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Review Article

The current developments in oncology nursing: A review

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ABSTRACT

Cancer has become one of the major causes of death in the growing world population affecting people irrespective of their age, sex, and culture. Cancer diagnosis and therapy is a distressing procedure and affects the physical, emotional, and mental well-being of the patient. Many studies have reported that cancer has a long-term impact on patient's lives leading to mood dysfunction, heart problems, and chemotherapy toxicity. Modern-day healthcare systems are moving towards a patient-oriented approach and are designed around the patient's well-being, needs, and preferences. Oncology nurses form the fundamental part of this system and provide the patient with the much-needed care, support, and hope for life. Oncology nursing has developed and evolved briefly in the recent few decades due to the advancement in treatment procedures. As cancer care continues to progress, nurses play a vital role in the field of oncology. The specialized oncology nurses are providing clinical care, or as nurse researchers leading revolutionary oncology research. The future of oncology nursing is optimistic. Nursing care for cancer patients not only needs guiding through medication and treatment but also offers encouragement and motivation to the patients. The present review provides an insight into the nursing care of cancer patients, its brief history, advancements, and the current practices of oncology nursing. Future prospects of oncology nursing have also been discussed in detail.

KEY WORDS: Cancer, Healthcare, Oncology, Nursing care, Patients.

INTRODUCTION

Diagnosis of cancer is a major life event of a person's life that disrupts the lives of the patient and its loved ones. As cancer is assumed to be a life-threatening and dreadful disease due to this a fear is associated with it in the minds of people. However, the rising number of cancer cases worldwide is a growing cause of concern. Cancer not only affects the socio-economic structure of the society but also hampers the mental and emotional well-being of the patient. ^[1] According to a survey, cancer affects around 18 million people around the world and causes a mortality rate of 9.6 million persons. ^[2] In the next ten years, the death rate due to cancer is assumed to reach 13million. ^[2,3] Cancer takes much time from diagnosis to treatment and causes detrimental effects on the body also affecting the psychological and social status of the patient ^[4, 5]. Most of the time this period is shared between the patient, healthcare professionals, and nurses. Nurses play a significant role in providing both care and support to patients. ^[6] Recently, modern healthcare systems have come-up with a more patient-centric approach as compared to previous years. ^[7, 8] The plan of care is prepared according to the patient's physiology, needs, values, and preferences. In the patient-centered care approach, patients are actively taken care of by the caregivers. ^[9]

Oncology nursing has evolved enormously over the last decade as cancer has become one of the leading causes of death globally patients. Oncology nursing provides support to cancer patients in various forms like individualized/holistic care, family-centered care, self-determination, navigating the system, coordinated continuous care. ^[10, 11, 12] Many studies have shown that relational nursing leadership is significantly related to improved outcomes for patient care and patients. ^[13, 14] Many oncology nursing

societies offer support to the nurses in their roles to provide the best care, education, and support for those living with cancer and their families. ^[12] Oncology nursing is the fundamental need of cancer patients. ^[15, 16]

Patient-nurse partnership in nursing care is a vital part of patient-centered care, in which patients and nurses work together on decisions about daily life and care. ^[17] Although oncology nursing is an essential part of cancer patients' lives still their presence is non-existent to the patient and its family members. ^[18] Many times the complexity of healthcare systems increases the distance between patients and nurses. ^[19] In nursing care, oncology nurses play an intricate role in enhancing the quality of life (QOL) of their patients from cancer diagnosis to beyond treatment. Nurses play a distinctive role to influence both the physiologic and psychological well-being of their patients, Also, helping cancer survivors to cope with the immensity of their experience and its resulting impact on their lives. ^[20] Oncology nurses care independently and collectively to attend to different patient needs such as pain, fatigue, depression, family coping, long-term treatment, and numerous other areas about survivorship. ^[21, 22] Majority of cancer patients are diagnosed with clinical depression. It is now imperative that health care professionals and oncology nurses develop a new perspective for caregiving to cancer patients. This review highlights the shreds of evidence of oncology nursing care for cancer patients, recent advancements, and current practices in oncology nursing.

