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The Role of Healthcare Managers in Ensuring Patient Safety and Satisfaction during Radiation Therapy for Lung Cancer Patients in Saudi Arabia: A Systematic Review

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ABSTRACT

Radiation therapy is a complicated treatment technique that calls for meticulous coordination, strict adherence to safety procedures, and care that is concentrated on the patient. Managers in the healthcare industry play an essential role in supervising and improving these various facets of care delivery. This systematic analysis aims to evaluate the significant role that healthcare managers play in ensuring patient safety and satisfaction during radiation therapy for patients in Saudi Arabia who have lung cancer. The research analyzes the existing literature in order to identify the unique roles, problems, and tactics that healthcare managers in Saudi Arabia apply in order to improve patient safety and satisfaction during radiation therapy for patients with lung cancer. The findings of this research contribute to improving the quality of care provided to lung cancer patients undergoing radiation therapy in Saudi Arabia, which ultimately leads to better patient outcomes.

Key words: Radiation therapy, patient safety, healthcare managers, patient satisfaction, lung cancer.

1. INTRODUCTION AND OBJECTIVES

1.1. Introduction

Lung cancer refers to the uncontrolled growth of abnormal cells in the lungs. These cells do not function like normal lung cells. They also do not develop into healthy lung tissue. They form tumors that interfere with the normal functions of the lungs. Globally, 1.8 million new lung cancer cases were reported in 2018, with 1.6 million deaths [1]. According to these statistics, lung cancer was the most common cause of death related to cancer for men and the second common cause for women [2]. 85% of lung cancer cases result from smoking, with only 10% and 15% of lung cancer cases occurring in people who have never been smokers [1]. In Saudi Arabia, lung cancer ranks number five in terms of commonality among men and number 15 among women.

Lung cancer is divided into two types. The first type is small-cell lung cancer, exclusive to heavy smokers. The second type is non-small-cell lung cancer, an umbrella term for different types of lung cancers with similar manifestations [1]. Some types include large-cell carcinoma, adenocarcinoma, and squamous-cell carcinoma. The signs and symptoms of lung cancer usually occur when the disease reaches advanced stages. These include headache, bone pain, weight loss, hoarseness, wheezing, chest pain, shortness of breath, coughing up blood, and persistent coughing [2]. Radiotherapy for lung cancer patients has been widely adopted in Saudi Arabia to manage lung cancer cases. The country has more than 50 consultant radiation oncologists and 27 external beam radiotherapy machines that can be used in lung cancer treatment in radiotherapy centers [1].

The modalities available for the treatment of lung cancer include intensity-modulated radiotherapy for conventional treatment of lung cancer of stages 2 and 3 and stereotactic body radiotherapy for high-risk operable cancer, oligometastatic, and inoperable early-stage lung cancer [1]. Healthcare managers need to implement effective systems to ensure the safety of patients receiving radiation therapy for lung cancer. Various technical innovations have been implemented to endure the delivery of an accurate and precise ablative radiation dose to the cancer tumor while sparing nearby organs and healthy lung tissue.

1.2. Objectives

i. To review the role of healthcare managers in overseeing radiotherapy for patients with lung cancer in Saudi Arabia, including their involvement in the treatment process, their competencies, and their responsibilities.

ii. To review the existing processes and systems for ensuring patient safety during radiation therapy for lung cancer patients in Saudi Arabia, including acute treatment planning, equipment calibration, quality assurance measures, and patient monitoring.

iii. To assess patient satisfaction with radiotherapy for lung cancer in Saudi Arabia, including factors influencing patient satisfaction.

iv. To identity the challenges healthcare managers face in ensuring patient safety and satisfaction during radiotherapy for lung cancer and potential

areas for improvement in healthcare management systems to enhance patient safety and satisfaction.

v. To provide evidence-based recommendations for healthcare managers and policymakers to optimize the role of healthcare managers in ensuring patient safety during radiation therapy for lung cancer in Saudi Arabia.

1.3. Research Questions

RQ1: What practices and strategies do healthcare managers in Saudi Arabia use to ensure patient safety and satisfaction during radiotherapy for cancer patients?

