms such as nausea and vomiting (40). Living in rural areas is often associated with better overall QoL (19), while urban dwellers report higher overall QoL scores (40). However, one study found no clear relationship between living environment and overall QoL (31). Lastly, although some studies suggest that longer illness duration is linked to improved physical and emotional well-being (43), research from Ethiopia contradicts this finding (34).

Having a caregiver, easy access to medications, receiving affection on the dominant hand side, access to health information, and health education significantly enhance the QoL of women with BC (32,40). These factors indirectly alleviate depression and anxiety, thus positively influencing their mental well-being (32).

Comparison between psychological distress and body image issues in BC vs. other cancer types

Compared to patients with cancers at other sites, BC patients reported significantly higher levels of body image dysphoria, including dissatisfaction with their bodies and feelings of sexual unattractiveness. They also exhibited more pronounced symptoms of psychological and behavioural stress. Despite similar levels of low depression and self-esteem between the groups, breast cancer patients additionally reported lower levels of concentration (30).

Table 2. Assessment of the methodological quality of the cross-sectional studies selected

Author, year	Representativeness of the exposed cohort[1]	Ascertainment of exposure[2]	Comparability of cohorts on the basis of the design or analysis[3]	Assessment of outcome[4]	Adequacy of follow up of cohorts[5]	Max = 6
Kennedy, 2023 (23)	1	1	1	1	1	5
Boucheron., 2021 (27)	1	1	2	1	1	6
Dano, 2019 (31)	1	1	1	1	1	5
Okoli, 2018 (37)	0	1	2	1	1	5
Traore, 2018 (38)	1	1	2	1	1	6
Sbitti, 2011 (41)	1	1	2	0	1	5
Jaiyesimi, 2007 (42)	0	1	1	1	1	4

[1]A score of 1 is given if the sample selection method involved random selection or included the entire population of the community studied. [2]A score of 1 is given if an unbiased sampling frame is used. [3]A score of 1 is given if the sample size is more significant than 300. [4]A score of 1 is given if exposure information was obtained from a secure record or structured interview where appropriate. [5]A score of 1 is given if participants are clearly described. [6]A score of 1 is given if Health-Related Quality of Life (HRQL) was assessed by self-report or by a trained interviewer. [7]A score of 1 is given if all participants are accounted for or if the follow-up rate is 70% or higher, and a description of those lost to follow-up is provided. [8]A score of 1 is given if confidence intervals or standard errors are reported.

Table 3. Assessment of the methodological quality of the cohort studies selected

Author, year	Random sample or whole population[1]	Unbiased sampling frame[2]	Adequate sample size (>300)[3]	Measures were the standard[4]	Study subjects described[5]	Outcomes measured by unbiase assessors[6]	Adequate response rate (70%), refused described[7]	Confidence intervals, Subgroup analysis	Max = 8
Ofei, 2023 (24)	0	0	0	1	1	1	1	1	5
Shabangu 2023 (25)	0	0	0	1	1	1	1	1	5
Wilkinson, 2023 (26)	0	0	0	1	1	1	1	1	5
Getu, 2022 (19)	0	0	0	1	1	1	1	1	5
Fekih-Romdhane, 2020 (29)	0	0	0	1	1	1	1	1	5
Kugbey, 2020 (28)	0	0	0	1	1	1	1	1	5
Oers, 2020 (30)	0	0	0	1	1	1	1	1	5
Hassen, 2019 (4)	0	0	1	1	1	1	1	1	8
Kugbey, 2019a (32)	0	0	0	1	1	1	1	1	5
Kugbey, 2019 b (33)	0	0	0	1	1	1	1	1	5
Sibhat, 2019 (34)	0	0	1	1	1	1	1	1	5
Daldoul, 2018 (35)	0	0	0	1	1	1	1	1	5
Enien, 2018 (36)	0	0	0	1	1	1	1	1	5
Fatiregun, 2017 (39)	1	1	1	0	1	1	1	1	7
Shouman, 2016 (40)	0	0	0	1	1	1	1	1	5

[1]A score of 1 is awarded if the sample effectively represents the typical breast cancer patients within the studied community. (Selection). [2]A score of 1 is assigned if exposure information is sourced from secure records or structured interviews as appropriate. (Selection). [3]A score of 1 is assigned if baseline time is controlled for, and an additional score of 1 is given if additional factors like stage or age are considered. (Comparability). [4]A score of 1 is assigned if Health-Related Quality of Life (HRQL) is assessed through self-report or by a trained interviewer. (Outcome). [5]A score of 1 is assigned if all participants are accounted for, or if the follow-up rate is ≥70%, with a clear description of those lost to follow-up. (Outcome)

