Evidence Based Journal of Information Science
Volume 1 Issue 1 June 2025
ISSN: 1595-6148
https://journals.kasu.edu.ng/index.php/lib

EFFECT OF A COMPUTER-BASED OREM'S SELF-CARE MODEL ON PATIENT SATISFACTION IN BREAST CANCER MANAGEMENT IN TERTIARY HOSPITALS OF KADUNA STATE

Attahir Ibrahim[1], Dalhat Sani Khalid[2], Hayat Goma[2], Abdurrahman Salihu Kombo[2], Umar Addakano Bello[2], Halima Musa Abdul[2], Kure M[1]
1-Department of Nursing Science, Kaduna State University, Kaduna-Nigeria
2-Department of Nursing Science, Ahmadu Bello University, Zaria-Nigeria

***Corresponding Author: Attahir Ibrahim,** https://orcid.org/0009-0006-2532-5305, drhaqqun@gmail.com

ABSTRACT

Patient satisfaction is a critical indicator of healthcare quality, particularly for breast cancer patients who require comprehensive and personalized care. This study assesses how the Computer-Based Orem's Self-Care Model (CBOSCM)- a computer software - influences patient satisfaction in tertiary hospitals in Kaduna State. The research compared patient experiences at Ahmadu Bello University Teaching Hospital (ABUTH), where the CBOSCM was introduced, with those at Barau Dikko Teaching Hospital (BDTH) Kaduna, which continued with conventional care methods. Patient satisfaction was assessed before and after the intervention using a standardized questionnaire. The results revealed a clear improvement in satisfaction among patients who were exposed to the computer-based software in their care with an average satisfaction score rising from 3.03 (SD = 0.374) to 3.49 (SD = 0.447). The proportion of satisfied patients also grew significantly, from 13.3% to 60%. A hypothesis test comparing satisfaction levels between the two groups produced a p-value of 0.005, confirming a statistically significant difference in satisfaction in favor of the computer-based model. It was therefore concluded that these findings emphasize the value of the CBOSCM in enhancing patient experiences, providing a more personalized, structured approach to care. The results suggest that integrating technology into nursing practice can significantly boost patient satisfaction and improve the overall quality of care.

Keywords: Breast Cancer Care, Patient Satisfaction, Computer-Based, Orem Self-Care Model, Nursing Care.

Received: March 15, 2025. Accepted: June 16, 2025
@ Author(s) 2025. Published by Kaduna State University Library

INTRODUCTION

Breast cancer remains one of the most prevalent and life-altering diseases affecting women worldwide, with significant psychological, emotional, and physical implications. In Nigeria, the burden of breast cancer is rising, with limited healthcare resources, late-stage diagnoses, and poor treatment outcomes often leading to diminished patient satisfaction and quality of life (Globocan, 2020; World Health Organization, 2021; Eze & Okafor, 2024). In tertiary hospitals across Kaduna State, challenges such as inadequate patient education, limited involvement in care decisions, and fragmented follow-up systems continue to undermine the effectiveness of breast cancer management (Rodrigues et al., 2024; Wonghongkul et al., 2008). As healthcare systems shift toward patient-centered care, there is a growing need to empower patients to take a more active role in managing their health. However, many current interventions still lack structured, evidence-based frameworks for promoting self-care among patients.

Orem's Self-Care Deficit Nursing Theory provides a strong conceptual foundation for patient empowerment and engagement in care. The model emphasizes the importance of supporting patients to meet their self-care needs, particularly in the face of chronic illnesses like cancer. Dorothea Elizabeth Orem, an American nursing theorist, postulated the Self-Care Deficit Nursing Theory (SCDNT) in the early 1970s, with the most comprehensive articulation published in 1971 under the title *Nursing: Concepts of Practice*. The theory is grounded in the belief that individuals can care for themselves to maintain health and well-being, and that nursing becomes necessary when individuals experience a deficit in their ability to meet these self-care needs. Integrating this model into computer-based interventions offers a unique opportunity to enhance communication, provide personalized health education, and support self-management. Computer-based health tools, including mobile applications and interactive digital platforms, have demonstrated promise in improving health literacy, adherence to treatment, and patient satisfaction in various settings (Gumbs, 2020; Kim & Dee, 2024). Despite these advancements, the application of computer-based Orem's Self-Care interventions remains underexplored in the context of breast cancer care in Nigerian tertiary institutions (Hohmann et al., 2020; Sussman et al., 2017).

