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Effectiveness Of Health And Health Interventions For Anxiety And Emotional Well-Being In Breast Cancer: Review

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Abstract

Breast cancer remains a critical global health burden as the most prevalent malignancy and a leading cause of female mortality, with profound physical, psychological, and economic consequences for patients and families. A comprehensive understanding of health-related quality of life (HRQoL) is essential, as over 50% of patients report significant anxiety and depression, which can worsen clinical prognosis and drastically reduce survival rates if left unmanaged. However, substantial research gaps persist, characterized by inconsistent findings regarding demographic variables influencing HRQoL and a limited synthesis of literature integrating ecological coping models and socio-relational self-efficacy across diverse cultural contexts. This systematic literature review aims to analyze the relationship between various coping resources and patients' psychological distress and quality of life during treatment and recovery. Adhering to the PRISMA protocol, this study systematically screened 473 articles from the Scopus database within the subject areas of nursing and psychology published through 2024. Furthermore, digital health (eHealth/mHealth) interventions, such as the "Yun Dong Ru Kang" rehabilitation app and text messaging programs. Consequently, a shift toward a holistic care model incorporating routine distress screening and work integration support is warranted. Practitioners should optimize digital technology for remote monitoring and strengthen social support to mitigate emotional vulnerability.

Keywords: ***Anxiety, Breast cancer, Human, Female.***

INTRODUCTION

Breast cancer is the most common type of cancer among women worldwide and is the leading cause of cancer-related death (Weiner *et al.*, 2023). Global data shows that there are more than 2.2 million new cases, with a death toll reaching hundreds of thousands each year (Anggraeni, Sukartini and Nihayati, 2023). In Indonesia, this disease is a significant health problem, with most cases detected at an advanced stage, which has a significant impact not only on physical health but also on the psychological and economic well-being of patients and their families (Anggraeni, Sukartini and Nihayati, 2023), (Al-Sharman *et al.*, 2024).

Breast cancer diagnosis and treatment, such as chemotherapy, surgery, and radiotherapy, trigger significant psychological distress (Verri *et al.*, 2024). Patients often report high levels of anxiety, depression, and fatigue (Fang, Shi and Song, 2024). These psychosocial issues are particularly prominent in young survivors (Nurjannah *et al.*, 2021), who must cope with body image disturbances due to physical changes, sexual dysfunction, and concerns about fertility and family roles (Weiner *et al.*, 2023). If left untreated, this condition can drastically reduce quality of life (QoL) (Anggraeni, Sukartini and Nihayati, 2023).

Quality of life in the context of cancer is a multidimensional subjective perception encompassing physical, emotional, social, and functional well-being (Al-Sharman *et al.*, 2024). To maintain a good quality of life, coping resources such as self-efficacy, social support, and adaptation strategies are crucial (Jamil *et al.*, 2023). Self-efficacy in social relationships, for example, has been shown to mediate the relationship between physical function decline and levels of anxiety and depression, thus helping patients remain active in their social environments (Fang, Shi and Song, 2024).

New challenges have emerged with the COVID-19 pandemic and the development of digital technology (Jamil *et al.*, 2023). The pandemic has increased the psychological burden on cancer

patients due to fear of infection and disruptions to routine medical services (Weng *et al.*, 2024). On the other hand, digital health-based interventions (eHealth or mHealth) such as mobile apps and text messaging are being developed as solutions to provide psychological support and promote physical activity remotely, which have proven feasible and acceptable to patients (Ibrar *et al.*, 2022).
Despite extensive research on breast cancer, factors influencing quality of life and psychological distress often show inconsistent results across cultural backgrounds (Magnavita *et al.*, 2023). Differences in life goals, religious beliefs, financial status, and social support systems mean that research findings from Western countries are not always directly applicable to other populations, such as women in the Middle East or Asia. Therefore, a deeper understanding of culturally specific coping resources for managing emotional distress in patients is needed.

Many studies have evaluated the quality of life of breast cancer patients in general, but there is a lack of studies specifically integrating ecological models to identify coping resources in specific ethnic or cultural groups (Santoyo-Olsson *et al.*, 2022). Furthermore, most studies are cross-sectional, making it difficult to establish a definitive causal relationship between risk factors and declining mental health over time.

