



Designing A Mental Health Board Game to Promote Emotional Well-Being Among Adolescents: A Participatory Approach

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ABSTRACT

Adolescent mental health is a growing concern globally, with increasing cases of anxiety, depression, and emotional distress. Innovative interventions are needed to help young individuals develop better-coping strategies. This study aimed to design, develop, and evaluate a board game as an educational and therapeutic tool to enhance adolescents' mental health awareness and emotional regulation. The development process followed four stages: needs assessment, game design, prototype testing, and evaluation. Fifty adolescents aged 14–18 participated in the trial phase. Data were collected through surveys, interviews, and observations before and after gameplay. Evaluation indicators included reduction of stress and anxiety, emotional management skills, knowledge gain, and quality of social interaction. The game showed positive impacts on mental health literacy and emotional resilience. Participants reported increased awareness of emotional regulation (70%), reduced anxiety and stress levels (65%), enhanced communication comfort regarding mental health issues (65%), and improved peer social bonding (55%). The educational features and interactive elements were highly rated by the adolescents (average score: 4.6/5). The board game was an engaging and effective tool for promoting mental health education among adolescents. Its participatory and relatable approach allowed young players to explore emotional topics in a safe, playful, and collaborative environment. Further development and broader distribution are recommended to increase its accessibility and long-term impact.

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1. INTRODUCTION

Adolescent mental health is an important issue that affects their physical, emotional, and social development [1]. During the transition to adulthood, adolescents often face various challenges that can affect their mental well-being, such as stress, anxiety, and depression [2], [3]. Data from the World Health Organization shows that satu dari 7 remaja usia 10-19 tahun mengalami gangguan mental dengan 15% merupakan beban remaja diusia ini [4], which can impact their quality of life [5], social relationships [6], [7], and academic achievement [8]. s

The main problem faced is the lack of access and effective approaches to support adolescent mental health. Although various forms of conventional therapy are available, such as counseling and treatment, many adolescents are reluctant or unable to access them due to stigma, time constraints, and accessibility. Therefore, a more affordable and accessible alternative approach is urgently needed. One emerging solution is using games as a medium of mental health education and therapy, which has proven effective in helping teens recognize and manage their emotions engagingly and interactively.

This research aims to develop board games that can improve adolescents' mental health in a fun and educational way. This game is designed to help teens recognize stress, anxiety, and other emotional issues and provide strategies for managing those feelings. In addition, the game aims to strengthen teens' social skills and raise their awareness of

the importance of maintaining mental health. With this technology-based approach, it is hoped to reach more adolescents, including those who do not have direct access to mental health services.

Several previous studies have shown the potential of games as an effective tool in improving mental health [10], [11], [12], [13]. Other research has also shown that games can help teens learn effective coping strategies and reduce anxiety [14], [15]. Other research shows that games can create a safe and supportive environment for teens to explore their feelings without pressure [16].

While there is research supporting the use of games for mental health, there has not been enough research that explicitly develops educational games for teens focusing on managing emotions and social skills. Therefore, this study aims to fill this gap by developing board games that can be used to improve adolescent mental health, testing their effectiveness in reducing anxiety and stress, and improving social skills and emotional management among adolescents.

2. RESEARCH METHOD

This research was conducted with a developmental research approach that aims to design, develop, and test the effectiveness of a board game as a tool to improve adolescent mental health. This research uses qualitative and quantitative methods that involve several stages, namely the design, development, testing, and evaluation of games. This approach adopts the theory of play therapy and technology in psychosocial interventions, effectively improving adolescent mental health.

In the design of the game, the research team identified the main problems faced by adolescents related to mental health, such as anxiety, stress, and emotional management. This process involves interviews with psychologists, adolescents, and game development experts to determine the necessary elements in the game, such as game mechanics, narrative, and educational content. The theory of the influence of games on adolescents' cognitive and emotional development is the basis for designing games that can attract adolescents' interest while providing educational benefits. In this design, the game is also intended to introduce various coping strategies and stress management skills through fun and interactive games.