RQ2: What challenges and opportunities exist to improve patient safety and satisfaction in radiation therapy for cancer patients?

RQ3: What key factors influence patient safety and satisfaction during radiotherapy for cancer patients, and how do healthcare managers assess and optimize patient safety?

RQ4: What are the responsibilities of healthcare managers in implementing technical innovations for delivering precise radiation doses to minimize damage during radiotherapy for lung cancer, and what improvements can be made?

2. LITERATURE REVIEW

2.1. The Role of Healthcare Managers in Ensuring Patient Safety and Satisfaction

Healthcare managers play an important role in the coordination of care. One of the most important roles of healthcare managers is to ensure that patients follow up with their primary care provider (PCP). They also contact the PCPs on the patients' behalf [3]. They also educate patients on the importance of follow-up after treatment to ensure their conditions do not worsen. As such, healthcare managers play an essential role in coordinating appropriate services with hospice, home health agencies, outpatient managers of care, and skilled nursing facilities [4]. Healthcare providers educate patients on such health-related issues as preventing disease complications and exacerbations, managing diseases, discharge instructions, smoking cessation, weight monitoring, and diet [5]. They can provide information about diseases specific manifestations and associated conditions [6]. Healthcare managers are also responsible for availing the equipment and devices needed by healthcare providers to provide high-quality patient care.

Medication reconciliation is another crucial role of healthcare managers. The process captures any mistakes that could be made during the process of discharging patients. They identify patients who face higher risks, such as those with comorbidities and frequent readmissions and patients with a history of non-compliance [4]. Their actions promote patient satisfaction because they focus on building effective relationships with patients. Patients appreciate when they perceive that healthcare professionals are concerned about their well-being during their stay at the hospital [1]. Healthcare managers also support clinicians by providing the right environment to provide effective care to patients, which promotes patient safety and satisfaction.

The role of healthcare managers in ensuring patient safety and satisfaction during radiotherapy for patients with lung cancer in Saudi Arabia is an important aspect of healthcare delivery. A study exploring the effectiveness of pre-treatment peer reviews for healthcare professionals using radiotherapy to ensure patient safety found that patient safety is a fundamental aspect of healthcare, and that radiation planning requires precise planning [3]. While radiation oncology is known to have a good reputation for patient safety, there is still room for improvement. All radiation oncology departments should strive to become high-reliability organizations to achieve the goal of zero patient harm [3]. Healthcare managers play an essential role in ensuring that safety protocols are followed. There is a need for effective leadership and management in ensuring patient safety during radiotherapy, including implementing safety protocols, staff training, and monitoring adherence to clinical guidelines [3]. The concept of pre-treatment peer reviews for clinical decisions and radiation treatment plans, which involves healthcare managers, is an important step in improving patient safety during radiation oncology for cancer patients [7]. The pre-treatment peer reviews suggested by this article are critical because there is a minimal chance of making a meaningful change after the initiation of treatment. The study concludes that the active pursuit and execution of pre-treatment peer review programs is a logical step in ensuring patient safety and satisfaction in radiation oncology.

In a study to explore the role healthcare managers play in improving radiation safety in Saudi Arabia, [1] emphasized the importance of training and education of healthcare providers, including healthcare managers, to keep them updated on the latest advancements in radiation therapy and safety measures [3]. In ensuring patient safety and satisfaction during radiation therapy for lung cancer, healthcare managers face several challenges, as well as opportunities for improvement. One challenge they face is limited resources, including a shortage of radiotherapy machines and consultant radiation oncologists, which pose challenges in delivering timely and high-quality radiation therapy services [3]. Cultural factors, language barriers, and the preferences of patients may also impact patient satisfaction, requiring healthcare managers to implement patient-centered and culturally appropriate approaches [5]. Besides, healthcare managers face challenges in coordinating and integrating lung cancer care across different healthcare departments and settings, which may impact patient safety and satisfaction.

