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Assessing the Feasibility of Metacognitive Training for Patients with Depression in Pakistan: A Randomized Controlled Trial

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Abstract

Background: Depression is one of the foremost contributors to global disability. The United Nations health agency reports its pervasive impact on over 300 million individuals worldwide. Previous research has proffered various psychological interventions aimed at mitigating the severity of depressive symptoms, especially in developing nations. In the context of Pakistan, there exists a notable dearth of research addressing this issue and introducing remedial measures to bridge this gap. To fill this void, a double-blind, parallel randomized controlled trial was conducted with the primary objective of assessing the impact of Metacognitive Training for Depression (D-MCT) on the severity of depressive symptoms when compared to the conventional treatment approach (Treatment as Usual, TAU).

Methods: This study followed a parallel, two-arm, double-blind design, employing a feasibility approach within a randomized controlled trial framework and incorporating pre- and post-intervention assessments. A total of 60 participants, comprising 30 individuals in the experimental group and 30 in the control group, were enlisted from psychiatric departments at multiple hospitals in the Rawalpindi and Islamabad regions between July and November 2022. The study aimed to assess the effectiveness of metacognitive training for depression (D-MCT) in reducing depressive symptoms while also evaluating its impact on metacognition, mental well-being, and overall quality of life. This evaluation was conducted using a two-way factorial analysis of variance (ANOVA).

Results: The results of this investigation demonstrated that, when compared to the conventional treatment approach, Metacognitive Training for Depression (D-MCT) exhibited greater efficacy in reducing the severity of depressive symptoms and mitigating maladaptive metacognitive patterns among individuals suffering from depression. Additionally, the findings indicated that D-MCT significantly enhanced both the quality of life and mental well-being of patients dealing with depression.

Conclusions: The introduction of the D-MCT intervention for depression patients in Pakistan represents a pioneering step in enhancing the treatment of depression within the country. This study marks the inception of a promising avenue for professionals to enhance depression management through this innovative intervention.

Keywords: Metacognitive training, depression, metacognitions, randomized controlled trial

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Background

Depression is one of the most pervasive and debilitating psychiatric disorders globally, ranking as a leading contributor to disability and the overall burden of disease (World Health Organisation, 2022; Mitchell, 2021; Jelinek et al., 2021; Friedrich, 2017; Vos et al., 2017). The worldwide prevalence of depression has surpassed 350 million individuals, with an approximate 18% increase over the past decade (Wang, 2021; Arias-de la Torre et al., 2021; Ormel et al., 2022). In Pakistan, nearly 6% of the population grapples with depression (Gul et al., 2020). Regrettably, the mental health workforce in Pakistan remains limited, resulting in a significant treatment gap where a substantial proportion of individuals in need do not receive adequate care. This discrepancy persists between the population requiring mental health services and those who can access them. Furthermore, depression often follows a course marked by high rates of relapse and remission (Hauschildt et al., 2022).

A concerning but often overlooked issue is the premature discontinuation of treatment by patients during their therapeutic course. Fernandez et al. (2015) argue that individuals grappling with depression necessitate special attention during this critical phase, requiring preparatory, engaging, and motivational interventions to foster treatment adherence. Once engaged in treatment, individuals with severe depression may find the demands of therapy overwhelming, given that severe depression is characterised by cognitive impairments and reduced tolerance for negative feedback, which can lead to diminished engagement and withdrawal from psychotherapy (Hauschildt et al., 2022).

Considering the substantial treatment gap of approximately 80–90% in low-income countries and the escalating costs associated with resource-intensive individual psychotherapy, group interventions offer a cost-effective and widely accepted alternative. However, the utilization of current evidence-based group interventions in psychiatric (inpatient) care is hampered by various structural barriers. Existing protocols typically require the same group of participants to attend all sessions, with subsequent sessions building upon earlier ones. This setup contributes significantly to prolong waiting times, which can be particularly distressing for patients (Cuijpers et al., 2019; Kohn et al., 2004).

