



EFFECT OF PSYCHOEDUCATION AND RELAXATION TRAINING ON STRESS, COPING, AND QUALITY OF LIFE IN PATIENTS WITH CANCER

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ABSTRACT **Background:** The diagnosis of cancer is a recognized stressor that amplifies patients' awareness of bodily functions, resulting in heightened anxiety, discomfort, and the possibility of medication misuse. Variations in stress responses, coping strategies, and overall quality of life are anticipated to have a substantial impact on treatment outcomes. In this study, the impact of psychoeducation and relaxation training on cancer patients' stress levels, coping strategies, and quality of life was assessed. **Methods:** The research involved 30 cancer patients recruited from various cancer hospitals in Telangana. A one-group pretest-posttest pre-experimental design was utilized for data collection. The research tools included the Cancer Information Scale, Visual Analogue Scale, QSC R23, Brief COPE, & EORTC QLQ-C30 version 3.0 for pre-post medical and psychological evaluations. The intervention consisted of medical treatments like chemotherapy, radiation therapy, surgery, and hormonal therapy, as well as psychological interventions such as psychoeducation and relaxation training. Data analysis methods employed in the study included descriptive statistics, bar graphs, Wilcoxon signed-rank tests, Cohen's d, and independent paired t-tests. **Results:** The study demonstrated the substantial benefits of the combined medical and psychological intervention in lowering general stress levels and encouraging cancer patients to use suitable coping mechanisms. Noteworthy improvements were observed in the General Health Status / Quality of Life (GHS/QoL) of the participants. **Conclusions:** The combined approach has demonstrated effectiveness in reducing stress levels, encouraging the adoption of healthy coping strategies, and enhancing overall quality of life. These enhancements not only contribute to the well-being of the patients but also hold the potential to positively influence their prognosis and treatment results.

KEYWORDS : cancer, coping, psychoeducation, quality of life, relaxation, stress

INTRODUCTION

Cancer brings many challenges, both psychological and physical. Pain significantly affects the well-being of cancer patients, impacting them mentally and physically. Patients frequently experience various physical symptoms, like pain, bleeding, swelling, sores at the locations of cancer, weight loss, and sexual dysfunction. Receiving a cancer diagnosis is considered a major stressor that increases a patient's sensitivity to their body's functions. This increased sensitivity causes unneeded discomfort, elevated anxiety, and sometimes the incorrect use of medications. Individual differences in coping strategies, stress, and QoL therefore have the potential to impact the course of treatment and its results.

Research has demonstrated that stress could impact growth of tumor as well as metastasis; however, the specific biological processes underlying these impacts are yet to be determined^[1]. Researchers have found that psychological stress could impact the immune system, which is vital for protecting the body from illness and infection. On the other hand, it is still unclear if stress actually makes people more prone to illness. According to Snyder and Dinoff^[2], Stanislawski^[3], coping strategies are methods used to lessen the psychological, emotional, and physical strain that come with stressful life events and day-to-day struggles. They aim to alleviate unwanted burdens like psychological stress, judged by their ability to reduce immediate distress. Effective coping is crucial for managing stress, as noted by researchers^[4,5]. Stress usually starts the stages of alarm, resistance, and exhaustion when our usual coping mechanisms and outside support networks are not enough. The Lazarus and Folkman model^[6], presented the idea that coping mechanisms are situation- and context-specific, and that distress arises when one's personal resources are surpassed by external or internal pressures.

Followed by the elevated stress, poor coping strategies in patients with cancer may affect their QoL. Furthermore, although it was first developed among cancer patients, the idea of QoL as a critical quantifiable endpoint for evaluating treatments is now applied across many medical fields^[7,8]. Cancer-related outcomes and patient-related

outcomes are the two main endpoint categories that are typically included in the evaluation of a cancer patient. The patient's response to treatment, the length of that response, times when the patient is symptom-free, and the timely identification of any relapse are all important factors in cancer-related outcomes. Conversely, patient-related outcomes examine the survival benefits post-treatment, including the extension of life and the quality of life both before and after therapy^[9,10]. Elevated stress levels, coupled with inadequate coping strategies, can significantly impact the QoL in cancer patients. The concept of QoL, a crucial measure for evaluating treatment effectiveness, has evolved to become a standard in many medical disciplines, originally developed to assess cancer patients^[7,8]. When assessing cancer patients, evaluations typically include two main types of outcomes: cancer-related and patient-related. The main goals of outcomes related to cancer are the reaction of the patient to the treatment, the length of the response, the time the patient is symptom-free, and the early detection of relapse. On the other hand, patient-related outcomes focus on the advantages of therapy in terms of extending survival and enhancing quality of life both before and after therapy^[9,10].

