



# International Journal of Multidisciplinary Research and Growth Evaluation.

## The effect of the Mindshift CBT app on the symptoms of anxiety in adults

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### Article Info

**ISSN (online):** 2582-7138

**Volume:** 05

**Issue:** 05

**September-October 2024**

**Received:** 26-07-2024

**Accepted:** 29-08-2024

**Page No:** 552-558

### Abstract

This study explores the effectiveness of the MindShift CBT App in reducing anxiety symptoms among adults. Employing a one-group pretest-posttest design, 30 participants engaged in an eight-session intervention, each lasting 15 minutes. The Beck Anxiety Inventory served as the quantitative measure, indicating a statistically significant reduction in anxiety levels post-intervention.

Initial findings revealed a moderate pretest anxiety level, aligning with the Anxiety Sensitivity Theory by Reiss and McNally in 1985, suggesting heightened sensitivity to anxiety symptoms. However, after the MindShift CBT app intervention, participants exhibited a noteworthy shift towards a low level of anxiety. The results suggest that the app, drawing from CBT principles, holds promise for fostering meaningful changes in anxiety symptoms among adults.

The study recommends integrating a holistic anxiety management program, incorporating mindfulness practices, physical activities, and nature-based therapies alongside the MindShift app. These programs can enhance mental well-being and resilience by embracing a comprehensive approach. The findings contribute to the growing body of literature supporting the effectiveness of digital mental health interventions, particularly the MindShift app, in addressing anxiety.

**Keywords:** MindShift, Cognitive Behavioral Therapy (CBT) app, Anxiety symptoms, Beck Anxiety Inventory, Digital mental health interventions

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### 1. Introduction

Technology has advanced throughout history, improving yearly and achieving feats no one could have predicted. Digital computing devices were gradually introduced in the 1950s and 1960s. They were only used in academic settings, such as computing math problems, but technology is improving and reaching every aspect of our lives as time passes. Technology is also used in the health routine via their phone, tablet, or any digital device known as a mental health application. A mental health application is an operating system program that assists people in managing their mental health and well-being. These applications are typically designed for use on smartphones or other mobile devices and offer a variety of features and tools to aid mental health. Specific mobile applications for psychological wellness are intended to assist users in monitoring their feelings and symptoms and participating in self-care activities such as meditation and other forms of relaxation training. Other applications may offer educational materials or connect users with mental health professionals, such as therapists or counselors, for online counseling sessions. Applications for mental health are designed to give users quick access to resources that can help them manage their mental health better, improve their overall well-being, and lessen the stigma attached to obtaining mental health care. It is vital to remember that mental health apps cannot substitute expert mental health care, and anybody experiencing severe or long-term mental health problems should seek advice and treatment from qualified mental health experts.

Anxiety has become a widespread problem today, particularly among adults, because of the rushed and stressful nature of modern life. This demographic needs to develop effective strategies for anxiety management to improve their mental health and general functioning. As a result of rapid advances in technology, mental health applications have emerged as a potentially helpful tool for assisting people who struggle with anxiety.

Moreover, the MindShift CBT app is a user-friendly self-help tool designed to help people manage anxiety using scientifically proven techniques from Cognitive Behavioral Therapy (CBT). It was developed by Anxiety Canada.

There are several reasons why people utilize mental health applications, as well as numerous effects on the users. In this study, we will determine the effect of the MindShift CBT app on the symptoms of anxiety in adults.

According to a study by Alqahtani and Orgi users preferred apps that were simple to use, offered a variety of features and settings, and could be personalized, reasonably priced, educational, reliable, and secure. Applications that provide some customer service, emergency assistance, and social support Participants had varying opinions about the app they were using; some said they encountered bugs and were most likely to keep using it. Apps that gave users a certain amount of control over the features and operation of the app were also preferred. In addition, most complaints about mental health applications center around concerns about accessibility, insufficient support, and high prices.

