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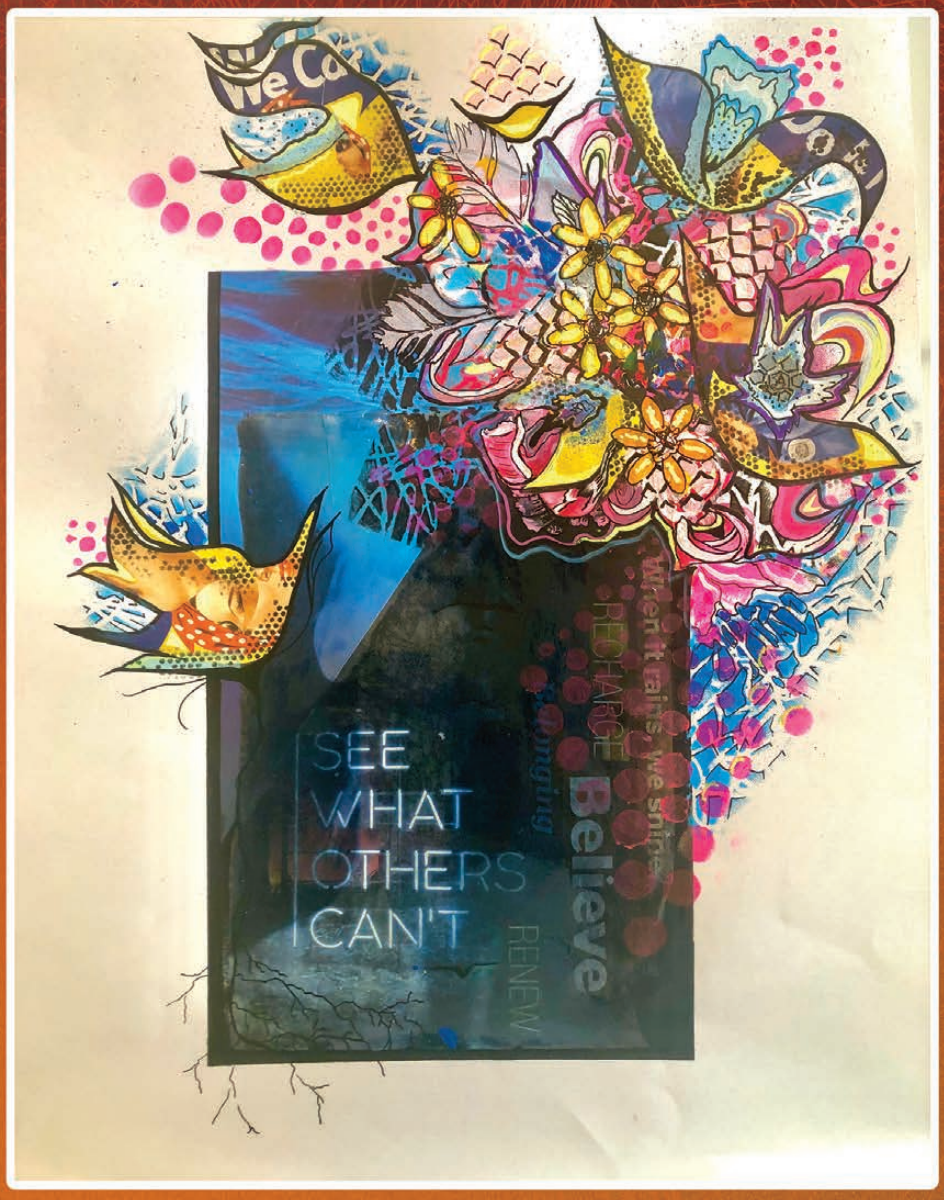

Medical nursing care of gastrointestinal tumour patients during chemotherapy

by Donghui Dai, Jie Chen

ABSTRACT

Objectives. *This research with gastrointestinal cancer patients analyzed the expected outcomes of nursing interventions on a) patient adherence to treatment; b) patient satisfaction with nursing care; and c) health of body conditions such as lung function.*

Methods. *All patients (60 individuals) who underwent chemotherapy at The First Affiliated Hospital of Soochow University, Department of Traditional Chinese Medicine, were divided into two equal groups. Group 1 received planned care and Group 2 received evidence-based nursing interventions.*

Results. *The results showed that treatment adherence was higher in Group 2 than in the control group ($p = 0.01$). In addition, there was a higher rating by patients for the quality of nursing care ($p = 0.01$), as well as a higher score obtained for lung function ($p = 0.01$). Treatment adherence resulted in a decrease in the secondary infection rate in Group 2 ($p = 0.05$).*

Conclusion. *The results showed that quality nursing intervention is effective for lung function improvement, stress level reduction, treatment plans, and a reduction of secondary infections.*

Keywords: cancer, nursing care, quality of life, lung function, commitment to treatment, secondary infection.

