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The Effectiveness of Mindfulness-based Cognitive Therapy on the Vitality and Psychological Well-being of Prostate Cancer Patients

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Quantitative Study

Abstract

Background: Prostate cancer is the most common cancer among men, and it can harm the mental health of affected people. The current research examined the effectiveness of mindfulness-based cognitive therapy (MBCT) on the vitality and psychological well-being of prostate cancer patients.

Methods: The current semi-experimental research was conducted with a pretest-posttest design, a control group, and a follow-up stage. The statistical population included all men with prostate cancer referred to Baghdad's Oncology Teaching Hospital, Iraq, in 2022. Using simple random sampling, 140 people were selected and divided into experimental and control groups (70 patients per group). The collected data were analyzed utilizing the chi-square test, independent t-test, and two-way repeated measures analysis of variance (ANOVA) in SPSS software. The statistical significance level of the results was considered to be 0.05.

Results: The study findings showed that MBCT was effective on the vitality ($F = 6.83$; $P = 0.011$) and psychological well-being ($F = 8.71$; $P = 0.006$) of prostate cancer patients.

Conclusion: It can be concluded that MBCT has improved vitality and psychological well-being in patients with prostate cancer. Therefore, hospital medical staff must take this treatment method into consideration.

Keywords: Mindfulness; Cognitive therapy; Psychological well-being; Prostate cancer

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Introduction

Being diagnosed with cancer can be a stressful event that jeopardizes many aspects of the patient's health, including his physical, mental, and family health (Farzanegan, Derakhshan, Hashemi-Jazi, Hemmati, & Azizi, 2022). Prostate cancer affects 70% of men; this rate can be reduced through screening and early detection (Zajdlewicz, Hyde, Lepore, Gardiner, & Chambers, 2017). Prostate cancer is primarily associated with older men (Teigen, 2023). A high prevalence of mental disorders ranging from depression, anxiety, and lack of adaptation to the disease is observed among patients with cancer (Levy & Cartwright, 2015). Psychological and physical problems harm the family life, work, social activities, and sexual performance of people with cancer, thus causing many psychological problems and reducing their quality of life (QOL) (Garland et al., 2017).

The relationship between a cancer patient's mental health with vitality and psychological well-being is a critical topic widely debated worldwide (Moss et al., 2015). As cancer is multifactorial in terms of etiology and treatment (control and treatment), psychological and behavioral factors are just as important as physical factors in its treatment. Psychological interventions, and drug treatments appear to be effective in treating psychological problems (Jazaieri & Shapiro, 2017).

In recent years, psychologists and researchers have become interested in mindfulness-based cognitive therapy (MBCT) (Penedo et al., 2006). Mindfulness is intentional attention combined with nonjudgmental acceptance of one's experiences in the present moment (Abd Alrazaq, Fadhil, Hameed, Alsaadi, Hussein, & Kadhum, 2023). Mindfulness teaches patients that while negative emotions may arise, they are not a fixed and permanent part of their personality. It also enables people to respond to events with thought and reflection rather than reacting involuntarily and thoughtlessly (Diez, Anitua, Castellanos, Vazquez, Galindo-Villardon, & Alkhraisat, 2022).

Mindfulness is a way to improve one's life, relieve pain, and enrich one's life and make it meaningful (Amanelahi, Nouri, & Hazrati, 2022). Increased mindfulness is linked to increased vitality, psychological well-being, agreeableness, openness, and reduced pain symptoms. This method is effective in treating a variety of mental hurts (Ford, 2021). It effectively treats sadness, depression, insomnia, sexual problems, chronic pain, and addiction, among other things. One of the fundamental mindfulness orientations is to insist on paying attention to the present moment (Conversano, Di, Miccoli, Ciacchini, Gemignani, & Orru, 2020). This present-oriented approach has proven beneficial to cancer patients and chronic pain patients. Investigation of mindfulness and its correlates and comparing its dimensions between clinical and non-clinical groups have a short history and has only recently expanded. As a result, many researchers attempted to investigate mindfulness of fundamental or pathological structures (Lepley, 2022).