Patient safety and satisfaction during radiation are important concerns that require the attention of healthcare managers. Various technical innovations, such as intensity-modulated radiotherapy and stereotactic body radiotherapy, have been implemented to deliver precise radiation doses to cancer tumors while minimizing damage to healthy tissue [1]. Healthcare managers play a pivotal role in overseeing clinical processes and ensuring that all aspects of patient safety are addressed. This includes acute treatment planning, proper calibration of equipment, effective quality assurance measures, and adequate patient monitoring

during and after treatment [3]. It is essential to reduce short-term and long-term harmful exposures in medical radiation, and healthcare managers need to ensure that proper protocols are followed to minimize the risk of adverse effects for patients undergoing radiation therapy for lung cancer in Saudi Arabia [8].

Besides patient safety, patient satisfaction is also a crucial aspect of quality care. Patient satisfaction is a measure of the overall experience and care provided to patients and can impact compliance with treatment and patient outcomes [7]. Healthcare managers play a critical role in ensuring that patients are satisfied with their radiation therapy experience. This may involve effective communication with patients and their families, addressing their concerns and questions, providing emotional support, and ensuring that the treatment process is efficient and comfortable [5]. Moreover, healthcare managers need to ensure that the radiation therapy process is well-coordinated and that patients receive timely and appropriate care to minimize waiting times and delays, which can impact patient satisfaction.

Despite these challenges, there are opportunities for improvement in the role of healthcare managers in ensuring patient safety and satisfaction during radiation therapy for lung cancer patients in Saudi Arabia [5]. For example, leveraging technology and data analytics to monitor and optimize radiation therapy processes can help identify areas for improvement and enhance patient safety and satisfaction [7]. Implementing standardized protocols and guidelines for radiation therapy can also help ensure consistent and high-quality care [3]. Furthermore, fostering a culture of safety and continuous improvement, promoting interprofessional collaboration, and providing training and education for healthcare staff can enhance patient safety and satisfaction during radiation therapy.

2.2. Radiation Oncology in Lung Cancer Treatment

Radiation oncology has contributed to tremendous progress in the clinical management of lung cancer. Over the past ten years, technological advances in radiotherapy have allowed oncologists to conform the high-dose volume of radiation therapy accurately to the shape of tumors in faster and more accessible ways [9]. Besides, biological knowledge has been translated into the clinical treatment schedule to increase the safety and efficacy of radiation therapy [10]. When used in combination with other forms of treatment, radiotherapy has made it possible to treat many cases of cancer and improve the possibility of long-term survival for patients [11]. Technology has broadened the role of radiotherapy in improving patient outcomes for all lung cancer stages. 77% of all lung cancer patients get an indication for radiation therapy during their treatment journey [12].

Before recent advances in radiation technology, radiation therapy was only used for the multidisciplinary treatment of cancer patients to ease symptoms and provide palliative care [9]. It has, however, become evident that the use of ablative metastasis-directed interventions can increase the possibility of long-term survival when included as a care standard for metastatic patients. For instance, metastasis-directed stereotactic radiotherapy has been shown to prolong survival in patients with oligometastases [13]. Immunotherapy has caused the role of radiation oncology to evolve beyond that of palliative care, with stereotactic radiotherapy being used to overcome refractoriness in lung cancer patients [14]. A key factor in the accuracy of radiation oncology is imaging. The use of 4DCT is common today in planning for radiotherapy. The use of this technology allows for the patient-specific movement of the tumor to be measured, which is then integrated into radiotherapy plans to make sure that the dose prescribed can be effectively delivered to the tumor [12]. Imaging technologies have increased the ability to deliver SABR, which allows for increased accuracy and precision [12]. Improved imaging has also reduced the delivery of incidental doses to normal tissues, which is linked to radiotherapy toxicity.

3. RESEARCH METHODOLOGY

3.1. Research Design

The research used a systematic review design to identify, evaluate, and synthesize the extant literature on the role of healthcare managers in ensuring patient safety and satisfaction during radiation therapy for patients with lung cancer in Saudi Arabia. A systematic review is a transparent and rigorous approach that follows a predetermined protocol to minimize bias and ensure an unbiased and comprehensive synthesis of available evidence [15].