INTRODUCTION

Oncology diseases have become a widespread problem among populations, as the incidence of the disease is rising. Disease treatment is a long and complicated process and some forms of the disease still have high morbidity rates, even if patients undergo full therapy (Brennan-Cook, 2020). Chemotherapy and radiation therapy are the most common treatment methods for this specific group of pathologies. However, the proposed methods have side effects. One of the most severe side effects of chemotherapy is the body's general intoxication (Totzeck et al., 2019).

The above-mentioned factors imply that the proposed treatment has a strong impact on the psychological well-being of patients. In many cases, patients may feel depression and apathy (Morrison et al., 2017). The influence of negative emotions may cause a lack of desire to fight for life. Some individuals may refuse to undergo therapy and choose to take narcotic analgesics for pain relief for the rest of their life. Thus, the emotional support of cancer patients is crucial (Jung et al., 2018).

In order to ensure adequate support for cancer patients, each medical clinic has a psychotherapist. Large oncology clinics employ a staff of specialists in this field (Cai et al., 2021). Another important aspect of nursing care is the support provided by family and friends (Kilic & Oz, 2019). In addition, there are numerous methods of professional support external to clinics for individuals with severe conditions.

Different psychological courses and trainings include classical Gestalt practices and different art therapy sessions (Lang-Rollin & Berberich, 2018). Gestalt practices are based on discussing the problem and expressing emotions as the necessary first steps to positive mental health and emotional well-being. Research suggests that releasing toxic emotions and accepting a situation is more helpful than rejecting it (Greenberg et al., 2020). Gestalt therapy group sessions provide support and unite patients experiencing the same problem (Ludolph et al., 2019). Art therapy is popular among patients with severe illnesses. The main practices include, but are not limited to, the process of drawing that helps individuals to release negative feelings, and writing letters or a diary of emotions. (Bosman et al., 2021).

Another important support factor for cancer patients is the positive attitude of medical staff (e.g., doctors and nurses), since patients spend long periods in the oncology clinic. One of the main tasks of doctors and nurses is to communicate effectively with cancer patients (Sawin et al., 2019). Trust between the patient and the medical staff supports adherence to therapy and ensures recovery among patients. Therefore, patients should feel safe and cared for throughout the treatment process (Schenker et al., 2021). The nursing staff have an important role in providing such care to patients. Nurses administer all pre- and post-chemotherapy care for cancer patients (Maikanov, Auteleyva et al., 2020; Maikanov, Zablotnykh et al., 2020).

The medical staff should have the knowledge and skills to perform standard care and provide psychological support. The psychological support is crucial for the clinical treatment departments caring for patients with severe illnesses (Schuster, 2021). Working with oncology patients, it is vital to consider the depressed emotional states associated with the diagnosis and the side effects of the treatment. This group of patients requires significant support from the medical staff (Chan et al., 2018) and careful attention to their health conditions. In addition to their direct responsibilities, nurses should convey a positive attitude toward sick individuals, and ensure adequate nursing care and attention in response to symptoms and life stress. Friendship may also be beneficial for patients (van Dusseldorp et al., 2019).

AUTHOR NOTES

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Taking into account the information mentioned above, it is evident that support for cancer patients is a vital aspect of the recovery process. First, this pathology requires a serious course of treatment under strict medical control. Secondly, radiation therapy and chemotherapy have numerous side effects, which can make it difficult for patients to cope. Third, individuals with an oncology diagnosis may feel depression and frustration and, in some cases, refuse medical treatment. Since the patients spend most of the time in the hospital, the responsibility of the medical staff is to maintain their good condition and continue treatment.

Literature Review

Researchers from Vancouver (Canada) analyzed models of nursing staff performance related to patient care and the effectiveness of the proposed practices (Havaei et al., 2019). The study was based on the analysis of two groups of nurses and their performance. The first group worked in a team model and the nurse participants shared the duties of caring for a patient. The second group also provided nursing care to patients, but each nurse was assigned to an individual patient. The results showed that the first group had more errors and failed care than the second one. It was concluded that individualization had a more effective impact on nursing duties (Havaei et al., 2019).

Scientists from the UK together with their colleagues from Italy analyzed the influence of nursing performance on the patient recovery process (Recio-Saucedo et al., 2018). The analysis included an evaluation of various sources and the results were very similar to the conclusions made by Havaei et al. from Canada. These researchers analyzed articles about the causes of medical errors in a medical facility to identify the role of moral support provided to patients. As a result, they reported that careful attention to patients in nursing care had a tremendous impact on health outcomes. They concluded that nursing staff were responsible for patient adherence to the treatment regimen. The neglect of duties by nursing staff can lead to negative consequences, including a fatal outcome (Recio-Saucedo et al., 2018).

