

Cognitive Behavior Therapy and Islam-based Therapy for Psychiatric Symptoms, Quality of Life, and Adherence to Treatment with Stage-II & III Cancer Patients. A Randomized Control Trial

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Research Article

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ABSTRACT

Cancer is a lethal disease that affects millions of individuals around the globe. At the same time, significant advancements in cancer treatment over the years, early detection, and timely treatment are critical to achieving a successful outcome. Cognitive behavior therapy and Islam-based therapy are effective in this regard. This study examined the effects of psychological interventions on cancer patients' psychiatric problems at Faisalabad's Allied Hospital—a randomized control trial conducted at Faisalabad's Government College University and Allied Hospital between 2021 and 2022. N=200 screened out with a baseline valid measure General Health Questionnaire (GHQ-30). The sample was collected using purposive sampling. 18-65 was the patient's age range. Ninety-four participants exclude, leaving 104 for interventions. They were randomly assigned and pre- and post-assessed as experimental CBT (n= 26), IBT (n= 26), CBT+IBT (n= 26), and waitlist Control (n=26) groups. All the patients completed clinical interviews and assessment measures at pre-and post-assessment stages (8 weeks intervals). Medical consultants at the respective hospitals diagnosed the patients based on their medical reports and referred them to us. Seventy-three people participated and completed all the steps of the research. Following measures administered a demographic sheet, General Health Questionnaire-30 (D. Golberg, 1978), Death Anxiety Scale (Templer, Translated Saleem et al., 2015), World Health Organization Quality of Life BREF Scale (Skevington et al., 2004), and Morisky Medication Adherence Scale (MMAS; Morisky, Translated Naqvi et al., 2018). A Randomized control trial underwent pre-and post-assessments, 7 CBT sessions with targeted agendas, and Islam-based Therapy Surah-Ad-Duha for eight weeks. Data is analyzed involving descriptive statistics and mixed-repeated-measures ANOVA. Finding reported that CBT and IBT had a significant role in reducing depression (p.001), insomnia (p.001), and death anxiety (p.001). CBT and IBT enhanced social support (p.001), quality of life (p.001), and medication adherence (p.001). CBT and IBT have demonstrated promising outcomes in managing psychiatric problems in cancer patients. It is concluded that the outcomes reported that CBT and IBT are reliable treatment interventions to address mental health problems among cancer patients.

1. Keywords: *Cognitive behavior therapy, Islam-based therapy, Psychiatric Problems, Depression, Insomnia, Death Anxiety, Social Support, Quality of life, Treatment adherence, Breast Cancer Patients, Cancer Patients.*

Introduction

Cancer is a terrible illness that not only compromises a person's physical health but also their mental wellbeing(Ahmad et al., n.d.). Cancer patients' psychiatric symptoms, quality of life, and adherence to therapy can all be significantly impacted by the emotional and psychological anguish related to the disease(Elkefi et al., 2023). In order to improve the efficiency of conventional interventions, there has been an increase in interest recently in investigating alternative therapy strategies that incorporate religious and spiritual beliefs(van der Zeijst et al., 2023). The current article looks into the results of a randomized control trial that explored the effectiveness of Cognitive Behavior Therapy and Islam-based Therapy (CBT) and Islam-based therapy in treating psychiatric symptoms, enhancing treatment adherence, and improving quality of life among stage-II and III cancer patients (Chichua et al., 2023).

Numerous psychiatric symptoms have been addressed with Cognitive Behavior Therapy and Islam-based Therapy, a well-known evidence-based psychological intervention, in order to encourage constructive behavioral changes(Sauter et al., 2009). CBT & IBT seeks to give people useful coping mechanisms and problem-solving abilities by focusing on negative thought patterns and maladaptive behaviors(Lin, 2002). Nevertheless, despite its efficacy, there is an increasing understanding of the necessity for culturally sensitive interventions that incorporate patients' religious and spiritual values, especially in communities with a variety of religions (Ph.D et al., 2017).

Islam-based therapy, which is founded on Islamic ideas and teachings, provides a distinctive therapeutic method by incorporating religious practices and beliefs(Cinisli, 2021). Islam-based treatment strives to offer a framework that is in line with the patient's faith and values since it is aware of the importance of spirituality in Muslim patients' live (Irajpour et al., 2018). This strategy places a strong emphasis on the relationship between mental health and spiritual well-being, encouraging inner serenity, toughness, and a sense of direction in the face of cancer-related difficulties (Komariah et al., 2020).

The stage II and stage III cancer patients who participated in the randomized control study described in this article were split into four groups to receive either Cognitive Behavior Therapy and Islam-based Therapy, therapy based on Islam, both Interventions CBT+IB, and WLC. The comparison of these two therapies' effects on mental symptoms, quality of life, and treatment compliance was the main goal. While quality of life and treatment adherence were examined using extensive self-report measures, psychiatric symptoms were evaluated using validated measuring scales.

We want to shed insight on the potential advantages and restrictions of both Cognitive Behavior Therapy and Islam-based Therapy and Islam-based therapy in the context of cancer care by examining the results of this randomized control trial. This study offers insights on the importance of incorporating religious and spiritual elements into psychological treatments in addition to adding to the body of knowledge already available on psychotherapy interventions for cancer patients. In the end, this research aims to offer evidence-based recommendations for doctors, therapists, and researchers in designing interventions that are considerate of the various cultural and religious backgrounds of cancer patients, promoting holistic well-being throughout the difficult process of cancer treatment.

RESEARCH DESIGN AND METHODS

Study Design

The current research is prospective randomized control trial (RCT) in which we assessed the effectiveness of CBT & IBT& IBTand IBT using EXP and WLC conditions with Cancer patients using pre- and post-test measures. Outcomes measures were obtained at the baseline and Post interventions. The Participants were taken from different cities who came in Allied Hospital Faisalabad, Punjab, Pakistan. The Study protocol was approved by the institutional review board (IRB), Government College University Faisalabad, Pakistan (i.e., Ref. No. GCUF/ERC/94). Furthermore, the protocol was also registered and approved by Thai Clinical Trial Registry on 25 October, 2022) with the following URL:<https://www.thaiclinicaltrials.org/show/TCTR20221025002>.