This study seeks to address the gap in evidence by evaluating the effect of a computer-based implementation of Orem's Self-Care Model on patient satisfaction in breast cancer management within tertiary hospitals in Kaduna State. By leveraging technology, the study

Received: March 15, 2025. Accepted: June 16, 2025
@ Author(s) 2025. Published by Kaduna State University Library

aims to assess whether such interventions can enhance patients' understanding of their condition, foster active participation in their treatment process, and ultimately improve satisfaction with the care received. Findings from this research could inform the development of patient-centered digital tools tailored to the Nigerian healthcare context and guide policymakers and practitioners in enhancing cancer care delivery. The study is particularly significant in advancing the integration of nursing theories with modern technology to promote holistic and sustainable patient outcomes.

Conceptual Framework and Logic

A conceptual framework based on Orem's theory guides the intervention design. The CBOSCM software consists of modules for patient assessment, alert generation, care planning, and follow-up. Each of these corresponds to:

- Assessment Module → Identifies self-care deficits (therapeutic demand)
- Care Plan & Alert System → Supports patient needs (self-care requisites)
- Follow-up & Reminders → Enhances patient capacity (self-care agency).

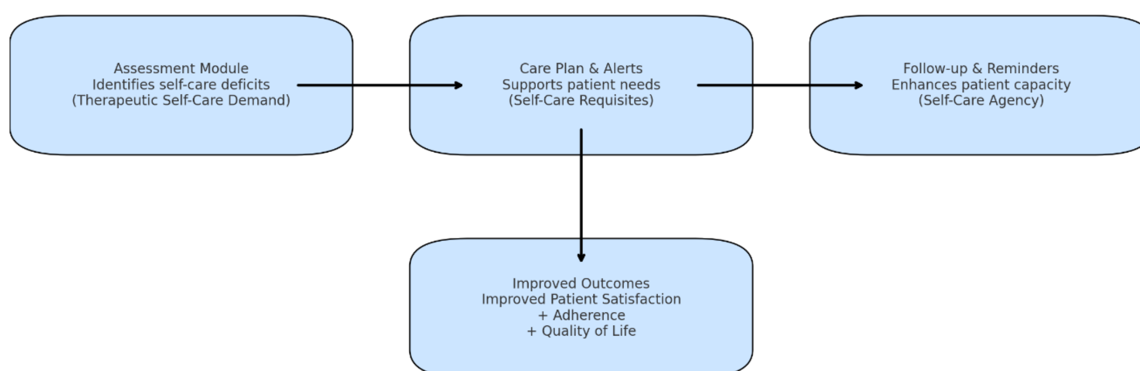

Figure 1: Visual logic model illustrating how the CBOSCM intervention components map onto Orem's theory and contribute to improved patient outcomes

The visual logic model illustrates the theoretical foundation and operational structure of the CBOSCM intervention, which is grounded in Dorothea Orem's Self-Care Deficit Nursing Theory (SCDNT). The model begins with the Assessment Module, which identifies gaps in patients' self-care abilities—corresponding to the concept of therapeutic self-care demand.

Received: March 15, 2025. Accepted: June 16, 2025
@ Author(s) 2025. Published by Kaduna State University Library

This process enables nurses to detect specific areas where patients require assistance, including physical, emotional, and informational needs related to breast cancer treatment. Based on this assessment, the Care Planning and Alert System is activated, addressing self-care requisites by offering tailored interventions such as educational resources, behavioral prompts, and clinical reminders to guide both nurses and patients in meeting identified care goals.

