
SYMPTOMS AND TREATMENT-RELATED KNOWLEDGE OF CANCER PATIENTS RECEIVING CHEMOTHERAPY

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ABSTRACT

This study aims to investigate the existing level of knowledge regarding the symptoms, side effects, and treatment plans of cancer patients undergoing chemotherapy. Addressing gaps in literature and enhancing patient education can significantly improve outcomes and reduce cancer-related mortality and morbidity worldwide. Several search engines, including PubMed, CINHAAL, Science Direct, Research Gate, and Google Scholar, were used to conduct a comprehensive and broad literature evaluation. Each database was searched using keywords for "Knowledge OR Health Literacy OR Health Education OR Patient Knowledge AND Chemotherapy OR Symptoms OR Treatment Plan", resulting in the inclusion of 20 relevant articles for the study. The results highlighted the major challenges faced by patients undergoing chemotherapy and the severity of their symptoms, emphasizing the need for improved management strategies. Moreover, there are notable gaps in patient knowledge about chemotherapy and its side effects, underscoring the importance of targeted education programs and strengthened communication between healthcare providers and patients for better outcomes. Knowledge about the symptoms and treatment of cancer patients undergoing chemotherapy is an essential component for better survival and for reducing suffering. It is important to identify patients' knowledge about chemotherapy so that they can receive health education tailored to the needs, capabilities, and preferences of each individual patient.

Keywords: Knowledge of Symptoms and Treatment, Inadequate Knowledge of Cancer Patients, Quality of Life.

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INTRODUCTION

In recent years, cancer has emerged as the leading cause of mortality and morbidity worldwide, highlighting the urgent need for effective management strategies. It continues to pose a significant challenge to global public health, with its prevalence steadily rising as the population ages and high-risk behaviors become more common (Bakhiet et al., 2021). Furthermore, it is imperative to prioritize patient education regarding symptoms, treatment options, and potential side effects. This aspect of care plays a pivotal role in empowering patients to actively participate in their treatment journey, make informed decisions, and effectively manage any challenges that may arise during their course of treatment.

Recent research findings indicate that providing comprehensive education to cancer patients regarding their symptoms and the trajectory of their disease can lead to notable reductions in both pain severity and catastrophizing tendencies. This suggests that empowering patients with knowledge about their condition not only enhances their understanding but also positively influences their perception and management of pain (González-Martín, et al., 2023).

According to the World Health Organization, nearly 10 million deaths were reported in the year 2020 globally, meaning one out of six persons having cancer would die. The World Health

Organization estimated that by 2035, there would be at least 24 million additional cancer diagnoses. This data suggests that the mortality ratio is steadily rising, which is increasing the burden of the disease worldwide (Organization, 2022).

The knowledge about cancer and its management helps in adjusting the resource allocation in terms of public health policy. This escalating trend emphasizes the critical importance of enhancing our understanding of cancer symptoms and treatment-related knowledge among patients, particularly those undergoing chemotherapy.

Patient education plays a pivotal role in empowering individuals to navigate their cancer journey by providing them with essential information about symptoms, treatment options, and potential side effects. Chemotherapy, a cornerstone of cancer treatment, often comes with a range of side effects that can impact patients' quality of life and treatment adherence (Katta, Vijayakumar, Dutta, Dubashi, & Ramakrishnaiah, 2023). Thus, it is crucial for patients to be well-informed about what to expect during chemotherapy, how to manage side effects, and when to seek medical assistance. However, studies have shown that many cancer patients lack comprehensive knowledge about their disease and treatment, which can lead to increased anxiety, uncertainty, and suboptimal treatment outcomes (Derry, Reid, & Prigerson, 2019).

Despite the growing recognition of the importance of patient education in cancer care, there are notable gaps in the existing literature regarding symptoms and treatment-related knowledge among cancer patients receiving chemotherapy. Existing literature tends to focus on specific cancer types or treatment modalities, which may limit the generalizability of findings across diverse patient populations. Additionally, there is a lack of research examining the impact of socioeconomic factors, health literacy levels, and cultural beliefs on patients' understanding of their disease and treatment. Moreover, the effectiveness of different educational interventions and strategies in improving patient knowledge and outcomes remains inadequately explored.