Participants

Consultant oncologists first diagnosed patients with Cancer after evaluating them using medical evaluations from reliable laboratories (i.e., Shaukat Khanum Memorial Trust Laboratories, Agha Khan University Laboratories & PINUM Laboratories) at outpatient settings of Allied Hospital. Then the diagnosed participants were referred to us for the inclusion in our study. The participants first went through our clinical psychologists for psychological assessment and evaluation. The number of needed participants was calculated through G-Power software using the effect size (f)= 0.20, α = 0.05, power ($1-\beta$ error prob.) = 0.95 with actual power 0.96 which gave us total required sample size of 200 (experimental and waitlist control conditions combined) therefore in this RCT initially 200 participants enrolled for eligibility assessment, 104 patients qualified the inclusion criteria, and they were allocated to three different treatment conditions (i.e., EXP CBT & IBT& IBT26, EXP IBT 26, EX CBT+IBT 26, & WLC 26) through random assignment (see Fig. 1). A total of 73 patients completed all the required procedures of the present study. Participants age range was 18 to 65 years.

Inclusion Exclusion Criteria

In this RCT, people diagnosed with Cancer availing outpatients' treatment facilities under consultant practitioner in Allied Hospital Faisalabad were recruited. Participants who achieved mean item score of less 38 or less on GHQ were belong to suffering from Psychiatric Symptoms are allocated for three treatment conditions. Only those patients were included who had been diagnosed at least 6-month ago (and at most 2 years ago) with Cancer and had been experiencing Psychiatric symptoms for at least 2 weeks. Respondents who were suffering other psychological disorder with full criteria match rather than brief psychiatric symptoms, and comorbid with other medical illness were excluded from the study as the protocol of their treatment was out of the scope of the present study. Patients were taken from all socioeconomics statuses. Patients with Cancer duration of illness less than 6 months and more than 4 years, not availing any medical treatment were excluded from the study. Participants with any physical disability are excluded from the study. Participants who did not sign the consent form or did not complete all the research procedures were excluded from the study.

Assessment and screening

A clinical psychologists conducted in-depth clinical interviews with patients in one-on-one setting. In the interview, the central focus was given to exploring the current presenting complaints, duration of illness, nature of the problems, and symptoms severity in terms of psychiatric symptoms. In order to cross check, the symptoms severity baseline measures, i.e., GHQ (General Health Questionnaire-30) were administered. Moreover, patients under treatment experiencing Cancer with Psychiatric symptoms at least for two weeks were selected for this RCT. Structured Clinical Interviews for Diagnosis (SCID) was used to screen out any patient suffering from major depressive disorder, persistent mood disorders and severe anxiety disorders were excluded. They were excluded from this RCT because they were referred for further psychological evaluation and treatment (i.e., psychiatric medication if need and extensive psychotherapy along with Cancer treatment). Furthermore, participants who achieved mild to moderate depression, anxiety, stress and insomnia were considered eligible for this RCT because they had Cancer distress and psychiatric symptoms due to Cancer and they were coming for treatment on regular bases. They were then randomly assigned to the two different treatment conditions.