The final component, the Follow-up and Reminder System, is linked to self-care agency, which refers to a patient's capacity to carry out self-care activities independently. Through personalized reminders, appointment tracking, and feedback loops, this module empowers patients to engage actively in their care process, enhancing autonomy and adherence to recommended practices. Together, these interconnected modules foster a supportive digital environment where theory-informed nursing actions translate into practical, patient-centered outcomes. By integrating technology with nursing theory, the CBOSCM aims to improve patient satisfaction, promote continuity of care, and ultimately enhance the quality of life for breast cancer patients in resource-constrained settings such as Nigeria.

Statement of the Problem

Despite ongoing efforts to improve breast cancer care in the Nigerian health-care system, patient satisfaction remains suboptimal in many tertiary hospitals due to limited patient involvement, inadequate health education, and poor follow-up systems. In Kaduna State - Nigeria, these challenges are particularly pronounced, as healthcare facilities often lack structured and patient-centered approaches that support self-care and active participation in treatment. Although Orem's Self-Care Model offers a theoretical framework for enhancing patient autonomy, its practical application (especially through modern, computer-based platforms) has not been widely adopted or evaluated in this context. The absence of empirical evidence on the effectiveness of such interventions leaves a critical gap in understanding how technology-driven, theory-based care models might improve patient satisfaction in breast cancer management. This study seeks to fill that gap by assessing the impact of a computer-based implementation of Orem's Self-Care Model on patient satisfaction in tertiary hospitals in Kaduna State - Nigeria.

Received: March 15, 2025. Accepted: June 16, 2025
@ Author(s) 2025. Published by Kaduna State University Library

METHODOLOGY

This study employed a quasi-experimental, non-randomized intervention-control design to evaluate the effect of the Computer-Based Orem's Self-Care Model (CBOSCM) on patient satisfaction with nursing care among women receiving treatment for breast cancer. Nurses trained to use the CBOSCM formed the intervention group, while nurses in the control group continued with standard, routine nursing care. The primary outcome was the difference in patient satisfaction scores between the two groups. The study was conducted in two tertiary hospitals in Kaduna State, Nigeria—Ahmadu Bello University Teaching Hospital (ABUTH) and Barau Dikko Teaching Hospital (BDTH). ABUTH served as the intervention site where the CBOSCM was deployed, while BDTH functioned as the control site. Both institutions were selected based on their established oncology units and capacity to deliver comprehensive cancer care services.

Participants consisted of both nurses and female breast cancer inpatients from the surgical wards of the selected hospitals. A census sampling method was employed to include all eligible participants present during the data collection period.

- Intervention group (ABUTH): 9 trained nurses and 15 breast cancer patients.
- Control group (BDTH): 15 breast cancer patients and nurses not exposed to CBOSCM training.

While the sample size of 15 patients per group may appear small, it was determined based on feasibility, ethical considerations, and prior pilot study recommendations. However, the limitations of this small sample are acknowledged. They may affect the generalizability of the findings, but the study offers a solid groundwork for scaling and testing in larger multi-center trials.

Inclusion Criteria

- **Nurses:** Employed in the female surgical wards during the study period and available to participate in CBOSCM training and implementation.
- **Patients:** Female patients with a confirmed diagnosis of breast cancer, admitted to the surgical wards during the study period, and willing to provide informed consent.

Exclusion Criteria

- **Nurses:** Those unavailable for training or not directly involved in patient care during the study.

Received: March 15, 2025. Accepted: June 16, 2025
@ Author(s) 2025. Published by Kaduna State University Library

- **Patients:** Those unwilling to participate or those discharged before completion of the data collection process.

Instruments for Data Collection

Two set of instruments were used for data collection, these are:

1. Computer-Based Orem Self-Care Model (CBOSCM) Application

The CBOSCM is a software application developed to operationalize Orem's Self-Care Deficit Nursing Theory in digital format. It was designed and deployed on a Local Area Network (LAN) using an offline server environment (XAMPP), requiring no internet connectivity.

Content Framework

The software content was structured around the three core elements of Orem's model:

- **Basic Conditioning Factors:** Including age, health status, socio-cultural orientation, family dynamics, healthcare system factors, environmental factors, and resource availability.
- **Self-Care Agency:** Evaluated patients' cognitive and physical ability to perform self-care, including development, operability, and adequacy.
- **Self-Care Requisites:** Covered universal (basic human needs), developmental (age/life-stage specific), and health deviation (disease management) needs.