The Association of Scientists (Great Britain, Finland, Cameroon, the Netherlands, and Hong Kong) considered nurses as one of the most significant factors in caring for cancer patients. This research differs from the previous ones reported above, since investigators analyzed the overall role of nurses concerning patients rather than a model of nursing care itself. The study assessed the role of medical personnel in healthcare and its impact on patients in a medical facility. The effect of providing nursing care points to the benefit of psychological support. It was reported in this study that nursing care made a significant contribution to oncology therapy. The nurses, by spending a long time with patients, provide them with moral support and teach them how to cope with this pathology to improve their quality of life.

In another study, investigators from the UK examined the impact of nursing care on patients and reported findings very similar to the Canadian and Italian studies (Richards et al., 2018). They analyzed 149 articles on this issue based on both randomized and non-randomized controlled trials. According to the research results, nursing care had a great impact on patients' health. Targeted and structured patient care helps patients adhere to therapy. Low-skilled care provided to patients has a negative impact on the illness condition (Richards et al., 2018).

Researchers from the University of Exeter (UK) analyzed the interrelation between nursing care and the disease condition and confirmed the results of the research described above (Pentecost et al., 2020). The impact of a traditional nursing approach on nutrition, mobility, hygiene, and patient adherence was noted. The results showed that the more professional nursing care patients received, the more efficiently they coped with their pathology conditions. It was also noted that patients who develop a trusting relationship with medical staff have a much better adherence to treatment (Pentecost et al., 2020).

A USA-based study analyzed the impact of nursing care on patient safety. Accepting the position of colleagues from the UK, Canada, and Italy, the investigators acknowledged the importance of quality nursing care to ensure the fast recovery of patients (Leming-Lee & Watters, 2019). This study focused on the organization of nurses to improve nursing care delivery. This requires the development of schedules and adherence to work responsibilities (Leming-Lee & Watters, 2019).

In Taiwan, researchers assessed the development of care standards and evaluation of patients who experience severe pain in a medical centre (Feng & Chang, 2016). This research differed in structure from the previous ones reported above. A special computer program was developed to measure the level of pain at regular intervals. The level of pain was evaluated with a proposed scale. The assessment provided to the patients was sufficient and met the established standards (Feng & Chang, 2016).

And finally, from Iran, investigators evaluated the method of shift transfer at the bedside of the patient (Abbaszade et al., 2021). Although, this research differed in methodology from other studies above, its conclusions were similar. For the experiment, all the patient data during the shift transfer between nurses were discussed with the patient. The patient's well-being was an important aspect of nursing care provision. The patients positively evaluated the approach. The investigators concluded that it is possible to improve nursing care when a trusting relationship develops between the medical staff and patients (Abbaszade et al., 2021).

In summary, the information mentioned above showed that the work quality directly affected the patient's condition and the desire to fight disease. Emotional support and trusting relationships between the patient and the nursing staff are crucial for patients to adhere to the therapy plan.

Problem setting

Our experiment evaluated the influence of nursing care on patients with oncology diseases, including the patients' performance and willingness to continue treatment. The aim was to analyze the impact on the following factors: a) patient commitment to treatment; b) patient satisfaction with care; and c) healthy body conditions such as the lung function. The

experiment was conducted at The First Affiliated Hospital of Soochow University, Department of Traditional Chinese Medicine. Sixty respondents, between the ages of 20 and 80 years, were involved in this research. All participants were patients of the Abdominal Oncology Department. The patients were divided into two groups of 30 individuals each. The first group consisted of patients who had the usual planned intervention. The second group included patients receiving evidence-based nursing interventions. During the experiment, all participants underwent specialized testing to assess the quality of the methodologies used.

METHODS AND MATERIALS

Research design and sampling

The design of the study was a randomized trial conducted to evaluate the impact of nursing care on cancer patients. The study population was 60 patients from the Abdominal Oncology Department. Twenty-two were male and 38 were female patients. The participants were divided into two equal groups of 30 individuals. As patients were admitted to the department, patients were assigned alternatively to either Group 1 or 2. Group 1 included every first patient (14 men and 16 women), whereas Group 2 consisted of every second of the sample (8 men and 22 women). The participants all had cancerous tumours localized in the stomach and intestine. The stage of the disease ranged from one to three with a severity ranging from mild to moderate. The age range of the participants was from 30 to 70 years. The first group of patients received planned nursing interventions and the second received evidence-based nursing interventions.

Data Collection

The results were evaluated using a purposely designed questionnaire. The questionnaire assessed their well-being and satisfaction with nursing care during therapy. This test consisted of several blocks of questions that the patients were required to answer. The aim of the questionnaire was a subjective assessment of the physical condition, the quality of care of the medical staff and the relationships with patients. The questionnaire consisted of the following blocks: "Commitment to treatment", "Satisfaction with care", "Health body conditions", "Lung functions", and "Incidence of secondary infections". Patients ranked each question according to a scale from 1 to 10. The last two blocks were evaluated by doctors. A score between 1 and 4 was considered low. The result between 5 and 7 was considered average. The high scores were between 8 and 10. The list of questions is available in Table 1.