LITERATURE REVIEW

Nursing as an occupation is dedicated to the care of patients and families during health and illness and across all settings of care. Nurses generally evaluate and plan to address the multidimensional spectrum of needs for those faced with cancer. Nurses have been innately involved in efforts concentrated on cancer prevention. They also are pivotal in the emerging area of clinical genetics for the prevention and early detection of cancer.

The foundation of oncology nursing is based on the core awareness of detection, diagnosis, caregiving and targeted therapy of cancer patients. ^[23] Around 60 years ago oncology nurses emerged as a necessity for cancer patients that must be specially trained rather than educated with basic nursing knowledge. ^[24] In the 1940's oncology nurses worked as primary caregivers assisting the doctors and serving the healthcare needs of the cancer patients. ^[25] Without proper training and knowledge about the treatment procedures, earlier oncology nurses worked only for symptom management of cancer patients. Nurses often had to use resourceful methods for assisting patients with chemotherapy burns and pain. Later in the earlier 20th century when chemotherapy was introduced as the standard treatment option for cancer patients oncology nursing was regarded as hazardous and undesirable due to the frequent exposure to radiation therapies and their harmful effects. ^[26] However, in the late 1950s oncology nursing became validated and desirable when the impact of cancer was observed in society and many cases of cancer were reported. ^[27]

Since the foundation of the Oncology Nursing Society (ONS) in 1975 special priority has been given to the education and training of oncology nurses. ^[25] The Oncology Nursing Society (ONS) is a professional organization majorly conducting awareness of survivorship concerns and providing extensive education to special practicing nurses. ^[28] The Oncology Certification Corporation was established in 1985 and it

provided varying dimensions to oncology nursing beyond the basic nursing practices.^[23] With the advent of the 21st century, nursing roles advanced briefly due to the introduction of innovative treatment procedures and therapies.^[24] The future work nature of oncology nurses will be based on the scientific advancements in the field of oncology. Molecular and gene therapies will form the major lead in the treatment process.^[29]

Oncology Nursing- a perspective

Cancer is a dreadful disease so early detection and treatment applications are of utmost importance.^[30] Nurses are the primary caregivers and perform competently as patient navigators through the journey of cancer care to link the patient to local health systems and provide better caregiving. Oncology nurses are involved in many roles throughout a patients' cancer experience. Specialized oncology nursing is well versed with the knowledge of cancer and cancer risk factors, signs, and symptoms.^[31] They are well trained to work in different setups like cancer care centers, Cancer rehabilitation centers, ambulatory services, Community health centers (**Figure 1**). Oncology nurses also execute the task to explain and raise awareness of patients for further diagnosis and treatment procedures.^[32] The patient and health professional relationship and communication is the most important factor in supporting and facilitating the patients' ability to cope with cancer in everyday life. Therefore, there is a need to do more research in this area to study the interaction and intervention of oncology nurses for effectively supporting patients while undergoing treatment in an outpatient clinic.^[33]

Oncology Nurses practice in various oncologic disciplines, including surgical oncology, radiation oncology, gynecologic oncology, pediatric oncology, and medical oncology.^[34] Oncology nurses can nurse focuses on patient assessment, patient education, and coordination of care, direct patient care, symptom management, and supportive care. Oncology nurses are expected to be experts in assessing a patient's physical and emotional status, past health history, health practices, and both the patient's and the family's knowledge of the disease and its treatment.^[35] Nurses usually have the opportunity than any other member of the healthcare team to develop the required rapport for effective educational efforts with patients and their families. Every year more than one million people will be diagnosed with cancer, and nurses will care for these individuals. Nurses will be closely attached to their care and across all settings, and they will tremendously affect the quality of care of cancer survivors and their families.^[21]

Nakaguchi *et al.*^[36] assessed the accuracy of oncology nurses in determining the supportive care needs and symptoms of cancer patients. The participants of the study were selected from outpatient settings and those receiving chemotherapy in ambulatory settings. The patients were mostly suffering from breast, lung, and colorectal cancer. The results of the assessment detailed that the oncology nurses could not accurately predict their patient's symptoms and needs for supportive cancer care hence, routine checkup and follow-up were recommended to check the patient's symptoms and needs.

