

Impact Of Cognitive Behavioural Therapy And Mindfulness-Based Therapy On Mental Health And Cognitive Performance: A Socio-Psychological Study In Vadodara, Gujarat

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ABSTRACT

The Purpose Of This Study Is To Examine How Cognitive Performance And Psychological Health Are Affected By Cbt And Mbt. There Is Encouraging Evidence That Psychological Therapy Can Improve Both Mental Health And Academic Achievement. The Major Objective Of This Research Is To Investigate The Impact Of Motivational Interviewing (Mbt) And Cognitive Behavioral Therapy (Cbt) On Mental Health And The Relationship Between The Two. Three Hundred People In Vadodara, Gujarat, Were Surveyed Using A Quantitative Approach And A Structured Questionnaire. Reliability, Validity, And Structural Model Analysis Were Used To Check The Relationships Between The Constructs. Both Cbt And Mbt, Or Dialectical Behavior Therapy, Have Shown To Be Quite Helpful For Mental Health In Studies. Be That As It May, Cbt Is More Effective. There Is Also Strong Evidence That Indicates A Beneficial Correlation Between Mental Wellness And Cognitive Function. Cognitive Performance, Including Attention, Memory, And Decision-Making, Is Positively Impacted By Factors Such As Better Psychological Well-Being, According To The Research. Emotional Health And Cognitive Performance In Social And Psychological Contexts Can Be Improved By The Incorporation Of Psychological Therapies Into Mental Health Care, According To The Study.

Keywords: Cognitive Performance, Cognitive Behavioural Therapy, Gujarat, Mental Health, Mindfulness-Based Therapy Psychological study

INTRODUCTION

Cognitive abilities, including attention, memory, language, and reasoning, significantly impact information processing, problem solving, and decision making. Strong cognitive skills are associated with better financial outcomes, including higher earning potential and effective money management. On the other hand, people having low cognitive abilities might have problems with control over finances where they become unstable. The knowledge of this relationship is vital in helping the policymakers, financial institutions, and educators improve financial well-being by making better decisions and providing financial literacy classes (Maheria, 2024).

Mental healthcare is supposed to be used to promote well-being, prevent disorders and to treat, which is regulated through the Mental Healthcare Act, 2017, which safeguards the right of mentally ill people. According to the National Mental Health Survey (2015-16), 10.60 percent of the national population, as well as 7.40 percent in Gujarat are diagnosed with mental disorder (Azim Premji, 2019). Gujarat provides mental health services in four special mental hospitals and in government medical colleges and through District Mental Health Programme Units. In 2015-19, ₹147 crore was budgeted on these services, which are mostly in terms of the hospitals, managed by the State Mental Health Authority.

Anxiety and depression are common mental disorders that affect various people of diverse age groups, ethnic backgrounds, and social classes. Considering the increased rates in the world and its significant impact on the capacity of people to operate, their productivity, and overall health, there is an urgent demand of curing approaches that are efficient, readily accessible, and durable. The therapeutic drug and cognitive-behavioural therapy (CBT) have shown considerable effectiveness but most people still..

face challenges like drug side-effects, inability to find qualified therapists, high treatment expenses and recurrent relapse. It has proposed mindfulness-based therapies (MBTs) as possible supplemental or alternative therapy to resolve these issues and has applied the current moment mindfulness to relieve emotional distress (Sharma, 2025).

The clinical application of these various theories serves as the basic tools of improving a mental health outcome and cognitive performance. CBT specifically targets dysfunctional cognitive patterns, mindfulness-based therapies encourage awareness of the present moment, and social psychology provides understanding of how social interactions impact personal well-being (Hofmann et al., 2012). The application of these methodologies enables the creation of customized therapies adapted to specific requirements, therefore improving the effectiveness of therapy by integrating the many elements that impact human behavior.

Understanding and maintaining health-enhancing habits is essential for reducing the risk of chronic illnesses; however, sustaining these behaviors is difficult. Research indicates that interventions can initially increase physical activity in older adults, but these improvements often diminish within 18 to 24 months (Godfrey et al., 2013). Similar patterns are seen in long-term weight management and smoking cessation efforts, underscoring the need for effective strategies to encourage the long-term adoption of healthy habits. Theories used in programs to maintain health behaviors focus on identifying methods that promote lasting changes, ultimately leading to decreased chronic disease risk and better health outcomes.