The questionnaire was developed by the authors of this study and its use was approved at a meeting of the Ethics Committee at The First Affiliated Hospital of Soochow University, Department of Traditional Chinese Medicine. Participants' consent was required to participate in the research. All the respondents were preliminarily informed about the research and its steps both orally and in written form. Participants received information about assessment tests. Consequently, all respondents gave written consent to participate in the experiment.

Table 1

Nursing Quality Questionnaire

Block 1. Adherence to treatment
How motivated are you to adhere to treatment?
How willing are you to fight the disease, even if it takes a long time?
Are you willing to comply with chemotherapy despite the discomfort associated with side effects?
Block 2. Satisfaction with care
In your opinion, do the nurses act in a timely and high-quality manner?
Do the nurses respond to your requests and complaints in a timely manner?
How do you rate the degree of trust in nurses?
Block 3. Indicators of health body conditions
Assess your degree of fatigue during therapy
Assess the level of nausea during therapy
Rate your level of discomfort caused by vomiting during therapy
Block 4. Indicators of lung function
Block 5. Incidence of secondary infections

All respondents completed the questionnaire two times: before the research and at the end of the experiment. The results were calculated using the arithmetic mean for the group and the block of tests. The research occurred over a period of eight months.

A different method of care was used for each group. The first group received care following the principle of the planned intervention. This technique meant that the nurses performed nursing care without any communication with patients. The nurses in this group were not required to discuss their test results with patients and disclose their health conditions. In this case, the nursing staff worked in collaboration with other staff members (Smith et al., 2018). The method of evidence-based care was selected for the second group of patients. It required an individual approach to each patient. A group of three nurses was assigned to work with each patient following the schedule (Driscoll et al., 2018). The nurses were expected to answer patients' questions about their health and body conditions, give advice, and provide moral support. This healthcare model can be perceived as palliative care (Ozaras & Abaan, 2018).

Intervention

In this research, nurses used several types of intervention. Medical intervention consisted of standard types of care for cancer patients and medical documentation. These included 1) preparation of workplaces, necessary medical instruments, inventory, documentation before the outpatient appointment with an oncologist, checking the equipment and its serviceability; 2) monitoring the timely receipt of research results and attaching them to the medical records of outpatient patients; 3) if necessary, assistance to patients in preparation for a doctor's examination; 4) assistance to the doctor when applying surgical dressings, conducting biopsies; 5) explaining to patients

the methods and procedure of preparing for laboratory, instrumental and computer analyses; 6) statement of requirements for medicines, dressings and receiving them from the head nurse; 7) participation in sanitary and educational work; 8) regular professional development; and 9) registration of medical documentation under the supervision of a doctor (referrals to consultations and auxiliary offices, statistical coupons, extracts from medical records, disability sheets, notices of a patient with a diagnosis of their first malignant neoplasm, biopsy logs, a performance journal of the nursing staff). Thus, the standard interventions outlining the direct or indirect interaction of a nurse with a patient include the first six points.

The actual intervention in Group 2 for the nurse-patient communication included the following: 1) improving the level of communication or support between nurses and patients; and 2) training of symptom management strategies. Interpersonal interaction is based on respect for a person, their health and dignity, which is the nursing philosophy. The individual characteristics of the patient and the professional characteristics of the nurse are manifested through communication. Interaction with the patient which does not regard their mental, social and spiritual spheres mechanises the process of care.

There are two ways of transmitting information: verbal (oral or written speech) and non-verbal (posture, gesture, facial expressions, etc.). The transmitting method choice depends on the message's content and the individual qualities of the message recipient. Several channels are frequently used to transmit messages, for instance, oral speech is accompanied by facial expressions and gestures. Verbal communication includes two main elements: the meaning and the form of the statement. The message should be clear and accurate. An incorrectly set question can cause an error in care or treatment. In order to improve the effectiveness of conflict resolution and prevention, the rules of behaviour should be used, for example: a) evaluation of one's own actions and the actions of the opponent, avoiding false perception; b) impartial assessment of the situation from the opponent's point of view; and c) avoiding expressing the comments about the actions and statements of the opponent, to prevent the aggressive reaction.

As for the second point, the nurse should be able to notice all changes in the patient's health in due time. This is crucial, especially when the patient's condition worsens. These changes, applying even to the most insignificant manifestations of the disease, require the most attentive attitude. Thus, among the types of interventions, the performance of nurses' duties and direct emotional and psychological interaction with the patient can be noted.

Statistical processing and data analysis

A specialized software package for statistical analysis (SPSS 26.0) was used for data processing and calculations of indicators. Microsoft Excel 2019 was applied to visualise the results. To compare the effectiveness of both methods of nursing care for the patients' health conditions, the Student's t-test was used. The Student's t-test considered the average pre-test result in both groups to assess the initial well-being. Post-test scores were compared to determine the intergroup difference after the interventions. The significance level was set ($p \leq 0.05$). For median analysis, 95% confidence intervals (CI) were calculated.