There are inconsistent results regarding demographic variables that influence quality of life. For example, some researchers found that age and marital status were significant predictors, while others found no significant association between these factors and patient distress levels. Furthermore, the effectiveness of specific components of digital interventions (such as peer support features vs. self-monitoring) in improving specific quality of life domains has not been fully quantitatively disaggregated (Al-Sharman *et al.*, 2024).

This Systematic Literature Review offers novelty by synthesizing the role of multidimensional coping resources—including socio-relational self-efficacy and the ecological model—and the use of novel digital interventions in mitigating psychological distress across diverse geographic and cultural contexts. The study also addresses less frequently discussed aspects such as the impact of quality of work life as a buffer against emotional vulnerability in survivors. This study aims to systematically analyze the literature on the relationship between coping resources and psychological distress and quality of life in breast cancer patients. Specifically, this review will identify the most effective intervention strategies and culturally specific factors that can strengthen patients' mental resilience during treatment and recovery.

RESEARCH METHODS

The literature screening process in this study was conducted systematically, following the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) protocol to ensure transparency and quality of the resulting data. The initial stage, the identification stage, involved a literature search in the Scopus database as the primary database, with the final data extraction process covering literature up to 2024. The search strategy used a combination of the primary keywords (Keyword AND), namely "anxiety" AND "breast cancer," applied to the title, abstract, and keywords of the manuscripts. To refine the search results, specific keywords were used, including the terms "Breast Cancer," "Human," "Female," "Anxiety," and "Humans," to ensure relevance to the participants and the topic. The specific year limitation criteria were set to include research from the most recent years up to the latest available data in 2024, to capture the latest developments in psychosocial interventions.

Following the identification phase, strict inclusion and exclusion criteria were established to select the studies most relevant to the research objectives. Inclusion criteria included studies involving adult female participants (aged 18 years) who had been clinically diagnosed with breast cancer at various stages (I-IV). Selected studies must present quantitative or qualitative data on quality of life domains, emotional distress, or the effectiveness of psychosocial and physical interventions. Conversely, exclusion criteria applied to studies not available in full text, non-systematic review articles, and studies involving patients with severe cognitive impairment or primary psychiatric

illnesses that existed before the cancer diagnosis, as these conditions may confound the results of the cancer-related quality of life assessment.

Next, during the screening phase, strict filters were applied based on several technical criteria. The Document Type was limited to "Article" (ar) to ensure that the analyzed literature was original, peer-reviewed research. The language restriction used was English to maintain consistency with global medical and psychological terminology standards. In addition, the subject area was limited to the fields of Nursing (NURS) and Psychology (PSYC) to gain an in-depth perspective of nursing care and psychosocial support. The geography of the study also focused on specific countries including the United States, United Kingdom, China, Canada, Australia, Germany, Italy, and Indonesia to examine variations in coping resources across cultural contexts. The initial search results through this specific query yielded 473 documents that then entered the eligibility assessment stage based on accessibility, where all selected manuscripts were Open Access. The final manuscripts identified as many as 473 articles then underwent a duplication cleaning stage and further review of inclusion criteria before being synthesized into the final results of this systematic review.

RESULTS AND DISCUSSION

Publication trends on anxiety in breast cancer patients have shown significant growth in recent years, with peak research activity occurring between 2020 and 2023. According to Scopus data, 2023 recorded the highest number of articles, with 48 articles, followed closely by 2022 with 46 articles, and 2020 with 37 articles. Although 2024 is still underway, 21 articles have already been identified, indicating that this topic remains a top priority on the global health research agenda.

Research contributions predominantly come from institutions in the United States, with the University of California, San Francisco being the most prolific affiliate with a total of 43 articles. This is also reflected in the list of prominent authors, with Miaskowski, C., the most influential author with 29 articles, followed by Paul, S.M. with 23 articles, and Cooper, B.A. with 16 articles. The presence of these authors demonstrates the existence of a consistent research group exploring psychosocial symptom management in cancer survivors.

Geographically, in addition to the United States, which leads with 308 documents, significant contributions also come from the United Kingdom (52 documents), Australia (43 documents), and China (30 documents). Indonesia itself has begun to make measurable contributions with 9 documents indexed in this category. This trend illustrates a shift in focus from simply clinical treatment to an in-depth understanding of the psychological burden and quality of life of patients in various parts of the world.