Komatsu and Yagasaki^[10] performed a qualitative study to understand the experiences of oncology nurses in cancer patient counseling and support services. The study was conducted based on themes like connecting with the patient, personalized coordination, and realizing the patient's potential. The conclusion of the study described the uniqueness and power of oncology nursing work. The oncology nurses prioritize personalized care for cancer patients they also form the heart of the treatment process serving as a bridge

between the patient and the medical professionals. Adam *et al.* [37] explored the quality of oncology nursing through the perception of cancer patients in four European Countries (Cyprus, Finland, Greece, and Sweden). Cancer patients from Finland and Sweden gave high scores for the quality of nursing they received as in these countries specialized nurses were appointed for cancer care. While, as oncology nursing was just introduced in Greece and Cyprus low scores were observed for nursing care. However, the responsiveness of the oncology nurses was observed to be very good.

Nurses are trained in structured and unstructured experiences to assist patients with coping with their diagnosis, long-term adjustments, and symptoms; to gain information about prevention, diagnosis, and care; and to develop skills, knowledge, and attitudes to maintain or regain health status. This unique education uses an amalgamation of methods that best meet the needs, capabilities, and learning style of the patient. [38] Nurses explained side effects generally occur may allay patient anxiety and will assist nurses in selecting the appropriate interventions. This may help to differentiate the side effects of chemotherapy from other possible causes of similar symptoms. Patient education is facilitated when side effects are classified as immediate, early, delayed, and late.

Oncology nurses are staying in a challenging environment daily to deal with the numerous symptoms patients with cancer and their families encounter as a result of their cancer or its treatment. [39] Oncology nurses are involved with numerous supportive care for cancer patients and their families. Also, nurses are involvement of nurses in pain management and survivorship (**Figure 2**). [40] The concerted efforts of researchers worldwide will help planning to promote patient comfort, provide patients and their families with information related to pain control, and provide information about and help with behavioral and physical interventions, prevent and side effects of pharmacologic therapies, and promote patient compliance with therapy and follow up. The nurse should explain the rationale for interventions and provide time for patient and family questions. Oncology nurses educate patients on the names of the pharmacologic agents, dosage schedules, side effects, interventions to alleviate nausea and vomiting, interventions to alleviate constipation. The oncology nurses observe the effectiveness and side effects of pharmacologic interventions, respiratory status, and bowel functioning, as well as mental and cognitive functioning.

Kamisli *et al.* [41] surveyed 70 oncology nurses working in Hacettepe University Oncology Hospital. The study was conducted to evaluate the facets of oncology nurses regarding their profession. The analysis of the data depicted that working with cancer patients increased work-related exhaustion and stress the nurses also felt satisfaction and awareness about the quality of life. Maree and Muonda [1] described the experiences of Zambian nurses working as oncology nurses for women with advanced breast cancer. The data obtained from the study revealed that caring for women with advanced cancer symptoms is challenging. Also, working without any formal training in oncology nursing is disempowering and also stressful. However, developing a positive environment, learning opportunities, and good nurse-patient relationship resulted in positive patient outcomes. The authors concluded that the education for oncology nursing should be necessarily taken care of and instituted effectively.

Kim *et al.* [42] conducted a study about the awareness of oncology nurses related to cervical cancer and also the caring experiences of oncology nurses with cervical cancer patients. The authors conducted a

qualitative study with descriptive work by interviewing 14 oncology nurses. The results of the study revealed that the nurses expressed fear and difficulty watching patients undergoing painful treatment. Also, they felt helpless while dealing with this life-threatening procedure along with the cancer patients. It was observed that the nurses were prejudiced about the cause of cervical cancer and sympathized with the cancer patients. Lacorossi *et al.* [43] conducted an observational study for determining the competence of oncology nurses. Around 65 nurses and 5 head nurses who had been working in oncology care units for approximately 17 years were selected for the study. The nurse competence scale and Chi-Square test were done to obtain the required data. The results of the study showed that even if the oncology nurses lacked specific oncology competence continuous work in oncology care units has helped them develop a good level of clinical competence.