Application of psychological ideas has been of great assistance in improving mental health outcomes and upholding healthy behaviors among diverse populations. Such mental health problems as PTSD, depression, and anxiety can be successfully addressed through such approaches as mindfulness-based interventions and CBT. These methods will help individuals learn how they can transform their dysfunctional patterns of thinking, cope with stress, and become more able to control their emotions (Linke et al., 2014). Along with decreasing the risk of relapse as well as encouraging resilience, the therapies equip individuals with the resources which they can actively utilize to control their mental state (Hajek et al., 2013). By applying these theoretical frameworks in health-related behavior therapies, researchers can provide a more holistic approach towards the enhancement of health and the defeat of long-term maintenance obstacles.

The remainder of the paper is outlined as follows: Section 2 gives an outline of the previous research on this topic. In more detail, the method of research is presented in Section 3. Section 4 also includes the analysis and discussion of the data. In the last section, Section 5, a conclusion is given.

‘Objectives’:

‘To examine the effect of Cognitive Behavioral Therapy on mental health symptoms.

To analyze the impact of Mindfulness-Based Therapy on improving mental health.

To evaluate the relationship between mental health and cognitive performance’.

LITERATURE REVIEW

(Gkintoni & Vassilopoulos, 2025) investigated the ways in which mindfulness-based cognitive therapy (MBCT) impacts mental health. A meta-analysis of 87 studies found that mindfulness-based cognitive therapy (MBCT) significantly improves emotional regulation and cognitive skills while decreasing anxiety, sadness, and stress. The neurobiological processes and long-term advantages of MBCT require further investigation, and the given review indicated that the treatment can lead to neuroplastic alterations in the brain, which allows adopting a more interdisciplinary approach to the subject combining psychology and neuroscience.

The article of (Nwadi et al., 2025) analyzed how business education students in Southeast Nigeria who participated in cognitive-behavioral therapy (CBT) and mindfulness-based stress reduction (MBSR) fared on exams. The 483 participants in the randomized control experiment were split into two groups: one that received CBT-MBSR as an intervention, and another that only waited to see what happened. With evaluations held at three points which included before, shortly thereafter and during follow-up. Repeated-measured ANOVA, MANCOVA analyses revealed that the CBT-MBSR group was significantly lower than the controls in test anxiety, and in increases in mindfulness, academic success, and general wellbeing.

As (Jr et al., 2023) demonstrated, Cognitive Behavioral Therapy (CBT), overall, was generally accepted as an effective way of treating mental problems, yet there are certain concerns about its applicability in culturally diverse groups. This review aims to highlighted the findings of the randomized trials concerning the cultural sensitivity of CBT for ethnic minorities. According to the findings, CBT has been proved to be effective for ethnic minorities, though its outcome is slightly less effective compared to that for Caucasians. This review revealed mixed findings concerning culturally sensitive CBTs, emphasizing the absence of evidence for cultural sensitivity training for CBT therapists. Three models had been discussed to address cultural issues in the application of CBT to culturally diverse groups.

(Nakao et al., 2021) examined that Cognitive Behavioral Therapy, or CBT, can be very effective in dealing with avoidant and safety behaviors, stress management, and mental health. There were 345 studies (including reviews and trials) looking at CBT's effectiveness from 1987 to 2021. Anxiety, depression, and physical and behavioral issues can all be helped by cognitive behavioral therapy (CBT), according to randomized controlled trials. However, these trials only looked at the short-term benefits, and further research is needed to determine the long-term impacts. Online or self-help CBT, such as CBT via

mobile apps, may also be effective, but with proper application, especially in terms of cost-effectiveness and application to the population.

