



THE USE OF MULTIMEDIA EDUCATION IN CANCER PATIENT MANAGEMENT: A LITERATUR REVIEW

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ABSTRACT

Cancer develops a variety of complex difficulties, both physically and psychologically. Providing educational interventions to cancer patients has proven to be beneficial. Objective: this literature review aimed to determine how multimedia education is employed and the benefits of multimedia education interventions in cancer patients. Method: the literature search was conducted using the electronic databases ScienceDirect, Scopus, Proquest, and Clinicalkey. The keywords used in the article search were 'cancer' and 'multimedia education'. The inclusion criteria for this study were quantitative with an experimental design and quasi-experimental. Other inclusion criteria were published in English between 2015 and 2024. Results: From the 1056 articles found, 7 articles were analyzed revealed that cancer patients were offered various types of multimedia in the form of text, video, audio, or animation. Using multimedia-based interventions can promote disease knowledge, understanding, and acceptance, hence improving quality of life and treatment compliance. Conclusions: this literature review concludes that multimedia-based interventions have a greater favorable impact on cancer patients than conventional education. Therefore, medical personnel, particularly nurses, can provide multimedia-based educational interventions to cancer patients.

Keywords: cancer; education; multimedia

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INTRODUCTION

Cancer is the leading most common reason of death worldwide. Cancer causes about 10 million people in 2022 and is predicted to reach 16 million by 2045 (The Global Cancer Observatory, 2024). The number of new cancer cases in 2030 is estimated to reach 23.6 million (Sung et al., 2021). The National Cancer Institute (NCI) and the National Institutes of Health (NIH) define cancer as a condition in which aberrant cells develop uncontrollably and spread to other tissues (Huether dan McCance, 2019). Cancer and its treatment cause physical and psychological issues in cancer patients (Papadopoulou et al., 2022). As a result, cancer patients require intervention to mitigate the disease's physical and psychological effects. Educational interventions for cancer patients are becoming increasingly crucial as cancer treatment becomes more sophisticated, the population ages and disease prognosis improves (Crespo & Tyszka, 2017; May & Figgins, 2016). Previous research has shown that education is a crucial feature of effective cancer care, can prevent recurrent hospitalizations and trips to the emergency department, and improve the quality of life of patients as well as their families (Berkman et al., 2011; Schapira, 2018; Stenberg et al., 2018).

Educational media can be an effective method of imparting education to patients because, when chosen correctly, it may encourage motivation and in-depth learning while also saving time (Badei et al., 2016). Online media is rapidly expanding as technology advances. One of the developments in education is the introduction of online-based educational interventions

(Krnjic Martinic et al., 2022). Multimedia education breaks up the monotony of teaching with printed media and text, allowing for quick achievement of learning objectives, shortening learning time wherever the location is, ensuring that teaching materials can be updated at any time, and providing greater freedom and flexibility to carry out learning (Edward et al., 2011; Franco et al., 2011; Ferguson et al., 2016). In addition to leaflets and books, multimedia education should be integrated into routine education models to improve care quality and patient understanding (Ihrig et al., 2012). This is consistent with the research conducted by Yang et al. (2023) which found that using multimedia for education improves the quality of care for cancer patients. Although patient education and health communication continue to improve, little progress has been made in normal clinical cancer care (Légaré & Witteman, 2013). As a result, multimedia-based education for cancer patients remains a research subject. The purpose of this literature review is to find out how to use multimedia education in cancer patients through a literature review.

METHOD

The research design used in writing this article is a literature review. A literature search was conducted using the electronic databases ScienceDirect, Scopus, Proquest, and Clinicalkey. Article searches used the keywords 'cancer', and 'multimedia education'. The question guide used PICO (Population (P) = cancer patients, Intervention (I) = multimedia education, Comparison (C) = experimental and control groups, Outcomes (O) = management in cancer patients. Titles and abstracts that potentially met the requirements were then extracted and screened to determine whether the papers covered the use of multimedia to improve coping in cancer patients. Each piece was thoroughly read to determine its eligibility. This study's inclusion criteria were quantitative with an experimental design (quasi-experimental). From 2015 to 2024, it was published in English. Incomplete studies and those having duplicate items in the research results search were excluded.