Advancements in the fields

Cancer is a disorder described in cellular growth and refers to a range of diseases and not to a single entity. An oncology nurse is especially responsible for the care of cancer patients and patients at risk. They mainly monitor physical conditions, prescribe drugs, administer chemotherapy and other treatments. The upcoming oncology health care such as informatics, have been identified as well as opportunities for nursing professionals to be at the forefront of transforming cancer care. Advanced nursing practice mainly includes cancer screening, prevention, early detection, genetic risk, cancer diagnosis and progression, and cancer survival. Nurses have many responsibilities to deal with a cancer patient. Nursing care includes assessment, support for treatments (e.g., chemotherapy, radiation, etc.), pain control, nutrition enhancement, and emotional support. [44] There are many recent advances in oncology-related to the organization of care, multidisciplinary cancer treatment team, supportive care for cancer patients, treatment goals, and the status of clinical trials. [45]

Oncology research has benefited cancer patients in several ways. Research on oncology-specific Electronic Medical Record (EMR) network has been discussed by Kanas *et al.* [46] For cancer patients, health professionals and oncology nurses the most significant part of the treatment process is the improvement in the health and the chances of survival of cancer patients while, prevention from future tumor recurrence. EM systems are found to be very useful for cancer patients, medical professionals and policymakers. Kearney *et al.* [47] investigated the use of a mobile phone-based remote monitoring system for advanced symptom management. The mobile phone-based system evaluated chemotherapy-based symptoms like nausea, vomiting, fatigue, mucositis, diarrhea, and hand-foot syndrome of patients suffering from lung, breast, and colorectal cancer. The authors of the study suggested that the mobile phone-based symptom management system (AsysMS) supports the patients and the caregivers for the management of chemotherapy-related toxicity.

Wujick [29] explained the advances in cancer care related to genomic testing. The study of the genetic makeup of the cancer patients will be helpful in designing precision medicines for cancer patients based on gene expression. Oncology nurses will have the further responsibility for collecting the patient's blood and tissue specimen, processing and transferring it for clinical use. The oncology nurses will have to be specially trained in genomics and advanced chemotherapy practices. Gustafson *et al.* [48] discussed the

role of the electronic health system (eHealth) for caregivers. The data obtained in the study revealed that the eHealth-based system helped caregivers to perform online management of the patient's symptoms. The system alerts caregivers immediately and allows managing patient's distress.

Artificial intelligence and machine learning will be the next new technologies for dealing with cancer. Neuro-engineering could be used for conducting personal cancer treatment, the discovery of cancer drugs, and cancer control. Similarly, computational biology will be used to store large amounts of data and apply the gathered information for curing individual patient cases. ^[49]

Digital symptom monitoring technology provides a variety of opportunities for oncology nurses. Advanced nursing practice helps symptom management in multiple settings and improves the quality of life for the patients. These digital monitoring systems employ in-house monitoring, clinic appointment monitoring and inpatient monitoring. ^[50] The in-house monitoring system includes automated self-management techniques and alarms the oncology nurses and patient's family members just before the patient's health deteriorates. The clinic appointment monitoring system maintains a digital account of patient's medical records. While, the inpatient monitoring system is monitor the improvement in symptoms of bone marrow or stem cell transplant patients at the bedside. ^[50] Weiss *et al.* ^[51] conducted a qualitative study on the use of electronic health records by the caregivers of the cancer patients. With the advancement of information technology patient-oriented health care systems have been designed. These electronic health care systems help not only the oncology nurses but also the untrained caregivers like the family members of the cancer patient to maintain a health record of the illness.

The future of oncology nursing care will be subjective to the aging population and the increase in the number of patients diagnosed with cancer. Much advancement has been reported in the field of molecular sequencing that will lead to more clinical trials, targeted therapies, and treatment decisions based on the genetic makeup of both the patient and the tumor. Oncology Nurses should be aware of the current research scenario with an ever-changing array of targeted therapies and emerging scientific inventions. ^[29] The oncology nurse plays a vital role in coordinating the multiple and complex technologies now commonly used in cancer diagnosis and treatment. In the modern era, cancer care is performed at multiple sites by a variety of personnel at a pace that is accelerated by cost-conscious staff. Thus, the important responsibility of nurses involved in the delivery of chemotherapy is to ensure that the correct dose and drug are administered by the correct route to the right patient. Complex regimens of potentially lethal drugs are being employed in a variety of settings. ^[52]

