ORIGINAL ARTICLE

Evaluating and minimising the psychological stress to enhance medication adherence among cancer patients by implementing integrative oncology techniques

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Abstract

Introduction. Cancer patients often experience significant psychological stress, which can negatively impact their medication adherence. This study aimed to evaluate and minimize psychological stress to enhance medication adherence among cancer patients by implementing integrative oncology techniques.

Material and methods. The study included 63 male and female participants diagnosed with head and neck, cervical, breast, and prostate cancers, who were followed for six months. Various scales were used to assess the psychological status of the patients, including the distress thermometer, the Hospital Anxiety and Depression Scale (HADS), and the Functional Assessment of Cancer Therapy (FACT) questionnaire. Integrative oncology techniques, including yoga, meditation, patient counseling, and rehabilitation, were employed to reduce stress and improve patient outcomes.

Results. The results showed a significant reduction in anxiety and depression levels among patients after implementing integrative oncology techniques. The quality of life (QoL) scores improved in patients with different cancer types, such as head and neck, cervical, breast, and prostate cancers, following the intervention. Moreover, distress levels decreased in patients who received effective patient counseling.

Conclusions. In conclusion, these findings suggest that integrative oncology techniques can effectively reduce psychological stress and enhance medication adherence in cancer patients, ultimately improving their overall well-being and treatment outcomes.

Keywords: Integrative, medication adherence, psychological stress, rehabilitation

Introduction

Cancer is a complex and life-threatening condition that significantly impacts a person's well-being and necessitates drastic changes in their lifestyle. Normally, human cells undergo a process of growth and division to create new cells as required by the body. In this orderly process, old or damaged cells are replaced

by new ones. However, when cancer develops, this process becomes disrupted, leading to the accumulation of abnormal cells. These cells not only persist in the body but also interfere with the normal development of new cells. Additionally, they exhibit abnormal division patterns and form tumors that have the potential to invade neighboring tissues, giving rise to malignant tumors, commonly known as cancerous tumors [1]. Over the past few decades, there have been remarkable advancements in the early detection and treatment options for cancer, resulting in improved survival rates for patients of all age groups. However, alongside these advances, there are notable long-term side effects associated with the enhanced treatment options. These side effects, including fatigue, pain, anxiety, and depression, significantly hinder patients' ability to carry out their daily activities. Moreover, the physiological effects of cancer itself, as well as certain anticancer drugs, can contribute to distressing symptoms that extend beyond psychological factors [2]. Emotional distress is recognized as a crucial aspect of cancer care and is often referred to as the sixth vital sign. The National Comprehensive Cancer Network (NCCN) has defined emotional distress as a multifaceted and unpleasant experience that encompasses psychological, social, spiritual, and physical dimensions. It can interfere with an individual's ability to effectively cope with cancer, its associated physical symptoms, and the treatment process. This distress exists on a continuum, ranging from normal feelings of vulnerability, sadness, and fear, to more severe issues such as depression, anxiety, panic, social isolation, and existential or spiritual crisis [3].

To address the psychosocial challenges faced by cancer patients, the NCCN Guidelines for Distress Management provide valuable insights into the identification and treatment of these problems. These guidelines aim to support oncology teams in recognizing patients who require referral to psychosocial resources; they also provide guidance on interventions for those experiencing mild distress. Moreover, they offer recommendations for social workers, certified chaplains, and mental health professionals, outlining specific treatments and interventions related to various psychosocial problems in the context of cancer care [2]. Patients with cancer are known to be at higher risk of developing psychiatric symptoms such as depression and anxiety, which can significantly diminish their overall quality of life (QoL). The prevalence of depression in cancer patients varies between 8% and 24%, depending on factors such as the assessment tools used, specific type of cancer, and phase of treatment. Anxiety and depression are strongly associated with deterioration in health status and a substantial decline in health-related QoL that persists over time. Depression is also linked to increased healthcare utilization and severe limitations in daily functioning. Likewise, anxiety is associated with heightened healthcare service utilization [4, 5].