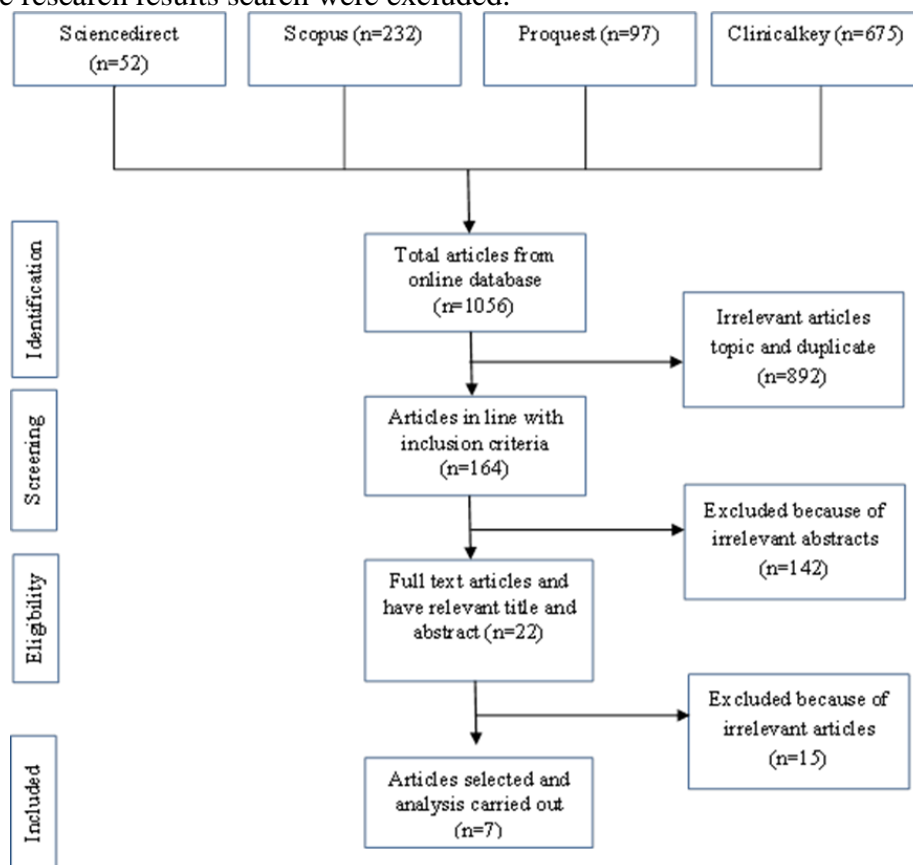


Figure 1. Flow chart

RESULTS

After the article search, the following step was to limit the number of articles based on the research criteria by applying filters to Full-Text articles and publication years within the last ten years. The number of articles is known to be 1056. It was determined that 892 articles covering various topics were erased, while 164 articles met the inclusion criteria based on title and abstract. However, only 22 articles were analyzed in full text, and 142 were excluded because they were unrelated to the subject matter. Thus, there are 7 full-text articles left to be examined in accordance with the problem formulation.

Table 1.
Data extraction

Title/Author	Research Method	Total Samples	Results	Country
A tablet game or training booklet? Two methods for evaluating symptom management and quality-of-life of children receiving chemotherapy (Kerimoglu Yildiz et al., 2022)	Quantitative: quasi-experimental and non-randomised with pre-and post-test control group.	50 samples	The findings of this study show that both interventions are beneficial for symptom management, but the group that received the gaming intervention had a higher quality of life.	Turkey
Mobile App for Gynecologic Cancer Support for Patients With Gynecologic Cancer Receiving Chemotherapy in China: Multicenter Randomized Controlled Trial (Lin et al., 2023)	Quantitative: Randomized Controlled Trial	136 samples	The MGCS program helps gynecological cancer patients receiving chemotherapy by reducing disease uncertainty and improving patient quality of life.	China
Effects of a WeChat-Based Life Review Program for Patients With Digestive System Cancer: 3-Arm Parallel Randomized Controlled Trial (Zheng et al., 2022)	Quantitative: Randomized Controlled Trial	150 samples	The WeChat-based life review program effectively reduces anxiety and depression symptoms while enhancing hope and self-confidence in digestive system cancer patients. Friendly visits can also help alleviate anxiety, albeit the effects are only temporary.	China
Effect of a 4-Week Internet-Delivered Mindfulness-Based Cancer Recovery Intervention on the Symptom Burden and Quality of Life of Patients With Breast Cancer: Randomized Controlled Trial (Wang et al., 2022)	Quantitative: Randomized Controlled Trial	103 Samples	The iMBCR program reduces symptom burden and improves patient quality of life, and it also has high compliance and completion rates among breast cancer patients.	China
Multimedia-based hormone therapy information program for patients with prostate cancer: the result of a randomized pilot study (Chien et al., 2023)	Quantitative: Experimental Prospective Study	76 samples	The hormone therapy-based multimedia program (HTIP) has the potential to promote positive attitudes and quality of life (QOL) in prostate cancer patients receiving hormone therapy.	Taiwan
Effectiveness of multimedia courses in improving self-care among patients with breast cancer undergoing radiotherapy (Yang et al., 2023)	Quantitative: Randomized Controlled Trial	110 samples	The study found that breast cancer patients who received pre-treatment multimedia health education had a higher degree of comprehension of proper self-care and treatment than the control group.	Taiwan
Postoperative patient-centered multimedia education in head and neck cancer patients: A pilot study (Amanian et al., 2022)	Quantitative: Prospective pilot study	35 samples	This pilot study demonstrates the feasibility of an audiovisual education platform in cancer patients after major head and neck reconstruction surgery.	Canada

Some of the benefits of multimedia education in the articles are improved knowledge, symptom management, quality of life, and increased satisfaction. Each of these topics is addressed individually in the following sections.