Furthermore, people need more personalization, control, security, and diversity of choice. According to Christian Gotzl et al. (2022) <sup>[13]</sup> survey findings, over two-thirds of youths have used mHealth applications, and 60% regularly utilize 1-2 apps. 17% of respondents had negative thoughts about A.I. applications, while 19% had negative opinions about A.I. integration in mHealth apps.

Numerous studies claim that users are affected by mental health applications in different ways; some claim that mental health applications are ineffective, while others assert it, and some have positive and negative affirmations about mental health applications. This study aims to ascertain the effect of the MindShift CBT app on the symptoms of anxiety in adults. The effect of mental health application usage on users' ability to manage anxiety varies depending on mental health concerns, frequency of use, reasons for use, and many other factors.

The rationale of this study is to increase mental health awareness. Based on information from the World Health Organization, mental health issues may affect 20% of adults each year, with 50% of those affected by the age of fourteen and 75% by the age of 24. Although 10% of children and adults (ages 5 to 16) have a medically recognized mental health disorder, 70% fail to receive the correct therapy or treatments at an early enough age. Furthermore, anxiety is a common issue among adults, and finding effective ways to manage it is crucial for their well-being. By assessing the effect of the MindShift CBT app, which is designed explicitly for anxiety management, we can provide valuable insights into its effectiveness as a potential tool for supporting adults in coping with anxiety. Understanding the changes in anxiety levels among adults following the use of the MindShift CBT app is essential for evaluating its effectiveness.

By comparing pre- and post-intervention anxiety levels, we can determine if the app contributes to a significant reduction in anxiety, thereby highlighting its potential as an intervention tool for anxiety symptoms in this population. Identifying the benefits and limitations of the MindShift CBT app for anxiety symptoms is essential for informed decision-making and optimizing its use. By exploring the experiences and feedback of adults who use the app, we can gain insights into its effectiveness, user satisfaction, and potential drawbacks.

This information can guide future enhancements and

improvements to the app and inform clinicians, educators, and mental health practitioners about its suitability and applicability for managing anxiety in adults. Lastly, to the audience, other people who will need this study in the future, or also those who might be interested in this matter, is that they will know accurate results about the effect of the MindShift CBT app on the symptoms of anxiety in adults that will help them to be aware and updated on this matter. If they plan to use mental health applications in the future, they may consider the participants' answers in this study when choosing a mental health application.

The objectives of this study are as follows: To determine the effect of the MindShift CBT app on the symptoms of anxiety in adults. To assess the baseline levels of anxiety symptoms in adults before using the MindShift CBT app. To examine the changes in anxiety levels among adults after using the MindShift CBT app. To explore the potential benefits and limitations of using the MindShift CBT app as a tool for anxiety symptoms in adults.

## 2. Methodology

### A. Research Design

The present study employed a quasi-experimental one-group pretest-posttest design to assess the impact of the MindShift CBT app on symptoms of anxiety in adults. This quasi-experimental design involved a single group of participants undergoing assessments before and after the intervention. The aim was to examine and compare participants' anxiety levels before and after utilizing the app, thereby assessing the quasi-experimental effect of the intervention on anxiety management within this specific population.

In this study, the dependent variable was the level of anxiety among participants. In contrast, the independent variable was the use of the MindShift CBT app as an intervention targeted at reducing symptoms of anxiety in adults. The pretest measured baseline anxiety levels before the intervention, while the post-test evaluated changes in anxiety levels following app usage.

### B. Research Locale

The three barangays, Gulod, Bigaa, and Diezmo, were randomly selected for our research. We employed a method involving folded paper to ensure an unbiased and representative sample. Each barangay was written on separate pieces of paper, folded, and then chosen without bias, thus determining the locales for our study.

These barangays provided essential data for our research after the random selection process. The use of folded paper to choose locales contributed to the diversity and impartiality of our sample. Consequently, data collected from Gulod, Bigaa, and Diezmo played a significant role in shaping the outcomes of our study, offering a comprehensive understanding of the variables under investigation.