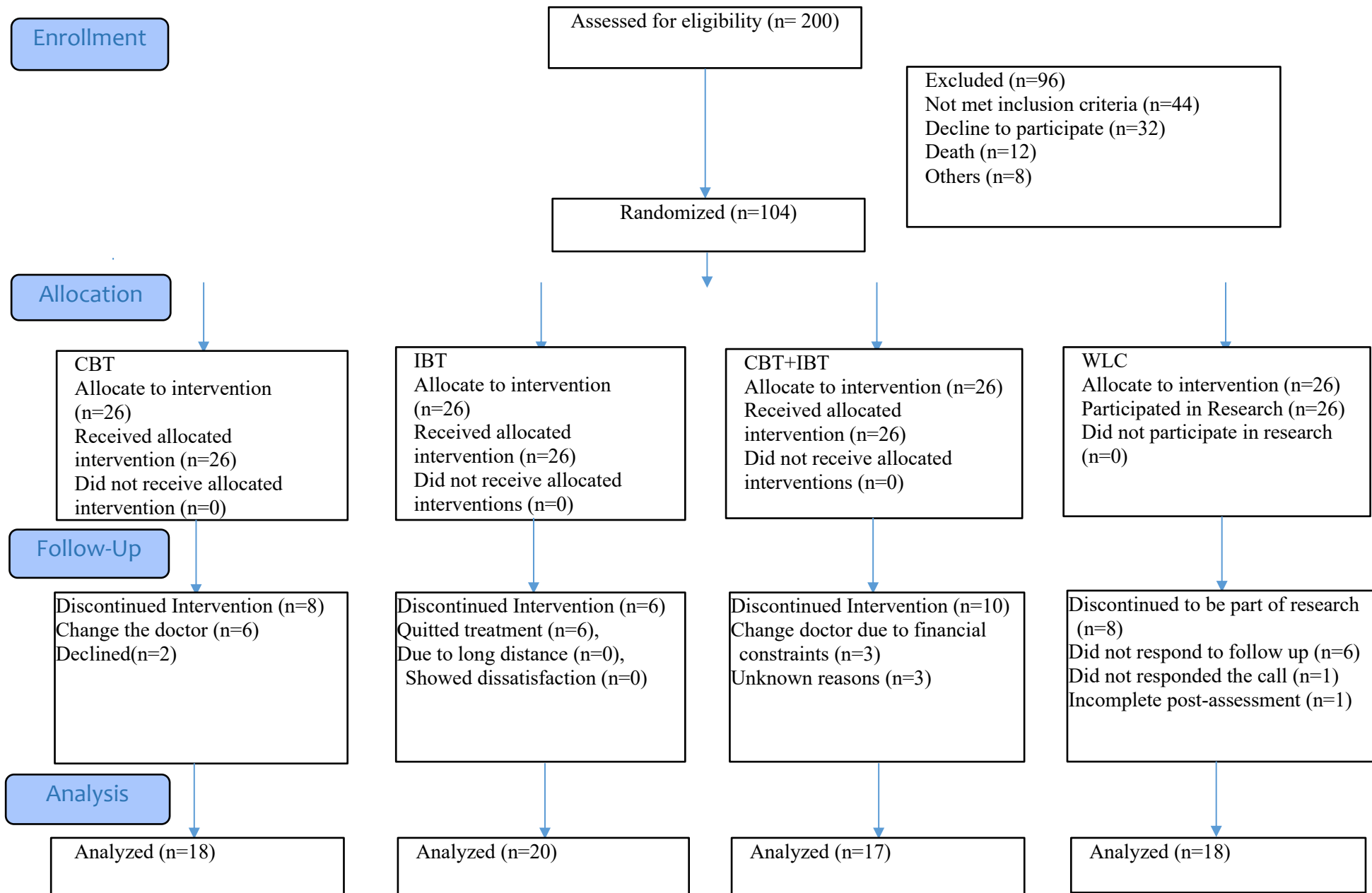
Procedure

Participants enrollment started on the 28 September 2022, and trial completed on the 31st of March 2023, at Allied Hospital in the Faisalabad. Initially, participants' baseline assessment was completed in the hospital outpatient setting. After qualifying the eligibility criteria, participants were interviewed and were invited for intake on outpatient setting as well. Participants who met the study criteria and gave written informed consent to participate in the study were registered for this randomized clinical trial. Participants assigned to treatment conditions were assessed (pre-assessment), and at treatment completion, they were again assessed (post-assessment) with the duration of 3 months between the two assessments. We provided 8 to 10 CBT- based therapeutic sessions based on a particular agenda and goal (see interventions.). Participants allocated to waitlist control were also assessed at pre- and post-assessment stages with the same time interval allocated for the experimental group.

Randomization

We randomly assigned participants to treatment conditions so that both conditions were with similar and matchable group characteristics. Furthermore, all the patients were blinded with respect to the identification of the group they were assigned to. We told the participants that they were being randomized to receive psychological treatment, and its goal was to reduce their level of distress and depressive symptoms.

Figure 1: Flow Diagram of Patients with Diagnose of Cancer



Interventions

During the initial briefing, the participants were guided about the advantages of adherence and disadvantages of non-adherence, the importance of quality of life, reduced depression and anxiety and also improving quality of life and to improve physiological functioning and to reduce stress and mood disturbance. CBT & IBT is an evidence-based intervention designed to address cognitive and behavioral problems efficiently. The CBT-based treatment plan was structured and delivered individually to each patient. Treatment was completed in 16 weeks, and therapeutic session frequency was one session in 7 days intervals with 30-45 minutes. In the initial sessions of the treatment, the therapist discussed about the process of treatment sessions, frequency, duration, the role of therapist and client, the significance of patient's active participation, and homework assignments. The main components of the CBT & IBT were psychoeducation, cognitive conceptualization, adherence training, activity scheduling, problem solving, improving coping strategies, muscle relaxation, and laps relapse prevention. The therapist asked the patients to come with a diary to write down important notes, daily homework assignments, and activity schedules and to write the current issues for discussion in the upcoming session. We received written feedback after each session. Almost all the patients easily understood the therapeutic process, therapy concept, content, and the mechanism for change.

Waitlist Control Condition

Participants allocated to the waitlist control conditions receive no treatment for 16 weeks. Their pre-and post-assessment was completed with the same time interval as that of the experimental group.

Assessment measures

Demographic information:

The demographic form that was used comprised of personal information from patients; such as age, education, socioeconomic status, family system, total family members, marital status, duration of illness, and the hospital. In addition, the information related to their illness such as cancer type, duration of illness, duration of treatment, type of treatment, family history of death

due to cancer was also asked in the demographic form. This form was used for further analysis and to tabulate results.

Primary outcomes measures

General Health Questionnaire-30:

The General Health Questionnaire screens patients and communities for psychiatric disorders (Goldberg et al., 1997). General Health Questionnaire Developed by Goldberg in 1972. GHQ questions cover to sleep, worries, relationships, and depression. GHQ-30, derived from the original 60-item version by excluding physical illness symptoms (Huppert et al., 1989). Cronbach's alpha reliability coefficient of 0.93 indicated a high level of scale homogeneity, which is consistent with previous studies testing GHQ-30 reliability and validity. A 0.90 or higher Cronbach's alpha is evident (Dale et al., 2012).

Secondary outcomes measures

Death Anxiety Scale

Death anxiety is self-recorded. In the 1970s, Templar developed the most famous death anxiety scale. It has 15 items. It has based on a multi-factor model of dying anxiety that includes internal and external lifestyle factors—Cronbach Death Anxiety Scale-Urdu alpha (DAS-U). Death Anxiety Scale – Urdu has high alpha reliability (.88). The scale is reliable. DAS – Urdu had 8 and 7 items. The split-half correlation coefficient was .85 (Gul & Saleem, 2015).

World Health Organization Quality of Life Scale

WHO created WHOQOL BREF in 2012. This study uses the translated WHOQOL BREF Scale. To score the BREF, follow the same steps as the WHOQOL-100. Higher scores in each domain indicate a higher quality of life. Before scoring, invert three BREF items. The population's Cronbach's alpha was 0.86, which was acceptable for the physical (0.78), psychological (0.71), environmental (0.73), and health domains but not for the social relationship domain (0.86). (0.56). Cronbach's alpha for this domain would have been 0.70 points higher without Item 22 (social support). Comparatively, the diseased group had a high Cronbach's Alpha (Saqib Lodhi et al., 2017).

General Medication Adherence Scale

General Medication Adherence scale developed by Atta Abbas Naqvi in 2019. This study used the Urdu translation of the GMAS. The test had 11 multiple-choice questions with four possible answers in three sections. The first component measured adherence based on patient behavior, while the second measured adherence based on comorbidities and pill count. Third, the cost was considered. 0 was the lowest score, and three was the highest. Pearson's test-retest correlation was 0.996. (The p -value was less than 0.01). All constructs were found to have convergent, discriminant, and known group validity. Our response rate was 91%. Non-insured patients were less likely to follow their treatment plan ($p < 0.05$). Non-comorbid patients were likelier to adhere to treatment plans ($p < 0.01$) (Naqvi et al., 2018).

Statistical analysis

Descriptive statistics (Mean & SD) was used to calculate sample demographic characteristics, whereas, group characteristics were compared at pre-test using χ and t -test to compare variables. A repeated measures ANOVA statistics was used for the assessment time (pre-versus post-test) to evaluate the effects and benefits of the interventions (within-group effects). Frequency distribution statistics were used to find out the severity of the symptoms. An alpha of 0.5 was used for all analyses, and p -value $< .01$ was submitted to Bonferroni correction using IBM SPSS Statistics (Version 25).

Results

Recruitment and Attrition

A total of 200 participants were recruited, and $n=78$ met the inclusion criteria. Participants were equally divided into experimental (EXP) and Control wait list (WLC), and they were statistically analyzed (see Fig. 1). There were no significant differences found between EXP vs. WLC among the demographic characteristics; such as age, gender, education, Cancer Type,

duration of illness, type of treatment, family system, family member, socio-economic-status respectively.