Each section was linked with standardized nursing diagnoses, interventions, and outcomes based on NANDA, NIC, and NOC classifications. The application also included features for patient data entry, clinical alerts, diagnostic highlights, and automated care plan generation using an embedded Decision Support System (DSS).

Software Features

Key modules included:

- **Login Interface:** Secure user authentication for nurses.
- **Patient Management:** Input and access to patient demographics, assessments, diagnoses, and care plans.
- **Admission Management:** Bed space assignment and admission tracking.
- **Role and User Management:** Role-based access control for secure data usage.
- **Clinical Outputs:** Real-time nursing diagnoses, structured interventions, and monitoring dashboards to support clinical decisions.

Received: March 15, 2025. Accepted: June 16, 2025
@ Author(s) 2025. Published by Kaduna State University Library

Training and Integration

Nurses at ABUTH underwent a structured one-day training session facilitated by the research team. Training components included:

- Patient data entry and assessment using the CBOSCM.
- Navigation of care planning modules.
- Application of automated diagnostic and therapeutic outputs. Support materials (manuals and a helpline) were provided, and the system was integrated into routine ward operations, replacing traditional paper-based documentation.

2. Patient Satisfaction with Nursing Care Quality Questionnaire (PSNCQQ)

Patient satisfaction with nursing care quality was measured using the *Patient Satisfaction with Nursing Care Quality Questionnaire* (PSNCQQ), an established tool originally developed by Laschinger et al. (2005). The instrument comprises 19 core items, along with three additional questions assessing overall satisfaction with care during hospitalization, the quality of nursing care, and the likelihood of recommending the hospital to others. Each item includes a signpost—a concise thematic phrase—followed by a descriptor that clarifies the specific aspect of care being evaluated (e.g., “information you were given” followed by “How clear and complete the nurses’ explanations were…”), allowing for nuanced assessment of nursing care experiences (Karaca & Durna, 2019).

The PSNCQQ utilizes a 5-point Likert scale ranging from *poor* (1) to *excellent* (5). Scoring can be approached in multiple ways: either by averaging all item responses to generate a single composite score per patient, or by analyzing item-specific means and standard deviations for more targeted feedback. Additionally, calculating the proportion of "strongly agree" responses per item offers insight into care trends over time and supports comparisons across wards or institutions. The PSNCQQ is widely recognized for its reliability and validity in evaluating quality improvement initiatives in nursing care (Karaca & Durna, 2019).

Study Procedure

The study was conducted in three distinct phases:

1. **Pre-Intervention Phase:** Baseline data on patient satisfaction were collected in both hospitals using the PSNCQQ.
2. **Intervention Phase:** Nurses at ABUTH received training and implemented CBOSCM into their routine care over a 12-week period.
3. **Post-Intervention Phase:** Follow-up patient satisfaction data were collected in both hospitals using the same questionnaire to assess changes and intervention impact.

Received: March 15, 2025. Accepted: June 16, 2025
@ Author(s) 2025. Published by Kaduna State University Library

Data Analysis

Data analysis was conducted using **IBM SPSS version 27**. Descriptive statistics (means and standard deviations) were used to summarize satisfaction scores. **Analysis of Variance (ANOVA)** was employed to compare mean differences between the intervention and control groups. A p-value of < 0.05 was considered statistically significant.

Ethical Considerations

Ethical approval was obtained from the relevant committees of ABUTH and BDTH, with approval numbers ABUTHZ/HREC/H22/2023 and BDTH/HREC/DEC/2023/142/VOL.1, respectively. Informed consent was obtained from all participants, ensuring confidentiality throughout the study.

To safeguard participant data, data protection measures were implemented. Computer systems were password-protected to prevent unauthorized access. Data were stored on a Local Area Network (LAN), using secure offline servers with restricted access. Regular backups were performed to prevent data loss, and patient names were saved using initials only. Access to the data was limited to authorized personnel involved in the research project and ward nurses. Upon study completion, all patient data were permanently deleted.