By employing this random selection method, we avoided potential biases or preferences, ensuring the integrity of our research. The absolute data obtained from these barangays strengthened the reliability and robustness of our study, facilitating a thorough analysis of the research objectives.

### C. Population and Sampling

The sampling approach utilized in this study was convenience sampling, chosen for its alignment with the research objectives and design. Specifically, the target population comprised adults aged 20 to 24, selected based on

their accessibility and willingness to participate. Convenience sampling facilitated the recruitment of readily available participants within the three barangays, making it a pragmatic choice for this study.

#### **D. Research Participants**

The criteria for participant inclusion were carefully established to ensure alignment with the study's objectives. Participants between the ages of 20 and 24, exhibiting anxiety symptoms, and possessing regular smartphone access (iOS or Android) were eligible. Additionally, participants needed to be residents of the specified barangays to ensure a localized sample, with age and other relevant details confirmed verbally during recruitment. Informed consent was obtained from interested participants, emphasizing voluntary participation and the right to withdraw.

Conversely, individuals falling outside the specified age range, not residing in the designated areas, or having a clinically diagnosed history of anxiety or other complex mental health conditions were excluded from the study. Through these criteria, the study aimed to capture the experiences of adults within the target population.

#### **E. Research Instrumentation**

This study employed the Beck Anxiety Inventory (BAI), a widely utilized self-report questionnaire designed to gauge anxiety levels and symptoms in adults. It was created in 1988 as a tool to evaluate the type and severity of anxiety in clinical and nonclinical populations by Aaron T. Beck and his colleagues. (Brant, 2023) <sup>[10]</sup>.

Comprising 21 items, the BAI comprehensively captures anxiety's cognitive, emotional, and physiological dimensions. Strong internal consistency, with Cronbach's alpha ranging from 0.92 to 0.94, establishes its suitability for assessing anxiety levels in the participant population. The inclusion criteria ensured participants exhibited anxiety levels, with the BAI providing quantitative measures of their symptoms pre- and post-MindShift CBT app usage.

Validating the study and the BAI was imperative. The BAI underwent rigorous psychometric testing, affirming its robustness with good internal consistency, test-retest reliability, and construct validity.

#### **F. Data Gathering Procedure**

##### **Data gathering procedure**

The data-gathering procedure began with participants undergoing a baseline assessment of their anxiety symptoms after signing informed consent. They then received instructions on installing and using the MindShift smartphone application for eight days (December 16, 2023, to December 23, 2023), with one session per day lasting 15

minutes. Recruitment efforts involved advertising on social media platforms and employing face-to-face and pencil-and-paper methods.

The study was initiated with a pretest, screening 180 individuals using the Beck Anxiety Inventory. Sixty-five participants with moderate to concerning anxiety levels qualified for further evaluation and entered the intervention phase. During this phase, participants used the MindShift CBT App for eight days, attending virtual sessions guided by mental health professionals. The intervention continued despite six participants dropping out on Day 1 and one on Day 4.

A post-test using the Beck Anxiety Inventory was administered to the 30 participants who completed the sessions, assessing the intervention's efficacy in addressing anxiety-related problems. Following intervention completion, participants engaged in a structured debriefing session, where study objectives and findings were comprehensively discussed, emphasizing confidentiality and ethical considerations.

The observed attrition of seven participants during the intervention week, occurring one week before Christmas, may be attributed to cultural factors and the significance of the Christmas season in the Philippines.

#### **H. Ethical Consideration**

The discussion on ethical considerations in mental health research emphasizes safeguarding participant confidentiality, safety, and privacy. It underscores the necessity for participants to be fully informed about the study's purpose, methods, risks, and rights, with the freedom to join or withdraw without repercussions. Furthermore, it highlights the need for additional protective measures for vulnerable populations, ensuring voluntary participation and minimizing potential hazards. Moreover, the discussion stresses the researcher's responsibility to adequately support participants while safeguarding their identifying information and maintaining confidentiality and anonymity to prevent harm or reputational damage. Transparency about data handling practices is emphasized, with findings presented honestly and responsibly to protect participant well-being. Ultimately, the researcher is responsible for ensuring the reliability and integrity of the data collected for the intended inquiry, conducting every analysis transparently, and communicating every outcome accurately.