Table 4. Determinants associated with QoL

Determinants	Good overall QoL	Poor overall QoL	Other determinants
Demographic determinants			
Age	Advanced age (High emotional well-being) (37)	Advanced age (39,40)	No association between age and QoL (19,33–35) (31) Advanced age is associated with sleep disorders (29)
Education	High education (4,19)		No association between the level of education and QoL (31,34,35)
Living conditions	Urban (34) Rural (19)		No association between living conditions and QoL (37)
Marital status	Single, widowed, or divorced women (4,40) (37) Married women (High cognitive function) (19) The presence of children (40)		No association between marital status and QoL (34)
Income	Heigh income (4,34,36,40)		No association between income and QoL (35)
Religion	Presence of religion (24,33)		
Employment	Employee (yes) (40)	Farmers (experienced a high frequency of nausea and vomiting)	
Clinic determinants			
Duration of the illness	Long duration of illness (high emotional and physical well-being) (33)		No association between the duration of illness and QoL (34)
Characteristics of the tumour		High stage [4,21,32, 39, 40] Metastase (31)	- Early detection of the disease is associated with good quality of life (40) - Stage 4 of the disease increases pain + anorexia + brachial symptoms (pain and swelling in the arm)(19)
Comorbidities	–	Presence of comorbidities Decreased physical, cognitive, and social function (19) low emotional well-being (40)	No association between comorbidities and QoL (34)
Hormonal status	Pre-menopausal women (37)	Post-menopausal women (37)	
Chronic pain		Presence of pain [21,35, 41]	
Arm and shoulder problems		Presence of arm and shoulder pain (27)	They encompass pain, stiffness, and swelling, and their predictors are advanced cancer stage, older age, and low socioeconomic status (27)
Treatment			
Mastectomy	Presence of modified radical surgery or mastectomy) (36)95% confidence interval [95% CI]: 30.71	Presence of total mastectomy with adjuvant chemotherapy (decrease in emotional well-being)Etude prospective (37)	Conservative surgery or mastectomy is associated with sleep quality disorders (39), anxiety, and depression (23)
Chemotherapy	Chemotherapy (a high number of cycles) (4)	Presence of chemotherapy (19,29,34,35,40)	Chemotherapy is associated with low emotional well-being (35)

Table 4. Determinants associated with QoL (continued)

Determinants	Good overall QoL	Poor overall QoL	Other determinants
Radiotherapy		Presence of radiotherapy (34)	Patients undergoing radiotherapy have a better quality of life compared to those undergoing chemotherapy, hormone therapy, or mastectomy (34,42)
Other treatment determinants	-The absence of difficulties in obtaining medication, presence of a caregiver, affection on the dominant hand side (40) -Informative access to health information and health education (33).		
Psychological determinants			
Anxiety and depression		Presence of anxiety and depression (28,35)	Depression and anxiety are linked to reduced functioning in areas such as physical, emotional, social, cognitive, and sexual pleasure, as well as treatment-related side effects including fatigue, pain, and insomnia(39)
Coping strategies	Presence of post-traumatic growth (PTG) or cognitive avoidance or fighting spirit or fatalism (24,28)	Presence of despair or anxious concerns or apathy (33)	
Stylelife			
Physical activity	Presence of physical activity (26)		Physical activity increases treatment tolerance and mitigates its side effects (26)
Sleep			Poor sleepers exhibit moderate to severe levels of depression and high levels of despair (29)

Discussion

Based on existing literature, this systematic review aimed to explore the determinants influencing the QoL of women with BC in Africa. After a thorough analysis, we selected 22 articles that met our inclusion criteria (26). Factors such as older age, comorbidities, chemotherapy treatment, the affected dominant hand side, and limited social support are associated with poorer QoL outcomes. Indeed, many older patients are often diagnosed at an advanced stage of BC patients were diagnosed at late stages (III and IV), contributing to a lower survival rate (44). Additionally, they often show poor adherence to post-treatment monitoring, essential for the early detection of recurrences. Other factors, such as seeking treatment from traditional healers and a lack of awareness about health insurance coverage, also hinder the completion of treatments (45). Older age is also associated with a higher prevalence of comorbidities, which are common among BC patients, affecting 20% to 30% of the overall and reaching 86% in those aged 65 and older. It can limit treatment options and affect overall health (13). Conditions such as hypertension, arthritis, cardiovascular diseases, and diabetes may occur before or after the BC diagnosis, significantly deteriorating the QoL of patients and increasing mortality risk (26). Therefore, effective management of comorbidities is essential for optimising cancer treatment outcomes.