Vitality is one of the variables investigated in the current study. Vitality is being full of energy, enthusiastic, and cheerful and not being tired, worn out, or exhausted (Ramler, Tennison, Lynch, & Murphy, 2016). According to previous research, irritability and fatigue appear when vitality is low. When vitality is high, enough energy is available to carry out activities, one's mood is good, and homework is completed successfully (Paiva et al., 2016). As a result, vitality denotes an abundance of positive mental energy, and a lively person is full of life. Researchers define vitality as an energy that comes from within oneself, a feeling of energy whose source is internal rather than external. They distinguish mental alertness from manic states because alertness is a feeling of being fresh and energetic (Lee, Chang, Lee, Lee,

Huang, & Lai, 2022).

Psychological well-being is another variable investigated in this study. A foundation of mental health is described as psychological well-being (Lashbrook, Valery, Knott, Kirshbaum, & Bernardes, 2018). Developing personal strengths and realizing one's potential for long-term and sustainable happiness are examples of psychological well-being. People with a high level of psychological well-being have a sense of happiness, ability, support, and life satisfaction, among other things (Danhauer et al., 2019).

Prostate cancer is prevalent in men, and patients face various psychological and physiological issues. As a result, new methods must be developed to improve their various characteristics. Furthermore, MBCT is a relatively new method of psychotherapy that has received little attention thus far. The current research examined the effectiveness of MBCT on the vitality and psychological well-being of prostate cancer patients. The current study's innovation is the simultaneous study of vitality and psychological well-being and the follow-up stage.

Methods

The current semi-experimental study was conducted with a pretest-posttest design, a control group, and follow-up stage. The statistical population included all men with prostate cancer referred to the Oncology Teaching Hospital of Baghdad, Iraq, In 2022; from among them, 140 people were chosen using simple random sampling and divided into experimental and control groups (each with 70 people). The inclusion criteria included having prostate cancer, having a minimum literacy level, being between 50 and 70 years of age, and not using similar treatment methods in the previous year. The exclusion criteria included refusal to participate in the study, incomplete questionnaire, and absence from more than 2 sessions.

The research's objectives and process were first explained to the participants to comply with ethical considerations. The experimental group received MBCT training intervention in eight 90-minute sessions based on the protocol by Galante et al. (2016), as shown in table 1. Finally, after completing the research, the control group participants also received the abovementioned intervention in the follow-up stage.

Demographic, vitality, and psychological well-being questionnaires were used to collect data. These questionnaires were completed by the research participants before the beginning of the therapy for the experimental group (in the pretest stage), after the completion of the therapy for the experimental group (in the posttest stage), and 3 months after the completion of the intervention (in the follow-up stage).

The Subjective Vitality Scale (SVS; Ryan & Frederick, 1997) was utilized to estimate vitality. The SVS contains 7 items, each scored on a 7-point Likert scale ranging from 1 (for entirely incorrect) to 7 (for completely correct), with reversed scoring in items 2 and 3. The SVS score is the total score of the items. The total score of the scale ranges from 7 to 49, with higher scores indicating greater vitality. Sumi (2021) reported the validity and reliability of SVS to be 0.79-0.80 and 0.87-0.91 (using Cronbach's alpha), respectively. In the current study, the face validity of the SVS was 0.87, and its reliability, using Cronbach's alpha, was 0.92.

The Psychological Well-being Scale (PWB; Ryff, 1989) was used to assess psychological well-being. This scale comes in various forms, and the 18-item form was used in the current study. The items were scored on a 6-point Likert scale ranging from 1 (completely disagree) to 6 (completely agree).