Table.1

Comparison of Participants' Demographic Characteristics Group-wise and overall.

Variables	Category	N	Groups					
Characteristics			CBT	IBT	CBT+IBT	WLC	χ^2/F	P
Assessed for eligibility		200	50(25%)	50(25%)	50(25%)	50(25%)		
<i>N Allocated</i>		104(78%)	26(16.6%)	26(16.6%)	26(16.6%)	26(50%)		
<i>N Dropout</i>		96(28.20)	8(18.8%)	6(13.63%)	10(24.35%)	8(18.8%)		
<i>N Final</i>		73(70.19%)	18(16.51)	20(18.34%)	17(15.59%)	18(49.5%)		
Age, M(SD)		104 38.01(12.01)	26 35.11(11.73)	26 40.37(11.82)	26 32.71(12.01)	26 39.31(11.40)	105.27	.314
Monthly Income M(SD)		29899.08(33291.62)	25833.33(7740.26)	24736.84(13419.89)	33294.11(18058.11)	26814.81(9419.11)	55.952	.624
Gender	Female	52(50%)	13(50%)	13(50%))	13(50%))	13(50%)	0.643	.886
	Male	52(50%))	13(50%)	13(50%)	13(50%)	13(50%)		
Birth	1 st	7(6.7%)	2(7.8%)	2(7.7%)	2(15.48%)	1 (3.8%)	17.864	.810
Order	Middle	91(87.5%)	23(88.46%)	22(84.62%)	22(84.62%)	24 (92.3%)		
	Last	6(5.8%)	1(3.84%)	2(7.8%)	2(7.8%)	1(3.8%)		
Marital	Single	22(21.2%)	8(30.76%)	3(11.53%)	7(26.92%)	4(15.4%)	5.407	.493
Status	Married	76(73.1%)	18(69.23%)	22(84.62%)	15(57.69%)	21(80.8%)		
	Widow	5 (4.8%)	0(0%)	1(3.84%)	3(11.54%)	1(3.8%)		
	Divorced	1(1.0%)	0(0%)	0(0%)	1(3.84%)	0(0%)		
Educational	Illiterate	26(25%)	2(7.8%)	7(26.92%)	9(34.62%)	8(30.8%)	42.70	.003
	Primary	15(14.4%)	2(7.8%)	7(26.92%)	1(3.84%)	5(19.2%)		
	Middle	5(4.8%)	1(3.84%)	1(3.84%)	2(7.8%)	1(3.8%)		
	Metric	20(19.23%)	9(34.62%)	4(15.38%)	2(7.8%)	5(19.2%)		
	Intermediate	22(21.2%)	8(30.8%)	6(23.07%)	5(19.2%)	3(11.5%)		
	Graduate	8(7.69%)	1(3.8%)	1(3.84%)	3(11.5%)	3(11.5%)		
	Masters	6(5.76%)	3(11.5%)	0(0%)	2(7.8%)	1(3.8%)		
	M.Phil.	2(1.92%)	0(0%)	0(0%)	2(7.8%)	0(0%)		

Occupation	Student	3(2.88%)	1(3.84%)	1(3.84%)	0(0%)	1(3.8%)	5.11	.824
	Housewife	64(61.53%)	16(61.54%)	15(57.7%)	16(61.54%)	17(65.4%)		
	Labor	26(25%)	7(26.9%)	6(23.1%)	6(23.1%)	7(26.9%)		
	Govt Employ	10(9.61%)	2(7.8%)	4(15.38%)	4(15.38%)	0(0%)		
	Un-Employ	1(0.96%)	0(0%)	0(0%)	0(0%)	1(3.8%)		
Duration of	1 Year	40(38.46%)	12(46.15%)	5(19.23%)	12(46.15%)	11(42.3%)	6.077	.108
Illness	2 Years	64(61.53%)	14(53.84%)	21(80.76%)	14(53.84%)	15(57.7%)		
Family	Nuclear	65(62.5%)	13(50%)	19(73.07%)	18(69.23%)	15(57.7%)	3.348	.341
System	Joint	39(37.5%)	13(50%)	7(26.9%)	8(30.76%)	11(42.3%)		
Religion	Islam	104 (100%)	18(69.23%)	20(76.92%)	17(65.38%)	26(100%)		
Cancer	Breast Cancer	28(26.9%)	8(30.76%)	6(23.17%)	6(23.1%)	7(26.9%)	34.303	.405
Type	Ovary Cancer	18(17.6%)	4(15.48%)	5(19.23%)	4(15.48%)	3(11.5%)		
	Blood Cancer	13(12.5%)	2(7.7%)	0(0%)	3(11.53%)	1(3.8%)		
	Brain Cancer	7(6.7%)	1(3.84%)	0(0%)	0(0%)	2(7.7%)		
	Lungs Cancer	16(15.4%)	3(11.53%)	1(3.84%)	1(3.84%)	3(11.5%)		
	Bone Cancer	3(2.9%)	0(0%)	0(0%)	2(7.7%)	2(7.7%)		
	Pharyngeal Cancer	4(3.8%)	0(0%)	1(3.84%)	0(0%)	3(11.5%)		
	Lymphoma	1(1.0%)	0(0%)	1(3.84%)	0(0%)	0 (0%)		
	Oral Cancer	6(5.8%)	0(0%)	3(11.53%)	0(0%)	2(7.7%)		
	Squamous Cancer	2(1.9%)	0(0%)	1(3.84%)	0(0%)	1(3.8%)		
	Liver Cancer	4(3.8%)	0(0%)	1(3.84%)	1(3.84%)	1(3.8%)		
	Adenocarcinoma	1(1.0%)	0(0%)	0(0%)	0(0%)	1(3.8%)		
Stage of	II	49(47.11%)	13(50%)	9(34.62%)	17(65.38%)	10(38.5%)	5.673	.129
Cancer	III	55(52.88%)	13(50%)	17(65.38%)	9(34.62%)	16(61.5%)		
Total	1	77(74.03%)	12(46.15%)	19(73.07%)	8(30.76%)	8(30.76%)	6.866	.651
No. of	2	19(18.26%)	6(23.07%)	0(0%)	6(23.07%)	10(38.46%)		

Earning	3	3(2.88%)	0(0%)	0(0%)	1(3.84%)	0(0.0%)		
Member	4	5(4.80%)	0(0%)	0(0%)	2(7.69%)	0(0.0%)		

Findings indicate in table 4.1 that a total of 200 Participates enrolled and 104 out of 200 fully meet the criteria, came into randomization, and were allocated for intervention CBT & IBT& IBT(n= 26), IBT (n= 26), CBT+IBT (n=26) as Experimental, and Waitlist Control (n=26). The Study completed all steps on 73 Participants.