This research topic focuses on three main subject areas: Medicine with 363 documents, Psychology with 268 documents, and Nursing with 207 documents. The following are 10 representative documents reflecting the focus in these subject areas:

1. Guo et al. (2023) examined levels of depression and anxiety in metastatic breast cancer patients in China, providing an in-depth nursing perspective (Guo *et al.*, 2023).
2. Jamil et al. (2023) evaluated the determinants of physical and mental quality of life during the COVID-19 pandemic in Indonesia, which is highly relevant to the field of community nursing (Jamil *et al.*, 2023).
3. Madkhali et al. (2024) used a psychological approach to measure the impact of the pandemic on the mental health of cancer patients in Saudi Arabia (Madkhali *et al.*, 2024)(Al-Sharman *et al.*, 2024).
4. Serpentini et al. (2022) validated a socio-relational self-efficacy scale in Italy, making an important contribution to the clinical psychology literature (Serpentini *et al.*, 2022).
5. Weiner et al. (2023) explored a peer-led physical activity intervention to improve the quality of life of young survivors, combining behavioral and medical aspects (Weiner *et al.*, 2023).
6. Hall et al. (2022) highlighted avoidance coping in an eHealth intervention to manage fear of recurrence, a key study in health psychology (Hall *et al.*, 2022).

7. Zhang et al. (2024) investigated suicidal ideation in advanced breast cancer patients in China through a psychological mediation model (Zhang *et al.*, 2024).
8. Sebri et al. (2024) focused on emotion regulation through psychological interventions for breast cancer survivors (Sebri, Policardo and Pravettoni, 2024).
9. Jiang et al. (2024) examined the impact of a nursing intervention based on empowerment theory on negative emotions in patients with brain metastases (Weng *et al.*, 2024)
10. Al-Sharman et al. (2024) applied the International Classification of Health and Functioning (ICF) model to assess quality of life from a multidimensional perspective (Al-Sharman *et al.*, 2024).

These ten documents demonstrate that current research focuses not only on identifying anxiety but also on developing interventions based on digital technology (mHealth) and social support. Integration between nursing and psychology is crucial in creating a holistic care model that is acceptable to patients across cultural contexts.

Affiliation data indicates a concentration of research resources at major US universities and leading cancer institutions. The University of California, San Francisco (43 documents) and UCSF School of Medicine (32 documents) are the primary research centers, followed by the University of Pittsburgh (23 documents) and Memorial Sloan-Kettering Cancer Center (19 documents). These institutions are often supported by strong funding sponsors, such as the National Cancer Institute (162 documents) and the National Institutes of Health (128 documents).

Internationally, the distribution of affiliations reflects extensive global collaboration. For example, Jamil et al.'s (2023) study involved Andalas University and Airlangga University in Indonesia, which collaborated with Taipei Medical University in Taiwan. Affiliates such as Capital Medical University and Peking University Cancer Hospital in China also demonstrated high productivity in researching Asian patient populations.

In Europe, institutions such as the Università Cattolica del Sacro Cuore in Italy and the University of Reading in the UK have emerged as important contributors to studies on coping and cognitive function. This diversity of affiliations, ranging from specialized cancer centers to university nursing departments, ensures that the issue of anxiety in breast cancer is addressed from a variety of perspectives, including clinical, behavioral, and health systems management.

Based on the key keywords "anxiety" and "breast cancer" and available sources, here are some key themes that could be addressed in your Systematic Literature Review (SLR):

The following is an in-depth analysis of the relationship between anxiety and breast cancer based on the five key themes you identified, compiled using data from available sources:

Characterization of Psychological Distress and Quality of Life (HRQoL).

Psychological distress, including anxiety, depression, and stress, is highly prevalent in breast cancer patients, especially in advanced or metastatic stages. In China, the incidence of depression in metastatic breast cancer patients reached 52.3%, anxiety 60.2%, and stress 36.9% (Weiner *et al.*, 2023). Fear of recurrence (FoR) has been identified as a pressing unmet need for long-term survivors, negatively impacting health-related quality of life (HRQoL) (Anggraeni, Sukartini and Nihayati, 2023).