#### **3. Results and Discussions**

This chapter debuts the study's outcomes, presents the results, and engages in a detailed discussion to interpret and contextualize the findings.

## 1. What is the level of anxiety symptoms before the experiment?

**Table 1:** Pretest Result

Participants	PRETEST	
	Raw Score	Level of Anxiety
1	22	Moderate Anxiety
2	22	Moderate Anxiety
3	22	Moderate Anxiety
4	24	Moderate Anxiety
5	24	Moderate Anxiety
6	25	Moderate Anxiety
7	25	Moderate Anxiety
8	25	Moderate Anxiety
9	26	Moderate Anxiety
10	27	Moderate Anxiety
11	27	Moderate Anxiety
12	27	Moderate Anxiety
13	28	Moderate Anxiety
14	29	Moderate Anxiety
15	29	Moderate Anxiety
16	30	Moderate Anxiety
17	30	Moderate Anxiety
18	31	Moderate Anxiety
19	32	Moderate Anxiety
20	33	Moderate Anxiety
21	34	Moderate Anxiety
22	35	Moderate Anxiety
23	35	Moderate Anxiety
24	35	Moderate Anxiety
25	35	Moderate Anxiety
26	35	Moderate Anxiety
27	37	Potentially Concerning
28	40	Potentially Concerning
29	40	Potentially Concerning
30	42	Potentially Concerning

Score of 0-21 = low level of anxiety, Score of 22-35 = moderate level anxiety, Score of 36 and above = potentially concerning

The pretest results reveal that a substantial majority of the participants, precisely 26 out of 30, exhibited moderate levels of anxiety. This finding suggests a prevalent and noteworthy level of anxiety within the sample population before the intervention. Additionally, it is notable that four participants fell within the category of potentially concerning levels of anxiety.

Individuals who experience moderate anxiety do so because of a complex interaction of different circumstances. Stressors in life, from small daily demands to significant life transitions, have a crucial role in the moderate levels of anxiety seen. Some people are predisposed to anxiety due to biological factors, including neurobiology and genetics, but personality qualities and cognitive processes can also influence how moderate anxiety manifests itself. Environmental factors, such as exposure to trauma or a high-

stress situation, can also elevate anxiety levels.

In the context of Anxiety Sensitivity Theory by Reiss and McNally in 1985, pretest results indicating moderate anxiety levels align with the theory's assertion that heightened sensitivity to anxiety symptoms correlates with anxiety-related concerns. Environmental factors such as traumatic life events, stress, negative parenting, and overall life circumstances can contribute to anxiety development (Center, 2023) <sup>[11]</sup>. Additionally, anxiety is linked to various factors, including sex, socioeconomic status, parental psychiatric problems, and alcohol and tobacco use. According to Panchal et al. (2023) <sup>[15]</sup>, in 2023, 50% of young individuals aged 18–24 reported symptoms of anxiety and depression, indicating a higher prevalence among this demographic compared to older adults.

## 2. What is the level of anxiety symptoms after the experiment?

**Table 2:** Posttest Result

Participants	Raw Score	Level of Anxiety
1	10	Low Anxiety
2	10	Low Anxiety
3	15	Low Anxiety
4	17	Low Anxiety
5	9	Low Anxiety
6	16	Low Anxiety
7	19	Low Anxiety
8	19	Low Anxiety
9	21	Low Anxiety
10	18	Low Anxiety
11	21	Low Anxiety
12	19	Low Anxiety
13	21	Low Anxiety
14	18	Low Anxiety
15	12	Low Anxiety
16	21	Low Anxiety
17	21	Low Anxiety
18	23	Moderate Anxiety
19	24	Moderate Anxiety
20	19	Low Anxiety
21	24	Moderate Anxiety
22	27	Moderate Anxiety
23	24	Moderate Anxiety
24	23	Moderate Anxiety
25	28	Moderate Anxiety
26	20	Low Anxiety
27	25	Moderate Anxiety
28	32	Moderate Anxiety
29	27	Moderate Anxiety
30	33	Moderate Anxiety