By addressing gaps in knowledge and promoting informed decision-making, this research aims to contribute to improved patient outcomes, resource allocation in public health policy, and ultimately, the reduction of cancer-related mortality and morbidity on a global scale. Specifically, this study seeks to investigate the current level of symptoms and treatment-related knowledge among cancer patients undergoing chemotherapy, identify any deficiencies, and explore strategies to enhance patient education in this critical aspect of cancer care.

The findings of this research are expected to have several implications for clinical practice and healthcare policy. Firstly, by identifying areas of knowledge deficits among cancer patients, healthcare providers can tailor educational interventions to meet the specific needs of patients undergoing chemotherapy. Additionally, insights gained from this study can inform the development of educational materials, support programs, and communication strategies aimed at improving patient education and empowerment throughout the cancer care continuum. Ultimately, the dissemination of accurate and accessible information about cancer symptoms and treatment can help alleviate patient anxiety, enhance treatment adherence, and improve overall quality of life for individuals living with cancer.

METHOD

The study aimed to evaluate the need for health education and knowledge about symptoms and treatment among cancer patients undergoing chemotherapy.

Search Strategy

Several search engines, including PubMed, CINHAAL, Science Direct, Research Gate, and Google Scholar, were used to conduct a complete and broad literature evaluation. Each database was searched by using keywords for "Knowledge OR Health Literacy OR Health Education OR Patient Knowledge AND Chemotherapy OR Symptoms OR Treatment Plan". In the PubMed database, 1,815 hits were obtained by using these keywords. Chemotherapy OR Cancer Patients AND Nursing showed 1,570 results, and Inadequate Knowledge OR Cancer Patients AND Chemotherapy showed 442 results. Whereas, in the CINHAAL database, 2,093 hits were obtained for "Knowledge OR Health Education OR Knowledge Deficit AND Chemotherapy OR Side Effects OR Treatment Plan". Moreover, 1,801 hits were obtained for "Inadequate Patient Knowledge AND Chemotherapy OR Symptoms". Additional materials were found by screening the cumulative index of the original articles (Refer to PRISMA presented in Figure 1 for the literature search strategy).

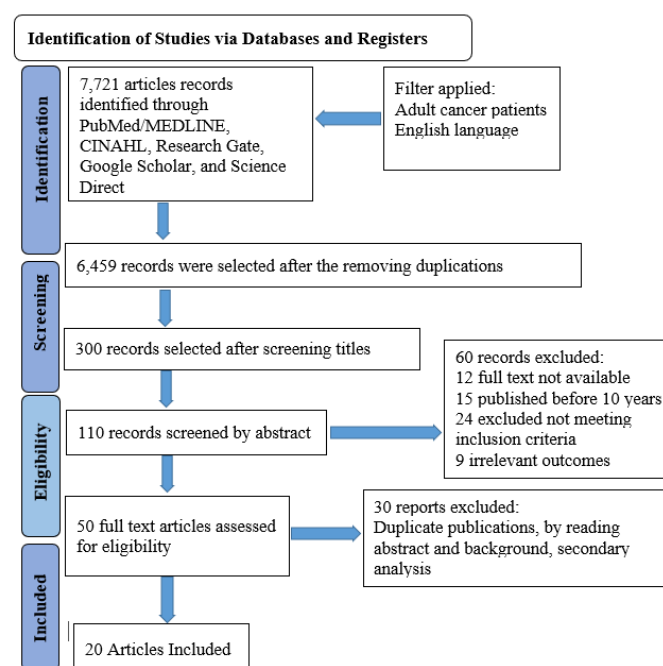


Figure 1. Literature Search Strategy (PRISMA)

After analyzing the literature of knowledge about the symptoms and treatment of cancer patients, undergoing chemotherapy is an essential component for better survival and for reducing suffering. It is necessary to identify patients' knowledge regarding chemotherapy so that they can receive health education tailored to the needs, capabilities, and preferences of individual patients.

The full-text publications from recent and concentrated literature of 5-10 years were selected, from which few relevant articles were picked after evaluating the title and abstract page; duplicate articles were eliminated after carefully analyzing the searched literature. A total of 20 articles, altogether, were used to synthesize the literature for the study. Information about the study title,

authors, year, and purpose of publication, study design, sample size, and key findings are presented in Table 1.