Oncology Nursing in COVID-19

The world observed the global outbreak of SARS-CoV-2 in December 2019 that originated from Wuhan, China, and spread rapidly through continents. ^[53, 54] WHO regarded the attack of SARS coronavirus as a global pandemic named it as Novel Coronavirus Disease (COVID-19) ^[55]. The disease severely affected the upper and lower respiratory tract of individuals causing symptoms like cough, cold, sneezing, difficulty in breathing, fever, and pneumonia. ^[53, 56, 57] WHO released an advisory for children below 10 years of age, Cancer Patients, diabetics, and other immuno-suppressed persons to strictly stay at home and quarantine themselves to get secured from the COVID infection. ^[56, 58]

Studies conducted at Wuhan, China, and several other countries that cancer patients are more prone to coronavirus attack also mortality rate of COVID positive cancer patients was very high compared to other COVID positive individuals. [56, 59] Cancer patients due to their weak immunity and harmful effects of radiation therapy and strong medication suffer multiple organ failure and acute respiratory dysfunction. [55, 60] In this period of global emergency nurses were the largest groups of healthcare professionals providing frontline care to the patients. [54, 57] Oncology nurses had to face unique challenges while overcoming the pandemic situation. Oncology nurses had the tough responsibility of providing life-surviving cancer care while, protecting the patients against the risks associated with COVID infections. [54, 60]

The healthcare providers were advised for frequent use of personal protective equipment (PPE) along with performing standard sanitization procedures. [61] The non-essential surgeries were postponed due to lockdown conditions throughout the world. [59] Many cases were reported where oncology nurses were the only person who stayed with the cancer patients and served as a navigator between the patient and its family members. [56] Thus, the caregiving the responsibility of the oncology nurses increased many folds during COVID situation. Also, in the corona situation, the treatment methods for cancer patients shifted to telemedicine due to the quarantine rules. [59] Oncology nurses also had the task of dealing with patients' stress and anxiety due to pandemic conditions while, also providing details regarding medication and health care procedures to be followed at home. [56, 62] The heroic work of the oncology nurses fighting the battle with a corona at the frontline has been highly recognized and the year 2020 has been declared as the "International year of the Nurses and Midwife". [56]

One of the major concerns of the healthcare professionals during this time of distress was the transmission of COVID infection from corona positive individuals. There was an atmosphere of anxiety and fear of bringing the virus to the home. [57, 61] Oncology nurses also faced a shortage of PPE kits and other protective types of equipment. [59, 61] Also, the physical strain arise due to longer working hours and the psychosocial impact of the pandemic situation reflected in the form of anxiety and depression in the caregivers. WHO had to release an advisory on ways to cope up with the mental stress caused due to COVID-19. [56]

Efficient management and handling of this global crisis revealed the leadership abilities of the oncology nurses. In times of this global threat oncology, nurses provided unprecedented support to the cancer patients and worked tirelessly in hospitals and outpatient locations to cope up with the pandemic situation.

Limitations of Oncology Nursing

The primary objective of nursing is providing noble care to the patients while establishing a healthy atmosphere for the patients and it's loved ones. [37, 63] Oncology nurses are in proximal contact with the patients' pain, physical and mental health, and also the anxiety and fear of uncertainty of life due to cancer. [64] Although oncology nurses efficiently manage all the facets of cancer illness still there are some gaps in caregiving procedures that are needed to be fulfilled. Lack of proper communication is one of the most important factors that affect the patient-nurse relationship (**Figure 3**). [64, 65, 66] Lack of considerable interaction between the patient and nurse leads to the anonymity of several treatment procedures to the

patient. Molina-Mula and Gastro-Estrada ^[66] investigated the effect of the nurse-patient relationship and its role in decision making during the treatment process. The authors concluded that the use of effective language and communication skills will form a bond of affection between the nurse and the patient. Also, the nurses need to employ new strategies to amplify the role of patients regarding decision making, and rather a mutual decision should be taken with the consent of the healthcare professional, caregiver, and the patient.