The Participants Gender frequency and Standard deviations were Female N=52(50%), CBT= 13(50%), IBT=13(50%), CBT+IBT=13(50%), and WLC=13(50%) and Male N=52(50%), CBT=13(50%), IBT=13(50%), CBT+IBT=13(50%) and WLC=13 (50%). The Participants Birth Order was N= 1st 7(6.7%), Middle= 91(87.5%), Last= 6(5.8%). CBT=1st 2(7.8%), Middle= 23(88.46%), Last=1(3.84%). IBT=1st 2(7.7%), Middle= 22(84.62%), Last=2(7.7%). CBT+IBT=1st 2(7.8%), Middle22(84.62%), Last2(7.7%). WLC= 1st 1(3.84%), Middle24(92.3%), Last1(3.84%). The Participant's Marital Status N= Single22(21.2%), Married76(73.1%), Widow5(4.8%), Divorced1(1.0%). CBT= Single8(30.76%), Married18(69.23%). IBT= Single3(11.53%), Married22(84.62%), Widow1(3.84%). CBT+IBT= Single7(26.92%), Married15(57.69%). Widow 3(11.53%), Divorced 1(3.84%). WLC= Single4(15.4%), Married21(80.8%), Widow1(3.8%). The Participants' Education N=Illiterate26(25%), Primary15(14.4%), Middle5(4.8%), Metric20(19.23%), Intermediate22(21.2%), Graduate8(7.69%), Masters6(5.76%), MPhil.2(1.92%). CBT=Illiterate2(7.8%), Primary2(7.8%), Middle1(3.84%), Metric9(34.62%), Intermediate8(30.8%), Graduate1(3.8%) Masters2(11.5%). IBT=Illiterate7(26.92%), Primary7(26.92%), Middle1(3.84%), Metric4(15.38%), Intermediate6(23.07%), Graduate1(3.84%). CBT+IBT= Illiterate9(34.62%), Primary 1(3.84), Middle2(7.7%), Intermediate5(19.23%), Graduate3(11.53%), Masters2(7.7%), M.Phil.2(7.7%). WLC= Illiterate8(30.8%), Primary5(19.2%), Middle1(3.84%), Metric5(19.23%), Intermediate3(11.53%), Graduate3(11.53%), Masters1(3.84%). The Participants' Occupation was N= Student 3(2.88%), Housewife64(61.53%), Labor26(25%), Govt Employee10(9.61%), Un-Employee1(0.96%). CBT= Student 1(3.84%), Housewife16(61.54%), Labor7(26.9%), Govt Employee2(7.8%). IBT = Student 1(3.84%), Housewife15(57.7%), Labor6(23.1%), Govt Employee4(15.38%). CBT+IBT=Housewife16(61.54%), Labor6(23.1%), Govt Employee4(15.38%). WLC= Student 1(3.84%), Housewife17(65.4%), Labor7(26.9%), Un-

Employee1(3.84%). The Participants Duration of illness was N= 1 Year40(38.46%), 2 Year64(61.53%). CBT= 1 Year12(46.15%), 2 Year14(53.84%). IBT= 1 Year5(19.23%), 2 Year21(80.76%). CBT+IBT= 1 Year12(46.15%), 2 Year14(53.84%). WLC= 1 Year11(42.3%), 2 Year15(57.7%). The Participants Family System was N= Nuclear 65(62.5%), Joint39(37.5%). CBT= Nuclear13(50%), Joint13(50%). IBT= Nuclear19(73.07%), Joint7(26.09%). CBT+IBT= Nuclear18(69.23%), Joint8(30.76%). WLC= Nuclear 15(57.7%), Joint11(42.3%). The Participants' Religion was N= Islam 104(100%), CBT= Islam18(69.23%), IBT=Islam20(76.92%), CBT+IBT= Islam17(65.38%), and WLC= Islam26(100%). The Participants Cancer Type was N= Breast Cancer28(26.9%), Ovary Cancer18(17.6%), Blood Cancer 13(12.5%), Brain Cancer7(6.7%), Lungs Cancer16(15.4%), Bone Cancer3(2.9%), Pharyngeal Cancer4(3.8%), Lymphoma Cancer 1(1.0%), Oral Cancer6(5.8%), Squamous Cancer2(1.9%), Liver Cancer4(3.8%), Adenocarcinoma1(1.0%). CBT= Breast Cancer8(30.76%), Ovary Cancer4(15.48%), Blood Cancer2(7.7%), Brain Cancer 1(3.84%), Lungs Cancer 3(11.53%). IBT= Breast Cancer6(23.1%), Ovary Cancer5(19.23%), Lungs Cancer1(3.84%), Pharyngeal Cancer 1(3.84%), Lymphoma Cancer1(.84%), Oral Cancer 3(11.53%), Squamous Cancer 1(3.84%), Liver Cancer 1(3.84%). CBT+IBT= Breast Cancer 6(23.17%), Ovary Cancer4(15.48%), Blood Cancer 3(11.53%), Lungs Cancer1(3.84%), Bone Cancer2(7.7%), Liver Cancer 1(3.84%). WLC= Breast Cancer7(26.9%), Ovary Cancer 3(11.5%), Blood Cancer1(3.84%), Brain Cancer3(3.84%), Lungs Cancer 3(11.3%), Bone Cancer 2(7.8%), Pharyngeal Cancer 3(11.3%), Oral Cancer 2(7.7%), Squamous Cancer 1(3.84%), Liver Cancer 1(3.84%), Adenocarcinoma 1(3.84%).The Participants' Stage of Cancer was N= II49(47.11%), III55(52.88%), CBT=II 13(50%), III 13(50%), IBT=II 9(34.62%), III 17(65.38%), CBT+IBT=II 17(65.38%), III 9(34.62%), and WLC=II 10(38.5%), III 16(61.5%).The Participants Total Members of Earning were N= 1-77(74.03%), 2-19(18.26%), 3-3(2.88%), 4-5(4.8%), CBT= 1-12(46.15%), 2-6(23.07%), IBT= 1-19(73.07%), CBT+IBT= 1-8(30.76%), 2-6(23.07%), 3-1(3.84%), 4-2(7.69%), and WLC= 1-8(30.76%), 2-10(38.46%).