Breast cancer is quite common among women worldwide, while prostate cancer takes the lead for men, according to research from the National Cancer Institute^[11]. Both genders face a significant threat from lung cancer as well. However, in India, there's a higher prevalence of head and neck cancer, without much difference between men and women. We have decided to include patients suffering head as well as neck cancer (common in both genders in India), lung cancer, and breast cancer in order to address the gender gap in our study^[12]. We tried a well-balanced representation of these three types of cancers in our sample.

When diagnosed with a medical condition, part of the emotional distress comes from worrying about the upcoming treatment. In addition to combinations like bone marrow transplantation and intraoperative radiation therapy, options for treatment involve surgery, radiotherapy, hormonal therapy, chemotherapy, immunotherapy, and

more. The process of diagnosis, treatment selection, and actual treatment can cause significant medical stress. Interventions can be at a primary or secondary level, using biomedical methods and psychosocial components. A recent study looked at combining approaches like psychoeducation and relaxation therapy to see if psychological interventions alongside medical treatments make a difference, or if any changes observed are due to chance^[13,14]. Our study's primary goal was to assess the impact of psychoeducation and relaxation training on cancer patient's stress levels, coping strategies, and QoL in light of the aforementioned variables.

METHODS

After obtaining approval from the Institutional Ethics Committee, the current study used a one-group pretest-posttest-pre-experimental design (see Review letter No. UH/IEC/GP/11/8, dated 07.01.2012). Twenty males and ten females made up the participants, for a total of thirty cancer patients (10 cases of each type): head and neck (HNC), breast, and lung cancers (LC). Purposive sampling was employed to choose the participants from cancer hospitals in Hyderabad's Telangana state. The participants were male and female newly diagnosed with cancer up to the third stage, with no other comorbid medical illness, no psychiatric/psychological disorders, with a mean age of 52 years old, regardless of their occupation, economic background, and place of residence were included in the present study. Types of interventions: The study evaluated the effect of medical and psychological interventions (MPI) in the management of cancer. Interventions include psychoeducation viz advice or information mainly given verbally, written, or audio-visual. Various psychological strategies namely coping skill development, and much more were used (The present research work is a part of the researcher's own PhD thesis, and as a result, the tools and details of the intervention were similar to those published in Barre et al.^[15,14]) to signify their impact on cancer prognosis. Further relaxation therapy as guided imagery was conducted.

For data collection, the research instrument used was the Cancer Information Scale (CINFOS), developed by the researcher specifically for this study. The purpose of this scale was to evaluate and comprehend the common misconceptions held by patients suffering from LC, breast cancer (BC), and HNC. Ten items total were on each form; five measured general cancer misconceptions shared by all cancer patients, and the remaining five addressed misconceptions unique to each type of cancer. Misconceptions were indicated by positive scores on some items and negative scores on others in each form. For example, in the LC form, item no. 4, '*Lung cancer is not a communicable disease*' is a positive item, leading to a low score on misconceptions. Conversely, item no. 1, '*Only smokers get lung cancer*' is a negative item, indicating misconceptions. For BC, item no. 4, '*Diagnosis of breast cancer does not mean death*' is a positive item, while item no. 1, '*Surgery for breast cancer always means removal of the whole breast*' is negative. For HNC, item no. 4, '*Excessive usage of cell phones cause brain cancer*' is positively scored, whereas item no. 6, '*Surgery is the only treatment for head and neck cancers*' is negatively scored. For instance, if patients responded 'true' to item no. 2, '*There is no cure for cancer*,' they scored 1, whereas responding 'false' scored 0. A higher total score indicated a greater level of misconceptions. When patients were unable to read the statements, the researcher read them out and recorded their responses. Before and after psychological intervention utilizing visualization techniques, the three types of cancer patients' states of relaxation were measured using the VAS, which has a range of 0 to 100. The number 0 on this scale stood for "not at all relaxed," and the number 100 for "complete relaxation." Using this scale, each patient assessed their degree of relaxation; higher ratings corresponded to a higher perceived level of relaxation.