Table 1. Description of mindfulness-based cognitive therapy sessions

Session	Description
1	Developing a positive relationship, explaining the importance of mindfulness training, awareness of the automatic state, and automatic guidance of the mind when it is hijacked by mental occupations and the mind attempts to control it
2	Conscious attention to normal daily activities and habit-breaking exercises (doing things against the habit), such as changing your place of sitting
3	Familiarity with methods of knowing through thinking about something (often accompanied by judgment), becoming directly aware of something (often non-judgmental) and experiencing it in a training session, and familiarity with various states of mind (state of command)
4	Explaining that living in the present means avoiding the traps of the past and the future, becoming acquainted with the present, and staying in the present through meditation, explaining that forgiveness in daily life requires preparation through breathing and body meditation, and cultivating all-around compassion and kindness towards oneself, and meditating for more conscious choices that lead to creativity, resilience, and enjoying life as it is, not as one wishes
5	Becoming aware of the body's changes and feelings, teaching the technique of paying attention to body movements while breathing, practicing body inspection, and focusing on the changes of body parts and their movements while walking to gradually learn to experience the difference between the thinking and feeling minds
6	Walking with a conscious mind, paying attention to one's surroundings as a spectator, and focusing on the positive aspects of situations and events
7	Practicing mindfulness of the senses, paying attention to daily tasks, practicing mindfulness of breathing with calmness and without thinking about anything else, and training mindfulness of breathing before bed
8	Accepting mindfulness of thoughts and meditating on sounds and thoughts, and letting go of one-dimensional and irrational thoughts, beliefs, and desires

The total score of the scale is the total score of the items and ranges from 18 to 108. Using Cronbach's alpha method, Ryff (1989) determined that the reliability of the PWB was appropriate and reported values ranging from 0.72 to 0.89 for its subscales; moreover, Ryff reported validity values ranging from 0.32 to 0.74 for its various subscales. In the current study, the face validity of the PWB was 0.81, and its reliability using, Cronbach's alpha method, was 0.88.

The data obtained from the questionnaires were analyzed utilizing the chi-square test, independent t-test, and two-way repeated measures analysis of variance (ANOVA). The Bonferroni post hoc test was also utilized to compare the variables' scores during the evaluation stages. The collected data was analyzed in SPSS software (version 21; IBM Corp., Armonk, NY, USA), and the statistical significance level of the results was considered to be 0.05.

Results

Table 2 shows the demographic variables of the patients in both groups. As can be seen in table 2, 80 people (57.1%) were over 60 years of age, and 78 people (55.7%) had illness duration of over 3 years. The mean age of men in the experimental group was 64.21 ± 7.52 years, while that of the men in the control group was 62.86 ± 7.43 years. Furthermore, the mean duration of illness in the experimental and control groups was 3.65 ± 1.14 years and 3.24 ± 1.07 years, respectively. Moreover, 113 (80.7%) individuals had secondary education, 99 (70.7%) were unemployed, and all except one (1.4%) were married. The results indicated no significant difference between the demographic variables of the study groups ($P > 0.05$).

The pretest, posttest, and follow-up scores of the vitality and psychological well-being variables are presented in table 3.

Table 2. Demographic variables of participants

Variable		Experimental group [n (%)]	Control group [n (%)]	P-value
Age (year)	< 60	27 (38.6)	33 (47.1)	0.09
	> 60	43 (61.4)	37 (52.9)	
Duration of illness (year)	< 3	30 (42.9)	32 (45.7)	0.26
	> 3	40 (57.1)	38 (54.3)	
Marital status	Married	70 (100)	69 (98.6)	0.17
	Single	0 (0)	1 (1.4)	
Education	Secondary	59 (84.3)	54 (77.1)	0.53
	College	11 (15.7)	16 (22.9)	
Job	Employed	19 (27.1)	22 (31.4)	0.48
	Unemployed	51 (72.9)	48 (68.6)	

There was no statistically significant difference between the groups in the pretest stage regarding the variables mentioned ($P > 0.050$). However, the values of the variables in the two groups significantly differed during the posttest and follow-up stages ($P < 0.001$).