RESULTS

Before the interventions, all respondents completed a questionnaire on five basic criteria: "Adherence to treatment"; "Satisfaction with care"; "Health body conditions"; "Lung functions"; and "Incidence of secondary infections". At the pre-stage, the mean score for the criterion "Adherence to treatment" in Group 1 was 5.3±0.141. In Group 2, the mean value of this criterion was equal to 5.4±0.141. The significance level of indicators (P-value) was 0.553 ($p \leq 0.05$) showing the statistical similarity of the results in both groups. The mean scores of 5.3 and 5.4 points, respectively, indicated the lower limit of the average level of indicators.

The mean score for "Satisfaction with care" criterion in Group 1 was equal to 5.2±0.141. The result of Group 2 was 5.3±0.141. The significance level of indicators (P-value) in this case was also equal to 0.553 ($p \leq 0.05$). The analysis revealed the similarity between the two groups during the preliminary testing phase. The mean scores of 5.2 and 5.3 points showed the lower level of indicators.

According to the criterion "Health body conditions", at the beginning, Group 1 showed a mean result of 8.9±0.283. The second group's result was 8.85±0.212 for the preliminary test. The significance level of indicators (P-value) was 0.861 ($p \leq 0.05$). This result was not statistically different between the two groups. The indicators in both groups indicated a high level. This factor reflected the negative results of body conditions (e.g., fatigue, nausea, and vomiting). Therefore, a high level indicated a negative manifestation of the criterion.

Lung function parameters in both groups were equal, 7.4±0.141 in Group 1 and 7.4±0.283 in Group 2 with a P-value = 1 ($p \leq 0.05$). The "Incidence of secondary infections" criterion was 6.3±0.141 for the first group and 6.25±0.071 for the second group. The significance level was 0.712 ($p \leq 0.05$). These indicators showed the average level. All results of preliminary testing are presented in Table 2.

The final testing was completed for the patients following the experiment. The criterion "Adherence to treatment" in the first group was 5.8±0.141. Group 2 showed a mean of 8.1±0.141. The significance level was 0.004** ($p \leq 0.01$; **see Table 3) demonstrating a statistical difference between the two groups. The result of the first group was average, and the result of the second group was high.

In Group 1, the mean score for "Satisfaction with care" was equal to 5.95±0.071 and in Group 2 was 8.4±0.141. The P-value was 0.008** ($p \leq 0.01$; **see Table 3). According to the testing scale, the result of the first group was at the average level and the second group demonstrated high-level results.

In Group 1, the mean score for "Health body conditions" was 8.3±0.141 and in Group 2 was 7.8±0.141. There was no difference in indicators between the groups as the P-value was 0.072 ($p \leq 0.05$). The Group 1 score reflected the lower limit of the high category level of the criterion, and Group 2 showed the upper limit of the average level.

The criterion "lung functions" in the first group was 7.6±0.141 and in the second group was 9±0.141. The level of statistical significance was 0.01** ($p \leq 0.01$; **see Table 3). The results of the first and second groups were equal to the average and high score levels. "Incidence of secondary infections" in the first group was (6.05±0.212), while in the second group the result was (4.25±0.071). The P-value was 0.035* ($p \leq 0.05$; **see Table 3). The results of the first and second groups were at average and low levels, respectively. All the results of the final testing are presented in Table 3.

Table 2

Pre-Testing

Questionnaire Block names	Mean Value Group 1	Mean Value Group 2	Significance Level (P-value)
Adherence to treatment	5.3±0.141	5.4±0.141	0.553
Satisfaction with care	5.2±0.141	5.3±0.141	0.553
Health body conditions	8.9±0.283	8.85±0.212	0.861
Lung functions	7.4±0.141	7.4±0.283	1
Incidence of secondary infections	6.3±0.141	6.25±0.071	0.712

Table 3

Final Testing

Questionnaire Block names	Mean Value Group 1	Mean Value Group 2	The Level of Significance (P-value)
Adherence to treatment	5.8±0.141	8.1±0.141	0.004**
Satisfaction with care	5.95±0.071	8.4±0.141	0.008**
Health body conditions	8.3±0.141	7.8±0.141	0.072
Lung functions	7.6±0.141	9±0.141	0.01**
Incidence of secondary infections	6.05±0.212	4.25±0.071	0.035*

DISCUSSION

In this research, the methodology of providing evidence-based nursing showed the better result. The patient who received this type of care showed positive dynamics for "Lung functions" and "Incidence of secondary infections". The factors of "Treatment adherence" and "Satisfaction with care" increased significantly and showed different results between Group 1 and Group 2.

The result is supported by research from various countries. In Chile, investigators analyzed the ethical competence of nurses and its impact on patients' well-being (Bratz & Sandoval-Ramirez, 2018). The researchers argued that the ethical training of nursing staff had a positive impact on patient communication. They found that the nurses who communicated with patients performed most effectively. Building trustful relationships and introducing effective communication were crucial, especially when the patients were motivated to adhere to therapy (Bratz & Sandoval-Ramirez, 2018).