(Perihan et al., 2019) In children with autism spectrum disorder (ASD), anxiety symptoms tend to be more prominent. Anxiety symptoms can be better managed by certain individuals with autism spectrum disorder (ASD) according to new research on cognitive behavioral therapy (CBT). For the purpose of this meta-analysis, 23 separate papers were considered. For the alleviation of anxiety symptoms, the results showed a moderate effect size ($g=-0.66$). Studying the parent together had a larger impact on reducing anxiety symptoms ($g=-0.85$, $p<.05$) compared to studying the child alone ($g=-0.34$, $p<.05$). The effect size was smaller in short-term interventions ($g=-0.37$, $p<.05$) than standard-term interventions ($g=-1.02$, $p<.05$) and long-term interventions ($g=-0.69$, $p<.05$).

(Fusar-poli et al., 2020) proved that there has been a lack of research on the promotion of good mental health among young people, both those with and without mental problems. This is in part due to the difficulties in defining what constitutes good mental health. But the European College of Neuropsychopharmacology stresses in their submission the importance of developing a realistic Optimal mental health: what does it mean? A person's ability to handle life's difficulties and perform at their peak depends on the state of their mental health. Important components of mental wellness include: knowledge of mental health services, attitudes toward mental disorders, cognitive abilities, academic achievement, emotions, behaviors, self-management, social skills, relationships, physical and sexual health, life purpose, and quality of life. When conducting future empirical studies on the promotion of good mental health, these categories or domains of good mental health will be absolutely crucial.

(Bremner et al., 2020) demonstrated that there was much interest in the interrelationship between diet, mental health, and stress, and the mechanisms are not well understood. There was some evidence that diet and obesity can have a direct effect on mood or mental health through stress-related disorders. There was also evidence that stress can have a major impact on diet, leading to obesity and mental health issues such as depression and PTSD. The other areas included inflammation, as well as the possible use of polyunsaturated fats in depression. The current study focused on the gut-brain axis has highlighted that the microbiome in the gut has a major effect on brain function and mood, thus linking diet and mental health.

(Singh, 2022) examined that Mindfulness-based therapies (MBT) have been found to be promising in the treatment of non-psychotic disorders. The foundations of MBT can be found in Indian philosophy, in contrast to the purportedly Western origins of most other psychotherapy approaches. The foundational ideas of MBT, observer self (Sakshi) as well as focus (Dhyana), are attempted to be highlighted in this work, while at the same time attempting to dispel some misconceptions. It is submitted that a better understanding of these concepts would be beneficial not only to psychotherapists, but to all practitioners of the healing art.

(Weizenbaum et al., 2020) discussed that this study deals with the significance of using frequent mobile assessments in examining the effect of context on cognitive performance. It was found in literature that there are different factors, both internal and external, which may influence cognitive performance. Hence, in this study, the significance of using high-frequency mobile assessments in measuring cognitive performance is discussed. It was found in the study that context factors had a significant effect on cognitive performance; however, traditional data collection may not be useful in this regard. Mobile assessment may help in improving diagnostic accuracy and outcome in different disorders.

Hypothesis development

H1: Psychological approaches (Cognitive Behavioral Therapy) significantly reduce symptoms of Mental Health

(Kyriakoulis & Kyrios, 2023) examined many hypotheses of panic disorder (PD), including biological, metabolic, respiratory, and cognitive components. Although biological ideas have influenced the creation of psychopharmacological therapies, they may not be as effective as psychological treatments. CBT has gained popularity for treating Parkinson's disease owing to its effectiveness. Combination therapy had been shown to be more effective in treating Parkinson's disease, highlighting the need for an integrated strategy and model to address the complex and multifaceted nature of the disease.

(Dwyer et al., 2018) explained why this strategy was vital for future practice since it may improve mental disease diagnosis, prognosis, and therapy options utilizing clinical and biological data. This has been done by criticizing present statistical paradigms in mental health research and introducing important machine learning approaches utilized in clinical trials.

H2: Psychological approaches significantly (Mindfulness-Based Therapy) significantly reduce symptoms of Mental Health.

(Chen et al., 2020) looked studied the potential benefits of MBSR (mindfulness-based stress reduction) in treating insomnia. Adults suffering from insomnia who were 18 years old and older were the subjects of this meta-analysis, which aimed to determine the effects of Mindfulness-Based Stress Reduction (MBSR) on depressive symptoms, anxious thoughts, and sleep quality. Depression (SMD = -1.83), sleep quality (SMD = -0.69), and there were notable improvements in both, and anxiety (SMD = -1.74) were found by analysing data from 497 patients over seven investigations; p-values indicated substantial statistical significance. Sensitivity analysis confirmed that the results were reliable. In conclusion, MBSR significantly improves mental health and sleep quality, which calls for more investigation into its long-term advantages for those who suffer from insomnia.