Also, the incompetence of nurses while dealing with radiation therapies and advanced treatment procedures may lead to a major hindrance in providing cancer care. ^[67] Sharour ^[68] conducted a study on the awareness of oncology nurses regarding chemotherapy complications, its management, and preventive measures. The author observed that the oncology nurses had satisfactory knowledge about the radiation therapy protocols but incompetence regarding the risk factors and specific treatment procedures was observed. ^[68] Specialized and trained oncology nurses will ensure better care-giving for cancer patients. ^[42] Oncology nurses are not trained sufficiently for providing emotional support to the patients in times of pain and suffering. ^[1] Lack of proper psychosocial coaching results in the patient feeling distressed and abandoned, Li *et al.* ^[69] performed a meta-analysis regarding the role of oncology nurses to increase hope and positivity in cancer patients. The results of the study depicted that the intervention of oncology nurses to inculcate optimism in cancer patients proved very valuable in the treatment process. The absence of proper documentation and irregular maintenance of medical records also forms an obstacle in the treatment of cancer patients. With the increasing number of new cancers cases, it is forming a burden on the global healthcare system. ^[65] It is becoming imperative to develop patient-related advancements in the field of oncology nursing. ^[70] With the coming era and the recent pandemic situations, oncology nursing needs to be enriched with advancements and a skilled patient-centric approach.

Future Prospects

Oncology nurses are playing a pivotal role in delivering evidence-based care and support to cancer patients. Despite the complex working scenario, oncology nurses have a significant role in the treatment and recovery of cancer patients. However, certain breakthroughs are needed to be considered for the future establishment of oncology nursing practices. The future developments for oncology nursing should include knowledgeable assessment of the care and the guidance needed by the patients for the foundation of patient-centered care services. Management studies should be designed to develop the abilities of the caregivers to fulfill patients' demands. There are few studies available based on the patient's perception of the quality of the care that is needed. Thus, a detailed follow-up of the patient's perception of the quality of care that is needed should be implemented. With the frequent advancements in the field of medicine continued education and training is a basic requirement for oncology nurses to ensure enhanced caregiving. Review and revision of the nursing curriculum and development of specialization courses will improve the quality of treatment and care patients receive. Research-based studies should be encouraged for oncology nurses. Psychosocial training of nurses to deal with the stress and anxiety of patients also needs to be considered. Much research is needed for the preparation and analysis of documentation of patients related to the nature of cancer, clinical outputs received involving length of treatment, recovery

time, and satisfaction with the care provided. Effective communication practices should also be encouraged for the oncology nurses to form a strong patient-caregiver foundation. Oncology nurses form the central link between the patients, their family members, and the doctors and these future implications will play a directive role in strengthening the patient-caregiver relationship and also help the patient to effectively deal with this traumatizing situation.

CONCLUSION

As the global burden of cancer continues to rise the role of oncology nurses has also risen. Nurses are expected to pursue a patient-centered approach with multidisciplinary communication as a key filament to it. Co-ordination with care and navigating through cancer illness plays a central role in overcoming health barriers. At the preliminary stage of cancer, patients and family members do not understand the essential role of oncology nurses in caregiving. However, with the progression of the disease oncology nurses form the heart of the treatment and recovery process. Cancer patients need a comprehensive approach involving physical and psychosocial support and oncology nurses can efficiently fulfill the support and care needed by the patients. However, certain advancements like the development of better communication skills overcoming language barriers and understanding the psychological needs of the patient can go a long way. Also, the maintenance of proper documentation and medical records of cancer patients will provide an insight into the symptom management and survival of cancer patients. The present review provides an overview of oncology nursing, its different perspectives, advancements, and the management of cancer patients in times of pandemic.