Table 2:

Mean (Standard deviation) and mixed design ANOVA of Clinical scores of Variables Depression, Loss of Confidence, Insomnia, Social Dysfunction, Anxiety, Death Anxiety, Quality of Life and General Medication Adherence Scale during pre and post-intervention.

									Repe ated	Meas ures	ANO VA				
	Experi mental Group							Waitl ist Cont rol							
	CBT		IBT		CBT+ IBT		WLC						Group x Time		
	Pretest	Postte st	Prete st	Postt est	Pretes t	Postte st	Prete st	Postt est	Grou p		Time		Intera ction		
	M(SD)	M(SD)	M(S D)	M(S D)	M(SD)	M(SD)	M(S D)	M(S D)	F	P	F	P	F	P	η_p^2
<i>Outc omes</i>															
DEP	13.3(2. 9)	7.7(0. 9)	13.1(2.8)	7.9(1 .4)	13.5(2.7)	6.1 (0.7)	13.3(2.8)	13.2(3.1)	741.3 7	.001	88.5 6	.0 01	9.90	.0 01	.7 44
LOC	9.1(2.4)	2.2(0. 5)	9.1(2 .2)	9.1(2 .2)	9.0(1. 7)	3.5(1. 0)	9.1(2 .1)	9.3(2 .0)	275.4 0	.001	94.8 9	.0 01	20.94	.0 01	.8 00
INS	3.6(0.4)	2.5(0. 9)	3.6(0 .5)	1.4(0 .5)	3.5(0. 5)	0.8(0. 4)	2.9(1 .2)	2.9(1 .2)	311.0 8	.001	47.5 7	.0 01	5.43	.0 01	.8 18
SDY	11.6(2. 7)	7.0(0. 0)	11.0(2.0)	11.0(2.0)	10.8(2.0)	1.9(0. 2)	11.2(2.3)	11.4(2.7)	277.2 3	.001	108. 71	.0 01	25.65	.0 01	.8 01
ANX	17.2(3. 6)	7.8(0. 7)	18.3(2.8)	12.5(2.6)	18.3(2.5)	5.0(0. 0)	17.6(3.2)	14.5(3.2)	650.3 8	.001	65.0 2	.0 01	11.77	.0 01	.9 04
GHQ	57.7(5. 4)	30.3(1.8)	55.7(4.6)	44.8(6.0)	56.3(3.9)	18.4(1.1)	57.3(4.7)	57.3(4.7)	2110. 05	.001	403. 70	.0 01	78.10	.0 01	.9 68
DAS	46.2(6. 6)	32.6(2.2)	47.0(7.3)	41.0(3.5)	47.3(6.1)	28.3(7.3)	46.8(6.9)	46.7(7.9)	155.4 3	.001	28.3 5	.0 01	9.71	.0 01	.9 84
OGQ	5.0(0.9)	6.8(1. 9)	5.0(0 .5)	6.1(0 .6)	5.1(0. 5)	7.8(1. 2)	5.0(0 .6)	4.8(0 .6)	89.65	.001	13.7 5	.0 01	15.07	.0 01	.5 65
PHY	22.7(3. 4)	28.2(2.4)	21.7(3.2)	26.8(3.1)	22.8(2.2)	27.9(3.9)	22.2(3.1)	22.2(3.1)	82.07	.001	9.11	.0 01	6.29	.0 01	.5 43
PSY	21.5(3. 0)	24.2(2.2)	20.7(3.8)	23.2(2.0)	19.5(3.5)	24.8(2.1)	21.2(4.0)	20.9(3.1)	31.57	.001	5.95	.0 01	1.74	.0 01	.3 41
SRS	9.7(2.5)	12.0(2.2)	11.0(1.9)	11.5(1.8)	10.4(2.4)	12.3(2.2)	10.5(2.2)	10.8(1.8)	119.5 8	.001	25.6 3	.0 01	.297	.0 01	.6 34
ENV	29.6(3. 2)	29.6(3.2)	27.9(3.7)	28.2(4.1)	29.3(3.2)	29.4(3.2)	28.6(4.9)	28.6(4.9)	2.35	.001	1.47	.0 01	1.06	.5 93	.0 33
QOL B	88.2(4. 6)	101.0 (5.1)	86.6(6.1)	95.9(6.3)	87.4(4.6)	102.4 (7.1)	87.4(5.4)	87.5(6.4)	278.2 9	.001	34.6 1	.0 01	7.11	.0 01	.8 01
TPB	10.0(0. 0)	12.3(1.0)	10.0(0.0)	12.5(1.5)	10.0(0.0)	12.0(1.0)	10.0(0.0)	10.0(0.0)	185.3 4	.001	21.4 0	.0 01	21.40	.0 01	.7 29
TAD	11.0(0. 0)	9.3(1. 1)	11.0(0.0)	9.3(1 .1)	11.0(0.0)	9.4(1. 6)	11.0(0.0)	11.0(0.0)	72.67	.001	8.09	.0 01	8.09	.0 01	.5 13
TFC	2.0(0.0)	4.7(0. 8)	2.0(0 .0)	3.2(1 .1)	2.0(0. 0)	4.6(1. 1)	2.0(0 .0)	2.0(0 .0)	246.3 3	.001	37.2 8	.0 01	37.28	.0 01	.7 81
GMA S	23.0(0. 0)	26.5(2.1)	23.0(0.0)	25.1(1.1)	23.0(0.0)	26.1(2.2)	23.0(0.0)	23.0(0.0)	129.5 3	.001	16.4 9	.0 01	16.49	.0 01	.6 52

*Note: *= $p < .05$; ***= $p < .001$; η_p^2 : Partial Squared Eta; GHQ= General Health Questionnaire-30, F1DEP; Factor1 Depression, F2LOC; Factor2 Loss of Confidence, F3INS; Factor3 Insomnia, F4SDY; Factor4 Social Dysfunction, F5ANX; Factor 5 Anxiety.*

DAS=Death Anxiety Scale, QOLBREF Scale=Quality of Life BREF Scale, OGH and QOL; Overall General Health and Quality of Life, D1PhyH; Domain1 Physical Health, D2Psy; Domain2 Psychological, D3SR; Domain 3 Social Relationships, D4 Env; Domain 4 Environment, GMAS=General Medication Adherence Scale, NADTPB; Non-adherence due to patients' behavior, NADTAD; Non-adherence due to another disease or pill burden, NADTFC; Non-adherence due to financial constraints.