Score of 0-21 = low level of anxiety, Score of 22-35 = moderate level anxiety, Score of 36 and above = potentially concerning of anxiety

Following the intervention, a significant shift in the participants' anxiety levels was observed, with the majority experiencing a notable reduction to low levels of anxiety. The MindShift CBT app, utilizing evidence-based CBT techniques, has shown a significant decrease in anxiety levels. The results prove that the MindShift CBT App provides practical tools and exercises to challenge negative thoughts, influencing emotional responses. The app's user-friendly interface and customizable features enhance engagement and adherence, and its focus on psychoeducational and skill-building may contribute to long-term anxiety reduction.

The study by Marshall et al. (2021) <sup>[14]</sup> demonstrates that the MindShift CBT app effectively reduces anxiety symptoms by applying Cognitive Behavioral Theory principles. Participants experienced a significant decrease in anxiety levels, with some moving from moderate to low anxiety. A 10-minute daily intervention led to reduced distress, with two participants experiencing non-noticeable levels. Additionally, a 6-month follow-up revealed improvements in depression symptoms and life functioning for one participant, indicating the app's lasting impact on anxiety and overall well-being.

## 3. Is there a significant difference in the level of anxiety symptoms before and after the MindShift CBT app intervention?

**Table 3:** Pretest and Posttest Results

	Before MindShift	Level of Anxiety	After MindShift	Level of Anxiety	P-value	Remark
Mean	30.20	Moderate Anxiety	20.53	Low Anxiety	0.000	Significant
Standard Deviation	5.68		5.90			

The results of the pretest or before the intervention, with a mean score of 30.20, showed that the average level of anxiety of 30 participants before the experiment was moderate. Since the data follows a normal distribution with a P-value of 0.269 in the Normality test, by Empirical Rule, 68% or about 20 participants have a level of anxiety from 24.52 to 35.88 (30.20±5.68). This also shows that 68% of the participants have moderate levels of anxiety.

The results of the post-test or after the intervention, with a mean score of 20.53, showed that the average level of anxiety of 30 participants after the experiment was a low level of anxiety. Since the data after the experiment also follows a normal distribution with a P-value of 0.476 in the Normality test, by Empirical Rule, 68% or about 20 participants have a level of anxiety from 14.63 to 26.43 (20.53±5.90). This also shows that 68% of the participants have low to moderate levels of anxiety.

Table 3 displays the Mean Pretest and Post-test Scores for the 30 Participants using Statistical Methods and the Beck Anxiety Inventory. Since the P-value of 0.000 is less than the

0.05 level of significance threshold, there is empirical evidence to conclude that there is a significant difference between the mean score of anxiety of the participants before and after the experiment.

Based on the demonstrated effectiveness observed in the study, it is recommended that individuals incorporate the MindShift CBT app into their anxiety management strategies. As evidenced by the study results, the positive outcomes in anxiety reduction underscore the potential benefits of integrating this app as a valuable resource for enhancing coping skills and fostering improved mental well-being.

The MindShift CBT app significantly reduced anxiety levels by applying Cognitive Behavioral Theory by Aaron Beck developed in the 1960s and Technology Acceptance Model principles by Fred Davis in 1989. Participants engaged in cognitive restructuring, leading to symptom reduction, indicating the app's ease of use and value. Fleming et al. (2019) <sup>[16]</sup> found the app effective in managing anxiety and stress among undergraduate students over three weeks, suggesting its potential to improve quality of life.