The assumptions of the two-way repeated measures ANOVA were investigated. As a result, the assumption of normality was confirmed based on the Kolmogorov-Smirnov test and the assumption of equality of variances was confirmed based on Levene's test for the groups' vitality and psychological well-being variables in the pretest, posttest, and follow-up stages ($P > 0.050$). Furthermore, Wilks' lambda test results in multivariate tests revealed that MBCT caused a significant change in one of the variables of vitality and psychological well-being in prostate cancer patients ($P < 0.001$).

Table 4 presents the two-way repeated measures ANOVA results. Table 4 shows that the effect of group, time, and their interaction on vitality and psychological well-being in patients with prostate cancer is significant ($P < 0.050$). As a result, MBCT has improved the variables, and the difference in the mean of the variables between the evaluation stages is also significant. Furthermore, the findings indicated that the intervention method of MBCT is responsible for 79.4% of time changes and 21.3% of group changes in the variable of vitality, and 76.1% of time changes and 28.7% of group changes in the variable of psychological well-being ($P < 0.050$).

The Bonferroni post hoc test was used to compare the results of different stages of the research, the results of which are shown in table 5.

Table 5 shows that the difference between the values of the variables in the pretest stage and the values of the posttest and follow-up stages is significant ($P < 0.001$). In contrast, the difference between the posttest and follow-up stages is not significant ($P > 0.050$). In other words, MBCT increased vitality and psychological well-being in patients in the posttest and follow-up stages.

Table 3. Mean and standard deviation (SD) of vitality and psychological well-being variables in pretest, posttest, and follow-up stages

Variable	Stage	Experimental group (mean ± SD)	Control group (mean ± SD)	P-value
Vitality	Pre-test	25.13 ± 5.71	25.67 ± 5.92	0.340
	Post-test	33.64 ± 6.39	26.07 ± 6.11	< 0.001
	Follow-up	33.18 ± 6.54	25.83 ± 6.05	< 0.001
Psychological well-being	Pre-test	47.53 ± 6.75	48.17 ± 6.46	0.270
	Post-test	61.14 ± 7.56	48.32 ± 6.57	< 0.001
	Follow-up	60.81 ± 7.24	48.41 ± 6.78	< 0.001

SD: Standard deviation

Table 4. The findings of two-way repeated measures analysis of variance

Source	SS	df	MS	F	P-value
Vitality					
Group	706.12	1	706.12	6.83	0.011
Time	565.74	1.74	325.14	84.08	< 0.001
Group × Time	641.49	1.74	368.67	95.34	< 0.001
Error	1529.34	63.48	24.09		
Psychological well-being					
Group	927.59	1	927.59	8.71	0.006
Time	782.07	1.52	514.52	116.43	< 0.001
Group × Time	1076.59	1.52	708.28	160.28	< 0.001
Error	2172.13	72.16	30.10		

SS: Sum of squares; df: Degree of freedom; MS: Mean square

However, the posttest and follow-up stages are similar. The difference between the posttest and pretest stages indicates the effectiveness of the intervention method, and the difference between the follow-up and pretest stages demonstrates the treatment's continued effectiveness in the follow-up stage.

Discussion

The current research examined the effectiveness of MBCT on the vitality and psychological well-being of prostate cancer patients. The findings indicated that the intervention method had an appropriate effect on these patients' vitality and psychological well-being variables. The findings of the current study are consistent with that of some previous researches in this field (Fang, Reibel, Longacre, Rosenzweig, Campbell, & Douglas, 2010; Zimmermann, Burrell, & Jordan, 2018; Teigen, 2023), but not that by Cordier, Gerber, and Brand (2019).

To support these findings, it can be stated that mental injuries are frequently perpetuated by biased and extreme thinking and distortion in data processing, resulting in decreased health, vitality, and psychological well-being. Emotional stress can affect a person's behavior to the point where he cannot control himself. Recognizing and addressing these issues and providing training such as MBCT to improve vitality and psychological well-being is an essential part of training (Brown & Ryan, 2003). In mindfulness training, the patient examines his/her thoughts, feelings, and bodily sensations through repeated exercises directed at a neutral object, such as breathing (Zimmermann et al., 2018).