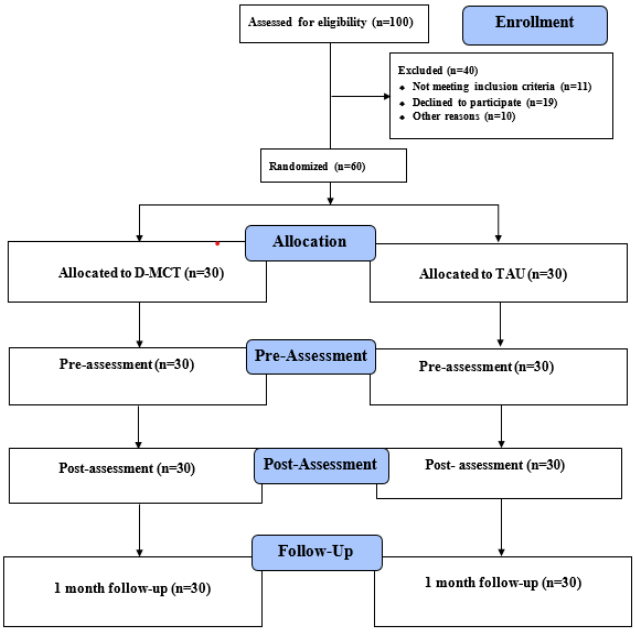
Improving the treatment of depression is a crucial endeavor, and the emphasis lies not so much in the development of novel treatments but rather in enhancing the effectiveness and accessibility of existing approaches. One avenue for improvement involves exploring lower-intensity interventions that can be administered by individuals without formal healthcare training, as opposed to solely relying on highly trained personnel. Addressing this need, Metacognitive Training for Depression (D-MCT) has been devised as a low-threshold, convenient, and cognitive-behavioural therapy-based group intervention. D-MCT's goal is to alleviate depressive symptoms by modifying cognitive biases from a metacognitive perspective (Jelinek et al., 2016).

The present study conducted a comparative assessment of the efficacy of D-MCT when combined with standard treatment versus standard treatment alone for individuals grappling with depression. It delved into the impact of D-MCT on the severity of symptoms, metacognitive patterns, mental well-being, and overall quality of life. Although previous research has explored the relationship between D-MCT, metacognition, and quality of life, scant attention has been paid to investigating D-MCT's influence on mental health. Hence, this study sought to bridge this research gap by exploring its effects on mental health outcomes as well.

Method

Research design

This study was a pre-post design, parallel, two-arm, double-blinded, feasibility, randomized controlled trial. The Consolidated Standards of Reporting Trials (CONSORT) were used to report this study (Eldridge et al., 2016). The trial was registered at the social science registry with ID AEARCTR-0009520.



Research objectives

Based on these concerns, the purpose of this study was to compare the efficacy of D-MCT combined with standard treatment to standard treatment alone in people suffering from depression. It examined the impact of D-MCT on symptom severity, metacognition, mental health, and quality of life.

Participants

Sample size was determined using the G-Power software. A purposive sampling technique was used to recruit sixty participants (male = 23; female = 37) with an age range of 18 to 55 years (M = 31.4; SD = 7.99) from the department of psychiatry of various hospitals across Rawalpindi and Islamabad. They were divided into two groups: the experimental group (n = 30) and the control group (n = 30).

Eligibility Criteria

Inclusion criteria: Participants were selected via a simple random sampling technique. Participants had to be between the ages of 18 and 55 and have been diagnosed with depression by a psychiatrist. Patients also had to have a BDI score of 18–38 (mildly to markedly ill) to be included in the study.

Exclusion criteria: Patients with very severe depressive symptoms that could hinder their understanding of the objectives of the sessions were excluded.

Randomization and Masking

Participants were randomly assigned (1:1) to receive treatment with D-MCT or standard treatment using a computer-generated randomization schedule. This was supervised by an external independent statistician with rigid concealment of allocation. Assessment was done at the pre- and post-intervention levels and was conducted by the same investigator, who was blinded and did not know to which group the participants belonged. Both the participants and clinicians were masked as to treatment allocation throughout the intervention.

Intervention.

Metacognitive Training for Depression. Metacognitive Training for Depression (D-MCT) is an intervention programme given by Lena Jelinek and Steffen Moritz. It is a new treatment approach based on cognitive-behavioral therapy that endorses a metacognitive perspective for the alteration of biases in thought and unhealthy beliefs. D-MCT is simple to use and well tolerated by patients (Jelinek et al., 2016, 2019).D-MCT is the first standardized treatment approach focused on the metacognitive viewpoint that systematically tackles various depression-related cognitive biases. It focuses on dysfunctional metacognitive coping mechanisms (such as thought suppression and rumination) to address disorder-specific cognitive biases (Hasson-Ohayon & Lysaker, 2021).