This meta-analysis focused (Pan et al., 2024) on studies that used a random assignment to see whether mindfulness-based stress reduction (MBSR) improved psychosomatic stress and overall human well-being. After a comprehensive search, 29 studies were found. While mindfulness (SMD =0.34), self-kindness (SMD =0.57), and physical health (SMD = -0.59) were increased, anxiety (SMD = -0.29), depression (SMD = -0.32), and stress (SMD = -0.41) were lowered. Sleep quality, social functioning, and subjective well-being did not differ significantly. Evidence linking sleep and physical well-being was of poor quality. The efficacy of mindfulness therapy needs more large-sample studies, but MBSR has the potential to be used to treat emotional disorders.

(Babak et al., 2022) demonstrated that hypertension had a large impact on cardiovascular diseases and reduces the quality of life. Eighty adult women with Stage I or II hypertension were the subjects of a 2019 randomized clinical trial that compared the effects of standard care with a 12-week mindfulness-based stress reduction intervention. The data was obtained using DASS-21 and SF-36 questionnaires, and measurements were taken of blood pressure, stress, depression, anxiety, and quality of life one week before and one week after the intervention. Positive effects on mental health indicators ($P < 0.05$) and reductions in blood pressure (systolic from 142.82 to 133.7 mmHg and diastolic from 86.12 to 79.15 mmHg) were observed in the mindfulness-based stress reduction intervention.

‘H3: There is a significant relationship between mental health and cognitive performance’.

This psychological theory-based research (Michie et al., 2007) assessed difficulties in implementing therapeutic recommendations, namely a National Institute for Health and Clinical Excellence (NICE) prescription for family interventions in schizophrenia treatment. To discover barriers to transdisciplinary agreement, researchers questioned 11 theoretical disciplines. The integration of psychological theories is required to identify and remove obstacles to evidence-based therapies, which may improve mental health outcomes and cognitive performance via tailored family interventions in schizophrenia care.

(Bratman et al., 2012) examined current beliefs about these impacts, studies on nature exposure, and how natural preferences may influence psychological functioning. Researchers from several professions investigated how nature affects health. Environmental psychology, urban planning, medical literature, and landscape aesthetics are utilized to study how environment influences cognitive and mental health. This field has multiple active yet diverse research endeavours, hence recommend classifying natural experiences. also advocate investigating how natural environment elements impact cognitive performance and mental health, the ideal kind, length, and frequency of interaction, and the brain processes involved.

(Jokela, 2022) explored the possibility that associations between cognitive ability and mental health (depression, anxiety, and psychological wellbeing) could be explained by different risk factor categories, such as socioeconomic status, enjoyment of pleasurable activities, coping/appraisal, social relationships, and biological risk factors (inflammation, cortisol, heart-rate variability, and reaction time). These results imply that the protective effect of socioeconomic position and cognitive-behavioral processes may contribute to the correlation between psychological well-being and brain capacity.