**4. What program is in place to support the enhancement of mental health within the community?**

**Table 4: EmpowerMind- A Community Approach to Anxiety Management Information**

Name of the Activity	Objectives	Person Involved	Succession Indication	Budget
<b>EmpowerMind - A Community Approach to Anxiety Management</b>	<ul style="list-style-type: none"> <li>-Raise awareness about anxiety and its prevalence in the community.</li> <li>-Introduce the MindShift CBT app and demonstrate its use in anxiety management.</li> <li>-Conduct interactive workshops applying CBT principles for practical anxiety coping strategies.</li> </ul>	<p><b>University:</b></p> <ul style="list-style-type: none"> <li>- College of Arts and Sciences' faculty and students for expertise and assistance.</li> <li>- Faculty members from psychology and wellness departments to lead workshops.</li> <li>- Students to assist in organizing and facilitating activities.</li> </ul> <p><b>Barangay and Barangay officials (Gulod, Bigaa and Diezmo):</b></p> <ul style="list-style-type: none"> <li>- Collaborate for venue, operations, and community outreach.</li> <li>- Barangay officials provide support for venue arrangements and community engagement.</li> </ul> <p><b>Community:</b></p> <ul style="list-style-type: none"> <li>- Residents will actively participate in workshops and discussions.</li> <li>- Community members involved in open forums and sharing sessions.</li> <li>- Participants engaged in interactive workshops and holistic well-being activities.</li> </ul> <p><b>Students:</b></p> <ul style="list-style-type: none"> <li>-Engage student volunteers for event coordination and support.</li> <li>- Student volunteers to assist with registration, management, and coordination.</li> </ul> <p><b>Participants:</b> 18 years old and above</p>	<ul style="list-style-type: none"> <li>- Increased community awareness and discussions about anxiety.</li> <li>- Open forums and community engagement sessions facilitate dialogue.</li> <li>- Dissemination of informational materials for continued awareness.</li> <li>- Adoption of the MindShift CBT app by community members.</li> <li>- Hands-on demonstration and guidance on using the MindShift app.</li> <li>- Follow-up sessions to address questions and encourage app adoption.</li> <li>- Regular follow-up sessions or workshops to sustain anxiety management practices.</li> <li>- Establishing a schedule for ongoing well-being workshops.</li> <li>- Creating a community-led support group for continued sharing and learning.</li> </ul>	<ul style="list-style-type: none"> <li>- Depends on the number of Participants</li> </ul>

The EmpowerMind program aims to raise awareness about anxiety and its prevalence in the community. It involves conducting interactive workshops that apply Cognitive Behavioral Therapy (CBT) principles to equip participants with practical coping strategies for anxiety. Additionally, the program introduces the MindShift CBT App, demonstrating its effective use in anxiety management.

**4. Discussions**

In conclusion, the findings from both pretest and post-test

assessments highlight the significant prevalence of moderate anxiety levels among participants before intervention. Factors contributing to this anxiety include various stressors in daily life, biological predispositions, environmental influences like trauma, and socioeconomic factors. These findings align with the Anxiety Sensitivity Theory, indicating a predisposition towards anxiety-related concerns in individuals sensitive to anxiety symptoms.

However, following the intervention, there was a remarkable reduction in anxiety levels, with most participants shifting

towards low anxiety levels. This reduction was primarily attributed to the implementation of evidence-based cognitive behavioral therapy (CBT) techniques through the MindShift CBT app. The app's effectiveness in reducing anxiety symptoms was supported by empirical evidence, emphasizing the importance of challenging negative thoughts and behaviors for positive emotional outcomes, which aligns with cognitive behavioral theory.

Moreover, statistical analysis confirmed a significant difference in anxiety levels before and after the intervention, underscoring the effectiveness of the EmpowerMind program.

This program raises awareness about anxiety within the community and equips participants with practical coping strategies through interactive CBT workshops and the MindShift CBT app. Overall, these interventions hold promise for addressing the prevalent issue of anxiety and improving mental well-being among individuals, as supported by prior research and empirical evidence.

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