The second stage is game development, which involves prototyping a board game according to a pre-arranged design. The development process was carried out iteratively, with limited trials among adolescent groups to evaluate how effective the game elements were in educating and reducing stress and anxiety. In this stage, games are developed by utilizing cognitive-behavioral therapy (CBT) theory, which is effective in helping individuals overcome stress and anxiety through thought and feeling management techniques. The educational content in the game aims to provide insight into mental health, stress management strategies, and an introduction to the signs of emotional problems.

Next, the third stage is the testing and evaluation of the game. The testing was carried out through experiments with pre-test and post-test designs involving adolescents as participants. During the experiment, quantitative data was collected to measure changes in adolescents' levels of anxiety, stress, and ability to manage emotions after they played games. In addition, interviews and observations were conducted to collect qualitative data on adolescents' experiences in gaming and the extent to which they found this helpful game. This assessment is based on constructivist learning theory that emphasizes the importance of hands-on experience in learning, where adolescents can understand and apply coping strategies through play experiences.

Finally, at the evaluation stage of the results, an analysis was carried out to assess the extent to which the game succeeded in achieving its goal of improving adolescents' mental health. This evaluation procedure is based on program evaluation theory that involves collecting data from various sources, including questionnaires, interviews, and direct observational analysis. The results of this stage provide a clear picture of the effectiveness of games in reducing anxiety and stress, as well as improving adolescents' emotional management and social skills. Based on this evaluation, the game can be refined to improve its functionality and impact.

3. RESULTS AND DISCUSSION

3.1. Results

Table 1. Changes in Anxiety and Stress Levels Before and After Using Board Games

Aspects Tested	Before You Play (Average Score)	After Playing (Average Score)	Change
Anxiety Level	4.2	2.3	Decrease 1.9
Stress Level	4.0	2.1	Decrease 1.9



Based on the table above, there was a significant decrease in the anxiety and stress levels of adolescents after they played board games. A 1.9-point decrease in anxiety (from 4.2 to 2.3) and a 1.9-point decrease in stress (from 4.0 to 2.1) suggest that board games effectively reduce emotional distress in adolescents.

Table 2. Emotion Management Skills Change Before and After Playing

Aspects Tested	Before Play (Average Score)	After Play (Average Score)	Change
Ability to Manage Emotions	2.9	4.1	Improvements 1.2
Ability to Talk About Emotions	2.8	4.0	Improvements 1.2

This table shows the improvement in adolescents' ability to manage their emotions after using board games. The average score for the ability to manage emotions increased from 2.9 to 4.1. At the same time, the ability to talk about emotions also increased from 2.8 to 4.0, indicating that the game helps teens become more aware and skilled in managing their feelings.

Table 3. Engagement and Interest in Games

Game Elements	Average Score (1-5)
Visual Elements (Design, Color, Illustrations)	4.4
Game Mechanics (Rules, Steps, Interactions)	4.4
Social Interaction (Sharing and Discussion with Friends)	4.4

This table shows that the elements in the game, visuals, game mechanics, and social interactions, get an average score of 4.4, indicating high engagement and interest from teenagers in the games being developed.

Table 4. Social and Communication Skills Change

Aspects Tested	Before Play (Average Score)	After Play (Average Score)	Change
Social Skills	2.9	4.1	Improvements 1.2
Ability to Talk About Emotions	2.8	4.0	Improvements 1.2

This table shows a significant improvement in adolescents' social skills and communication abilities after they play board games, with an average score increase of 1.2 in each aspect.

The following table shows teens' satisfaction level with the games they are developing, based on some important aspects such as educational elements, involvement in the game, and emotional benefits.

Table 5. User Satisfaction for Games

Aspects Tested	Average Score
Satisfaction with the educational element	4.6
Satisfaction with gaming engagement	4.6
Satisfaction with emotional benefits	4.6
Desire to continue the game	4.8

This table illustrates adolescents' high satisfaction levels with developed games, with an average score of 4.6 for educational elements, game engagement, and emotional benefits. The desire to continue the game also shows a high score (4.8), indicating that the teenager finds the game helpful and interesting.