A disease-specific questionnaire for assessing psychological stress in cancer patients is the Questionnaire on Stress in Cancer Patients—Revised Version (QSC—R23). It was applied to evaluate cancer patients' psychological stress^[16]. It has 23 items that indicate possible daily stressors. According to Herschbach et al. (2008), the scoring process is illustrated in the instruction manual, and this suggests a direct correlation between the scores and stress. The Brief COPE, a different kind of questionnaire aimed at evaluating both effective and ineffective coping mechanisms following a diagnosis of illness, was employed in this study to examine at a variety of coping strategies in cancer patients. It was created by Carver^[17]. It has fourteen scales that evaluate the extent to which a person employs a particular coping mechanism. The scale consists of four domains: "maladaptive coping strategies (venting, behavioral disengagement, substance use,

self-distraction, self-blame, and denial), emotion-focused coping strategies (seeking emotional support, positive reframing, and religion), adaptive coping strategies (acceptance as well as humor), and problem-focused strategies (active coping, planning, and seeking instrumental support). Patients rate their responses on a 4-point Likert scale, where 1 means I haven't been doing this at all and 4 means I have been doing this a lot. Each entry in the inventory defines a distinct coping strategy. These have subsequently been divided into four domains by our study. The European Organization for the Treatment and Research of Cancer Quality of Life Questionnaire-QLQ-C30, version 3.0 (EORTC QLQ-C30 version 3.0) was used to assess the quality of life in cancer patients. This questionnaire was created by Aaronson et al.^[18], and Fayers et al.^[19] used it to "score cancer patients' health-related quality of life. Thirty "questions make up the core questionnaire, EORTC-QLQ-C30, which is intended to address a broad range of health-related QoL problems relevant to the majority of cancer diagnoses. In order to gauge the patient's overall quality of life, two items measuring Global Health Status (GHS) and QoL were used in this study. The items use 7-point response scales that range from 1 (very poor) to 7 (excellent). The scoring" process had been carried out in compliance with the manual's instructions.

PROCEDURE

For this study, a psychological intervention package including guided imagery and psychoeducation was created, and it was put into practice in three cancer hospitals. Participants were informed about the study and recruited if they consented to participate throughout the six-week duration. Psychoeducation involves providing information and using flip charts, brochures, and video clips to address and clarify myths and misconceptions about cancer, with expert oncologists explaining these concepts. Additionally, effective coping strategies were discussed to help manage stress.

A familiarization session was carried out prior to the relaxation sessions to make sure the patient was comfortable, satisfied, and paying attention. In this session, patients and caregivers were given an explanation by the investigator of the purpose and methodology of the relaxation training. The goal of this first familiarization session was to gradually introduce patients to the structured practice of guided imagery relaxation. The instructions for patients included practicing relaxation techniques and adhering to the guidelines.

Patients were given the opportunity to become familiar with the program, the voice of the experienced investigator, and a recorded audio CD during the familiarization session. After a patient gained familiarity with the process and felt at ease, guided imagery sessions were carried out using an audio CD created by a licensed clinical psychologist. Using the same research instruments used for the pre-medical and psychological intervention assessment (Pre-MPIA), a post-medical and psychological intervention assessment (Post-MPIA) was conducted following the conclusion of the six-week medical and psychological intervention.

RESULTS

Using SPSS version 16.0, descriptive statistics, paired as well as independent t-tests, and Pearson r correlation coefficients were used to analyze the quantitative data that were gathered. Additionally, graphs were made as needed. Thirty cancer patients received the intervention, and the responses to the pre-and post-medical as well as psychological interventions were measured. Utilizing IBM SPSS software, version 20.0, data analysis techniques include frequencies (f), percentages (%), descriptive statistics, Cohen's d, paired and independent t-tests, the Wilcoxon signed-rank test (to evaluate the effect of relaxation), and bar graphs.

Table 1: Socio-demographic Profile Of Patients With Cancer

Sociodemographic data	Variables n(30)	%
Types of cancer	Breast	10 (33.3)
	Lung	10 (33.3)
	Head/Neck	10 (33.3)
Age group	Mean (SD)	27-65 (51.60)
Gender	Male	20 (70)
	Female	10 (30)
Marital status	All married	30 (100)
Lifestyle issues	Smokers	10(13.3)
	Non-smokers	11(36.7)
	Smoking/Alcohol	5(16.7)

	Smoking with Gutkha	2(6.7)
	Alcohol and smoking	2(6.7)
Family history of cancer	Present	4(13.3)
	Absent	26(86.7)

Table 1 displays the participants' sociodemographic information. Thirty cancer patients total, twenty male and ten female, with ten diagnoses of HNC, LC, and BC had been involved in the sample. With a mean age of 52, the participants' ages ranged from 27 to 65. Women made up thirty percent of the sample, and seventy percent of participants were married. In terms of lifestyle-related concerns, 13.3% of the subjects were smokers, 33.3% were not, 38% were smokers and also consumed alcohol, 6.7% were smokers and also used gutkha, & 6.7% were smokers and also used alcohol. Furthermore, 13.3% of the patients and 86.7% of the population did not have a family history of cancer.