Received: March 15, 2025. Accepted: June 16, 2025
@ Author(s) 2025. Published by Kaduna State University Library

RESULT

Table 1 Distribution of patients with breast cancer according to Socio-demographic characteristics

N=15

Variables		Conventional Group Frequency	Conventional Group Percent	Computer-based Group Frequency	Computer-based Group Percent
Gender	Female	15	100	15	100
Age	18-24	-		1	7
	25-34	1	7	1	7
	35-44	4	27	4	27
	45-54	4	27	5	33
	55-64	3	20	3	20
	65 and above	3	20	1	7
Marital Status	Single	1	7	2	13
	Married	12	12	11	73
	Widowed	2	13	2	13
Educational Level	Primary School	1	7	2	13
	Secondary School	3	20	4	27
	College/Diploma	2	13	3	20
	Bachelor's Degree	5	33	5	33
	Master's Degree	2	13	1	7
	Informal	2	13	-	-
Employment status	Employed full-time	5	33	2	13
	Employed part-time	3	20	2	13
	Unemployed	2	13	5	33
	Retired	-	-	1	7
	House wife	5	33	5	33

Mean age conventional group 45.2±12.19, Mean age computer-based group 38.9±12.53

Table 1 shows that all respondents in the groups were female (100%). In the conventional group, the majority were married (80%), with the highest educational level being Bachelor's degree for 33% of participants. Additionally, 33% identified as housewives, while another 33% were fully employed. In the computer-based group, respondents were predominantly aged 39 years based on the mean age. The majority were married (73%), with the highest educational

Received: March 15, 2025. Accepted: June 16, 2025
@ Author(s) 2025. Published by Kaduna State University Library

level being a Bachelor's degree (33%). Additionally, 33% identified as housewives, and 33% were unemployed

Table 2 Patient satisfaction with their care in the groups

N=15

Variables	Mean	
	Conventional	**Computer-based**
Information you were given	2.87	3.93
Instructions	3.00	3.53
Ease of getting information	2.80	3.33
Information given by nurses	2.87	3.53
Informing family or friend	2.60	3.33
Involving family or friend in care	2.80	3.33
Concern and caring by nurses	3.20	3.53
Attention of Nurses to your condition	2.93	3.27
Recognition of your opinion	2.93	3.27
Consideration of your needs	3.07	3.27
The daily routine of the nurses	3.13	3.87
Helpfulness	2.80	3.33
Nursing Staff Response to your call	2.47	3.53
Skill and competence of nurses	3.20	3.93
Coordination of care	3.20	3.87
Restful Atmosphere provided by nurses	4.20	4.13
Privacy	3.60	3.87
Discharge Instruction	3.00	3.33
Coordination of Care after Discharge	2.80	3.00
Overall Quality of Care and Services you received in the hospital	2.93	3.60
Overall QNC	3.13	3.73

Conventional average Mean/SD= 3.03±0.374 Computer-based group average Mean/SD= 3.49±0.447

In table 2, the mean patient satisfaction score significantly increased from 3.03 (SD = 0.374) in the conventional to 3.49 (SD = 0.447) in the computer-based group.

Received: March 15, 2025. Accepted: June 16, 2025
@ Author(s) 2025. Published by Kaduna State University Library

Table 3 Level of Patient's Satisfaction with care

N=15

Level of Satisfaction		**Conventional Group**		**Computer-based Group**	
		Frequency	**Percent**	**Frequency**	**Percent**
Poor	**(<2.5)**	-		-	
Fair	**(2.5-3.4)**	13	86.7%	6	40%
Good	**(3.5-4.4)**	2	13.3%	9	60%
Excellent	**(>4.5)**	-		-	

Table 3 reveals that the level of patient satisfaction increases from 13.3% in the conventional group to 60% in the computer-based group. Showing a good level of satisfaction.