Table 1 Articles synthesized for literature review

Author's Name and Year of Publication	Purpose of the Study	Study Design	Sample Size	Key Findings
Petronella et al., (2022)	This systematic review aims to summarize all the studies and evaluate patient preferences for different types of oncology treatment outcomes.	Systematic Review	133	1. Older cancer patients prioritized quality of life over survival outcomes. QoL was identified as a key treatment outcome by most of the patients in the studies reviewed. 2. Patient preferences for treatment may be influenced by factors such as age, gender, cancer type, and comorbidities. 3. Patients preferred to be informed about treatment options, potential benefits and risks and to be involved in the decision-making process. 4. Patient-centred care that addresses the holistic needs of older cancer patients may lead to improved treatment outcomes and quality of life.
(Sivakumar & Susila, 2021)	This study evaluated the effectiveness of self-care interventions on knowledge and performance status in chemotherapy-treated cancer patients.	Quasi-experimental study	200	1. Self-care interventions can improve cancer patients' knowledge as well as their ability to manage symptoms. 2. Self-efficacy, or the acceptance of one's ability to accomplish self-care behaviours, can be enhanced through self-care interventions. 3. Self-care interventions may lead to improvements in cancer patient's physical functioning, emotional comfort, and overall QoL.
("Assessment of Patients' Knowledge in Managing Side Effects of Chemotherapy: Case of King Abdul-Aziz University Hospital," 2020)	The purpose of this study was to evaluate cancer patients' general knowledge about side effects and symptoms, as well as their understanding of how to manage side effects.	Observational cross-sectional study	90	The findings indicated that cancer patients had a good level of knowledge of chemotherapy side effects. Additionally, around a third of the patients adhered well to their chemotherapy regimen. Patients' awareness of chemotherapy and QoL is likely to improve as a result of healthcare providers' involvement in chemotherapy education.

Author's Name and Year of Publication	Purpose of the Study	Study Design	Sample Size	Key Findings
(Gautam et al., 2022)	This study evaluated the incidence, severity, and symptoms among cancer patients receiving chemotherapy, as well as their predictors.	Analytical cross-sectional study	233	The study highlighted the importance of regular symptom assessment and management in cancer care, as well as the need for improved communication between patients and healthcare providers.
(Vidhya et al., 2022)	This study aimed to evaluate cancer patients' knowledge, attitudes, and beliefs.	Descriptive cross-sectional study	156	The attitudes of cancer patients need to be changed, and they need to be made more aware of the warning indications of cancer.
(Lavdaniti, 2015)	This study looked at the incidence, seriousness, and distress of side effects brought on by chemotherapy in cancer patients.	Descriptive and non-experimental	200	The findings of this study revealed that a variety of symptoms are very common and extremely severe in cancer patients receiving chemotherapy. In order to alleviate suffering and enhance patients' QoL, nurses should consider these findings while making care plans and interventions.
(El-Kass et al., 2021)	To evaluate the requirements and effectiveness of self-care for cancer patients who are experiencing chemotherapeutic side effects.	Descriptive cross-sectional design	150	According to the study, almost half of the patients had an inadequate understanding of cancer, chemotherapy, and the effectiveness of self-care for symptoms like appetite loss, nausea, vomiting, bleeding, exhaustion, hair loss, and dry skin. However, they were effective at taking care of themselves when they had diarrhoea or constipation.
(Arunachalam et al., 2021)	The study looked into the relationship between self-care skills and the capability of chemotherapy survivors to manage their side effects.	Cross-sectional, descriptive study.	100	The study's findings showed that better self-care techniques for coping with chemotherapy side effects among cancer survivors would result from more awareness of the drug's negative consequences.
(Sehgal, 2020)	The study's objective was to evaluate how well PTP improved cancer patients' knowledge and attitudes about side effect treatment and prevention.	Pre-experimental design	35	1. Following the intended teaching program, there was a considerable improvement in patients' knowledge scores about the prevention and management of chemotherapy side effects.