Impact Of Psychoeducation

Utilizing CINFOS, myths and misconceptions among cancer patients were evaluated both before and after psychoeducation. The t-value, which is displayed in Table 2, was computed by comparing the patient's pre- and post-intervention data for myths and misconceptions.

Table 2: Mean (M), Standard deviation (SD), “and (t) values for Cancer Information Scale (CINFOS) of patients with cancer pre- and post-MPIA

Variables	Pre-MPIA		Post-MPIA		t	Cohen's D
	M	SD	M	SD		
CINFOS	7.93	2.27	1.47	.57	14.73**	3.90

Note: N=30 **p<.01

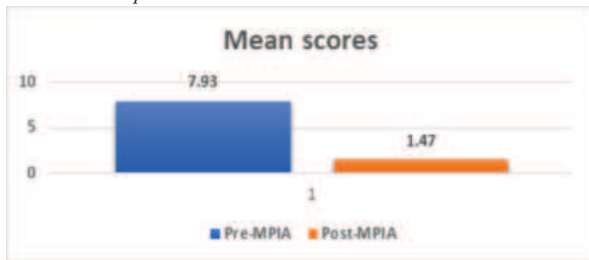


Figure 1. Mean CINFOS scores of patients with cancer pre- and post-MPIA

Table 2 displays” the CINFOS scores “of cancer patients along with their mean (M), standard deviation (SD), and t-values. With t (29) =14.73, p<.01, and an effect size of 3.90, the paired t-test outcomes demonstrate a significant difference between the pre-and post-intervention scores on the CINFOS. This finding implies that following the intervention, there was a significant decrease in myths and misconceptions and an improvement in the patient's comprehension and knowledge of their illness. Particularly, compared to pre-intervention scores (M=7.93, SD=2.27), post-intervention” scores (M=1.47, SD=.57) were noticeably lower. It was discovered that psychoeducation had a significant impact, as Figure 1 shows. Higher scores indicated more myths as well as misconceptions, while lower scores showed fewer myths and misconceptions, according to the CINFOS scoring procedure. These results show that the psychoeducational part of the intervention reduced cancer patients' misconceptions in a beneficial way.

Impact Of Relaxation Training

Patients underwent relaxation training using visualization through guided imagery over six weeks as part of the combined intervention. To assess the effectiveness of the relaxation training, a VAS had been employed to compute the level of pre-and post-administration of relaxation over 6 weeks. The Wilcoxon test had been applied to evaluate the relaxation effect, as the t-test was not suitable for the data distribution.

The results, shown in Table 7, indicate a significant improvement in relaxation scores, with a z-value of 4.81 and p < .01. Post-relaxation scores (Md = 40.00) were significantly higher compared to pre-relaxation scores (Md = 20.00), demonstrating that the relaxation training had a positive impact on patients with cancer(see Figure 2).

Table 3: Wilcoxon “signed Rank Test For The Impact Of

Relaxation Training Used With Patients With Cancer Pre- And Post-MPIA

Measurement	Pre- Relaxation (Median)	Post-Relaxation (Median)	Z
Guided imagery	20.00	40.00	4.81**

Note: N=30 **p<.01

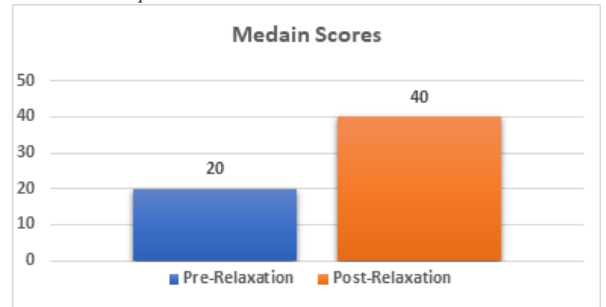


Figure 2. Median scores for relaxation with patients with cancer pre- and post-MPIA

Effect Of Psychological Intervention On Stress, Coping And Quality Of Life

We also evaluated” stress, coping, and quality of life in cancer patients based on the previously mentioned psychological interventions; the results were shown in the following order.