Knowledge

The use of multimedia for cancer patient education is successful in improving patient knowledge. Yang et al (2023) compared the use of multimedia education with traditional (paper-based) education and found that the level of knowledge was higher in terms of self-care with the level of treatment accuracy increasing from 10.9 to 79.1% in the control group and from 24.8 to 98.5% ($p < 0.001$) in the experimental group. This is consistent with research indicating that practicing health literacy (accessing, reading, assessing, making decisions, and understanding) can result in increased self-care among cancer patients (Ahmadzadeh et al., 2021).

Symptom management

Multiple research on the use of multimedia for cancer patient education revealed that it can alleviate a variety of symptoms. Kerimoglu Yildiz et al (2022) discovered a decrease in symptom disturbance, both physiologically and psychologically. This is backed by studies on the use of multimedia modules, which are beneficial in lowering anxiety and depression symptoms in patients with digestive system cancer (Zheng et al., 2022). Wang et al (2022) investigated the impact of the Internet Mindfulness-Based Cancer Recovery (iMBCR) intervention on the burden of physical symptoms, specifically fatigue, and psychological difficulties, such as anguish and despair.

Quality of life

Educational interventions based on multimedia have been found to improve cancer patients' quality of life. The research conducted by Lin et al (2023) examined the usefulness of a mobile application (MGCS) as a support service for gynecological cancer patients undergoing chemotherapy and discovered an increase in quality of life ($P = 0.04$). The use of multimedia, such as games and pamphlets, has also been demonstrated to increase the quality of life in pediatric cancer patients (Kerimoglu Yildiz et al., 2022). Wang et al's (2022) study with the use of multimedia in the form of books and also exercises in the form of videos and audio via the internet can improve the quality of life of breast cancer patients. Multimedia-based programs in instant messaging applications can improve the quality of life (QOL) of prostate cancer patients receiving hormone therapy (Chien et al., 2023).

Increased satisfaction

The use of multimedia for cancer patient education has the potential for greater service satisfaction. This is reinforced by Amanian et al's (2022) study, which aims to demonstrate teaching utilizing multimedia (audiovisual) in patients undergoing head and neck surgery. The findings of this study revealed that the intervention group reported higher levels of satisfaction. As many as 87.5% (14 of 16) found this intervention "very useful," "quite useful," or "sometimes useful." As many as 68.8% (11 out of 16) suggested this instructional intervention to the same patient. This is in line with research by Benson et al. (2022) who evaluated the effectiveness of multimedia educational devices in lung cancer patients, patients who received multimedia education through the iPad application were reported to have significantly higher satisfaction scores compared to those who received standard education.

DISCUSSION

The literature study revealed that there is minimal experimental and observational evidence, but implies that multimedia-based interventions can increase knowledge and understanding, such as symptom management, quality of life, and satisfaction in cancer patients (Amanian et al., 2022; Chien et al., 2023; Kerimoglu Yildiz et al., 2022; Lin et al., 2023; Wang et al., 2022; Yang et al., 2023; Zheng et al., 2022). As the use of technology in daily life increases,

mobile device-based applications are starting to be widely used to provide information to patients (Kerimoglu Yildiz et al., 2022). Multimedia-based interventions can give patients with simple, inexpensive, and easily available information resources (Lam et al., 2017). Information should be adapted to each patient's specific needs (Schuit et al., 2022). Using multimedia has various benefits, including step-by-step instruction that is personalized to educational needs and patient feedback (Yang et al., 2023). Multimedia-based interventions improve illness acceptance and treatment adherence in cancer patients (Kerimoglu Yildiz et al., 2022; Lin et al., 2023; Wang et al., 2022). As a result, the effect will increase patient quality of life and symptom management in cancer patients (Bahrami, 2011). Maintaining optimal quality of life by early identification of symptoms and providing access to palliative care services, is an important aspect of palliative care (Schuit et al., 2022).

The literature review states that the use of multimedia-based education may also be more engaging and interactive than traditional interventions, and allows personalization of the information received, which is necessary for a patient-centered and caregiver-centered approach (Lam et al., 2017). Given that face-to-face teaching can be challenging in terms of logistics and resource utilisation, multimedia education may be a practical alternative (Amanian et al., 2022). Although multimedia education can improve the effectiveness of health education, it cannot replace psychological support and patient comfort, particularly when offered directly by nurses (Yang et al., 2023). One disadvantage of this study was that it was exploratory rather than aimed at answering clinical problems. This study specifically sought to examine the efficacy of multimedia use in cancer patients. This literature review focuses on research that supports a subset of this intervention rather than a thorough assessment of all extant interventions. Furthermore, the absence of meta-analysis due to variances in study designs limited the findings for identifying studies with qualitative designs.

CONCLUSION

This literature review concludes that multimedia-based interventions have a greater favorable impact on cancer patients than conventional education. The adoption of multimedia-based interventions can improve cancer patients' knowledge and acceptance of the disease, hence affecting their quality of life and treatment compliance. As a result, health personnel, particularly nurses, can incorporate multimedia-based educational interventions into routine interventions for cancer patients.

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