3.2. Sampling Strategy and Setting

The sampling strategy involved systematically searching electronic databases, Scopus, PubMed, Elsevier, and Taylor & Francis to identify relevant studies published in peer-reviewed journals. Articles published between 2015 and 2023 were considered for inclusion in the study to ensure currency. Only articles published in English and those translated from Arabic to English were included in the study.

The search was conducted using appropriate keywords and Boolean operators to ensure a comprehensive and systematic retrieval of relevant literature. The keywords used included healthcare management, healthcare manager, patient safety, patient satisfaction, radiation oncology, lung cancer, and Saudi Arabia. The inclusion criteria for the selection of studies were defined based on the research question and will be conducted in Saudi Arabia and published in English. The studies included focused on the role of healthcare managers in radiation safety. The setting for the research will be Saudi Arabia, where radiation therapy for lung cancer treatment is being adopted. The literature was reviewed between April 15 and 30. The search strategy involved four facets and five steps. A facet refers to a conceptual search-term grouping [16]. Various combinations of search terms were used to reach the highest level of sensitivity and specificity. Eight thousand, two hundred and forty-three articles were identified using the search strategy after the removal of duplicates. Figure 1 below shows a flow chart of the search process.

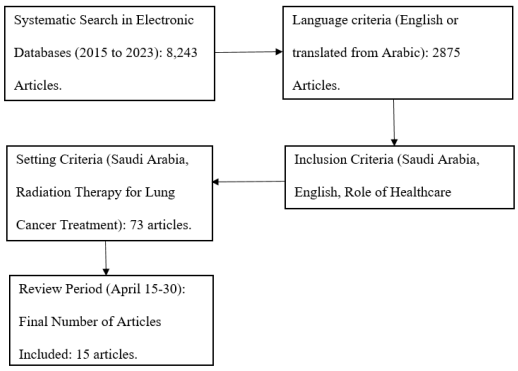

Figure 1: A flow chart of the search process.

3.3. Inclusion and Exclusion Criteria

The goal of the systematic review is to determine the role of healthcare managers in ensuring patient satisfaction and safety during radiation therapy for lung cancer treatment. Therefore, included in the study were all the journal articles identifying factors related to healthcare managers, patient satisfaction and safety, and radiation therapy in lung cancer treatment settings. The review's scope was expanded by including published English conference proceedings with sufficient descriptions of statistical analyses, populations, and study aims. In cases of duplicate search findings, articles published in journals were kept. Excluded from the review were studies on the general roles of healthcare managers in the clinical setting and the management of other types of cancers. 15 articles were included in the systematic review after the screening process.

3.4. Validity and Reliability

3.4.1. Validity

Several actions were taken to guarantee the validity of the research findings. The specific role of healthcare managers in maintaining patient safety and satisfaction during radiation therapy for lung cancer patients in Saudi Arabia was the topic of the first explicitly specified study question. This made it easier to keep the research on track and ensured that it served its intended purpose.

The systematic review approach was selected to guarantee the inclusion of pertinent and excellent papers. A thorough search method was used to identify relevant papers from the databases searched. To reduce selection bias and guarantee that all pertinent studies were included, the search terms and inclusion/exclusion standards were predetermined. The references to the highlighted publications were also carefully checked for any other pertinent studies. Two researchers independently chose the studies to use and extracted the data to reduce bias. Discussion and agreement were used to settle differences and disagreements. This strategy aided in ensuring the accuracy of the information gathered and examined during the systematic review. The Newcastle-Ottawa Scale and the Joanna Briggs Institute Critical Appraisal Checklist for systematic reviews were used as relevant instruments to evaluate the quality of the included papers [17]. By taking into account the strength and rigor of the included studies, this assessment of study quality further strengthens the validity of the research findings.

3.4.2. Reliability

Through a number of methods, the research study sought to guarantee the validity of its conclusions. In the beginning, a transparent and repeatable technique was used. A predetermined methodology that includes the search strategy, inclusion/exclusion standards, and data extraction techniques was followed during the systematic review process. The study may be replicated thanks to this uniform methodology, which improves the validity of the results. Additionally, the study employed a thorough search approach that included manual reference list searches in addition to searches across numerous databases. The researchers sought to reduce the possibility of overlooking pertinent studies and so increase the dependability of the findings by using a broad search method. The process of double-checking helps reduce errors and improves the accuracy of data that is gathered and processed. Additionally, the dependability of the research findings is increased by the quality evaluation of the included papers using recognized tools like the Newcastle-Ottawa Scale or the Joanna Briggs Institute Critical Appraisal Checklist for systematic reviews [17]. Multiple researchers reviewing the study quality contribute to the assessment's uniformity and dependability.