Stress Scores Of Cancer Patients

Table 3 presents the mean (M), SD, and t-values for the stress scores, demonstrating a significant reduction in overall stress levels among cancer patients following the intervention. The analysis revealed a substantial difference between pre-and post-MPIA scores, t (29) =22.85, p< .01, with an effect size of 4.55. Specifically, stress levels significantly decreased from pre-MPIA (M=69.43, SD=14.91) to post-MPIA (M = 16.80, SD = 6.69). The significant effect of the medical-psychological intervention is evident, as patients exhibited lower stress levels after the intervention (see Figure 3).

Table 4: Mean (M), Standard deviation (SD), and (t) Values For Stress Scores Of Patients With Cancer In Pre-and Post-MPIA

Variables	Pre-MPIA		Post-MPIA		t	Cohen's d
	M	SD	M	SD		
Stress	69.43	14.91	16.80	6.69	22.85**	4.55

Note. N=30, *p<.05, **p<.01

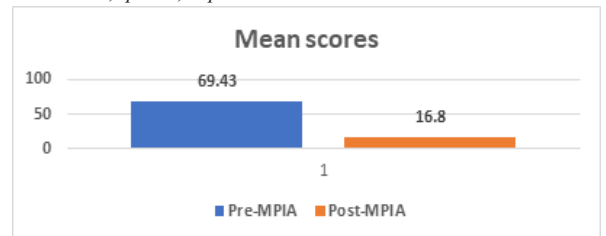


Figure 3. Mean “stress scores of patients with cancer in pre-and post-MPIA

The Use Of Coping Strategies

Table 5 displays the coping strategies' M, SD, and t values., emotion-focused coping, adaptive coping, maladaptive coping, and problem-focused coping in” patients with three different cancer types both before and after MPIA.

There is a significant difference in problem-focused coping strategies among cancer patients between their pre-& post-MPIA scores, according to the paired t-test results for coping strategies, which are shown in Table 4. With an effect size of 12.93 and t (29) = 48.45, p < .01, there was a significant difference. Given that “the post-MPIA scores (M=68.80, SD=4.10) were significantly greater than the pre-MPAI scores (M=14.90, SD=4.23), it is likely that the patients used problem-focused coping strategies more frequently after the intervention. It was discovered that medical-psychological intervention had a significant impact.

Pre- and post-MPIA scores for active coping in cancer patients differed significantly, as demonstrated by the paired t-test results: t(29) = 5.85, p<.01, effect size = 1.58. The higher post-MPIA scores (M=7.47,

SD=1.13) in comparison to the pre-MPIA scores (M=4.90, SD=2.00) indicate that patients used more active coping strategies following the intervention. The medical-psychological intervention improved the patients' active coping mechanisms to a moderate extent.

For planning as a coping strategy, the difference between pre-and post-intervention scores was also significant, with $t(29)=5.28, p < .01$, and an effect size of 1.58. Patients demonstrated improved use of planning after the intervention, with post-intervention scores (M=6.07, SD=1.50) surpassing pre-intervention scores (M=4.03, SD=2.04). This reflects a high effect of the medical-psychological intervention.

The BriefCOPE results showed that there were notable differences in a number of coping mechanisms between the pre-and post-MPIA evaluations. Remarkably, post-MPIA scores increased “significantly ($t(29)=3.75, p < .01$, effect size = 0.63). According to this, compared to before the pre-MPIA (M=5.93, SD=1.66), cancer patients used instrumental support more frequently after the post-MPIA (M=7.03, SD=1.00). The intervention had a moderate effect on this approach.

Additionally, emotion-focused coping strategies showed a significant improvement, with $t(29)=6.22, p < .01$, and an effect size of 1.65. The scores for emotion-focused coping were higher post-MPIA, indicating increased use of these strategies (post-MPIA: M = 19.40, SD = 2.84) compared to pre-MPIA.

The use of positive reframing also revealed a significant difference, with $t(29) = 7.37, p < .01$, and an effect size of 1.72. This high effect reflects an increased use of positive reframing post-MPIA. The medical-psychological intervention demonstrated high significance.

Religious coping scores also demonstrated a significant change, with $t(29)=3.70, p < .01$, and an effect size of 0.94, indicating higher usage of religious coping strategies after the intervention (post-MPIA: M = 7.90, SD = 0.55) compared to before (pre-MPIA: M = 6.57, SD = 1.92). The intervention had a high impact on this coping strategy as well. Overall, these results suggest that cancer patients employed more emotion-focused coping strategies following the medical-psychological “intervention. (Table 4).