Results from Brazil also showed similar perspectives. Investigators there analyzed the impact of different models of nursing palliative care for oncology patients from the paediatric ward (Sousa et al., 2019). Consequently, they noted that communication with patients had a better effect on the patients' emotional state than the traditional performance (Sousa et al., 2019). The additional communication was recognized as an effective method of nursing support (Utebaeva et al., 2021).

Korean scientists analyzed nursing care from both medical staff and patients' points of view. Their review of the literature and survey among medical staff and patients, led to the conclusion that mutual understanding was an important factor in the overall treatment success. The communication between the medical staff and patients facilitates developing a trusting attitude and adherence to treatment (Lee & Kim, 2020).

Investigators from New York (USA) considered changes in the approaches to caring for oncology patients. The researchers analyzed the introduction of palliative care into the structure of general patient care. Based on the results, patients felt much better and were more motivated to fight cancer after being involved in trustful communication and provided with nursing support (Chow & Dahlin, 2018). Researchers from Finland conducted an experiment on the individual nursing care for oncology patients. In addition to individual patient care, nurses were required to provide moral support to patients. Their results showed a significant improvement in the emotional states of the patients (Kousoulou et al., 2019). Comparing the research of Finnish scientists with the present experiment, both similarities and differences were identified. Similarities are expressed in the sample profile, methodology and results (Turzhigitova et al., 2022). However, scientists from Finland did not conduct a comparative examination of their strategy with other methods.

A congress of scientists from Sweden and Australia analyzed the impact of nursing care on cancer patients. For the

experiment, a group of respondents with different oncology conditions was involved. They described their physical and emotional states depending on the manifestation of care from the medical staff. The result showed that nursing care played a key role not only for patients, but also for medical support. As a result, the researchers noticed an improvement in the emotional and physical states of cancer patients (Muntlin Athlin et al., 2018). Similarly to the present experiment, scientists from Sweden and Australia concluded that the significance of mutual understanding and support between patients and medical staff improved oncology therapy.

Despite different methodologies in these studies there is a common theme regarding communication between nurses and patients and support from other medical staff are important for cancer treatment. Our evidence-based methodology showed the more effective results in this study. Nevertheless, this method may require additional human resources, providing the individual approach to patients.

Limitations

The research utilized comparison groups; however, the degree of cancer tumours and the severity of the disease were not considered. The first two blocks of the questionnaire can be described as subjective assessments, so the self-report results may not be accurate. All calculations represent the arithmetic mean of the sample. The analysis approach did not show a complete understanding of how this technique affects the individual. Additional qualitative research may be required to assess this aspect. The research suggests applying the evidence-based methodology and involving additional human resources.

CONCLUSIONS

The research assessed the methods of planned and evidence-based care for patients with oncology. The evidence-based care for patients was shown to be more effective. The hypothesis was confirmed that evidence-based care is the better solution for oncology patients and treatment success as measured by treatment adherence, satisfaction with care, lung function, and infection rates.

The results support the effectiveness of the patient support strategy for cancer patients. It might be considered for other inpatients with chronic illness and individuals requiring palliative care. Introduction of this technique in hospitals can contribute to better recovery among patients of any department and profile, but will require the recruitment of additional staff. From a theoretical point of view, this research illustrates the difference between the strategy of the traditional core duties of nursing staff and the methodology of supportive nursing care.

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Conflict of interest statement

This research has no conflict of interests.

Data availability statement

Data will be available on request.

REFERENCES

Abbaszade, A., Assarroudi, A., Armat, M. R., Stewart, J. J., Rakhshani, M. H., Sefidi, N., & Sahebkar, M. (2021). Evaluation of the impact of handoff based on the SBAR technique on quality of nursing care. *Journal of Nursing Care Quality, 36*(3), E38–E43. https://doi.org/110.1097/NCQ.0000000000000498

Bosman, J. T., Bood, Z. M., Scherer-Rath, M., Dörr, H., Christophe, N., Sprangers, M. A. G., & van Laarhoven, H. W. M. (2021). The effects of art therapy on anxiety, depression, and quality of life in adults with cancer: A systematic literature review. *Supportive Care in Cancer, 29*(5), 2289–2298. https://doi.org/10.1007/s00520-020-05869-0

Bratz, J. K. A., & Sandoval-Ramirez, M. (2018). Ethical competences for the development of nursing care. *Revista Brasileira de Enfermagem, 71*(Suppl 4), 1810–1814. https://doi.org/10.1590/0034-7167-2017-0539

Brennan-Cook, J. (2020). Polycythemia vera: Symptom burden, oncology nurse considerations, and patient education. *Clinical Journal of Oncology Nursing, 24*(5), 575–578. https://doi.org/10.1188/20.CJON.575-578

Cai, T., Huang, Q., & Yuan, C. (2021). Emotional, informational and instrumental support needs in patients with breast cancer who have undergone surgery: A cross-sectional study. *BMJ Open, 11*(8), e048515. https://doi.org/10.1136/bmjopen-2020-048515