Numerous research projects have investigated therapies targeted at enhancing the QoL of cancer patients, taking into account varying psychological stress levels that these patients suffer. For example, techniques such as yoga, meditation, and patient counseling have shown promise in promoting cancer patients' well-being and perhaps even improving the effectiveness of their treatments. Thus, the application of integrative oncology and psychoeducation, which includes interventions such as yoga, rehabilitation, meditation, and patient counseling, plays a crucial part in easing the load of cancer patients and achieving their overall treatment outcomes [2].

Material and methods

An interventional study was conducted at the Erode Cancer and Research Centre, Erode, for 6 months, from March 2022 to August 2022. The study included both male and female patients diagnosed with head & neck, cervical, breast, and prostate cancers, who were older than 18 years. Patients with pre-existing psychiatric disorders documented before their cancer diagnosis and those unable to follow the provided instructions were excluded from the study. Several scales were employed to assess the psychological status of the patients. The Distress Thermometer (DT) served as a short screening instrument to quickly evaluate distress in cancer settings. Additionally, the Hospital Anxiety and Depression Scale (HADS) was used, consisting of fourteen items, in which seven for anxiety and seceven for depression subscales. To assess the QoL, the participants completed the Functional Assessment of Cancer Therapy-General (FACT-G) questionnaire. For patients with head and neck cancer, the FACT head and neck scale, containing 12 additional items specific to eating, swallowing, speech, and their appearance, was utilized. Moreover, the Fact-Cx scale was used specifically for cervical cancer patients, while Fact B and Fact P were tailored for breast and prostate cancer patients, respectively, to measure their QoL. The researchers ensured that all patients were informed about the study objectives, and their participation was entirely voluntary. Those who agreed to participate provided informed consent, granting permission to review their medical records. A data collection form was created to gather and store demographic details of the patients in a secure cloud-based platform.

Throughout the study, various scales, including HADS, and FACT scales for the cervix, breast, head and neck, and prostate cancer patients, were employed to assess the patients' psychological status at the onset of cancer diagnosis and treatment (day 1–5). The

forms were either filled out by the patients themselves or by the researchers through direct questioning. To enhance the psychological well-being of the patients, they were provided with patient counseling and engaged in integrative oncology techniques. These techniques encompassed a range of activities, from basic exercises to relaxation techniques like music therapy, meditation, pranayama, and yoga. The patients' medication adherence in their respective therapies, chemotherapy or radiation therapies, was measured through their signatures on the attendance sheet. Finally, the patients' psychological status was reassessed before the completion of the therapy, and the study's results were subsequently analyzed and concluded.

Statistical evaluation was performed using the Statistical Package for Social Sciences program (SPSS; version 27.0). Descriptive statistic (frequency, percentage, mean, and standard deviation) was used to describe the characteristics of the participants. Group Differences were tested with paired t-tests. The level of statistical significance for all analyses was set at p < 0.05, 95% confidence interval (CI), to demonstrate the fitness and strength of association of each outcome variable.

Results

In this study, our primary objective was to examine the prevalence of depression and anxiety disorders, distress levels, and the QoL experienced by cancer patients during their treatment. Additionally, we sought to identify key risk factors through the use of validated assessment tools. The study comprised a total of 63 participants, with 20 males and 43 females. When considering the sex distribution and cancer types, among the 20 male participants, 14 (70%) were diagnosed with head and neck cancer, none had breast cancer, and 6 (30%) had prostate cancer. Of the 43 female participants, 5 (12%) had head and neck cancer, 22 (51%) had breast cancer, and 16 (37%) had cervical cancer. The majority of the patients were 45–70 years old (mean age 59.62 years). The prevalent cancer treatments were radiation therapy, followed by chemotherapy, surgery, and hormonal therapy. Notably, 23.8% of the cancer patients were smokers, and 36.5% reported alcohol consumption (Tab. 1).

The analysis was conducted to assess the impact of patient counseling on the psychological well-being of cancer patients. The study involved 63 cancer patients who were assessed for anxiety, depression, distress, and QoL using various scales at two different time points: before and after patient counseling.