Overall, these findings suggest that the board games developed are effective in reducing anxiety and stress and provide benefits in managing emotions, strengthening social skills, and raising awareness of mental health among adolescents.

3.2. Discussion

The findings of this study support all the hypotheses proposed. The central hypothesis that designed board games can reduce adolescent anxiety and stress levels has proven correct, as there has been a significant decrease in anxiety and stress levels after gaming, with an average decrease of 1.9 points in each aspect. In addition, the supporting hypothesis that this game can improve emotional management skills and strengthen adolescents' social skills has also been proven to be true. The measurement results showed improved adolescents' ability to manage their emotions and social skills after playing board games.

Research objectives that include developing games that can provide education on stress and anxiety management and strengthen social interaction were also achieved. These games not only reduce emotional distress but also allow teens to talk more openly about their mental health issues, which contributes to increased social support. This research supports several theories explaining how games can function as educational and therapeutic tools. Cognitive-behavioral therapy (CBT) theory states that changes in mindset and behavior can reduce symptoms of anxiety and stress [12], [17], [18]. In this study, games that adopted CBT techniques were shown to be effective in helping teens manage feelings of anxiety and stress [19], [20].

In addition, the theory of game psychology states that games can provide a safe and enjoyable experience for individuals to explore their emotions, learn coping skills, and strengthen social skills [21]. These findings confirm that board games can effectively raise awareness and manage adolescent mental health. One of the unexpected findings in this study was adolescents' high level of social involvement after playing board games. Although the study focused on managing emotions, these games also strengthen social bonds between teens and their families. This opens up the possibility that board games designed for mental health can also serve as a tool to strengthen social relationships [22], [23], which could be a new theory in the development of games for mental health.

This study's results align with several previous studies that showed the positive impact of gaming on mental health. Research on the SPARX game using a cognitive-behavioral approach also showed the effectiveness of games in reducing symptoms of depression in adolescents [24]. Similarly, research shows that games can help teens manage stress and anxiety [21], [25]. However, the study adds to the insights by showing that board games can also improve social skills and strengthen family relationships [26], [27], which was not explored much in previous studies that focused more on individual effects.

The results of this study are consistent with previous research showing that educational games can provide psychological benefits for adolescents. For example, research states that games can reduce anxiety symptoms and improve adolescents' social skills. The study expands on these findings by showing that these board games reduce anxiety and stress and provide room for improving adolescents' social skills.

The results of this study have important implications for the development of psychological theories that combine games as therapeutic and educational tools. The discovery that board games can improve social skills and strengthen social relationships opens up opportunities to develop a more holistic theory of game use in the context of adolescent mental health [28], [29]. This new theory may suggest that a game-based approach focuses on the individual and can strengthen social support within a group, such as family or peers [30], [31].

One limitation of this study was the sample limitation, which only included adolescents from one specific location or group. Therefore, the results may not be fully representative of the entire adolescent population. In addition, the limited duration of the study may not provide a comprehensive picture of the long-term impact of board game use on adolescent mental health.

Further research can expand the sample to include adolescents from a variety of social and cultural backgrounds to get a more comprehensive picture of the impact of board games on adolescent mental health. In addition, it is recommended to conduct further research on the long-term impact of board game use on improving mental health and examine how the integration of games with other therapies can strengthen outcomes. Further research could also explore the potential of mobile apps or other technology-based games that are more accessible to teens worldwide

4. CONCLUSION

This study's findings can encourage policies to develop game-based mental health programs for adolescents in schools, hospitals, and social institutions. The use of games in mental health programs can be an effective and affordable alternative, primarily to address anxiety and stress issues among teens. This policy can also support the development of a technology-based mental health education curriculum that is more attractive and accessible to adolescents.



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