D-MCT has been translated into more than 16 languages and has been conducting research since 2009. Through creative techniques, metacognitive training for depression aims to educate participants about the incorrect thought patterns frequently present in depression. It is a standardised treatment approach, consisting of eight modules in the form of PowerPoint slides along with homework worksheets. The intervention was delivered to participants in groups of 3–5 people. Eight sessions were delivered biweekly. Data was collected both before and after the intervention. Sessions were not repeated, and missed sessions could not be made up since all sessions are independent of each other. New participants could enter at any session. The participants continued their psychopharmacological treatment and regular psychiatric care throughout the program.

Treatment as Usual. The control group received treatment as usual (TAU). This included psychopharmacological treatment as well as routine psychiatric care. However, due to ethical concerns, all individuals were given the option of participating in the MCT program once the trial was completed.

Primary outcomes.

Beck Depression Inventory (BDI). The Beck Depression Inventory (BDI) is a tool for assessing the presence and severity of depressive symptoms (Beck et al., 1961). Each of the BDI's 21 items aimed to examine a particular symptom or attitude that appears to be particular to depressed patients and is aligned with representations of depression in the psychological literature. The BDI assesses 21 depression symptoms, 15 of which are emotional, four are behavioral changes, and six are somatic. Sadness, pessimism, past failure, self-dislike, self-criticism, suicidal thoughts or wishes, crying, agitation, loss of interest, indecision, unworthiness, a lack of energy, alterations in sleep patterns, irritability, disturbances in appetite, concentration difficulties, exhaustion or fatigue, and a loss of interest in intimate relations are among the 21 items covered.

Secondary outcomes.

Metacognitions Questionnire-30. The questionnaire was developed (MCQ) by Cartwright-Hatton and Wells (1997), who then formed a shortened version of the questionnaire including 30 items (MCQ-30) (Cartwright-Hatton and Wells, 2004). On the MCQ-30, each question is scored using a 4-point Likert scale, with 1 being "do not agree" and 4 being "agree very much." Higher scores indicate more pathological metacognitive activity on the MCQ-30, which has a range of 30 to 120 points. The items are divided into five categories of metacognitive beliefs, all with six items, which are as follows: (i) cognitive confidence; (ii) positive beliefs about worry; (iii) negative beliefs about uncontrollability and danger; (iv) cognitive self-consciousness; and (v) beliefs about the need to control thoughts.

WHO Quality of Life scale (WHOQOL-BREF). WHO Quality of Life scale (WHOQOL-BREF; Lodhi et al., 2017; World Health Organization, 1996) assesses an individual’s

perception of their health and wellbeing over the course of their illness. Items are rated 1 to 5 with possible responses being not at all, not much, moderately, a great deal, or completely. WHOQOL-BREF covers four dimensions of quality of life: psychological well-being, physical health, social relationships, and environment. Two further items assess the overall quality of life and health.

Mental Health Continuum Short Form (MHC-SF). The Mental Health Continuum Short Form (MHC-SF) is used to assess an individual's emotional, social, and psychological well-being (Keyes, 2007). The scale was invented by Corey L. Keyes. The scale is relatively short at 14 items. The MHC-SF has 14 items that can be scored around 0 and 5, for a total score of 0 to 70 points. The MHC-SF includes three dimensions of well-being: emotional well-being, social well-being and psychological well-being.

Data analysis

For the present study, the data was evaluated by using SPSS version 20. A two way factorial ANOVA was employed for the primary endpoint analysis. The mean difference between two treatment arms, three-time points, together with its 95% confidence interval (CI), was derived from the multivariate analysis. Effect sizes were estimated using the partial eta squared (η^2_p), the cut-off points of which were: small = 0.01, medium = 0.0588, and large = 0.14 (Cohen, 1988). Significance was assessed using the p-value, and $p < 0.05$ was considered statistically significant.

Results

The current study sought to determine whether treatment as usual or treatment with D-MCT was more effective in lowering depressive symptoms in people with depression. The trial was divided into two treatment groups: treatment as usual and treatment with D-MCT. The assessment took place across three distinct time periods: pre, post, and follow-up.

Primary outcome

Depression. A two-way factorial ANOVA was administered and demonstrated significant impacts for the treatment condition in the group ($F = 14.73$, $p = .00$, $\eta_p^2 = .07$), timeline ($F=57.08$, $p=.00$, $\eta_p^2 = .39$) and interaction effect ($F=3.64$, $p=.03$, $\eta_p^2 = .03$). Participants in the control group (treatment as usual) improved less from pre- ($M = 30.06$, $SD = 6.24$), post- ($M = 19.73$, $SD = 7.79$), and follow-up ($M = 21.20$, $SD = 8.46$) conditions. However, participants in the intervention group (D-MCT) showed a significant decline in depressive symptoms in the post condition ($M = 12.36$, $SD = 3.96$) in comparison to the precondition ($M = 27.43$, $SD = 7.44$). In contrast, there is an increase in depressive symptoms in the follow-up ($M = 19.86$, $SD = 5.91$) since no treatment was provided during this period.