Table 5: Mean (M), Standard deviation (SD), and (t) Values For Coping Strategies Scores Of Patients With Cancer Pre- And Post-MPIA

Coping strategies	Pre-MPIA		Post-MPIA		t	Cohen's d
	M	SD	M	SD		
Problem-focused coping (PFC)	14.90	4.23	68.80	4.10	48.45**	12.93
Active coping	4.90	2.00	7.47	1.13	5.85**	1.58
Planning	4.03	2.04	6.07	1.50	5.28**	1.38
Use of Instrumental Support	5.93	1.66	7.03	1.00	3.75**	0.63
Emotion-focused coping (EFC)	19.40	2.84	23.03	7.03	6.22**	1.65
Use of emotional support	7.70	.91	8.00	.00	1.79	0.42
Positive reframing	5.13	1.35	7.13	.94	7.37**	1.72
Religion	6.57	1.92	7.90	.55	3.70**	0.94
Adaptive coping (AC)	7.17	2.20	9.60	.93	5.68**	1.44
Acceptance	5.17	2.20	7.60	.93	5.68**	1.44
Humor	2	0	2	0	0	0
Maladaptive coping (MAC)	24.53	4.83	17.93	4	6.39	1.48
Venting	3.70	1.90	2.93	1.34	2.27*	0.84
Behavioural Disengagement	3.37	1.52	2.50	1.33	2.59*	0.60
Self-distraction	3.98	1.27	3.27	1.17	2.36*	0.58
Substance use	2.88	1.28	4.33	.92	7.06**	1.30
Self-blaming	4.23	2.37	2.33	.80	4.00**	1.06
Denial	6.40	2.11	2.57	1.38	7.76**	2.14

Note. N=30, *p<.05, **p<.01

With $t(29) = 5.68, p < .01$, and an “effect size of 1.44, a significant difference was found between the pre-and post-MPIA scores for adaptive coping strategies in cancer patients. According to this, adaptive coping strategies had been employed by cancer patients more often following the intervention (post-MPIA: M=9.60, SD=2.93) than

they were prior to it (pre-MPIA: M=7.17, SD=2.20). The impact of the intervention on adaptive coping strategies was significant. (Table 4).

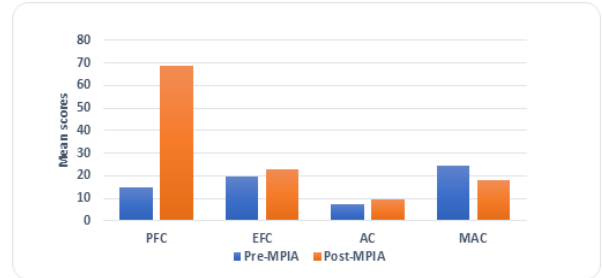


Figure 4: Mean coping strategies scores of patients with cancer” pre- and post-MPIA Note: PFC: Problem focused coping, EFC: Emotion focused coping, AC: Adaptive coping, MAC: Maladaptive coping

A noteworthy distinction was also observed in maladaptive coping strategies, with an effect size of 1.48 and $t(29) = 6.39, p < .01$. The findings indicate that compared to pre-MPIA (M = 24.53, SD = 4.83), the use of maladaptive coping strategies decreased after MPIA (M = 17.93, SD = 6.39). There was a significant” reduction in the application of unhealthy coping mechanisms as a result of the medical-psychological intervention.

The analysis indicates that the combined medical and psychological intervention led to a decrease in maladaptive coping strategies among cancer patients. Further examination of mean values revealed a significant rise in problem-focused, emotion-focused, and adaptive coping strategies post-MPIA. Subsequently, maladaptive coping strategies were notably lower following the intervention compared to before (see Figure 4).

General Health Status / Quality of life (GHS/QoL)

Table 6 presents the paired t-test results for the EORTC-QLQ30 scores, showing a significant enhancement in the GHS/QoL of cancer patients post-MPIA. A significant difference between the pre- and post-MPIA scores was found by the analysis, which produced a t-value of 15.87, $p < .01$, and an effect size of 2.16. In particular, GHS/QoL scores were substantially higher after the MPIA (M = 52.27, SD = 18.00) than they were before (M = 19.58, SD = 11.50). The data demonstrates significant improvements in the patient's overall physical condition and quality of life, underscoring the significant impact of the medical as well as psychological intervention.