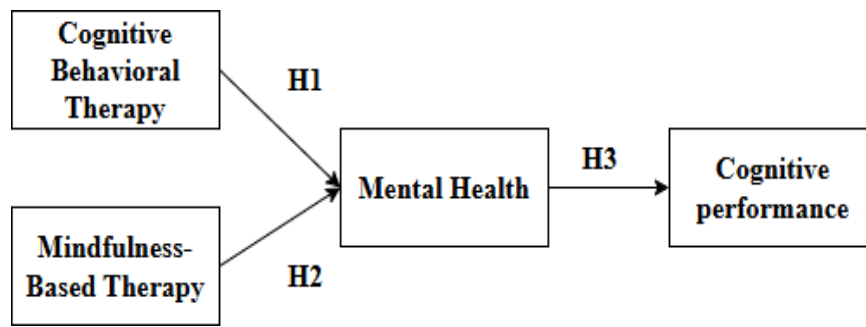
Research gap

The efficacy of CBT and MBT in enhancing psychological health and alleviating stress, sadness, and anxiety has been well-documented in the current body of research. The beneficial effects of these treatments upon mental health outcomes have been confirmed by other studies that examined their efficacy separately. Furthermore, mindfulness-based therapies and cognitive behavioral therapy (CBT) have been recognized in multiple reviews and meta-analyses for their beneficial effects in improving emotional and psychological functions. The existing literature has primarily concentrated on the impact of these therapies in relation to clinical populations and interventions, and there is no emphasis on the joint impact of these therapies on cognitive functions. Furthermore, there is a lack of empirical research that tries to uncover the joint effect of CBT, MBT, mental health, and cognitive performance in a single structural model. Moreover, research that tries to uncover the effect of these factors in socio-psychological environments and regional settings is also limited. To address this knowledge vacuum, the current study set out to investigate how cognitive behavioural therapy (CBT) and motivational interviewing (MBT) affected mental health in Vadodara, and how it in turn affected cognitive performance, Gujarat, with a broad socio-psychological perspective.

‘METHODOLOGY’

‘Research Design’

Brain health and cognitive performance are the subjects of this quantitative study, which compares the efficacy of cognitive behavioral treatment (CBT) and mindfulness-based therapy (MBT). The associations between the study variables were examined using a descriptive and explanatory research approach. The purpose of the research framework is to assess how CBT and MBT affect mental health and how mental health affects cognitive function. To show the connections between the variable’s psychological approaches (CBT, MBT), Mental health and Cognitive performance, a conceptual framework was created. The research provided testing of the proposed hypotheses and the determination of the relationships between the constructs based on the statistical procedures, such as reliability analysis, validity examination, and structural model analysis.

‘Conceptual framework’**Figure 1 ‘Conceptual framework’****Research hypothesis**

H1: Psychological approaches (Cognitive Behavioral Therapy) significantly reduce symptoms of Mental Health.

H2: Psychological approaches (Mindfulness-Based Therapy) significantly reduce symptoms of Mental Health.

H3: There is a significant relationship between mental health and cognitive performance.

Data collection and sample selection

Cognitive Behavioral Therapy (CBT), Mindfulness-Based Therapy (MBCT), Mental Health, along with Cognitive Performance were part of the study's main data gathering process, which involved administering a standardized questionnaire. The questionnaire was developed with multiple indicators for measuring each construct, and background information (age, gender, educational qualification, occupation, and monthly income) data from the participants. The questionnaire was mailed to 300 respondents in Vadodara, Gujarat. The selection of respondents was to provide them with a wide scope of the psychological well-being and cognitive performance by representation of various demographic features. The respondents were aged 18 and more with equal genders and other various occupations including students, employed, self-employed, and unemployed. It enabled a thorough analysis of the socio-psychological situation in the region concerning the psychological methods, mental health, as well as cognitive functioning. The statistical analysis of data collected was done with high level of rigidity to ascertain the reliability, validity and association between the variables.

Measures

The data has been obtained through a pre-set survey. Research questions that are going to be posed to respondents will be rooted in a 5-point Likert scale (strongly disagree -strongly agree) and a 4-point Likert scale. There are both open-ended and closed-ended questions on the questionnaire. The questions have been thoughtfully designed to collect relevant data related to the research variables that have been selected. What follows is a detailed description of the variables as well as their associated measurement items that were utilized in the analysis.

Table 1 Measures

S.no	Variables	Number of statements
1	Mindfulness Based Therapy	6
2	Cognitive behavioral therapy	4
3	Mental Health	4
4	Cognitive Performance	4

MBT: Mindfulness-Based Therapy was a psychological intervention that uses traditional psychotherapeutic methods and mindfulness practices such as meditation, awareness, and attention. The primary objective of MBT is to increase individuals' awareness of their emotional, cognitive, and physical experiences without judgment, which helps them deal with their emotions and stressful situations in a more effective way. MBT also focuses on the development of self-awareness, emotional control, and psychological hardness, which can help in the reduction of symptoms of stress, anxiety, and depression (Zhang et al., 2021).