Furthermore, marital status, income, education level, cancer stage, hormonal and occupational status, living environment, sleep quality, types of treatment, chronic pain, shoulder and arm problems, anxiety, depression, and coping strategies show negative associations with QoL (46,47). In Nigeria, patients with a higher level of education or whose parents are educated are less likely to be diagnosed with high-grade BC, which is a strong indicator of mortality. They are more likely to navigate healthcare systems effectively, ensuring timely and appropriate treatment (48). A systematic study conducted in Asia has indicated that high-income patients have a better QoL than low-income patients due to their ability to fund their treatment without difficulties, which enhances their adherence to care and therapeutic outcomes (49). Therefore, to improve the QoL and health outcomes of BC patients, governments, policy-makers, and stakeholders in low-income countries in Africa must increase awareness and education about the disease. In addition, including anti-cancer medications and surgical procedures in health insurance coverage would be a significant measure to provide greater access to care.

However, improvements in QoL are observed with early diagnosis, physical activity, caregiver support, easy access to medications, availability of health information, and participation in health education. Moreover, exploring complementary medicines such as spiritual remedies and herbal therapies may offer promising avenues to enhance HRQoL, physical function, and social well-being for BC patients in Africa (50,51). These insights underscore the importance of comprehensive support and holistic care approaches to improve outcomes in this patient population.

In African contexts, chemotherapy is mainly associated with a decline in QoL for BC patients. Studies consistently report an increase in pain, nausea, vomiting, dyspnea, and fatigue during chemotherapy despite the use of antiemetics (7). Chemotherapy is often administered for advanced BC cases, which correlates with further deterioration in QoL. In contrast, surgical treatments are less frequently linked to advanced cancer progression. Additionally, inadequate social support and unmet needs contribute to a deteriorated QoL, highlighting the importance of comprehensive symptom management strategies (20). Improving QoL can be achieved through interventions that strengthen social and familial support systems and consider predictive factors such as depression (7). Nutritional interventions have proven effective in

alleviating symptoms such as nausea, vomiting, and loss of appetite in undernourished patients, while physical exercise can help reduce fatigue and improve physical QoL (52). These holistic approaches emphasise the need for personalised care strategies to enhance QoL outcomes across diverse BC treatment scenarios and patient populations.

Our study has several limitations that should be taken into account when interpreting the results. Firstly, only studies published in English were included, which may exclude relevant research published in other languages and bias the conclusions. This restriction is particularly noticeable in French literature, which is often found in French-speaking African countries. By limiting the analysis to studies in English, we reduce the study's comprehensiveness, and the diversity of perspectives considered. Secondly, the variable quality of the studies analysed is a significant constraint. Indeed, 13 of the 22 studies presented suffered from notable methodological weaknesses, such as small sample sizes and the absence of random selection, which compromised the reliability of the conclusions and increased the risk of bias. The heterogeneity of the results also makes it difficult to generalise about the trends observed. For example, the impact of factors such as age, marital status or income on quality of life varies considerably from one study to another, suggesting that specific sociocultural factors or different methodologies could influence the results. In addition, differences between studies conducted during treatment and those conducted after treatment introduce temporal variability, making the interpretation of the data more complex. Finally, the diversity of the statistical methods used, ranging from linear models to correlation analyses, may affect the precision of the links observed between variables. These limitations underline the importance of conducting more rigorous and inclusive studies, incorporating more representative samples and considering account publications in different languages. It would provide a more complete and nuanced view of the subject under study. Despite these limitations, our study employed a comprehensive search strategy across multiple databases and maintained consistent data extraction methods through two independent reviewers. These efforts aimed to minimise errors in study inclusion and enhance the reliability of our findings.

Conclusion

This comprehensive study found a wide range of factors affecting the QoL of BC patients in Africa, which has implications for developing effective policy interventions to enhance their well-being. by offering thorough assessments of the functional, mental, physical, and social elements of well-being, QoL assessment tools can help in diagnosis, prognosis, and ongoing patient monitoring. QoL assessment tools provide patients with valuable insight into their own care needs by offering comprehensive evaluations of physical, mental, functional, and social aspects of well-being. These tools can aid in diagnosis, prognosis, and continuous patient monitoring. Additionally, incorporating complementary or alternative medicine interventions may enhance QoL outcomes. However, further research with more rigorous study designs is crucial to accurately identify the factors influencing QoL among African BC patients. Such research would support the development of tailored strategies to address specific challenges and optimise QoL outcomes within this population.

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