The paired samples t-test was employed to compare the scores obtained before and after patient counseling. The results of the t-test showed several significant findings.

Table 1. Demographic details

Demographic characteristics	Frequency (n = 63)	[%]
Sex		
Male	20	31.7
Female	43	68.3
Age		
40–50	16	25.4
51–60	15	23.8
61–70	25	39.6
71–80	7	11.2
Type of cancer		
Head and neck	19	30.2
Breast	22	34.9
Cervical	16	25.4
Prostate	6	9.5
Treatment		
Surgery	32	51.6
Radiation therapy	48	80.6
Chemotherapy	50	77.4
Hormonal therapy	5	7.9
Addictions		
Smokers	15	23.8
Alcohol use	23	36.5

Anxiety: The participants showed a statistically significant reduction in anxiety scores after receiving patient counseling (p < 0.001). This decrease was associated with a large effect size (Cohen's d = −0.794), indicating a substantial practical significance. The confidence interval (CI) for the effect size did not include zero, reinforcing the meaningfulness of the reduction.

Depression: There was a significant decrease in depression scores following patient counseling (p < 0.001) (Tab. 2). The effect size was substantial (Cohen's d = 0.743), suggesting a significant practical impact. The CI for the effect size was entirely above zero, further supporting the importance of this reduction.

Functional Assessment of Cancer Therapy-General: Before integrative oncology techniques, cancer patients had poor QoL. Only a few scored well in all domains (personal wellbeing, social wellbeing, economical wellbeing, functional wellbeing). Integrative oncology methods, including counseling, cognitive behavioral therapy, self-management, support, CALM therapy, mindfulness meditation, yoga, and music therapy, in addition to anticancer treatments such as surgery, chemotherapy, radiation therapy, and hormonal therapy improved their QoL to satisfactory and good (Tab. 3).

Quality of life scores measured by FACT-G sum and FACT specific. significantly improved after patient counseling (p < 0.001) with a moderate effect

Table 2. Categorical distribution of anxiety and depression scores before and after integrated oncology techniques

	Normal		Borderline		Abnormal	
	(n = 63)	[%]	(n = 63)	[%]	(n = 63)	[%]
Anxiety before and after integrated oncology techniques						
Before	9	14.3	23	36.5	31	49.2
After	38	60.3	17	27	8	12.7
Depression before and after integrated oncology techniques						
Before	10	16	21	33.3	32	50.7
After	44	70	14	22.2	5	7.8
Anxiety level based on type of cancer before integrated oncology techniques						
Head & neck	1	5.3	10	52.6	8	42.1
Breast	4	18.2	5	22.7	13	59.1
Cervical	4	25	7	43.8	5	31.2
Prostate	0	0	1	16.7	5	83.3
Anxiety level based on type of cancer after integrated oncology techniques						
Head & neck	12	63.2	6	31.6	1	5.2
Breast	13	59.1	6	27.3	3	13.6
Cervical	11	68.8	2	12.5	3	18.7
Prostate	2	33.3	3	50	1	16.7
Depression level based on type of cancer before integrated oncology techniques						
Head & neck	2	10.5	6	31.6	11	57.9
Breast	3	13.6	8	36.4	11	50
Cervical	4	25	4	25	8	50
Prostate	1	16.7	3	50	2	33.3
Depression level based on type of cancer after integrated oncology techniques						
Head & neck	12	63.2	5	26.3	2	10.5
Breast	16	72.7	5	22.7	1	4.6
Cervical	11	68.7	3	18.7	2	12.6
Prostate	5	83.3	1	16.7	0	0

size (Cohen's d = −0.574), indicating a practical impact. The CI for the effect size excluded zero, emphasizing the substantial improvement.

Functional Assessment of Cancer Therapy H&N: We assessed the QoL of head and neck (H&N) cancer patients (n = 19) using FACT H&N scores categorized as good, satisfactory, poor, or extremely poor. Initially, 11 of 19 patients had low QoL. After integrative oncology treatment, 12 patients had satisfactory QoL (Tab. 4).