Chan, E. A., Wong, F., Cheung, M. Y., & Lam, W. (2018). Patients' perceptions of their experiences with nurse-patient communication in oncology settings: A focused ethnographic study. *PLOS One, 13*(6), e0199183. https://doi.org/10.1371/journal.pone.0199183

Chow, K., & Dahlin, C. (2018). Integration of palliative care and oncology nursing. *Seminars in Oncology Nursing, 34*(3), 192–201. https://doi.org/10.1016/j.soncn.2018.06.001

Driscoll, A., Grant, M. J., Carroll, D., Dalton, S., Deaton, C., Jones, I., Lehwaldt, D., McKee, G., Munyombwe, T., & Astin, F. (2018). The effect of nurse-to-patient ratios on nurse-sensitive patient outcomes in acute specialist units: A systematic review and meta-analysis. *European Journal of Cardiovascular Nursing, 17*(1), 6–22. doi:10.1177/1474515117721561

Feng, R. C., & Chang, P. (2016). Developing evidence-based care standards and a decision-making support system for pain management. In *Nursing Informatics 2016* (pp. 887–888). IOS Press.

Greenberg, A., Anand, G., & Sinclair, G. (2020). Lung cancer treatment in COVID-19-positive patients: Guidelines and gestalt. *JCO Oncology Practice, 16*(9), 615–617. https://doi.org/10.1200/OP.20.00511

Havaei, F., MacPhee, M., & Dahinten, V. S. (2019). The effect of nursing care delivery models on quality and safety outcomes of care: A cross-sectional survey study of medical-surgical nurses. *Journal of Advanced Nursing, 75*(10), 2144–2155. https://doi.org/10.1111/jan.13997

Jung, J. Y., Lee, J. M., Kim, M. S., Shim, Y. M., Zo, J. I., & Yun, Y. H. (2018). Comparison of fatigue, depression, and anxiety as factors affecting posttreatment health-related quality of life in lung cancer survivors. *Psycho-Oncology, 27*(2), 465–470. https://doi.org/10.1002/pon.4513

Kilic, S. T., & Oz, F. (2019). Family caregivers' involvement in caring with cancer and their quality of life. *Asian Pacific Journal of Cancer Prevention, 20*(6), 1735–1741. https://doi.org/10.31557/APJCP.2019.20.6.1735

Kousoulou, M., Suhonen, R., & Charalambous, A. (2019). Associations of individualized nursing care and quality oncology nursing care in patients diagnosed with cancer. *European Journal of Oncology Nursing, 41,* 33–40. https://doi.org/10.1016/j.ejon.2019.05.011

Lang-Rollin, I., & Berberich, G. (2018). Psycho-oncology. *Dialogues in Clinical Neuroscience, 20*(1), 13–22. https://doi.org/10.31887/DCNS.2018.20.1/ilangrollin

Lee, K., & Kim, S. H. (2020). Patients' and nurses' perceptions of what constitutes good nursing care: An integrative review. *Research and Theory for Nursing Practice, 34*(2), 144–169. https://doi.org/10.1891/RTNP-D-19-00070

Leming-Lee, T., & Watters, R. (2019). Translation of evidence-based practice: Quality improvement and patient safety. *Nursing Clinics of North America, 54*(1), 1–20. https://doi.org/10.1016/j.cnur.2018.10.006

Ludolph, P., Kunzler, A. M., Stoffers-Winterling, J., Helmreich, I., & Lieb, K. (2019). Interventions to promote resilience in cancer patients. *Deutsches Ärzteblatt International, 116*(51-52), 865–872. https://doi.org/10.3238/arztebl.2019.0865

Maikanov, B. S., Auteleyeva, L. T., Ismagulova, G. T., Wiśniewski, J., Bełkot, Z., & Anusz, K. (2020). Quality and safety of fish products in the Shuchinsk-Burabay Resort Zone. *Medycyna Weterynaryjna, 76*(10), 585–588. https://doi.org/10.21521/mw.6462

Maikanov, B. S., Zabolotnykh, M. V., Auteleyeva, L. T., & Seidenova, S. P. (2020). Influence of antitox and Vitamin E-selenium on meat quality and safety in rabbits after 1,1-experimental dimethylhydrazine toxicosis. *Veterinary World, 13*(8), 1567–1572. https://doi.org/10.14202/vetworld.2020.1567-1572.