Table 6: Mean (M), Standard deviation (SD), and (t) values for GHS/ QOL Of Patients With Cancer Pre- And Post-MPIA

Variables	Pre-MPIA		Post-MPIA		t	Cohen's d
	M	SD	M	SD		
GHS/ QoL	19.58	11.50	52.27	18.00	15.87**	2.16

Note. N=30, *p<.05, **p<.01

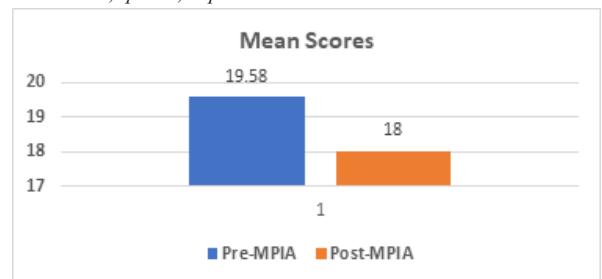


Figure 5: Mean scores of GHS/ QOL of patients with cancer pre- and post-MPIA

DISCUSSION

Impact of Psychological Intervention

The major goal of the research was to assess how well psychoeducation and relaxation training affected cancer patients' quality of life, coping mechanisms, and stress levels. The impact of the psychological intervention modules used in addition to medical treatment is covered in the following sections.

Psychoeducation:

Patients with cancer frequently experience pain and other discomfort-related symptoms, which can be challenging to identify because they

resemble symptoms of biological disorders. Improving the QoL and functional status of cancer patients requires treating their somatic symptoms^[20]. After receiving psychoeducation, Table 2 demonstrated a significant difference in the pre-and post-MPIA scores of CINFOS (myths and misconceptions) among cancer patients. This suggests that after the intervention, patients' comprehension and knowledge of accurate information about their condition have significantly improved. The study demonstrated a reduction in myths and misconceptions after the intervention, highlighting the effectiveness of psychoeducation in addressing these issues. These results are consistent with those of Hung's research^[21], which indicates that brief interdisciplinary psychoeducational interventions can enhance cancer-related knowledge without having a major financial impact on the healthcare system. Many studies have highlighted the benefits of psychoeducational interventions. It was observed that patients were being educated and given information about cancer and its treatment^[22,23]. In the present study, cancer patients who received psychoeducation gained more knowledge about their illness, treatment, coping strategies, and other important information. This enhancement was facilitated through various resources, including information booklets, brochures, videos featuring medical experts, and discussions with the researcher.

Relaxation Training:

Using guided imagery, patients underwent six weeks of combined intervention to learn relaxation techniques. The outcomes showed that using guided imagery during the intervention significantly increased participants' levels of relaxation (see Table 3). The effectiveness of relaxation techniques as a component of psychological interventions is further evidenced by supporting literature. For example, Marzorati et al.^[24] discovered that relaxation methods improve people's capacity to handle stressful situations and help them reach a higher level of well-being. Furthermore, Ashton^[25] found that guided imagery and relaxation improved the emotional well-being of cancer-stricken women.

In the current research, it was noted that the relaxation method in addition to providing a relaxed state, the time spent by the professional psychologist with the patients contributed to an improved sense of relaxation. Following training, patients who took part in the psychological intervention were very motivated and excited to practice the relaxation techniques on their own.

An intervention spanned a relatively short duration of six weeks followed, before and after the intervention to evaluate its effects.

The Effect Of Medical And Psychological Intervention

Effective coping strategies in cancer patients require medical and psychological interventions. For six weeks, patients and therapists will interact three times a week to provide cognitive behavioral therapy (CBT), psychoeducation, and relaxation techniques as part of the Medical-Psychological Intervention (MPI). Furthermore, the patients' carers took part in the relaxation training. As a result, patients can greatly benefit from the therapist's psychological support as well as family support in managing their distress in the aftermath of their diagnosis and initial treatment.

A number of investigations have shown that psychological interventions are important for cancer patients' prognosis, especially when it comes to symptom relief and improving quality of life (QoL)^[26,27]. The physical state, emotional stability, adherence to treatment, symptoms associated with the disease, and patients' understanding of their condition are all improved by these psychological interventions. Advice and information are frequently provided verbally, in writing, or via audiovisual means as part of interventions. Numerous Medical-Psychological Interventions (MPIs) have been used to highlight their beneficial effects on cancer prognosis. These include therapist-patient interactions, relaxation techniques, psychoeducation, and the development of coping skills.

Stress:

The outcomes revealed in Table 4 indicate a significant reduction in overall stress among cancer patients following the medical and psychological intervention, with scores showing improvement during the post-MPIA phase. The high effect of the intervention underscores its effectiveness. Our study suggests that psychological interventions, such as six sessions of psychoeducation and relaxation training, are most beneficial when administered early in the treatment process, rather than during advanced stages or survivorship. These results are

further supported by Antoni's research from 2023^[28], which shows that stress management techniques have a beneficial effect on physiological and psychological adaptation as well as health outcomes in cancer patients and survivors. These findings are further supported by Jui-Ko's^[29] study, which emphasizes how successful these interventions are in lowering emotional distress and concerns. These results highlight the significance of including stress management programs in cancer care to improve patients' general health and QoL.