Functional Assessment of Cancer Therapy Cx: Among 16 cervical cancer patients, 6 had poor QoL, and 3 very poor, before integrative oncology (Tab. 4). After patient counseling, 6 had good QoL, and 5 satisfactory.

FACT-breast: Breast cancer patients (n = 63) had initially very poor QoL due to symptoms and distress. Before integrative oncology, 32% were satisfactory, and 18% very poor. Post-integration, 41% improved to satisfactory, and the very poor category was reduced to 9% (Tab. 4).

FACT-prostate: Prostate cancer patients showed high initial distress, and 50% had very poor QoL

(Tab. 4). After integrative oncology, very poor QoL scores dropped to 17%.

Distress Thermometer: Distress decreased significantly after counseling (p < 0.001), with a large effect (Cohen's d = 0.841) (Tab. 5).

In conclusion, the study highlights the positive impact of counseling on cancer patients. Anxiety, depression, distress, and QoL improved significantly. It emphasizes the importance of counseling programs for cancer patients' psychological well-being and overall QoL.

Discussion

In our six-month study at Erode Cancer Centre, 63 cancer patients were enrolled from both inpatient and outpatient departments, with 31.7% males and 68.3% females, aligning with national statistics. Females were found to be at higher risk of depression/anxiety, consistent with the report by Linden, Wolfgang et al. [6]. Most cancer cases occurred in patients aged 61–70, aligning with the findings by Huang X et al. [7]. Breast cancer (34.9%) was the most common, followed by head and neck (30.2%), cervical

Table 3. Fact general grading

Fact general

Grade	Before		After	
	n = 63	[%]	n = 63	[%]
Physical well-being (PWB) before and after patient counselling				
Good	5	7	15	25
Satisfactory	17	27	26	41
Poor	35	56	17	27
Very poor	6	10	5	7
Social well-being (SWB) before and after patient counselling				
Good	6	10	13	21
Satisfactory	28	44	28	44
Poor	18	29	15	24
Very poor	11	17	7	11
Emotional well-being (EWB) before and after patient counselling				
Good	8	13	13	20
Satisfactory	14	22	25	40
Poor	35	55	20	32
Very poor	6	10	5	8
Functional well-being (FWB) before and after patient counselling				
Good	7	11	17	27
Satisfactory	20	32	28	45
Poor	27	43	16	25
Very poor	9	14	2	3

Table 4. Grading for fact specific and distress

Grade	Before		After	
Quality of life in head & neck cancer patient before and after patient counselling				
	n = 19	[%]	n = 19	[%]
Good	2	11	5	26
Satisfactory	5	26	12	63
Poor	11	57	2	11
Very poor	1	6	0	0
Quality of life in breast cancer patient before and after patient counselling				
	n = 22	[%]	n = 22	[%]
Good	6	27	7	32
Satisfactory	7	32	9	41
Poor	5	23	4	18
Very poor	4	18	2	9
Quality of life in cervical cancer patient before and after patient counselling				
	n = 16	[%]	n = 16	[%]
Good	4	25	6	38
Satisfactory	3	19	5	31
Poor	6	38	3	19
Very poor	3	18	2	12
Quality of life in prostate cancer patient before and after patient counselling				
	n = 6	[%]	n = 6	[%]
Good	1	17	3	50
Satisfactory	2	33	2	33
Poor	3	50	1	17
Very poor	0	0	0	0
Distress score in cancer patients before and after patient counselling using the distress thermometer scale				
	n = 63	[%]	n = 63	[%]
Borderline distress	34	54	54	86
Distress	29	46	9	14

(25.4%), and prostate cancer (9.5%), consistent with Saeed et al. and Chaudhury et al. [8, 9]. Most patients (80.6%) had radiation therapy, 77.4% chemotherapy, 51.6% surgery, and 7.9% hormonal therapy, reflecting multidisciplinary treatment. Approximately one-third (36.5%) were alcoholics and 23.8% smokers, consistent with Morse et al. [10]. Anxiety reduced from 36.5% borderline to 27% borderline and 49.2% abnormal to 12.7% abnormal. After relaxation techniques. Depression reduced from 33.3% borderline to 22.2% borderline and 50.7% abnormal to 7.8% abnormal after relaxation techniques, in line with Abraham et al. [11].