Morrison, E. J., Novotny, P. J., Sloan, J. A., Yang, P., Patten, C. A., Ruddy, K. J., & Clark, M. M. (2017). Emotional problems, quality of life, and symptom burden in patients with lung cancer. *Clinical Lung Cancer, 18*(5), 497–503. https://doi.org/10.1016/j.cllc.2017.02.008

Muntlin Athlin, Å., Brovall, M., Wengström, Y., Conroy, T., & Kitson, A. L. (2018). Descriptions of fundamental care needs in cancer care – An exploratory study. *Journal of Clinical Nursing, 27*(11–12), 2322–2332. https://doi.org/10.1111/jocn.14251

Ozaras, G., & Abaan, S. (2018). Investigation of the trust status of the nurse-patient relationship. *Nursing Ethics, 25*(5), 628–639. doi:10.1177/0969733016664971

Pentecost, C., Frost, J., Sugg, H. V., Hilli, A., Goodwin, V. A., & Richards, D. A. (2020). Patients' and nurses' experiences of fundamental nursing care: A systematic review and qualitative synthesis. *Journal of Clinical Nursing, 29*(11–12), 1858–1882. https://doi.org/10.1111/jocn.15082

Recio-Saucedo, A., Dall'Ora, C., Maruotti, A., Ball, J., Briggs, J., Meredith, P., Redfern, O. C., Kovacs, C., Prytherch, D., Smith, G. B., & Griffiths, P. (2018). What impact does nursing care left undone have on patient outcomes? Review of the literature. *Journal of Clinical Nursing, 27*(11-12), 2248–2259. https://doi.org/10.1111/jocn.14058

Richards, D. A., Hilli, A., Pentecost, C., Goodwin, V. A., & Frost, J. (2018). Fundamental nursing care: A systematic review of the evidence on the effect of nursing care interventions for nutrition, elimination, mobility and hygiene. *Journal of Clinical Nursing, 27*(11-12), 2179–2188. https://doi.org/10.1111/jocn.14150

Sawin, K. J., Montgomery, K. E., Dupree, C. Y., Haase, J. E., Phillips, C. R., & Hendricks-Ferguson, V. L. (2019). Oncology nurse managers' perceptions of palliative care and end-of-life communication. *Journal of Pediatric Oncology Nursing, 36*(3), 178–190. https://doi.org/10.1177/1043454219835448

Schenker, Y., Althouse, A. D., Rosenzweig, M., White, D. B., Chu, E., Smith, K. J., Resick, J. M., Belin, S., Park, S. Y., Smith, T. J., Bakitas, M. A., & Arnold, R. M. (2021). Effect of an oncology nurse-led primary palliative care intervention on patients with advanced cancer: The CONNECT cluster randomized clinical trial. *JAMA Internal Medicine, 181*(11), 1451–1460. https://doi.org/10.1001/jamainternmed.2021.5185

Schuster, M. A. (2021). Creating the hematology/oncology/stem cell transplant advancing resiliency team: A nurse-led support program for hematology/oncology/stem cell transplant staff. *Journal of Pediatric Oncology Nursing, 38*(5), 331–341. https://doi.org/10.1177/10434542211011046

Smith, J. G., Morin, K. H., Wallace, L. E., & Lake, E. T. (2018). Association of the nurse work environment, collective efficacy, and missed care. *Western Journal of Nursing Research, 40*(6), 779–798. https://doi.org/10.1177/0193945917734159

Sousa, A. D. R. S., Silva, L. F. D., & Paiva, E. D. (2019). Nursing interventions in palliative care in pediatric oncology: An integrative review. *Revista Brasileira de Enfermagem, 72*(2), 531–540. doi:10.1590/0034-7167-2018-0121

Totzeck, M., Schuler, M., Stuschke, M., Heusch, G., & Rassaf, T. (2019). Cardio-oncology – Strategies for management of cancer therapy-related cardiovascular disease. *International Journal of Cardiology, 280,* 163–175. https://doi.org/10.1016/j.ijcard.2019.01.038

Turzhigitova, S., Zamanbekov, N., Korabayev, Y., Kaziyev, Z., & Tuganbay, A. (2022). Technology for obtaining dosage forms (tinctures, extracts) from local plant raw materials and studying their toxicity. *Research Journal of Pharmacy and Technology, 15*(8), 3540–3548. https://doi.org/10.52711/0974-360X.2022.00594

Utebaeva, G., Berkinbay, O., Symbat Suttibaevna, U., & Tuganbay, A. (2021). Study of prevalence and associated risk factors of *Eimeria sp*., in Camelsin Turkestan Region. *Archives of Razi Institute, 76*(5), 1419–1425. https://doi.org/10.22092/ari.2021.355660.1707

van Dusseldorp, L., Groot, M., Adriaansen, M., van Vught, A., Vissers, K., & Peters, J. (2019). What does the nurse practitioner mean to you? A patient-oriented qualitative study in oncological/palliative care. *Journal of Clinical Nursing, 28*(3–4), 589–602. https://doi.org/10.1111/jocn.14653

Young, A. M., Charalambous, A., Owen, R. I., Njodzeka, B., Oldenmenger, W. H., Alqudimat, M. R., & So, W. K. W. (2020). Essential oncology nursing care along the cancer continuum. *The Lancet Oncology, 21*(12), e555–e563. https://doi.org/10.1016/S1470-2045(20)30612-4