CBT: Changing unhelpful ways of thinking, feeling, and behaving is the primary aim of Cognitive Behavioral Therapy (CBT), a methodical, goal-oriented, and scientifically-backed psychological approach. A central tenet of cognitive behavioral therapy (CBT) is the idea that one's ideas have an effect on one's emotions and behavior. Hence, by modifying negative

thoughts, one can modify feelings and actions accordingly. Cognitive Behavioral Therapy focuses on improving coping skills, emotional management, and managing psychological problems like anxiety, depression, and stress, etc. CBT therapy has been applied in various settings, both clinical and non-clinical, owing to its efficacy in improving psychological well-being (Bhattacharya et al., 2023).

Mental Health: The ability to manage day-to-day challenges, reach one's full potential, be an effective employee, and make positive contributions to one's community are all hallmarks of a mentally healthy person. Social, psychological, and emotional health are all aspects of mental health that pertain to how we act, feel, and think. When one's mental health is good, they are able to deal with stress, create healthy relationships, make rational decisions, and excel in their personal and professional lives. It is worth noting that mental health is not only the absence of mental illness; it also involves positive functioning, resilience, and adaptability to life challenges (Bremner et al., 2020).

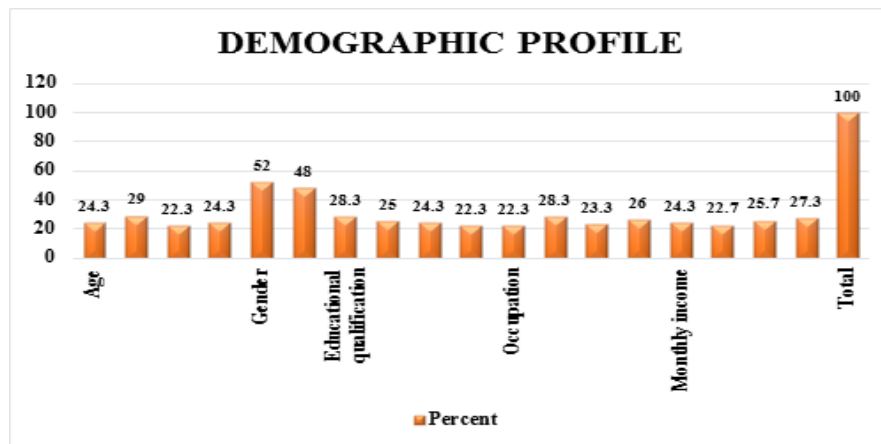
Cognitive Performance: Cognitive performance is the capacity for mental operations such as paying attention, remembering information, solving problems, and making decisions, learning, and information processing. Cognitive performance can be defined to the capacity of a person's brain to process data, which enables him or her to perform tasks and respond to environmental demands. Therefore, high cognitive performance enables an individual to focus, think critically, and remember information, as well as make wise decisions in his or her daily and professional life. Cognitive performance can be influenced by different psychological and environmental factors, which include stress, mental health, and lifestyle, among others (Jokela, 2022).

RESULTS

Demographic profile

Table 2 Demographic profile

Variables		Frequency	%
Age	18–25 yrs	73	24.3
	26–35 yrs	87	29
	36–45 yrs	67	22.3
	Above 45 years	73	24.3
Gender	Male	156	52
	Female	144	48
Educational qualification	Undergraduate	85	28.3
	Post Graduate	75	25
	Doctorate	73	24.3
	Other	67	22.3
Occupation	Student	67	22.3
	Employed	85	28.3
	Self-employed	70	23.3
	Unemployed	78	26
Monthly income	Below 20,000	73	24.3
	20,001 – 40,000	68	22.7
	40,001 – 60,000	77	25.7
	Above 60,000	82	27.3
Total		300	100