Table 4 Relationship in patient's satisfaction with nursing care within the study group

Patient Satisfaction with Nursing Care

	Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	1.565	1	1.565	9.205	**.005**
Within Groups	4.760	28	.170		
Total	6.325	29			

Level of significance = 0.05

Table 4 revealed a p-values of 0.005, which is less than 0.05, so the null hypothesis is rejected, because there is statistically significant difference in patient satisfaction with care within the study groups

Received: March 15, 2025. Accepted: June 16, 2025
@ Author(s) 2025. Published by Kaduna State University Library

DISCUSSION OF FINDINGS

The findings of this study revealed significant improvements in patient satisfaction with nursing care among breast cancer patients when using a computer-based application of Orem's Self-Care Model, compared to conventional nursing care. These results underscore the potential of integrating technological tools in nursing care to enhance patient experiences and outcomes, especially within the demanding context of cancer care.

Demographically, both groups were entirely female, reflecting the gender-specific nature of breast cancer and aligning with similar studies in oncology settings (Hawk et al., 2022). In the conventional care group, a majority of respondents were married (80%), and 33% held a Bachelor's degree, indicating a diverse range of educational and socioeconomic backgrounds. In the computer-based group, the mean age was slightly younger at 39 years, with 73% married and a similar distribution in educational attainment and employment status. These similarities in demographic composition between the groups support the comparability of the two cohorts, strengthening the validity of the findings.

In terms of patient satisfaction scores, the computer-based group exhibited a notable increase, with a mean satisfaction score of 3.49 (SD = 0.447), compared to 3.03 (SD = 0.374) in the conventional group. This increase suggests that the CBOSCM provided a structured and consistent approach to care, which may have positively impacted patients' perceptions of nursing competence, care coordination, and responsiveness. Research supports that structured care models, especially those enhanced with digital applications, improve patient engagement and satisfaction by enabling more personalized and timely interactions (Mardani et al., 2023).

The findings in Table 3 further demonstrate the impact of the CBOSCM on patient satisfaction, with satisfaction levels rising from 13.3% in the conventional group to 60% in the computer-based group. This shift suggests that patients perceived the care they received as more aligned with their needs when nurses used the CBOSCM. Studies on digital healthcare interventions consistently report increased patient satisfaction, particularly in cancer care, as these tools enhance communication, streamline care processes, and facilitate better symptom management (Al-Rahbi et al., 2022).

Table 4 revealed a statistically significant difference in patient satisfaction between the groups ($p = 0.005$), leading to the rejection of the null hypothesis. This finding confirms that the

Received: March 15, 2025. Accepted: June 16, 2025
@ Author(s) 2025. Published by Kaduna State University Library

CBOSCM significantly influenced the perceived quality of nursing care, aligning with literature that suggests digital tools grounded in theoretical nursing models can support both nurses and patients in achieving better health outcomes. Technologically enhanced self-care models help patients take active roles in managing their conditions, which can improve satisfaction and perceived control over their health journey (Triberti et al., 2019). In this study, the integration of the CBOSCM likely facilitated improved adherence to care plans, streamlined communication, and allowed nurses to provide more structured guidance on self-care practices.

The benefits of computer-based models in healthcare are well-documented, especially in chronic disease management, where patient satisfaction and quality of life often hinge on the consistency and quality of care received (Kim & Park, 2022). For breast cancer patients, who require comprehensive support, computer-based applications rooted in nursing theories like Orem's Self-Care Model offer a way to bridge gaps in care, particularly in resource-limited settings like Nigeria. This study's results align with the Nigeria National Cancer Control Plan's goals to improve cancer care quality through increased access to supportive and individualized care resources (Nigeria National Cancer Control Plan, 2019).

These findings contribute to the growing evidence supporting the integration of digital applications in nursing practice, particularly within low-resource settings. By standardizing nursing care and enabling real-time monitoring, computer-based models can address critical gaps in continuity and quality of care. Future research could explore the long-term impact of such interventions on patient outcomes and examine their scalability across different healthcare settings.

Recommendations based on the study

1. **Expand Digital Health Platforms**: Encourage broader implementation of computer-based self-care models like the CBOSCM in tertiary healthcare settings to enhance patient satisfaction and care quality for breast cancer patients.
2. **Enhance Nurse Training**: Invest in regular, comprehensive training for nurses on digital self-care models to improve their competency and confidence in using technology to support patient-centered care.