Secondary outcome

Three outcome measures were considered secondary: metacognitions, mental health, and quality of life. All are outcomes that relate to the long-term adjustment of the depressed population.

Metacognitions. The analysis demonstrated significant impacts for the treatment condition in group ($F=6.93$, $p=.00$, $\eta_p^2 = .03$), timeline ($F=12.60$, $p=.00$, $\eta_p^2 = .12$) and interaction effect ($F=3.81$, $p=.02$, $\eta_p^2 = .04$). Control group (treatment as usual) participants showed no significant improvement from pre ($M = 79.80$, $SD = 11.74$) to post ($M = 74.40$, $SD = 11.40$) and follow up ($M = 76.13$, $SD = 11.42$) conditions. However, participants in the intervention group (D-MCT) showed a significant decline in maladaptive metacognitions in the post condition ($M = 63.36$, $SD = 10.49$) in comparison to the precondition ($M = 78.40$, $SD = 12.00$). In contrast, there is an increase in maladaptive metacognitions in the follow-up ($M = 75.23$, $SD = 10.78$) since no treatment was provided during this period.

Mental Health. The findings demonstrated significant impacts for the treatment condition in the group ($F = 6.78$, $p = .01$, $\eta_p^2 = .03$), timeline ($F=17.72$, $p=.00$, $\eta_p^2 = .16$) and interaction effect ($F=3.44$, $p=.03$, $\eta_p^2 = .03$). Control group (treatment as usual) participants showed less improvement from pre ($M = 31.36$, $SD = 7.64$) to post ($M = 35.26$, $SD = 8.64$) and follow up ($M = 30.60$, $SD = 7.99$) conditions. However, participants in the intervention group (D-MCT) showed a significant improvement in mental health in the post condition ($M=43.00$, $SD=8.76$) in comparison to the precondition ($M = 32.43$, $SD = 8.51$). In contrast, there is a decrease in mental health in the follow-up ($M = 31.36$, $SD = 7.64$) since no treatment was provided during this period.

Quality of life the results demonstrated significant impacts for the treatment condition in the group ($F= 35.89$, $p=.00$, $\eta_p^2 = .17$), timeline ($F=54.97$, $p=.00$, $\eta_p^2 = .38$) and interaction effect ($F=22.16$, $p=.00$, $\eta_p^2 = .20$). Participants in the control group (treatment as usual) improved less from the pre- ($M = 50.03$, $SD = 5.35$), post- (54.60, $SD = 7.55$), and follow-up ($M = 51.30$, $SD = 5.71$) conditions. The intervention group (D-MCT) participants, on the other hand, showed a significant

Table 1

Mean Differences between Treatment as Usual and Metacognitive Training for Depression on Measures of Symptom Severity, Metacognitions, Mental Health, and Quality of Life (N = 60).

		TAU (n=30)		DMCT (n=30)		Group			Time			Group*time			Mean difference (95% CI)	
	α	M	SD	M	SD	F	p	UL	LL	p	η^2_p	F	p	η^2_p	UL	LL
BDI																
Pre	.72	30.06	6.24	27.43	7.44	14.73	.00	.07	57.08	.00	.39	3.46	.03	.03	27.89	31.27
Post		19.73	7.79	12.36	3.96										19.26	22.70
FU		21.20	7.46	19.86	5.91										15.12	18.57
MCQ-30																
Pre	.82	79.80	11.74	78.40	12.00	6.93	.00	.03	12.60	.00	.12	3.81	.02	.04	74.77	80.63
Post		74.40	11.40	63.36	10.49										73.00	78.86
FU		76.13	11.42	75.23	10.78										66.82	72.68
MHC-SF																
Pre	.66	31.36	7.64	32.43	8.51	6.78	.01	.03	17.72	.00	.16	3.44	.03	.03	24.94	30.32
Post		35.26	8.64	43.00	8.76										20.94	26.32
FU		30.60	7.99	31.36	7.64										26.84	32.22
WHOQOL																
Pre	.72	50.03	5.35	49.56	6.28	35.89	.00	.17	54.97	.00	.38	22.16	.00	.20	54.36	59.80
Post		54.60	7.55	69.83	7.12										49.36	54.80
FU		51.30	5.71	54.60	7.55										55.64	61.08