3.5. Data Analysis

Thematic analysis was used in the analysis of the literature. Various databases were searched, and then the information was rigorously filtered, data extracted, and the results of the research synthesized [18]. A thematic analysis focuses on the examination of themes by identifying patterns, analyzing, and reporting them. Thematic analysis in this systematic review was used to synthesize data on various topics related to the role of healthcare managers in ensuring patient safety and satisfaction during radiation oncology for lung cancer patients. It identified various patterns in the literature reviewed. In qualitative research, thematic analysis is a common data analysis technique. The following phases were included in the thematic analysis methodology in the context of the systematic review of the function of healthcare managers in maintaining patient safety and satisfaction during radiation therapy for lung cancer patients in Saudi Arabia.

The data extraction process started after the pertinent research were chosen based on the inclusion and exclusion criteria. The standardized data extraction form included key details, including the authors, year, study design, sample size, healthcare management interventions, patient safety outcomes, and patient satisfaction outcomes [19]. This form ensured consistency in data collection throughout the selected research. Following data extraction, the analysis step was started by carefully reading and getting acquainted with the extracted data. This procedure entailed familiarizing oneself with the information and developing a comprehensive understanding of the subject matter [19]. The acquired data was thoroughly examined by researchers, who made a note of any new trends, ideas, or recurring themes that are pertinent to their research issue. Coding the data was the next step. The practice of categorizing and identifying data segments in accordance with their meaning and content is known as coding. The role of healthcare managers in maintaining patient safety and satisfaction

during radiation therapy for lung cancer patients in Saudi Arabia is the subject of research that assigns descriptive codes to various parts of the data. The data itself and pre-existing theoretical frameworks were used to derive codes.

Researchers then started the process of arranging and fine-tuning the original codes into prospective topics. The substance of the data was distilled into broad patterns or concepts known as themes. In order to create meaningful linkages and groups, researchers investigate links between codes and looked for parallels and contrasts [19]. Researchers continually examined and changed the themes that have been identified via this iterative process to make sure they accurately represented the data and were in line with the study goals. It was essential to go through several coding and theme creation iterations to perfect and complete the themes. Researchers then went on to evaluate and interpret the data within each theme after having identified the themes. They investigated the connections and interactions between themes and took into account their ramifications in light of the research issue. The goal of this analysis was to give readers a thorough understanding of healthcare managers' role in assuring the satisfaction and safety of patients receiving radiation therapy for lung cancer in Saudi Arabia. The systematic review then presented and discussed the thematic analysis's findings. The highlighted themes are discussed in the results section and are supported by quotes or examples from the chosen research. The results are interpreted and summarized in the discussion section, which also compared them to the body of prior research and discussed their potential implications for researchers, legislators, and managers in the healthcare industry.

3.6. Ethical Considerations

Several ethical considerations came into play during the research. A potential ethical issue that could arise from the study was bias in selecting the studies included in the review. To mitigate the ethical risk, a transparent and rigorous search strategy was used in the identification of relevant studies. Multiple databases were searched, and inclusion and exclusion criteria were clearly defined to make sure that the selection process was unbiased and comprehensive. A critical appraisal was also conducted of the studies included to assess the validity and reliability of the findings. In the interest of intellectual honesty and transparency, it was important to disclose potential conflicts of interest. Finally, it is critical to recognize the significance of sharing the research's findings in order to advance science and, eventually, enhance patient care. The researcher agrees to publish or present the findings of this systematic review in appropriate scholarly publications or at pertinent conferences. It is essential to provide the data truthfully and clearly, giving readers a thorough understanding of how healthcare management in Saudi Arabia ensure patient satisfaction and safety while undergoing radiation therapy.