Author's Name and Year of Publication	Purpose of the Study	Study Design	Sample Size	Key Findings
				2. Following the intended teaching program, there was a considerable improvement in the attitude scores of patients toward the management and prevention of chemotherapeutic side effects.
(Berger et al., 2018)	The study's goal was to determine whether cancer patients' perceptions of and satisfaction with the information were related to their level of knowledge about their condition and treatment.	Prospective, longitudinal study	98	The patients with the highest baseline knowledge scores also had daily internet access and paid work. The average knowledge score greatly increased. The patients stated on the INFO25 throughout the same time frame that they had received significantly more information overall and that they were happier with it.
Moghazy, N. A. E., Hafez, G. E. S., & Ibrahim, A. M. (2020)	The goal of the study was to assess the impact of self-care routines and an education program on reducing the side effects and improving QoL for patients with stomach cancer who are receiving chemotherapy.	Quasi-experimental design	50	There was a statistically significant disparity and improvement in the patient's overall knowledge, side effects, and self-care practices.
(D'Souza et al., 2016)	The purpose of the study was to identify the Cancer sufferers' coping mechanisms for the physical and emotional side effects of chemotherapy.	Mixed methods	30	Medication, rest, and distraction were the three main coping mechanisms for physical issues. Patients will ultimately be helped in living with this terrible condition if they receive adequate medical care supported by effective coping mechanisms for dealing with their physical issues, sadness, and anxiety.
(Ayalew et al., 2022)	The study's goal is to assess the knowledge and behaviour of women receiving chemotherapy for breast cancer.	Cross-sectional Study	264	According to the survey, almost half of the participants lacked expertise, and more than half had negative experiences. Therefore, healthcare professionals should inform their patients about chemotherapy and teach them how to handle any potential adverse effects.

Author's Name and Year of Publication	Purpose of the Study	Study Design	Sample Size	Key Findings
(Silva et al., 2017)	To determine whether patients with abdominal cancer require information.	Cross-sectional study	100	The quantity of information obtained was seen well by the patients. With an average score of over 80%, the questions about the disease, exams, therapy, and general knowledge stood out. However, less than 40% of respondents were satisfied with the amount of information for some items, indicating discontent.
Rani, U. R. (2021).	This study's objective is to evaluate cancer patients' perceptions of the side effects of chemotherapy.	Descriptive study cross-sectional study	84	The most unsettling side effects of chemotherapy were physical problems.
(Parker et al., 2020)	The purpose of this study was to describe the effect of demographics and health literacy on women with breast cancer who are receiving chemotherapy.	Descriptive exploratory design	46	This study brought attention to the importance of taking patients' characteristics, like marital status and income, as well as their level of health literacy, into account when teaching chemotherapy.
(Christiansen et al., 2023)	The literature on cancer education and assessment methodologies in LMICs was summarized in this systematic review, which also identified best practices and pointed out areas that need more research.	Systematic Review	77	There is inadequate empirical research on cancer patient education in LMICs.
(Holden et al., 2021)	The objectives of this research were to determine which outcomes are related to health literacy in cancer patients and to combine this information with the patient experience as it was expressed in qualitative studies.	Mixed studies systematic review	97	Lower health literacy was linked to the worsened quality of life and care experiences, as well as increased difficulties in tying together, comprehending, and processing information relevant to cancer. Participants' information processing and care decision-making were influenced by their own experiences and the circumstances in which they found themselves.

Author's Name and Year of Publication	Purpose of the Study	Study Design	Sample Size	Key Findings
(Magalhães et al., 2020)	The goal of this study was to compile data on how cancer patients self-managed symptoms brought on by chemotherapy.	A systematic review and thematic synthesis	336	Diverse patient experiences with disease and self-management symptoms necessitate individualized nursing care, personal drive, and positive perspectives on chemotherapy-related side effects.
(Liu et al., 2021)	The objectives of this study were to (a) investigate how patients experienced chemotherapy, (b) identify patients' coping mechanisms for dealing with discomfort and side effects, and (c) investigate the relationship between patients' experiences and coping mechanisms.	A systematic review of qualitative research	184	The study found that they experience emotional distress, physical side effects, and a need for social support. Coping strategies, information needs, and treatment decision-making were also highlighted as important aspects of their experiences.

