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The Effectiveness of Cognitive Behavioral Counseling Using Cognitive Restructuring and Self-Management Techniques to Reduce Gaming Addiction

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Abstract

This study aimed to examine the effectiveness of cognitive behavioral counseling using cognitive restructuring and self-management techniques in reducing gaming addiction among Guidance and Counseling students at Universitas Negeri Malang, cohort 2022. A quantitative pre-experimental approach with a One Group Pretest-Posttest Design was used. Four students with moderate to high levels of gaming addiction were selected through purposive sampling. Data were collected using an Indonesian version of the Game Addiction Scale (GAS) and structured interviews. The intervention was delivered in six counseling sessions combining cognitive restructuring and self-management techniques. Data were analyzed using the Wilcoxon Signed Rank Test and effect size. The mean gaming addiction score decreased from 27.25 in the pretest, categorized as high, to 15.00 in the posttest, categorized as low. The one-tailed exact significance was 0.043 ($p < 0.05$), indicating a significant reduction in gaming addiction after the intervention. The effect size was 0.92, indicating a very large practical effect. These findings suggest that integrating cognitive restructuring and self-management within cognitive behavioral counseling can be an effective alternative for reducing gaming addiction among university students.

Keywords: Cognitive Behavioral Counseling; Cognitive Restructuring; Self-Management; Gaming Addiction; University Students.

1. Introduction

The phenomenon of gaming addiction is increasingly widespread among university students. Gaming addiction is characterized by continuous gaming behavior, increased gaming frequency, psychological and physical dependence, and an inability to stop despite repeated efforts. This situation is concerning because university students, as the next generation, are expected to prioritize time for learning and self-development rather than become trapped in an addiction that can interfere with learning processes and personal development. Gaming addiction is a form of addictive behavior characterized by excessive dependence on gaming and difficulty controlling or stopping the behavior. According to Young (1996), gaming addiction occurs when individuals have a strong urge to continue playing without being able to control its intensity. This is consistent with Griffiths et al. (2004), who explained that gaming addiction is a compulsive behavior characterized by reduced interest in other activities and the emergence of psychological and physical symptoms when individuals attempt to stop. Furthermore, Griffiths & Pontes (2020) emphasized that a behavior can be categorized as an addiction when individuals lose control and continue the behavior despite its negative consequences. This condition shows that gaming addiction is not only related to gaming frequency but also involves complex emotional and behavioral dependence.

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In addition, gaming addiction is influenced by several internal and external factors that strengthen individuals' involvement in gaming. Kuss (2013) explained that internal factors such as immersive game design, reward systems, and reinforcement can increase players' engagement over time. On the other hand, external factors such as loneliness, stress, and dissatisfaction with real life can encourage individuals to use games as an escape. Psychological motives such as the need for recognition, social interaction, and distraction from life pressures are also important factors in the emergence of addictive behavior (Kuss, 2013). Individuals experiencing addiction also tend to make gaming the center of their lives, thereby neglecting other responsibilities (Griffiths & Pontes, 2020).

Gaming addiction has characteristics that can be identified through several main components. Griffiths & Pontes (2020) stated that addictive behavior is characterized by aspects such as salience, mood modification, tolerance, withdrawal, conflict, relapse, and problems. These aspects show how gaming can dominate an individual's thoughts, alter mood, and create conflicts in everyday life. This model was later developed into measurement instruments such as the Game Addiction Scale (GAS), which enables empirical identification of addiction levels (Lemmens et al., 2009). In addition, symptoms of gaming addiction can be observed through behaviors such as neglecting academic tasks, reduced social interaction, and physical problems such as fatigue and sleep disturbances (Pratiwi et al., 2019). The effects of gaming addiction are not limited to psychological aspects but also extend to various dimensions of an individual's life. Griffiths & Pontes (2020) stated that excessive gaming is associated with increased anxiety, stress, and depression. Gaming addiction also contributes to lower academic achievement, disrupted social relationships, and reduced overall quality of life (Griffiths & Pontes, 2020). More specifically, these effects include health, academic, social, psychological, and financial aspects (Griffiths & Pontes, 2020). Individuals with gaming addiction tend to experience difficulties socializing in the real world and may display antisocial behavior (Pratiwi et al., 2019). This condition is known as cognitive fusion, a state in which individuals become overly attached to their thoughts and treat them as truth without objective evaluation (Hanafi et al., 2022). As a result, individuals tend to perceive negative thoughts as facts, even when they are not supported by objective evidence, thereby reinforcing maladaptive behavior (Hanafi et al., 2022).