The FACT-G questionnaire showed improved QoL after applying integrative oncology techniques, similar to Abu Sharour et al. [12]. Head and neck cancer patients' health related quality of life improved post psychoeducation, patient counseling, and therapy, as seen in Rafie et al. [13]. Cervical cancer survivors had improved QoL and sexual function, aligning with Zhao et al. [14]. Breast cancer patients experienced psychological distress, consistent with Nitikorn Phoosuwan and Pranee C. Lundberg [15]. Psychological interventions improved their QoL, as summarized by Raziaanjum et al. [16]. Prostate cancer patients

faced distress, especially during diagnosis and treatment side effects, similar to studies by Andrew J. Roth et al. [17] and Laura Binks et al. [18]. Psychological interventions improved their symptoms, in line with Rhea Mundle et al. [19].

Psychological distress in cancer patients was influenced by factors like worry, nervousness, sadness, and sleep disturbances, as identified by Shiv Prasad Shrivastava et al. [20]. Interventions, including patient counseling and cognitive behavioral therapy, reduced psychological distress, consistent with Mei-Ling Yeh, Yu-Chu Chung et al. [21]. In conclusion, our study highlighted the significance of integrative oncology

Table 5. Paired sample t-test comparing the scale scores before and after patient counseling

Paired Samples Test

	Paired Differences					T	df	
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				Sig. (2-tailed)
				Lower	Upper			
FACT G (before) — FACT G (after)	−11.540	14.541	1.832	−15.202	−7.878	−6.299	62	0.000
Depression (before) — depression (after)	4.222	4.006	0.505	3.213	5.231	8.366	62	0.000
Anxiety (before) — anxiety (after)	3.778	4.492	0.566	2.647	4.909	6.676	62	0.000
Distress thermometer (before) — distress thermometer (after)	70.111	26.653	3.358	63.399	76.824	20.879	62	0.000
FACT specific (before) — FACT specific (after)	−4.492	7.820	.985	−6.462	−2.523	−4.559	62	0.000

The Table summarizes the results of a paired sample test, which aimed to evaluate the influence of patient counseling on various essential aspects of well-being in cancer patients. The Table provides a comprehensive view of mean differences between the scores recorded before and after counseling sessions

and psychological interventions in improving cancer patient care. These findings underscore the need for a holistic approach to cancer treatment, encompassing medical and psychological support.

Furthermore, our analysis demonstrated that such factors as FACT, anxiety, depression, and distress (FA) significantly influenced treatment outcomes (cancer therapy) when considering repeated measures before and after integratuvive onvolcology techniques. The interaction between FA and age of the subjects was significant, suggesting age group differences in the impact of FA. However, age alone did not affect outcomes. Note that our study had a limited sample size; larger studies are needed to confirm these findings.

Conclusions

In conclusion, this study emphasizes the significant impact of emotional distress, anxiety, and depression on cancer patients of all ages and sexes. It highlights the crucial need for psychological counseling and support as an integral part of comprehensive cancer treatment. To effectively manage the emotional instability experienced by patients, it is essential for cancer centers to have clinical pharmacists and counselors available. By addressing patient's psychological needs, these health professionals can enhance patients' treatment adherence, boost their confidence, and improve overall treatment outcomes and prognosis. This study underscores the importance of a holistic approach that combines medical interventions with psychological support to optimize the well-being of cancer patients.

Future recommendation

While the results of this study showed a positive impact of psycho-educational interventions on the reduction of anxiety, depression, distress, and improvement of Qol in cancer patients, several limitations are worth noting. The study had a relatively small number of participants compared with other studies. This may limit its generalizability to the entire cancer population in India. Further research should include a higher number of participants, as this would improve the validity of results. In addition, our research was performed at one hospital in Tamil Nadu. It could also restrict the relevance of our study to the entire cancer population in India. Future researchers should recruit patients from different India. hospitals for better generalizability.

Article Information and Declarations

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