4. RESULTS

The purpose of this comprehensive evaluation was to assess the critical role of healthcare managers in maintaining patient safety and satisfaction during radiation therapy for patients in Saudi Arabia diagnosed with lung cancer. The review analyzed the current literature to determine the specific responsibilities that healthcare managers play, the obstacles they face, and the tactics they use to improve patient safety and satisfaction during radiation therapy. The findings offer recommendations for improving the quality of care that is offered to lung cancer patients and provide insights into the current condition of healthcare management practices in Saudi Arabia.

4.1. The Role of Healthcare Managers in Ensuring Patient Safety and Satisfaction

Based on the review of the relevant literature, healthcare managers play an essential role in organizing and enhancing the numerous facets of care delivery to ensure the health and happiness of their patients. The coordination of care and communication with primary care providers (PCPs) and other healthcare professionals participating in the treatment process were a crucial aspect [20]. Healthcare managers are responsible for coordinating patients' follow-up visits, informing patients about the significance of receiving post-treatment care and providing information regarding the management and prevention of disease. In addition to this, they use information technology, such as software for case management and electronic health records, to chronicle the progression of patients and disseminate information across the many providers of medical treatment [21]. Another job that was regarded as being of essential importance for healthcare administrators was medication reconciliation. They make sure that pharmaceutical errors are kept to a minimum, particularly throughout the process of release, and they identify patients who are at a higher risk of not complying with their treatment or being readmitted. The development of fruitful relationships with patients and the provision of clinical staff support are two ways in which healthcare administrators contribute to the happiness and well-being of patients [20].

4.2. Challenges and Opportunities for Improvement

The analysis shed light on several obstacles that healthcare administrators must overcome to guarantee the well-being and contentment of patients undergoing radiation treatment for lung cancer [22]. Prompt care and good quality might be difficult to provide when resources are limited since there is a current lack of radiation oncologists as well as a dearth of radiotherapy machines. As a result of the potential influence of cultural issues, linguistic hurdles, and individual patient preferences on patient satisfaction, healthcare managers are required to implement techniques that are patient-centered and culturally acceptable [23]. It can be difficult to integrate and coordinate patient care across the various departments and settings of healthcare, which can impact both patient safety and patient happiness. Despite these obstacles, the review revealed that there is potential for improvement. Utilizing technology and data analytics to monitor and improve the processes involved in radiation therapy can assist in locating areas that could benefit from improvement [22]. There are many potential ways to improve patient safety and satisfaction, including establishing standardized protocols and guidelines for radiation therapy, promoting

multidisciplinary collaboration, providing training and education for healthcare staff, and so on.

Technical Innovations in Radiation Oncology for Cancer Treatment

In the literature study, the importance of technological advances in enhancing patient outcomes in radiation oncology for lung cancer was stressed [12]. Recent developments in radiotherapy technology have made it possible to administer more accurate and conformal treatment, hence reducing the amount of radiation that is absorbed by healthy tissue [12]. Intensity-modulated radiotherapy and stereotactic ablative body radiotherapy are two techniques developed to deliver correct radiation doses while simultaneously decreasing the amount of potentially dangerous radiation exposure [12]. Radiation therapy has seen improvements in accuracy and precision due to technological advancements in imaging, such as four-dimensional computed tomography (4DCT) [12].

5. DISCUSSION

To provide high-quality care and improve patient outcomes, healthcare managers play a critical role in assuring patient safety and satisfaction during radiation therapy for lung cancer patients [4]. The purpose of this systematic review was to analyze the current literature to determine the specific roles, challenges, and tactics that healthcare managers in Saudi Arabia adopt to improve patient safety and satisfaction during radiation therapy for patients with lung cancer. The findings of this research lead to an improvement in the quality of treatment offered to patients in Saudi Arabia who are being treated for lung cancer using radiation therapy. According to the findings of the evaluation of the relevant literature, healthcare managers play an important part in coordinating patient care and guaranteeing both patient safety and satisfaction [4]. They are accountable for informing patients about the significance of receiving follow-up care, organizing the delivery of relevant services, and providing information regarding the management and prevention of disease. Utilizing information technology, such as software for case management and electronic health records, allows healthcare administrators to effectively connect with healthcare professionals and monitor the progression of their patients [12]. In the process of maintaining patient safety, medication reconciliation has developed as an additional critical duty for healthcare managers. Healthcare administrators can improve patient happiness and safety by first identifying patients who are at high risk and then catering to the unique requirements of these patients [4]. In addition, healthcare administrators offer support to physicians by ensuring that the facilities and equipment essential to providing quality treatment to patients are in place.