Results indicate that there is a significant mean difference in the baseline and post-testing scores between the two groups on the variables of Depression, Loss of Confidence, Insomnia, Social Dysfunction, and Anxiety. (i.e. $F_1 = 741.37$, $p < 0.5$, $F_2 = 88.56$, $p < .001$, $F_3 = 9.90$, $P = .000$, $\eta_p^2 = .744$, $F_1 = 275.40$, $P < 0.5$, $F_2 = 94.89$, $P = .000$, $F_3 = 20.94$, $P = .000$, $\eta_p^2 = .800$, $F_1 = 311.08$, $P = .000$, $F_2 = 47.57$, $P = .000$, $F_3 = 5.43$, $P = .000$, $\eta_p^2 = .818$, $F_1 = 277.23$, $P = .000$, $F_2 = 108.71$, $P = .000$, $F_3 = 25.65$, $p = .001$, $\eta_p^2 = .801$, $F_1 = 650.38$, $P = .001$, $F_2 = 65.02$, $P = .001$, $F_3 = 11.77$, $p = .001$, $\eta_p^2 = .904$, $F_1 = 2110.05$, $P = .001$, $F_2 = 403.70$, $P = .001$, $F_3 = 78.10$, $P = .001$, $\eta_p^2 = .968$ respectively) with large effect size. This indicates CBT, Islam-based Therapy and Both Interventions substantially decreased the level of, Depression, Insomnia, and Anxiety and also improve Loss of Confidence and Social dysfunction.

Results indicate that there is a significant mean difference in the baseline and post-testing scores between the two groups on the variables of Death Anxiety. (i.e., $F_1 = 155.4$, $p = .001$, $F_2 = 28.35$, $p < .001$, $F_3 = 9.71$, $P = .001$, $\eta_p^2 = .984$ respectively) with a large effect size. This indicates CBT, Islam-based Therapy and Both Interventions substantially decreased the level of Death Anxiety. Results indicate that there is a significant mean difference in the baseline and post-testing scores between the two groups on the variables of Quality of Life and General Health, Physical Health, Psychological, Social Relationships, and Environment. (i.e. $F_1 = 89.65$, $p > 0.5$, $F_2 = 13.75$, $p > 0.5$, $F_3 = 15.07$, $P > 0.5$, $\eta_p^2 = .566$, $F_1 = 82.07$, $P = .001$, $F_2 = 9.11$, $P > .001$, $F_3 = 6.29$, $P > 0.5$, $\eta_p^2 = .543$, $F_1 = 31.57$, $P = .001$, $F_2 = 5.95$, $P = .001$, $F_3 = 1.74$, $P = .001$, $\eta_p^2 = .341$, $F_1 = 119.5$, $P = .001$, $F_2 = 25.6$, $P = .001$, $F_3 = .297$, $p > 0.5$, $\eta_p^2 = .634$, $F_1 = 2.35$, $P = .001$, $F_2 = 1.47$, $P =$, $F_3 = 1.06$, $p > 0.5$, $\eta_p^2 = .033$, $F_1 = 278.29$, $P = .001$, $F_2 = 34.61$, $P = .001$, $F_3 = 7.11$, $P = .001$, $\eta_p^2 = .801$ respectively) with large effect size. This indicates CBT, Islam-based Therapy and Both Interventions substantially decreased the level of Psychological Health, and Improve General Health and Quality of Life, Physical Health, Social Relationships, and the Environment remains the same. Results indicate that there is a significant mean difference in the baseline and post-testing scores between the two groups on the variable of Medication Adherence. (i.e., $F_1 = 185.34$, $p = .001$, $F_2 = 21.40$, $p = .001$, $F_3 = 21.40$, $P = .001$, $\eta_p^2 = .729$, $F_1 = 72.67$, $P = .001$, $F_2 = 8.09$, $P = .001$, $F_3 = 8.09$, $P > 0.5$, $\eta_p^2 = .513$, $F_1 = 246.33$,

$P=.001$, $F_2= 37.28$, $P=.001$, $F_3= .37.28$, $P> 0.5$, $\eta_p^2 = .781$, $F_1= 129.53$, $P= .001$, $F_2= 16.49$ $P=.001$, $F_3= 16.49$, $p>0.5$ $\eta_p^2= .652$ respectively) with large effect size. This indicates CBT, Islam-based Therapy and Both Interventions substantially enhance the level of Medication Adherence.

Figure 1:

Figure Showing the Effect of CBT, IBT, and a Combination of both interventions on the General Health Questionnaire Scale on Experimental Groups.

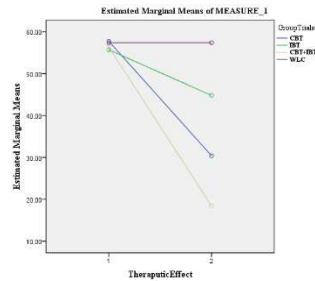


Figure 2:

Figure Showing the Effect of CBT, IBT, and Combination of both interventions on the Death Anxiety Scale on Experimental Groups.

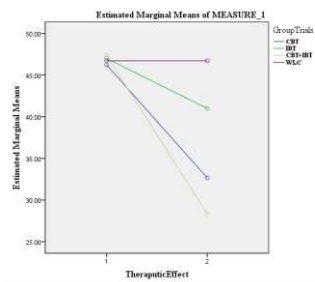


Figure 3:

Figure Showing the Effect of CBT, IBT, and Combination of both interventions on the QOL-BREF Scale on Experimental Groups.

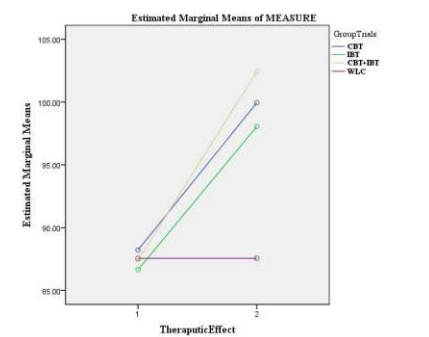
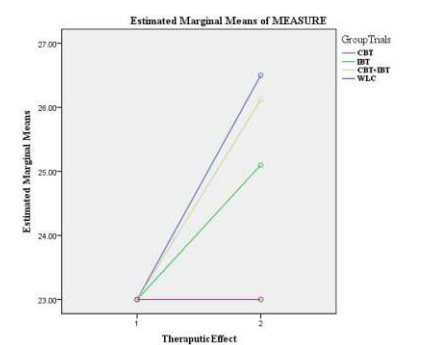


Figure 4:

Figure Showing the Effect of CBT, IBT, and Combination of both interventions on the General Medication Adherence Scale on Experimental Groups.