RESULTS AND DISCUSSION

Problems Faced by Cancer Patients Undergoing Chemotherapy

When cancer patients are undergoing chemotherapy, they confront a variety of issues. These problems include adverse effects of chemotherapy, which impact individuals' physiological, social, spiritual, and psychological functioning (Rani, 2021). The common side effects that impact physically are fatigue, weight loss, nausea, vomiting, diarrhoea, sleep disturbance, alopecia, mucositis, febrile neutropenia, myelosuppression, electrolytes imbalance, peripheral neuropathy, extravasation, cardiac toxicity (Magalhães et al., 2020).

A descriptive and non-experimental study was conducted in Northern Greece to assess the symptoms of cancer patients undergoing chemotherapy (n=200). The author found that the symptoms of cancer patients undergoing chemotherapy were fatigue, nausea, pain, and sleep disturbance. The severity of these symptoms varied significantly across patients, with some experiencing mild symptoms while others experienced severe symptoms. The study provides valuable insights into the symptoms that cancer patients who are receiving chemotherapy endure. It highlights the need for healthcare professionals to carefully monitor and manage these symptoms to improve patients' QoL (Lavdaniti, 2015).

A cross-sectional study examined the symptoms of cancer patients in Nepal in 2022 (n=233). The results of the study highlighted the significance of regular symptom assessment and management in cancer care, as well as the need for improved communication between patients and healthcare providers. Moreover, knowledge about symptoms and treatment, as recounted by cancer patients throughout and after their treatment, would be helpful for the HCP to plan and adapt the

strategies for the treatment. Therefore, nurses should plan interventions in order to relieve these symptoms, thereby enhancing cancer patients' QoL (Gautam et al., 2022).

Cancer Patients QoL

Chemotherapy has long-term effects on one's quality of life, too (Haryana et al., 2018). Quality of life refers to an individual's overall sense of well-being, which includes physical, emotional, social, and spiritual dimensions. For cancer patients, their quality of life can be significantly impacted by their diagnosis and treatment. Furthermore, QoL is dependent on symptom management and cancer patients' needs, so it is an important metric for evaluating cancer patient treatment survival and efficacy (Jurys et al., 2022).

A quasi-experimental study conducted in Egypt in 2020 revealed the efficiency of self-care practices and teaching programs in alleviating chemotherapy adverse effects and enhancing the QoL for patients. This program was designed to educate patients with cancer about self-care practices to manage chemotherapy's adverse effects and to improve their QoL. The program consisted of several phases, and the patient's total knowledge was expected to increase progressively throughout these phases (Abd et al. et al., 2020).

Phase 1

Pre-education Assessment. In this phase, the patient's baseline knowledge about self-care practices, chemotherapy side effects, and QoL is assessed through surveys, questionnaires, or interviews. This helps establish the starting point of their knowledge and identifies areas that need improvement.

Phase 2

Educational Intervention. During this phase, patients receive education on self-care practices through various methods, such as individual counselling, group sessions, written materials, or multimedia presentations. The education may cover topics such as managing chemotherapy side effects, maintaining nutrition, hygiene, emotional well-being, and improving the overall quality of life.

Phase 3

Post-education Assessment. After completing the educational intervention, patients' knowledge is assessed again to measure the effectiveness of the program. This may involve repeating the surveys, self-reported chemotherapy adverse effects questionnaires, or interviews and questionnaires to measure patients' QoL as used in the pre-education assessment to compare the results and evaluate the changes in the patient's knowledge.

Phase 4

Follow-up. Some self-care practice education programs may be included in a follow-up phase where patients are monitored over time to reinforce the learned knowledge and skills, address any concerns, and provide additional support if needed.

Throughout these phases, the patients' total knowledge about self-care practices, chemotherapy effects, and QoL is expected to improve. Patients should gain a better understanding of how to manage chemotherapy side effects, maintain their health, and improve their overall well-being.

Inadequate Patient Knowledge

A pre-experimental study conducted in India reported that over 75-80% of the population is in the advanced stages of the disease (stages third or fourth) at the initial diagnosis. This is due to a need for knowledge, screening programs, financial concerns, and the disease's stigma. The findings of this study showed that in patients who followed the intended teaching program, there was a significant improvement in the knowledge scores about the prevention and management of side effects (Sehgal, 2020).