In addition, the research emphasized how essential strong leadership and management are to achieving optimal results in radiation therapy while minimizing risks to patients [24]. It was shown that pre-treatment peer reviews are an important practice involving healthcare managers in examining clinical decisions and radiation treatment plans, ultimately improving patient safety [24]. It was determined that training and education of healthcare providers, especially healthcare managers, are critical variables in enhancing patient outcomes and radiation safety. The position of healthcare managers was fraught with a number of difficulties and opportunities [25]. It was difficult to provide timely and high-quality radiation therapy services due to limited resources, which included a lack of radiotherapy machines and consultant radiation oncologists. As a result of the identification of cultural issues, linguistic hurdles, and patient preferences as potentially influential elements on patient satisfaction, healthcare managers are required to implement techniques that are patient-centered and culturally appropriate [25] Important strides forward have been made in radiation therapy, including the development of intensity-modulated radiotherapy and stereotactic body radiotherapy, among other technological improvements [26]. Managers in the healthcare industry were tasked with monitoring the adoption of these advances and ensuring that suitable procedures were followed at all times to reduce the risk of harming healthy tissue. It was recognized that there was potential for healthcare management to improve patient safety and satisfaction during radiation therapy [26]. These opportunities included utilizing technology, creating standardized protocols, cultivating a safety culture, and offering training and education. The field of radiation oncology is an important component in the overall treatment of lung cancer. The precision and effectiveness of radiation therapy have both increased thanks to technological advancements, which have made it possible to target tumors more precisely while simultaneously lowering the amount of radiation that is accidentally delivered to healthy tissue [26]. Imaging technologies, such as 4DCT, have improved the overall precision of treatment and boosted the capacity to administer accurate radiation dosages.

In terms of research methodology, a systematic review design was used to discover, assess, and synthesize the available literature on the role of healthcare managers in ensuring patient safety and satisfaction during radiation therapy for lung cancer patients in Saudi Arabia [27]. This research was conducted to determine whether healthcare managers play a role in ensuring patient safety and satisfaction during radiation therapy [27]. The research questions served as the basis for formulating the inclusion criteria, which were then used to search for relevant studies using a methodical approach to searching electronic databases [27]. To provide an overview of the state of current knowledge regarding the subject matter, the findings from the chosen studies were compiled and analyzed.

6.CONCLUSION

During radiation therapy for lung cancer patients in Saudi Arabia, healthcare managers play an essential role in ensuring patients' safety and happiness with the treatment. Coordinating treatment, teaching patients, ensuring medication reconciliation, and supervising the deployment of technical advancements are all part of their tasks. Although there are obstacles and constraints, there is also potential for healthcare management to enhance patient outcomes by utilizing technology, adhering to standardized protocols, and fostering a culture of safety. The findings of this systematic review can serve as a reference for

healthcare managers and policymakers in Saudi Arabia who are looking to optimize their involvement in maintaining patient safety and satisfaction during radiation therapy treatment for lung cancer. In this setting, there is a pressing need for additional study on the precise interventions and techniques that have the potential to improve patient safety and satisfaction.

7.RECOMMENDATIONS

Leadership and management should be strengthened and healthcare managers in Saudi Arabia should be equipped with strong leadership and management abilities in order to successfully supervise radiation therapy for patients suffering from lung cancer [28]. This includes providing training and education programs to develop their knowledge and competencies in patient safety, quality improvement, and effective communication [29]. Other aspects that fall under this umbrella include quality improvement.