Note. BDI=Beck Depression Inventory; MCQ-30=Metacognitions Questionnire-30; MHC-SF= Mental Health Continuum Short Form; WHOQOL = World Health Organization Quality of Life scale

improvement in the post condition (M = 69.83, SD = 7.12) compared to the precondition (M = 49.56, SD = 6.28).In contrast, there is a decrease in quality of life in the follow-up (M = 54.60, SD = 7.55), since no treatment was provided during this period.

Discussion

Depression is among the most pervasive psychological disorders and contributes significantly to the global disease burden. It ranks fifth in the world in contexts of years lived with disability (Vos et al., 2017). It affects one in every seven people at some point in their lives, with a lifelong morbidity risk of around 30% (Moritz et al., 2018). The disorder is multifaceted, involving cognitive (e.g., difficulty concentrating), somatic (i.e., sleep disruption), and subjective distress (e.g., a sense of guilt and/or unworthiness), and most people with a depressive disorder have some difficulty with social, vocational, and home functioning (Moritz et al., 2018). Regardless of the effectiveness of well-established psychotherapeutic and pharmaceutical treatments (Cuijpers, 2015), numerous obstacles to treating depression continue to be debated, like high post-treatment relapse rates (Eaton et al., 2008) as well as dropout rates while receiving treatment (Swift & Greenberg, 2012). It demonstrates the requirement for existing therapies to be optimised to fill the existing treatment gap (Kazdin, 2017).

For severe depression, current treatment recommendations advocate a combined approach that includes both psychotherapy and a second-generation antidepressant. Group interventions reflect a cost-effective and widely accepted substitute in view of the substantial treatment gap of approximately 80%–90% in low-income countries and the exorbitant costs of resource-intensive individual psychotherapy (Cuijpers et al., 2019; Kohn et al., 2004). Moreover, the use of existing evidence-based group therapy in the context of psychiatric treatment is limited due to some structural barriers. To meet this need, metacognitive training for depression (D-MCT) has been developed as a low-threshold, simple to administer, cognitive behavioural therapy-based group intervention (Faissner et al., 2018; Hauschildt et al., 2022; Jelinek et al., 2019).

D-MCT aims to decrease depressive symptoms by modifying the patient's cognitive biases from a metacognitive standpoint. The core of D-MCT consists of several general cognitive biases that have been recognised by basic cognitive research, in addition to depressive thought patterns that are generally addressed in cognitive behavioural therapy (for example, overgeneralization). As a result, the current study used a randomised controlled trial to examine the efficacy of metacognitive training for depression in conjunction with standard treatment for reducing depressive symptoms in patients with depression. D-MCT also examined its effect on metacognition, mental health, and quality of life. While metacognition and quality of life have been previously associated with D-MCT, to the best of our knowledge, little research has been conducted to determine the effect of D-MCT on mental health. As a result, the current study aimed to bridge this gap as well (Jelinek et al., 2016).

Overall, all primary objectives were met. Results demonstrated that the severity of depression reduced over the period of one month after giving an intervention over eight sessions, but the intervention group showed more improvement as compared to TAU. However, a decline was observed in depressive symptoms over the four-week intervention session of D-MCT at post testing (T = 1); though this decline was greater compared to the TAU group, whereas at follow-up (T = 2) there was an increase in both the TAU and D-MCT groups. These findings were in line with prior RCTs on depressive symptoms and demonstrated that D-MCT had an effect on depression (Faissner et al., 2018; Hauschildt et al., 2022; Jelinek et al., 2019; Moritz et al., 2018). In this study the effect size was small ($\eta^2p=0.03$) post intervention. Whereas in secondary outcomes at pretesting (T = 0), metacognitions, mental health, and quality of life were almost the same, more improvement was shown by D-MCT groups as compared to TAU at posttesting (T = 1), though at follow-up (T = 2) there was a decrease in both groups. The D-MCT has been shown in studies to have a positive effect on symptoms of depression and depression-specific cognitive biases. The D-MCT has been found to be superior to an active control intervention in terms of reducing depressive symptoms shortly after the intervention, at 6-month follow-up, and after 3.5 years. Furthermore, the D-MCT demonstrated high patient acceptance in studies in which most patients (85–94%) mentioned that they would suggest the D-MCT to others and thought it was "beneficial and sensible" (83–100%) (Faissner et al., 2018; Hauschildt et al., 2022).