Received: March 15, 2025. Accepted: June 16, 2025
@ Author(s) 2025. Published by Kaduna State University Library

3. **Conduct Larger-Scale Studies**: Implement larger and multi-centered studies to validate the effectiveness of computer-based self-care interventions across diverse patient populations and healthcare environments.
4. **Integrate Patient Feedback Systems**: Continuously collect and analyze patient feedback on digital care models to make ongoing improvements and address emerging needs in real-time.

Usability Feedback and Future Recommendations

An evaluation of nurse feedback on CBOSCM usability, workflow integration, and perceived value is being planned as part of the next phase. Preliminary anecdotal feedback from nurses suggests the tool improved care coordination and reduced documentation errors. A formal usability study will help refine the interface and guide future scale-up.

Conclusion

In sum, this study addresses an important gap in digital nursing care in Nigeria by creating a theoretically grounded, computer-based self-care model for breast cancer patients. It offers not just an intervention, but a model of practice that aligns with national health goals, strengthens the nurse-patient partnership, and sets a precedent for digitally-enabled, theory-driven nursing care in low-resource settings. However, the limitations of this small sample are acknowledged. They may affect the generalizability of the findings, but the study offers a solid groundwork for scaling and testing in larger multi-center trials.

REFERENCES

Al-Rahbi, A., Al-Balushi, N., Al-Hinai, M., & Al-Malki, M. (2022). Patient satisfaction with the use of digital health interventions in cancer care: A systematic review. *Journal of Cancer Education, 37*(2), 345-357. https://doi.org/10.1007/s13187-021-01965-1

Edelman, C. L., & Kudzma, E. C. (2021). *Health promotion throughout the life span* (10th ed.). Elsevier.

Globocan. (2020). Breast cancer fact sheet. *International Agency for Research on Cancer*. Retrieved from https://gco.iarc.fr/today

Gumbs, J. (2020). The use of Orem's Self-Care Deficit Nursing Theory in improving care coordination among patients with chronic illnesses. *Journal of Nursing Theory and Practice, 14*(3), 234-240. https://doi.org/10.1002/jnpt.2020.45

Hawk, E., Jemal, A., & Siegel, R. L. (2022). Cancer statistics in low- and middle-income countries. *CA: A Cancer Journal for Clinicians, 72*(1), 18-27. https://doi.org/10.3322/caac.21767

Received: March 15, 2025. Accepted: June 16, 2025
@ Author(s) 2025. Published by Kaduna State University Library

Hohmann, E., & Suárez-Baquero, O. (2020). Enhancing cancer patient care coordination through digital platforms: A review of the evidence. *Cancer Nursing, 43*(4), 281-290. https://doi.org/10.1097/NCC.0000000000000714

Hyuna, S., Ferlay, J., Siegel, R. L., Laversanne, M., Soerjomataram, I., Jemal, A., & Bray, F. (2021). Global cancer statistics 2020: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA: A Cancer Journal for Clinicians, 71*(3), 209-249. https://doi.org/10.3322/caac.21660

Kim, J., & Park, S. (2022). The role of digital health interventions in managing chronic diseases: A meta-analysis of randomized trials. *Journal of Medical Internet Research, 24*(5), e30400. https://doi.org/10.2196/30400

Laschinger, H. K. S., Wong, C. A., Grau, A. L., & Eaton, S. (2005). Patient satisfaction with nursing care quality: Validation of a new instrument. *Nursing Research, 54*(2), 115-123. https://doi.org/10.1097/00006199-200503000-00007

Liao, Y., & Wang, B. (2017). An application effect study on the self-management of breast cancer patients by the establishment of the "fans" club informatization. *The Journal of Practical Nursing*, *33*(4), 241–244. https://doi.org/10.3760/CMA.J.ISSN.1672-7088.2017.04.001

Mardani, A., Bhatti, M. Z., & Younis, Z. (2023). A framework for evaluating patient satisfaction in cancer care: A focus on digital interventions. *International Journal of Medical Informatics, 173*, 104020. https://doi.org/10.1016/j.ijmedinf.2023.104020

Nasiri, M., Ghorbani, A., & Sepehri, A. (2022). The application of Orem's Self-Care Theory in chronic disease management: A systematic review. *Journal of Nursing and Health Science, 10*(2), 97-106. https://doi.org/10.2174/157340315011306106

NCCP Nigeria (2018–2022). *National Cancer Control Plan*. Federal Ministry of Health.