The university students in this study were in a complex developmental phase. They were also in a transitional phase that required a high level of adaptability, making them susceptible to psychological pressures such as stress and anxiety that may affect behavior (Zamroni et al., 2018). University students are expected to focus on and regulate themselves to achieve academic goals, but in reality they may not yet have full maturity in decision-making and self-control (Zamroni et al., 2018). The high prevalence of psychological problems among university students indicates the need for systematic professional assistance. This prevalence should be taken seriously and addressed through specialized guidance and counseling services (Zamroni et al., 2018).

An individual's reaction to a situation does not occur directly as a result of the event itself, but is influenced by how the individual evaluates or interprets the event (cognitive appraisal). In other words, an individual's emotional and behavioral responses are determined more by the cognitive process of making meaning of a situation than by the situation itself (Beck, 2011). To address these problems, cognitive behavioral counseling is a relevant service approach. Cognitive behavioral counseling focuses on the relationship between thoughts,

emotions, and behavior (Beck, 2011). Beck (2011) explained that maladaptive behavior can be changed by modifying distorted thought patterns. This approach combines cognitive and behavioral aspects to help individuals identify and modify cognitive distortions into more rational thoughts (Beck, 2011). In addition, cognitive behavioral counseling focuses on teaching new skills to develop adaptive behavior (Rizky & Karneli, 2022). Consistent with this view, the goal of cognitive behavioral counseling is to help counselees recognize and change cognitive patterns related to emotional and behavioral problems, making changes in thought patterns a primary focus in addressing maladaptive behavior (Hidayah et al., 2023). The main focus of the cognitive behavioral counseling model is cognitive change that helps individuals develop behaviors to reduce their problems (Hidayah et al., 2023). Therefore, cognitive behavioral counseling is considered effective in helping individuals control excessive urges to play games through changes in thinking and behavior.

2. Method

This study employed a quantitative approach with a pre-experimental method. The pre-experimental method was used because the study involved only one group of subjects who received counseling during the research process without a control group for comparison (Creswell, 2014). The research design was the One Group Pretest-Posttest Design because it involved an initial measurement (pretest), treatment, and final measurement (posttest) in the same group of subjects (Creswell, 2014). The service provided was cognitive behavioral counseling using cognitive restructuring and self-management techniques.

The pretest was conducted before the intervention to determine the initial level of gaming addiction among BK UM students from the 2022 cohort. The pretest used a gaming addiction scale, and the results served as the basis for selecting research subjects and as a comparison with the posttest results. In addition to the scale, the study also used structured interviews as supporting data. Structured interviews were used because the questions had been systematically prepared and presented in a predetermined order to obtain information relevant to the research objectives (Devi et al., 2022). Interviews were conducted before and after counseling to explore experiences, thoughts, behaviors, feelings, and the impact of gaming based on the seven aspects of the Game Addiction Scale (GAS), namely salience, tolerance, mood modification, relapse, withdrawal, conflict, and problems. Interview data were analyzed descriptively and qualitatively to strengthen the interpretation of the quantitative research findings (Devi et al., 2022).

The service was provided after the researcher obtained pretest and interview data as a basis for understanding the initial condition of the subjects in greater depth. Cognitive behavioral counseling using cognitive restructuring and self-management techniques was conducted in six sessions. At the end of each session, an evaluation was carried out to monitor changes in the counselees' cognitive and behavioral development throughout the counseling process. After all counseling sessions were completed, a posttest was administered to determine changes in gaming addiction after the intervention (Creswell, 2014). Changes in scores were obtained by comparing the pretest and posttest results.

The study subjects consisted of four students from the Guidance and Counseling Study Program, Universitas Negeri Malang, cohort 2022. Subjects were selected using non-

probability sampling with purposive sampling, namely selecting subjects based on specific criteria established by the researcher . The population criteria were: (1) BK UM students from the 2022 cohort, (2) active students, and (3) having played games within the previous six months. The research subjects were then selected based on the following criteria: (1) having a high or moderate level of gaming addiction based on measurement using a gaming addiction scale and (2) being willing to participate in group counseling services.

The selection of Guidance and Counseling students as research subjects was based on the consideration that BK students are prospective counselors who are expected to possess resilience, self-adaptation, psychological well-being, and effective coping abilities when facing various academic and social pressures (Hidayah et al., 2023). BK students are also expected to demonstrate personal competencies such as empathy, congruence, and unconditional positive regard in building effective counseling relationships (Hidayah et al., 2023). However, field conditions indicate that BK students are also not immune to addictive behaviors such as gaming addiction, which can affect self-control, academic functioning, and their professional development as prospective counselors.