The demographic variables of the respondents were analyzed using distribution by percentage and frequency. The age distribution of the respondents was as follows: 29 percent were in the 26–35-year-old bracket, 24.3% were in the 18–25-year-old bracket, and 24.3% were above the age of 45. Only 22.3% of the respondents were in the 36–45-year-old bracket. Male made up the majority of those who took the survey. (52%), while 48% were female. This showed that the gender distribution was relatively balanced. Regarding educational qualifications, the results revealed that 28.3% of the respondents were undergraduates, 25% were postgraduates, 24.3% held a doctorate degree, and 22.3% were categorized under other groups. Regarding occupation, the results revealed that 28.3% of the respondents were employed, 26% were unemployed, 23.3% were self-employed, and 22.3%. With respect to the monthly income of the respondents, it was found that 27.3% of the respondents were earning more than ₹60,000, while 25.7% of the respondents were earning between ₹40,001 and ₹60,000. Additionally, 24.3% of the respondents were earning below ₹20,000, while 22.7% of the respondents were earning between ₹20,001 and ₹40,000. It can thus be concluded that the demographic distribution of the sample indicates that the sample includes a wide range of age groups, educational levels, occupational levels, and income levels.

Table 3 Factors Loadings with Internal Consistency Reliability and Convergent Validity

Path			Estimate	Cronbach's alpha	CR	AVE
MBT1	<---	MBT	0.855	0.774	0.849	0.710
MBT2	<---	MBT	0.794			
MBT3	<---	MBT	0.787			
MBT4	<---	MBT	0.569			
MBT5	<---	MBT	0.649			
MBT6	<---	MBT	0.649			
CBT1	<---	Cognitive behavioral therapy	0.658	0.859	0.848	0.576
CBT3	<---	Cognitive behavioral therapy	0.595			
CBT5	<---	Cognitive behavioral therapy	0.526			
CBT6	<---	CBT	0.528			
MH1	<---	MH	0.853	0.849	0.860	0.764
MH2	<---	MH	0.776			
MH3	<---	MH	0.751			
MH4	<---	MH	0.678			
CP1	<---	CP	0.657	0.84	0.862	0.767
CP2	<---	CP	0.836			
CP3	<---	CP	0.781			

CP5	<---	CP	0.795			
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Factor loadings, Cronbach's alpha, CR, and average variance extracted (AVE) were employed to evaluate the measurement model to ascertain the constructs' convergent validity and reliability. Mindfulness-Based Therapy (MBT) had satisfactory reliability, evidenced by a Cronbach's alpha of 0.774 and composite reliability of 0.849, both beyond the recommended threshold of 0.70. The convergent validity is better as the AVE score of 0.710 is greater than the set up of 0.50. The factor items loading, between 0.569 and 0.855 shows that the indicators are effective to measure the construct. The results show high reliability in Cognitive Behavioral Therapy (CBT) with the composite reliability of 0.848 and Cronbach's alpha of 0.859. The convergent validity is determined by the value of AVE of 0.577 which is above 0.50. The factor loadings that have been appropriate to undergo exploratory analysis were between 0.526 and 0.658. The Mental Health (MH) construct proved to be valid and reliable. Composite dependability was 0.861 and Cronbach's alpha was 0.849, indicating strong internal consistency. An impressive AVE value of 0.765 indicates strong convergent validity. Factor loadings ranging from 0.678 to 0.853 demonstrate that the indicators adequately capture the mental health construct. Composite reliability was 0.862 and Cronbach's alpha was 0.840, indicating that Cognitive Performance (CP) was reliable enough to be used in research. Strong convergent validity is indicated by the AVE score of 0.767. The measurement items sufficiently describe the construct, as shown by the factor loadings, which range from 0.657 to 0.836.

With Cronbach's alpha > 0.70, composite reliability > 0.70, and AVE > 0.50, all constructs in the measurement model meet the recommended criteria for convergent validity and reliability.

Table 4 Discriminant validity

	CBT	MBT	Mental health	CP
CBT	0.842			
Mindfulness Based Therapy	.406**	0.759		
Mental health	.390**	.803**	0.874	
Cognitive performance	.465**	.637**	.596**	0.875

The square root of AVE values in this study was 0.876 for cognitive performance, 0.843 for cognitive behavioral therapy, 0.759 for mindfulness-based therapy, and 0.874 for mental health. The inter-construct correlation coefficients are lower than these values. For example, the correlations between CBT and Mental Health (0.390), CBT and Cognitive Performance (0.465), and CBT and Mindfulness-Based Therapy (0.406) are all lower than the square root of AVE for CBT (0.843). Similarly, correlations between Mindfulness-Based Therapy and Mental Health and Cognitive Performance were 0.803 and 0.637, respectively, which were less than the square root of AVE (0.759). The discriminant validity criteria are nevertheless deemed acceptable when constructs remain theoretically different, despite the relatively significant association with mental health. The data indicate that each concept exhibits greater variation across its indicators compared to other constructs, demonstrating that the measuring model possesses adequate discriminant validity.