One more cross-sectional study conducted in Ethiopia in 2021 found that a majority of the women surveyed had poor knowledge about breast cancer and chemotherapy. They had low awareness of the signs and symptoms of breast cancer and had limited knowledge about the side effects of chemotherapy. This study also found that the women faced several challenges while receiving chemotherapy, such as the duration of the hospital's commute, insufficient information provided by healthcare providers, and limited access to support services. However, despite these challenges, the majority of the women reported a high level of satisfaction with their overall cancer care. The results of this study concluded that there was a need to improve patient education and support services for women with breast cancer receiving chemotherapy in Ethiopia. The outcome of this study can inform the progress of targeted interventions aimed at improving patient knowledge, experience, and satisfaction with cancer care (Ayalew et al., 2022).

Additionally, the responsibility of nurses in providing the information is another prevalent challenge in situations where there is a heavy workload, time constraints, limited teaching materials, and a uniform approach to patient education, which means that the same protocols for educating patients should be followed within the hospitals. These are the reasons nurses are reportedly unable to finish patient education timely.

A quantitative descriptive cross-sectional study conducted in Indonesia (n=84) highlights that patients with inappropriate and deficient knowledge related to chemotherapy have ended up with deprived symptom management, increased anxiety levels, and are unable to cope (Indra & Saputra, 2021). Additionally, the patient reported that the following physical side effects of chemotherapy were particularly upsetting: vomiting (29.8%), loss of appetite (28.6%), weight loss (27.4%), headache (16.7%), and fever (15.5%). While anxiety (14.3%) and dread of death (15.5%) were perceived as non-physical side effects, they did influence work and household responsibilities.

One more key concern related to information sharing is the patient's ability to assimilate information and the feelings of being overburdened. It has been noted that patient teaching materials are written in a very challenging language that is beyond the functional literacy of the average patient (Jivraj et al., 2018). Moreover, a cross-sectional study conducted in Gaza highlighted that statistically, there were relevant discrepancies between the patients, knowledge and their social and physical needs with the value of $P \leq 0.001$. The results revealed that almost half of the studied participants had deprived knowledge of chemotherapy and self-care (El-Kass et al., 2021).

A cross-sectional study conducted at the Al India Institute of Medical Sciences in 2022 showed that the majority of the participants had a good understanding of cancer as a disease. However, there were some misconceptions and knowledge gaps regarding the causes and risk factors of cancer. For example, some participants believed that cancer was caused by eating spicy or oily food or by using mobile phones. The study also found that cultural and social factors influenced the

attitudes and beliefs of cancer patients. Many participants expressed fear, anxiety, and stigmatization related to their cancer diagnosis. Some participants also believed that cancer was a punishment from God or that it was incurable, leading to fatalistic attitudes toward the disease. (Vidhya et al., 2022).

The study also highlighted the need for education and awareness campaigns to improve the understanding of cancer and its causes among the general public. Also, it emphasized the importance of addressing cultural and social factors that affect the attitudes and beliefs of cancer patients and the need for psychological support and counselling services to address the emotional impact of cancer diagnosis and treatment.

According to a descriptive exploratory study conducted at the University of South Carolina to address the factors affecting knowledge about chemotherapy, knowledge is influenced by several factors, including the patient's age, education level, race, and cancer stage. Younger patients and those with higher education levels tend to have higher levels of chemotherapy knowledge. In comparison, older patients and those with lower education levels may have lower levels of knowledge. Patients with earlier-stage cancer tend to have higher knowledge levels about chemotherapy compared to those with advanced-stage cancer (Parker et al., 2020).

In a prospective longitudinal study carried out at a cancer hospital in Norway in 2018, it was reported that the mean knowledge score of cancer patients increased significantly from baseline to the completion of treatment and then remained stable at the follow-up assessment. The researchers noted that this pattern was observed across all cancer types and treatment modalities. Additionally, the results of their analysis of the factors associated with higher levels of knowledge, like younger age, higher education, and high income, were all significantly associated with higher levels of knowledge, and patients who reported better communication with healthcare professionals had higher levels of knowledge (Berger et al., 2018).