MBCT reduces exaggeration by focusing on the here and now and rejecting various issues and problems. As a result, it causes people to see problems as they are rather than as they think under the influence of circumstances. A correct and realistic understanding of problems leads to a more positive and optimistic approach to life (Nyklicek, Dijksman, Lenders, Fonteijn, & Koolen, 2014).

Table 5. The Bonferroni post hoc test results for the comparison of the results of the different study stages

Variable	Stages		Mean difference	Standard error	P-value
Vitality	Pretest	Posttest	-8.51	0.52	< 0.001
	Pretest	Follow-up	-8.05	0.46	< 0.001
	Posttest	Follow-up	0.46	0.27	0.580
Psychological well-being	Pretest	Posttest	-13.61	0.39	< 0.001
	Pretest	Follow-up	-13.28	0.35	< 0.001
	Posttest	Follow-up	0.33	0.16	0.460

When such people face inappropriate situations, instead of reacting to make the situation worse, they develop a state of awareness and acceptance, and their ability to cope improves, resulting in the achievement of logical solutions to problems and the maintenance of peace (Ortner, Kilner, & Zelazo, 2007). Thus, mindfulness training improves or increases the psychological well-being of patients due to the factors listed above.

MBCT, in the face of challenges, leads to problem-solving and learning; thus, after overcoming the challenges of the disease, one feels more vitality. Patients are motivated to deal with psychological challenges, adverse conditions, and future challenges when they have a sense of self-confidence and efficiency. Patients appear self-assured, energetic, and convinced that they can overcome problems and challenges. This belief is related to one's ability to deal with environmental stressors through adaptive vitality functions (Penedo et al., 2013).

Several studies have shown that cognitive interventions reduce stress and improve patients' performance (Dodds et al., 2015). The mindfulness-based cognitive therapy can reduce the mental pressure and anxiety caused by the disease, resulting in more courage and satisfaction; thus, by increasing exercises to decentralize thoughts and emotions, a person can increase his/her level of self-acceptance and direct his/her awareness from the past and future to the present (Reich et al., 2017). Furthermore, by carefully observing his/her inner reality, a person realizes that happiness is a quality that is independent of external elements and changes in the inner world, and it occurs when a person abandons reliance on thoughts, positions, and predetermined mental plans. As a result, it causes a person to abandon his/her automatic behaviors to obtain a proper state or escape from painful situations, achieving liberation, and thus, feeling more alive.

Numerous studies have demonstrated that an increase in life satisfaction due to an increase in well-being reduces anxiety, depression, negative emotions, and psychological symptoms while increasing self-esteem, optimism, and positive emotions. Mindfulness clarifies experiences and teaches people to live their lives moment by moment. This improves psychological well-being by reducing negative psychological symptoms (Innes, Selfe, Khalsa, & Kandati, 2016).

Mindfulness exercises help to develop mindfulness factors such as observation, non-judgment, non-reactivity, and acting with awareness. The development of these factors improves psychological well-being by reducing stress and psychological symptoms (Monti et al., 2006). Indeed, as mindfulness improves, so does the patient's ability to step back and observe states like anxiety. As a result, the patient can break free from automatic behavior patterns. However, he/she can use the information from these states to improve his/her psychological well-being.

One of the limitations of the present research is that it is limited to a specific type of patients referred to a hospital. A similar study on other societies with different cultures is suggested for future research. It is suggested that other interventional treatment methods be performed on prostate cancer patients and the findings be compared to the findings of the current research. It is also suggested that the MBCT be used to help other patients' mental health.

Conclusion

The current research found that MBCT positively affected and increased vitality and psychological well-being in prostate cancer patients. Therapists and health professionals can use MBCT to intervene in mental health variables. Based on the

findings, psychologists and therapists are advised to use MBCT in conjunction with other educational and therapeutic methods to improve referring patients' vitality and psychological well-being.

Conflict of Interests

Authors have no conflict of interests.

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