Nigeria National Cancer Control Plan. (2019). *Nigeria National Cancer Control Plan (2018–2022)*. Federal Ministry of Health.

Olamijulo, J. A. et al. (2023). *Mobile Health Interventions in Oncology Care in Africa: A Scoping Review*. *BMC Health Services Research*, 23(1).

Orem, D. E. (1971). *Nursing: Concepts of Practice*. McGraw-Hill.

Pelawi, M. A., & Asbi, E. A. (2024). Psychosocial Adjustment Of Breast Cancer Patients Post-Treatment Therapy and Mentoring.(Case Study of 4 Breast Cancer Patients in Sapkandara Community Medan). *Journal of Multidisciplinary Academic Business Studies*, *2*(1), 191-198.

Roy, P. S., Ahmed, M., & Sayed, S. A. (2023). Global burden of breast cancer: An update on epidemiology and prevention. *The Lancet Oncology, 24*(4), e190–e197. https://doi.org/10.1016/S1470-2045(23)30495-5

Savary, N., & Savary, N. (2020). *Studying the Effect of Training Orem's Self-Care Model on theSelf-Care Agency of Patients with Cancer*. *2*(9), 121–125. https://www.ecronicon.com/ecnh/ECNH-02-00110.php

Received: March 15, 2025. Accepted: June 16, 2025
@ Author(s) 2025. Published by Kaduna State University Library

Smith, M. C., & Parker, M. E. (2015). *Nursing Theories and Nursing Practice*. F.A. Davis Company.

Suárez-Baquero, O. A., & Walker, L. (2021). Metaparadigm of Orem's Self-Care Deficit Theory of Nursing: An application in oncology care. *Nursing Science Quarterly, 34*(1), 35-44. https://doi.org/10.1177/0894318420959081

Sung, H. et al. (2021). *Global Cancer Statistics 2020: GLOBOCAN Estimates of Incidence and Mortality Worldwide*. CA: A Cancer Journal for Clinicians. https://doi.org/10.3322/caac.21660

Sung, H., Ferlay, J., Siegel, R. L., Laversanne, M., Soerjomataram, I., Jemal, A., & Bray, F. (2021). Global cancer statistics 2020: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA: A Cancer Journal for Clinicians, 71*(3), 209-249. https://doi.org/10.3322/caac.21660

Triberti, S., Brivio, E., & Galimberti, C. (2019). The impact of health technology on quality of life and patient outcomes in oncology settings. *Psycho-Oncology, 28*(3), 362-367. https://doi.org/10.1002/pon.5000

Urtekin, D., & Akın, S. (2024). Effect of training based on Orem's self-care deficit theory on breast cancer patients' management of chemotherapy, related side effects, and self-care behaviors: A randomized controlled trial. *European Journal of Oncology Nursing*, *73*, 102698. https://doi.org/10.1016/j.ejon.2024.102698

Weldon, C. B., Trosman, J. R., Linehan, E., Gordon, N., Hennings, M., James, H., Abbe, T., Katzel, J. A., Ng, C., Tomita, M., Velotta, J. B., Sakoda, L. C., Beringer, K., Ravelo, A., Zhu, Z., Rapkin, B., & Liu, R. (2023). Intervention to improve patient self-management and satisfaction in breast and lung cancers using the 4R Oncology model: Results by cancer, race and deprivation index. *JCO Oncology Practice*. https://doi.org/10.1200/op.2023.19.11_suppl.326

WHO (2021). *Global Strategy on Digital Health 2020–2025*. https://www.who.int/publications/i/item/9789240020924

World Health Organization. (2021). *Cancer* [Fact sheet]. https://www.who.int/news-room/fact-sheets/detail/cancer

Received: March 15, 2025. Accepted: June 16, 2025
@ Author(s) 2025. Published by Kaduna State University Library