The selection of the 2022 cohort was based on the consideration that students in the final phase of their studies face increasingly complex academic and psychological demands, such as completing their theses, pressure to graduate soon, family expectations, and preparation to enter the workforce . These conditions may increase academic stress and encourage the use of games as a maladaptive coping strategy, thereby increasing the risk of gaming addiction. In addition, students from the 2022 cohort have relatively homogeneous developmental characteristics in terms of age and academic demands, making it easier for the researcher to control variation among subjects.

The research was carried out in three stages: preparation, implementation, and final stages. During the preparation stage, the researcher identified the problem, conducted a literature review, developed the hypothesis, determined the subjects, and tested the validity and reliability of the instrument. The researcher also developed procedures for implementing cognitive behavioral counseling as part of the research design. During the implementation stage, a pretest was administered to the study population to identify students with high and moderate levels of gaming addiction. Counseling was then provided systematically through several group counseling sessions. During the final stage, the researcher reflected on changes in the counselees' cognition and behavior, developed relapse-prevention strategies, and administered a posttest to determine changes in gaming addiction after the service was provided.

The research instrument used the Indonesian version of the Game Addiction Scale (GAS), adapted from Arthy (2019). Based on the validity test, the GAS instrument was declared valid through correlation testing with the Indonesian Online Game Questionnaire (IGOQ), with a Spearman correlation coefficient of 0.883 ($p < 0.001$), indicating a very strong positive relationship. The reliability test produced a Cronbach's Alpha value of 0.770, indicating good internal consistency and that the instrument was appropriate for measuring gaming addiction. Previous development studies also showed that GAS had good construct validity based on confirmatory factor analysis. The same studies reported

high reliability, with a Cronbach's Alpha of 0.81, indicating that the instrument was reliable for measuring gaming addiction.

Data analysis used inferential statistics to test the research hypothesis. Hypothesis testing employed a nonparametric Wilcoxon Signed Rank Test. This test was selected because the number of research subjects was relatively small (n < 30), did not meet the assumptions of parametric statistics, and the data were not normally distributed (Creswell, 2014). The Wilcoxon test was used to determine differences in gaming addiction levels between pretest and posttest scores in the same subjects after the cognitive behavioral counseling intervention. A one-tailed approach was used because the hypothesis was directional, namely to determine whether gaming addiction decreased after the intervention . If the significance value (1-tailed) < 0.05, there was a significant decrease in gaming addiction and the service was considered effective. Conversely, if the significance value (1-tailed) > 0.05, there was no significant decrease in gaming addiction and the service was considered less effective.

3. Results and Discussion

3.1 Result

3.1.1 Initial Data Description (Pretest)

Based on the pretest administered to four research subjects, an initial picture of gaming addiction among Guidance and Counseling students from the 2022 cohort was obtained. The analysis showed a mean pretest score of 27.25, which fell into the high category. Overall, the subjects were in the high category, indicating that their gaming addiction was at a level requiring intervention.

Table 1. Pretest Results of Gaming Addiction Levels

Subject	Pretest Score	Category
ARY	29	High
SR	27	High
HEB	27	High
PAVKN	26	Moderate

3.1.2 Final Data Description (Posttest)

After the cognitive behavioral counseling service combined with cognitive restructuring and self-management techniques was provided, a posttest was administered. The results showed a decrease in gaming addiction levels among all subjects. The mean posttest score was 15, which was categorized as low. All subjects shifted to a lower category, indicating behavioral improvement after the service.

Table 2. Posttest Results of Gaming Addiction Levels

Subject	Posttest Score	Category
ARY	16	Low
SR	16	Low
HEB	14	Low
PAVKN	14	Low

3.1.3 Comparison of Pretest and Posttest

Comparison of pretest and posttest scores showed a decrease in all research subjects. The average decrease was 12.25 points, indicating a change in gaming addiction levels after the service was provided.

Table 3. Comparison of Pretest and Posttest Scores

Subject	Pretest	Posttest	Initial Category	Final Category
ARY	29	16	High	Low
SR	27	16	High	Low
HEB	27	14	High	Low
PAVKN	26	14	Moderate	Low

The test yielded a Sig. value = 0.000 (< 0.05), which means the null hypothesis (H_0) is rejected. Therefore, it can be concluded that there is a significant effect of classical guidance services using the MOKATAJA media on improving students' responsibility behavior.