Self-care Measures on Knowledge

Self-care interventions can improve cancer patients' knowledge about their diagnosis and treatment options, as well as their capability to manage symptoms, warning signs, and side effects. Self-efficacy and self-care behaviours can be enhanced through self-care interventions. These interventions may lead to improvements in cancer patients, physical functioning, emotional well-being, and overall quality of life (Sivakumar & Susila, 2021). A cross-sectional study conducted in 2021 revealed that 71% of the participants with low socioeconomic background and low educational status had an association with a lack of knowledge related to chemotherapy and its adverse effects (Arunachalam et al., 2021). Likewise, the participants' self-care practices were found to be significantly and favourably linked with their knowledge of chemotherapy, disease, and the treatment plan. Additionally, self-care practices refer to the activities of daily living, engaging with families and communities to improve and preserve health, but patients going through chemotherapy may modify their self-care practices to fulfil their bodily and psychological needs.

A quasi-experimental study was carried out in the Dr. Kamatchi Memorial Hospital, India, to explore the efficacy of self-care measures on knowledge of cancers. The study used a purposive sampling technique with n=200 patients, and the types of cancer that patients were suffering from were breast, buccal mucosa, oesophagus, gastric, and rectal cancer. The study findings showed that there was sufficient knowledge (95%) about self-care techniques. The variance between the post-

knowledge scores in the experimental and control groups was significant, at $P < 0.001$. Most patients reported having high levels of self-efficacy ($P < 0.001$). The performance level shows a high degree of performance status, self-efficacy, and knowledge (Sivakumar & Susila, 2021).

Knowledge Gap

Patient education is still increasingly challenged due to inadequate health literacy, lack of adherence, and non-compliance. [16] Hence, developing culturally relevant and tailored programs for healthcare personnel, cancer patients, and their families increases their understanding of patients and families and enhances application/ transformation in nursing practice.

An observational study conducted at the University Hospital Jeddah in 2019 included 90 participants, of whom 63% were female, and the patients' mean age was 47.5 years. The study found that 64.7% of the patients had inadequate knowledge about chemotherapy side effects and their management. The majority of the patients did not know the correct time to take their medications and how to cope with their side effects. However, patients who received education on chemotherapy side effects from healthcare providers had a higher level of knowledge than those who did not ("Assessment of Patients' Knowledge in Managing Side Effects of Chemotherapy: Case of King Abdul-Aziz University Hospital," 2020). To further work on these concerns, nurses, with institutional collaboration, can conduct patient teaching programs particularly linked to chemotherapy. This program content should be wider and cover the type of chemotherapy the patient is receiving, the number of cycles, management of adverse effects, and self-care practices to promote the QoL. After the session, patients and their families should be asked open-ended questions to explain any misconceptions they may have (Jivraj et al., 2018).

Similarly, nurses must actively teach patients and caregivers about the significance of self-evaluation, prompt intervention, warning signs, and safety measures to take in the event of life-threatening emergencies. Sometimes, patients do not report their side effects because they feel that by reporting their side effects, their treatment will be discontinued (Olver et al., 2018).

A cross-sectional investigation was conducted at the National Cancer Institute of Brazil in 2017 ($n=100$), evaluating the accuracy of the information provided to surgical patients with abdominal cancer. Their research revealed that more than 80% of participants expressed greater levels of satisfaction with the information patients have received (satisfaction levels of more than 40%), particularly information pertaining to the disease, various settings of care, and aspects of self-help (Guimarães et al. et al., 2017).

Communication skills among HealthCare Personnel are becoming increasingly essential in managing the issues within the healthcare system. Patients with cancer particularly require supportive and compassionate relationships with their HCPs because cancer treatment frequently impairs their quality of life (Prip et al., 2018). Healthcare professionals should promote self-care awareness and education programs linked to cancer awareness, treatments, decision-making ability, adverse effects, and complications to advance patients' quality of life and assist them in coping with the illness and achieving their intended health outcomes.

CONCLUSION

After analyzing the literature from previous studies, four themes were identified. "Problems faced by cancer patients undergoing chemotherapy," "Cancer patient's quality of life," "Inadequate patient knowledge", and "Self-care measures on knowledge." These themes help to identify the knowledge gap among cancer patients and also to improve the standard of life for oncology patients receiving chemotherapy.

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