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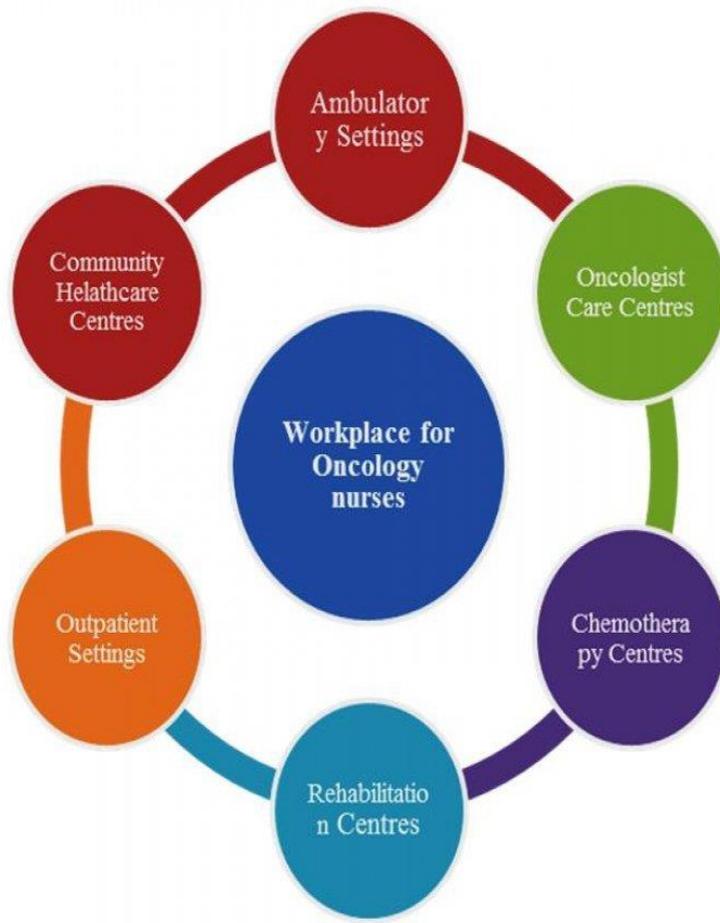


Figure 1: Different working areas for oncology nurses.

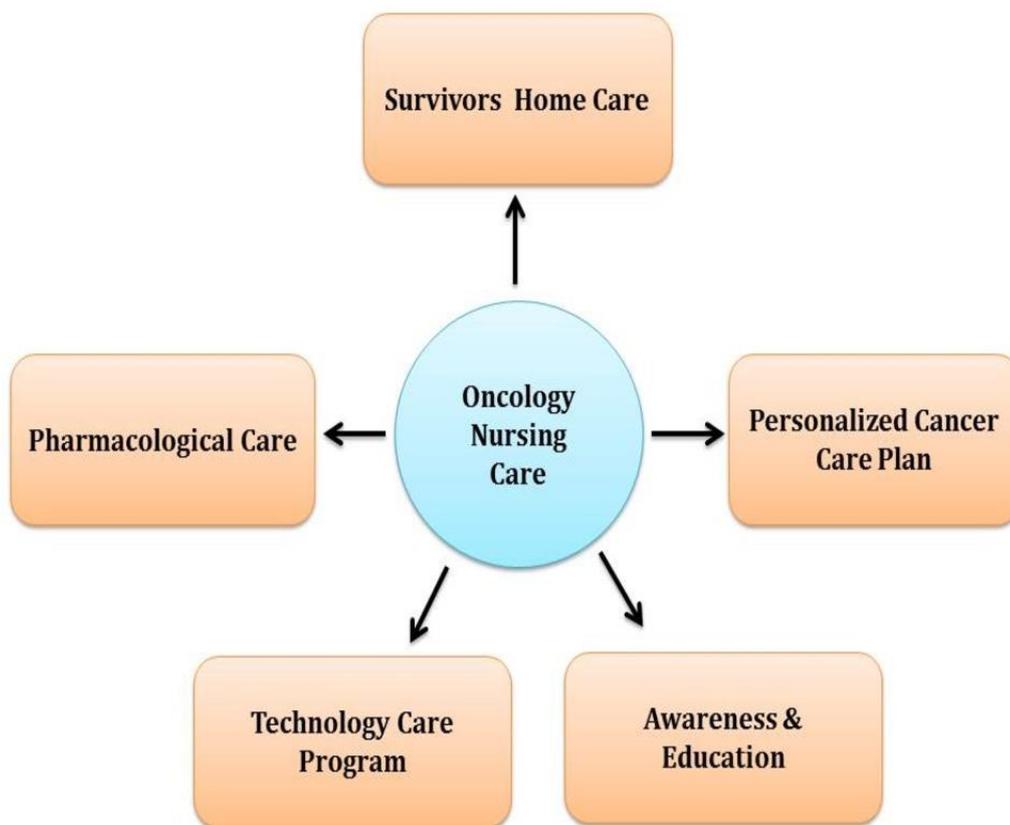


Figure 2: Oncology Nursing Care systems.



Figure 3: Limitations of Oncology Nursing.