Hypothesis implementation

Table 5 Hypothesis Implementation

Hypothesis	Relationship path	Co-efficient	P- value
H1	CBT<---MH	0.916	P<0.01
H2	MBT<---MH	0.565	P<0.01
H3	MH<---CP	0.644	P<0.01

The links between CBT, MBT, Mental Health (MH), along with Cognitive Performance (CP) were examined by analysing the structural model. Path coefficients and p-values were used to assess the associations' significance. According to H1, cognitive behavioral therapy considerably lessens the symptoms of mental health issues. The findings indicate a statistically significant link between CBT and mental health, with a robust and positive path coefficient ($\beta = 0.916$, $p < 0.01$). Consequently, H1 is supported, indicating that CBT significantly improves mental health outcomes. According to H2, mindfulness-based therapy considerably lessens the signs of mental health issues. The results show that there is a somewhat positive path coefficient ($\beta = 0.565$, $p < 0.01$) between mental health and MBT. With a p-value lower than 0.01, the correlation is considered statistically significant. As a result, H2 is also supported, suggesting that mindfulness-based therapy improves mental health. According to H3, mental health and cognitive function are significantly correlated. The findings

indicate that there is a substantial positive path coefficient ($\beta = 0.644$, $p < 0.01$) between cognitive performance and mental health. This suggests that enhanced cognitive function is linked to better psychological well-being. This lends credence to H3. Cognitive behavioral treatment (CBT) and mindfulness-based therapy, among other psychological approaches, have a major influence on mental health, according to the structural model's overall findings, which in turn improves cognitive function.

DISCUSSION

This study's findings highlight the significance of psychological strategies for improving mental health and brain function. Based on the findings, it is clear that both CBT and MBT have a substantial impact on mental health outcomes. When compared to the other technique, cognitive restructuring and behavioral adjustment had a larger impact on mental health ($\beta = 0.916$, $p < 0.01$). These methods are highly effective in reducing symptoms of psychological discomfort. This confirms what other studies have shown: that cognitive behavioral therapy (CBT) is effective in helping people enhance emotional regulation and decrease negative thought patterns. Furthermore, mindfulness-based treatment had a significant positive impact on psychological well-being ($\beta = 0.565$, $p < 0.01$).

This finding lends credence to the idea that stress management, meditation, and other mindfulness practices can aid individuals in overcoming psychological obstacles and achieving greater emotional health. In addition, there was a notable correlation ($b = 0.644$, $p < 0.01$) between mental health and cognitive performance, as established by the researchers. Memory, focus, and decision-making are all cognitive qualities that, according to this research, improve with good mental health. Improving one's mental and emotional health leads to enhanced concentration and clarity of thought, which in turn enhances one's cognitive abilities. Indicators do reflect the underlying variables, as confirmed by the results of the measurement model, which also confirmed the constructs' validity and reliability. Generally, the results suggest that psychological interventions do not only improve emotional health but they also tangentially amplify cognitive ability.

CONCLUSION

This paper examined the application of psychological methods especially Treatment of mental health and cognitive impairment, which involves mindfulness-based approaches and cognitive behavioral therapy. The results indicate that MBT and CBT significantly contribute to a positive mental condition, with the latter being more effective. Moreover, Researchers discovered that the mental health of people has a strong influence on their cognitive performance so it is reasonable to accept that individuals with higher mental health will also perform well in cognitive activities. To enhance the emotional and cognitive functioning, our results highlight the importance of integrating psychological therapies in the support program of mental health, in the pool of education and employment. Cognitive restructuring and mindfulness exercises are the effective psychological methods that allow individuals to overcome stress and improve their mental health and cognitive performance. In all respects, the research contributes to knowledge in the way psychological strategies can promote psychological health and intellectual growth in different environments.

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