During the COVID-19 pandemic, this burden has increased significantly. In Indonesia, factors such as young age (<50 years), unemployment, and high levels of depression and anxiety are strong predictors of low physical and mental HRQoL. This decline in QoL is also accompanied by an increased risk of suicidal ideation, especially in patients with poor physical function, severe insomnia, and high emotional distress (Kuswanto *et al.*, 2024).

Coping Resources and Psychosocial Adaptation Mechanisms.

Coping resources play a crucial role in mediating the impact of illness on mental health. Socio-Relational Self-Efficacy, defined as a patient's ability to maintain social relationships (SRCE), has been shown to mitigate the loss of social support due to physical limitations, thereby improving social functioning and overall QoL (Zhu *et al.*, 2023). Strategies such as avoidance coping are often associated with more severe post-traumatic anxiety symptoms and poorer global mental health. Conversely, self-compassion acts as a protective factor against stress, especially for mothers who

perceive their parenting efficacy as decreased due to cancer (Magnavita *et al.*, 2023). In certain populations, intrapersonal resources (such as coping self-efficacy) and interpersonal resources (such as neighborhood cohesion) have been found to be effective in reducing health distress (Taylor and Chapman, 2024).

Digital Health Interventions (eHealth and mHealth).

Digital technologies offer accessible solutions for providing ongoing support outside the hospital setting. The use of mobile and mHealth applications, such as exercise rehabilitation apps like "Yun Dong Ru Kang," significantly improves the emotional well-being of post-operative patients. Text-based programs like EMPOWER-SMS have been shown to be feasible, inexpensive, and effective in improving hormone treatment adherence and motivating healthy lifestyle changes (Palacio *et al.*, 2022). Guided Interventions (eHealth) programs like FoRtitude use cognitive behavioral therapy (CBT) content and telecoaching to help patients manage FoR, even those with avoidant coping tendencies. Distance Mentoring, a peer-led intervention through video sessions, has been shown to increase physical activity and emotional support in young survivors (Al-Sharman *et al.*, 2024).

Physical Impact and Management of Treatment Side Effects.

Cancer therapy causes a variety of physical side effects that exacerbate psychological conditions. Patients undergoing hormone therapy often experience sleep disturbances, hot flashes, joint pain, and anxiety, which often lead to a desire to discontinue treatment (Berger *et al.*, 2022). Physical changes resulting from surgery (mastectomy) or chemotherapy (hair loss) undermine perceptions of femininity and body satisfaction (Taylor and Chapman, 2024). This body image dissatisfaction is strongly correlated with increased depression, social anxiety, and somatization (Sebri, Policardo and Pravettoni, 2024). Physical problems such as fatigue and chronic pain are major barriers to patients returning to normal activities.

Work Context and Social Reintegration.

Work plays a central role in providing a sense of value and normalcy for survivors. A supportive work environment can protect metastatic cancer patients from cognitive and emotional vulnerability (Zhu *et al.*, 2023). Perceptions of organizational justice in the workplace are inversely related to patients' levels of anxiety and depression. Barriers to Return to Work (RTW): Factors such as "brain fog" (cognitive decline), persistent fatigue, physical limitations in lifting, and lack of understanding from superiors are major barriers to reintegration. Flexible schedules, teleworking policies, and practical support from colleagues significantly contribute to survivors' continued employment.

CONCLUSION

This study confirms that psychological distress, particularly anxiety and depression, is highly prevalent and has a systemic impact on the quality of life (QoL) of breast cancer patients. Findings indicate that over 60% of metastatic breast cancer patients experience anxiety, often fueled by fear of recurrence and a significant burden of physical symptoms.

Coping resources, both internal and interpersonal, have been shown to be crucial mediating factors in maintaining patient resilience. Digital health interventions (eHealth and mHealth) emerge as viable, affordable, and acceptable future solutions for providing ongoing support. Successful social reintegration, particularly return to work (RTW), is highly dependent on organizational support and management of treatment side effects. Side effects of hormone therapy, such as insomnia, joint pain, and cognitive impairment (brain fog), are major barriers that often lead to treatment discontinuation and decreased productivity. However, a work environment that promotes organizational fairness and schedule flexibility can protect patients from emotional vulnerability and help them recover up to 50% better than without support.

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