DISCUSSION

The trial's results showed that, as compared to the control group, stage II and stage III cancer patients receiving either CBT & IBT& IBTor therapy based on Islam saw significant improvements in their psychiatric symptoms, quality of life, and treatment compliance. The CBT & IBT& IBTgroup demonstrated improved coping mechanisms and adaptive cognitive patterns coupled with decreases in anxiety, despair, and distress. Similar improvements in psychiatric symptoms and quality of life were noted in the Islam-based therapy group, highlighting the significance of spiritual well-being in the healing process (Abbas et al., 2023)

The trial also emphasized the influence of cultural and religious factors in determining how well people respond to therapy(Wampold & Flückiger, 2023). Patients felt more spiritually supported, had more hope, and had a clearer sense of what their lives were for as a result of the incorporation of Islamic teachings and practices into therapy (Mohamad & Othman, 2023). This strategy also promoted a stronger sense of community and social support, which was essential for improving treatment adherence and general wellbeing(Al-Noumani et al., 2023). According to the results of this randomized controlled trial, both Cognitive Behavior Therapy and Islam-based Therapy and therapy based on Islam are useful for treating psychiatric symptoms, enhancing quality of life, and encouraging treatment compliance in cancer patients who are stage II and III(Sabry & Vohra, 2013). Recognizing the significance of cultural and religious considerations in mental health care, these interventions provide useful alternatives for healthcare professionals working with diverse populations(Ridge et al., 2023). A holistic strategy that addresses both psychological and spiritual needs can be achieved by incorporating Islamic rituals and principles into therapy, providing cancer patients with a thorough and individualized treatment plan (King et al., 2023). The long-term advantages, cost-effectiveness, and viability of these interventions in various cultural and religious contexts all call for further investigation.

Conclusion

It is concluded that CBT & IBT& IBTproduced substantial improvement among patients with Cancer having psychiatric symptoms. It has also been supported that CBT & IBT& IBTis an effective and evidence-based treatment to address psychiatric symptoms. CBT & IBT& IBTalso improves treatment adherence and quality of life among cancer patients. This also helps the patients to manage daily routines, sustain motivation for treatment and develop a positive attitude toward life. Finally, CBT & IBT& IBTincreases treatment adherence in patients with Cancer helping being about a rapid recovery process.

Limitations of the study

The current study has some limitations. First, only patients with few typed of cancer were taken in the study. Second, patients were taken only from outpatient departments. Third, major focus was given only to psychiatric symptoms of Depression, Stress, anxiety related to cancer; many other factors comorbid medical conditions, diagnosed psychiatric disorders, were not investigated in this study. Fourth, the Cognitive Behavior Therapy and Islam-based Therapy session was mainly designed for patients with Cancer having psychiatric problems, not psychiatric disorders. Fifth this study covered only 2nd and 3rd stage due to availability. Lastly data collected from single hospital only. Nonetheless, if future researches target the aforesaid areas, it will be a helpful contribution to the literature as well as to the generalizability of the results.

Recommendation and Implication of the study

This paper provides contributions to fill the knowledge gap in this ignored area of research. This paper also recommends that future researchers should check the effectiveness of CBT & IBT for patients with 1st and last stage of Cancer having severe depressive and anxiety-related disorders. This study provides valuable background for mental health practitioners to treat and develop the guidelines and protocol for patients with cancer at 2nd and 3rd Stage. Cognitive Behavior Therapy and Islam-based Therapy played a substantial role in developing patient insight and motivation, so, it is also recommended that other practitioners should carry out qualitative studies on the variables of this research in order to know the qualities and limitations of this strategy and give even more suitable strategies to deal with the problems faced with Cancer within the field of Cognitive Behavior Therapy and Islam-based Therapy.

Abbreviations

CBT: Cognitive Behavior Therapy and Islam-based Therapy, IBT: Islam-based Therapy, GHQ= General Health Questionnaire-30, F1DEP; Factor1 Depression, F2LOC; Factor2 Loss of Confidence, F3INS; Factor3 Insomnia, F4SDY; Factor4 Social Dysfunction, F5ANX; Factor 5 Anxiety.

DAS=Death Anxiety Scale, QOLBREF Scale=Quality of Life BREF Scale, OGH and QOL; Overall General Health and Quality of Life, D1PhyH; Domain1 Physical Health, D2Psy; Domain2 Psychological, D3SR; Domain 3 Social Relationships, D4 Env; Domain 4 Environment, GMAS=General Medication Adherence Scale, NADTPB; Non-adherence due to patients' behavior, NADTAD; Non-adherence due to another disease or pill burden, NADTFC; Non-adherence due to financial constraints.

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Authors' contributions

Q.A. conceptualized, designed and supervised the manuscript, as well as reviewed and edited the final draft of the manuscript. A.N. prepared the study protocol, collected data, scrutinized the data, conducted therapeutic sessions trial registration, analyzed the data, interpreted the results, planned treatment, data arrangement, manuscript write-up, edited the manuscript, collected data, prepared SPSS sheet did patients' scrutiny, allocation, and care. Both authors reviewed the manuscript.

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Availability of data and materials

The dataset generated and/or analyzed during the present study are not publicly available because no permission was taken from the participants and the hospital administration where the study was conducted. The datasets are available from the corresponding authors on a special request.

Declarations

Ethics approval and informed consent

The study protocol was approved by the Institutional Review Board (IRB), Government College University, and Faisalabad, Pakistan (i.e., Ref.No. GCUF/ERC/94). Furthermore, the protocol was also registered and approved by the Thai Clinical Trial Registry (i.e., TCTR20221025002 on 25 October, 2022, with URL: <https://www.thaiclinicaltrials.org/show/TCTR20221025002>). Moreover, informed consent was obtained from all the participants. Participants who read and then signed the consent form were enrolled in the study. All procedures including participant enrollment, screening, data collection, data scrutiny and analysis were performed in accordance with relevant guidelines.

Consent for publication

Not applicable

Competing interests

The authors declare that they have no competing interests.

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