Coping Strategies:

The study utilized tools like brief COPE along with various statistical tools in order to retrieve the data of our study. The data is manifested in Table 5 and Graph 4. The analysis of data indicates that the cancer patients under study use many coping strategies post MPI, thus leading to early prognosis and a betterment in their quality of life. Studies have demonstrated that effective coping strategies are crucial for managing stress. Problem-focused coping techniques involve proactive actions like proactive problem-solving and seek to either directly address the stressor or alter one's thoughts and emotions associated with it. Amirshamsi et al.^[30] found that cancer patients and their spouses predominantly utilized problem-focused coping strategies. Similarly, the study observed that problem-focused coping strategies were 2nd mostly employed by patients with cancer post-MPIA. In addition to problem-focused strategies, emotion-focused coping strategies—like seeking emotional support, practicing positive reframing, as well as relying on religious beliefs—were also significantly utilized. This aligns with findings from Kelkil^[31] and Wakeel^[32], which highlight the importance of emotion-focused strategies in managing cancer-related stress. Our study's high effect of the medical-psychological intervention highlights how well it enhances coping strategies that are problem- and emotion-focused, ultimately leading to better patient outcomes.

The adaptive coping strategies, particularly in the category of acceptance (Table 4), were significantly more utilized after the medical-psychological intervention (MPIA) compared to before. The effectiveness of the medical-psychological intervention was high in fostering this adaptive coping approach. These findings are consistent with Nguyen Xu Long^[33], who observed that emotional support and acceptance were linked to improved quality of life and mood. Additionally, the present study found that maladaptive coping strategies were notably reduced following the MPIA, indicating a high impact of the combined intervention on minimizing these less effective coping methods. Overall, the results underscore the effectiveness of the intervention in promoting adaptive coping and reducing maladaptive strategies in cancer patients.

GHS/QoL:

The GHS/QoL scores of cancer patients significantly improved after the MPIA, according to Table 6's results. According to the scores, cancer patients' overall quality of life improved above average following the intervention, indicating the beneficial effects of the post-MPIA on their well-being. The results of the research indicate that improving the GHS/QoL in cancer patients can be facilitated by both medical and psychological interventions. Similar findings by Bogner et al.^[22] demonstrated the beneficial effects of psychological interventions on various aspects of QoL, emphasizing the importance of addressing psychological well-being alongside medical treatment. Similarly, Rani et al.^[34] highlighted the effectiveness of brief psychological interventions in enhancing QoL and reducing psychological distress among cancer patients. These investigations underscore the significance of integrating psychological help into cancer care to improve overall patient well-being and outcomes^[35,36]. By addressing the emotional and psychological needs of patients, healthcare providers can enhance the holistic care approach and contribute to better QoL outcomes in individuals facing cancer diagnosis and treatment. Our findings indicate that incorporating psychological intervention into standard care for cancer patients is beneficial. In oncology care centers, psychologists are not included in the patient care team, resulting in a lack of access to psychological intervention for oncology patients.

CONCLUSION

The study conducted on 30 cancer patients in Telangana, utilizing a one-group pretest-posttest pre-experimental design and a combination of medical and psychological interventions, has yielded promising results. The integration of medical treatments such as chemotherapy, radiation therapy, surgery, and hormonal therapy, alongside psychological interventions like psychoeducation and relaxation

training, has resulted in a decrease in stress levels, the adoption of healthy coping mechanisms, and an enhancement in overall QoL for the participants. These outcomes propose that a comprehensive approach to cancer treatment can offer significant benefits for patients, potentially influencing their prognosis and treatment outcomes positively. More research in this area could provide important insights into the effectiveness of combined interventions in improving the well-being of cancer patients, even with the small sample size.

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CRedit authorship contribution statement

Vijay Prasad B: Conceptualization, Data collection, Writing – original draft, Padmaja G: Supervision of entire work, Methodology, Ravi KS: Visualization, Patients Allowcation, Suvashisa R: Software, Data curation, Formal analysis, Shazia A: Writing – review & editing.

Declaration Of Competing Interest

The authors confirm that they do not have any competing financial interests or personal relationships that could have potentially influenced the work presented in this paper.

Data Availability

Data will be made available on request.

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