The D-MCT programme was also effective in improving dysfunctional metacognitive beliefs among depression patients. These results were similar to those of other studies that used the MCQ-30 as a measure of metacognitive beliefs (Faissner et al., 2018; Hauschildt et al., 2022; Jelinek et al., 2016). In current study the effect size was small ($\eta^2p=0.04$) post intervention. The programme was also effective in improving the mental health of patients with depression. To the best of our knowledge, no study has been found to check the effect of D-MCT on mental health. In this study also the effect size was small ($\eta^2p=0.03$) post intervention. The effect on quality of life was also found to be significant in the intervention group as compared to the treatment as usual group. In this study, the effect size was high ($\eta^2p=0.20$) post-intervention. These results were similar to the D-

MCT first RCT, six month follow up and 3.5-year follow up study to check its efficacy (Jelinek et al., 2019).

Limitations

The study has several limitations that should be acknowledged. To begin with, the D-MCT was administered as an add-on intervention to an active control treatment programme, and it is quite complex, as it may include psychiatric medication and/or individual or group psychotherapy. As a result, certain symptom reductions (or retention of treatment gains) may be attributed to the primary treatment program. It is therefore challenging to determine the impact of the D-MCT given without the intensive baseline treatment, which necessitates a design where the D-MCT is given as a stand-alone intervention. Future studies should be done to check the efficacy of D-MCT as a stand-alone intervention (Hauschildt et al., 2022).

Secondly, the chosen time duration of one month for the follow-up evaluation was possibly too short to demonstrate potential long-term effects on severity of depression. There is growing evidence that modification of metacognition has its full effects only with time (Jelinek, 2016; Van Quaquebeke, et al., 2017; Moritz et al., 2014; Hauschildt et al., 2022). Further studies with a longer follow-up period should be conducted to understand the impact of D-MCT over time. Moreover, because rumination was identified to mediate the association between metacognitive beliefs and depression, further studies should also investigate the role of rumination in depression (Hauschildt et al., 2022; Roelofs et al., 2007).The sample was diverse, with some discrepancies failing to achieve statistical significance, implying that some effects, either positive or negative, may have gone undetected. Future studies should be conducted with a larger sample of participants from more diverse demographics. Future research should investigate the effects of numerous demographic variables on the impact of D-MCT on patients with depression.

Implications

The findings of this study are promising, implying that this form of treatment could be used as a preventative and early technique for reducing depressive symptoms in people with depression. The D-MCT programme in Urdu is accessible to most Pakistanis as it is the national language and is spoken by the majority of people all over the country (Eberhard et al., 2022). D-MCT is a group-based, brief therapy that is standardised in the form of PowerPoint presentations that are freely available to all. As a result, the treatment method is feasible, simple to implement, and affordable. The therapy can be administered for 2 to 4 weeks or more, making it much easier for patients to comply. The training may also spark new ideas and knowledge in researchers and other professionals who work with people suffering from depression. The current findings may also help group clinicians change their perspectives toward group therapies by improving the efficacy of group treatment protocols.

Conclusion

Metacognitive training for depression is a cognitive therapy that intends to reduce depressive symptoms in individuals with depression. Numerous clinical trials have demonstrated its efficacy. It has been translated into 16 languages, but to the best of our knowledge, this therapy has never been applied in Pakistan. The current study was a novel feasibility test that examined the efficacy of D-MCT in Pakistani patients with depression. This is the first study of its kind to be carried out in Pakistan. The outcomes demonstrated that D-MCT is a successful treatment approach for people with depression in Pakistan. It could be used as a model for developing future D-MCT studies with a more representative sample of the entire population.

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Ethical Consideration

The study was approved by Department of Psychology, Foundation University School of Science and Technology, Pakistan. Consent Form was taken before taking data and participants were asked to take voluntary participation.

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Availability of data and materials

The data sets used and analyzed during the current study are available from the corresponding author on reasonable request.

Authors' contributions/Author details

Sundus Khattak performed this study under the guidelines of Muhammad Aqeel.

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Ethics declarations

Ethics approval and consent to participate

This study was approved by the Institutional Review Board of Department of Psychology, Foundation University School of Science and Technology, Pakistan. A written informed consent was obtained from all participants.

Consent for publication

Not applicable.

Competing interests

The authors declare to have no competing interests.

Additional Information

Not applicable.

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