Another recommendation is to establish pre-treatment peer evaluations as a standard practice in radiation oncology departments. Implementing safety standards, training workers, and monitoring adherence to clinical recommendations are all responsibilities that fall on the shoulders of managers in the healthcare industry [30]. Before beginning therapy, these reviews can assist detect and address any potential errors or problems, contributing to increased patient safety as well as patient satisfaction.

Boosting available resources and infrastructure: It is the responsibility of managers in the healthcare industry in Saudi Arabia to fight for the provision of sufficient resources and infrastructure for radiation therapy [31]. This involves finding solutions to the lack of radiotherapy machines and radiation doctors who consult with private practices. Healthcare administrators have the ability to favorably impact both patient safety and patient satisfaction by ensuring that radiation therapy services are delivered in a timely manner and of a high quality [32].

Care that is patient-centered should be given priority: Healthcare administrators should make patient-centered care their top priority by taking into account cultural considerations, language obstacles, and patient preferences [33]. This necessitates the development of strategies that are suitable for patients' respective cultures and the participation of patients in the decision-making process regarding their care. It is possible to increase patient satisfaction by delivering patient-centered care that includes crucial components such as effective communication, addressing patient issues, and providing emotional support [34].

Utilize technology and data analytics to monitor and optimize radiation: Therapy Processes Managers of healthcare facilities should use technology and data analytics to monitor and improve the radiation therapy process [35]. It is possible to help ensure that patients receive consistent and high-quality care by putting standardized protocols and guidelines for radiation therapy into place [36]. In addition, improving patient safety and happiness can be helped by developing a culture of safety and continuous improvement, promoting interdisciplinary collaboration, and providing training and education for healthcare professionals [37].

Efforts should be made to improve care coordination and integration. Managers of healthcare facilities should make efforts to improve the coordination and integration of care for lung cancer patients across the various healthcare departments and settings [38]. This can be accomplished through efficient care coordination methods, transparent communication channels, and collaborative efforts by professionals from multiple disciplines [23]. Healthcare administrators can improve patient safety and happiness by closing gaps in care and reducing unnecessary processes [39].

Tracking patient outcomes through radiation therapy: Establishing Robust Monitoring and Evaluation Systems Healthcare administrators should build robust monitoring and evaluation systems to follow patient outcomes both during and after radiation therapy [40]. This involves monitoring the patient's reaction to treatment and any adverse effects and long-term results. Healthcare administrators are able to pinpoint problem areas and arrive at well-informed judgments when they routinely analyze the results of patient treatment [40]. This helps them enhance both patient safety and satisfaction.

Foster collaboration and partnerships: Healthcare management should aggressively cooperate with other stakeholders, such as radiation oncologists, healthcare providers, patients, and policymakers. This will help improve patient care and save costs [41]. It is possible for collaborative efforts to result in shared decision-making, enhanced care coordination, and the implementation of practices that are supported by evidence [42]. Healthcare managers can effect beneficial changes in how radiation therapy is delivered to patients suffering from lung cancer if they cultivate partnerships.

Improve patient education and support: Managers of healthcare facilities should make improving patient education and support a top priority throughout the entire process of radiation therapy [43]. This includes addressing any worries the patient may have and providing emotional support in addition to providing facts regarding the treatment. The educational materials for patients must be understandable, considerate of other cultures, and easily available [43]. Healthcare administrators can improve patient satisfaction and engagement in their own care by providing patients with the knowledge and assistance necessary to become more self-sufficient.

Continuous Quality Improvement: Managers in the healthcare industry should encourage a culture of continual quality improvement in the services provided by radiation therapists. This involves conducting assessments of processes regularly, obtaining feedback from patients and healthcare providers, and putting improvement initiatives into action [44]. Managers in the healthcare industry may maintain a high level of patient happiness and safety by proactively looking for ways to improve their services.

8.LIMITATIONS

Because of the criteria for inclusion and exclusion, the studies included in the systematic review are limited to

those published between 2015 and 2023 to ensure currency. Besides, only articles published in English were included in the study. These narrow inclusion criteria could have led to the exclusion of studies published in other parts of the world capturing the role of healthcare managers in ensuring patient safety and satisfaction during radiation oncology for lung cancer patients.

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