3.1.4 Statistical Test Results

The hypothesis was tested using the Wilcoxon Signed Rank Test to determine differences in gaming addiction levels before and after the cognitive behavioral counseling service combined with cognitive restructuring and self-management techniques. This test was selected because the total number of subjects was relatively small (n < 30) and the data were not normally distributed. Based on the ranks analysis, all research subjects (N = 4) were in the negative-ranks category, meaning that gaming addiction scores after the service (posttest) were lower than before the service (pretest). There were no subjects with increased scores (positive ranks = 0) or unchanged scores (ties = 0). The mean rank was 2.50 and the sum of ranks was 10.00, indicating that all changes were in the direction of reduced gaming addiction.

Based on the test statistics, the Z value was -1.841 with Exact Sig. (2-tailed) = 0.085. Because the hypothesis was one-tailed (a reduction in addiction), the significance value used was Sig. (1-tailed) = 0.043. This value was lower than the 0.05 significance level (p < 0.05),

indicating a significant difference between scores before and after the service. The result was supported by descriptive statistical analysis, which showed a mean pretest score of 27.25 with a standard deviation of 1.258, while the mean posttest score decreased to 15.00 with a standard deviation of 1.155. The minimum and maximum values also showed a consistent decrease, from a range of 26–29 in the pretest to 14–16 in the posttest. The statistical results showed that cognitive behavioral counseling combined with cognitive restructuring and self-management techniques was effective in reducing gaming addiction among university students. The findings also showed that the intervention produced consistent changes across all research subjects.

To determine the practical effectiveness of the service, an effect size was calculated using the following formula:

$$r = \frac{Z}{\sqrt{N}}$$

Based on the Wilcoxon test, the Z value was -1.841 and the sample size was 4. The effect size was calculated as the Wilcoxon Z value divided by the square root of the sample size.

$$r = \frac{1{,}841}{\sqrt{4}} = \frac{1{,}841}{2} = 0{,}92$$

The effect size of 0.92 was classified as very large, based on the interpretation criteria of 0.1 (small), 0.3 (medium), and 0.5 or higher (large).

These results show that cognitive behavioral counseling combined with cognitive restructuring and self-management techniques had a very strong practical effect in reducing gaming addiction among university students. Thus, although the sample size in this study was relatively small, the large effect size strengthens the finding that the service was effective in reducing gaming addiction. The findings also indicate that the changes were not merely temporary but had the potential to be maintained over a longer period through reinforcement of cognitive and behavioral skills. In addition, the results provide empirical support that combining techniques within cognitive behavioral counseling can be an effective and applicable alternative service in guidance and counseling. The findings also indicate that behavioral change can occur more optimally when the intervention addresses not only cognitive aspects but also direct behavioral management. Therefore, this integrative approach may be considered in the development of counseling service programs in higher education settings.

Table 4. Wilcoxon Signed-Rank Test Results

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Pretest	4	27.2500	1.25831	26.00	29.00
Posttest	4	15.0000	1.15470	14.00	16.00

Ranks

		N	Mean Rank	Sum of Ranks
Posttest - Pretest	Negative Ranks	4[a]	2.50	10.00
	Positive Ranks	0[b]	.00	.00
	Ties	0[c]		
	Total	4		

a. Posttest < Pretest

b. Posttest > Pretest

c. Posttest = Pretest

Test Statisticsa

	Posttest - Pretest
Z	-1.841[b]
Asymp. Sig. (2-tailed)	.066
Exact Sig. (2-tailed)	.085
Exact Sig. (1-tailed)	.043
Point Probability	.043

3.2 Discussion

3.2.1 Changes in the Psychological Condition of the Subjects

The results showed a decrease in gaming addiction levels among all subjects after cognitive behavioral counseling using cognitive restructuring and self-management techniques. Based on descriptive statistics, the mean pretest score was 27.25 with a standard deviation of 1.258, which was in the high category, while the posttest mean decreased to 15.00 with a standard deviation of 1.155, which was in the low category. The score range also decreased from 26–29 to 14–16, indicating consistent change across all subjects.

The initial condition illustrates gaming addiction as a behavior characterized by a strong urge to continue playing and difficulty stopping the activity. This is consistent with the view

that gaming addiction is a behavior that makes it difficult for individuals to control their desire to play even when negative effects have emerged in daily life (Young, 1996). Gaming addiction is also characterized by compulsive behavior that causes individuals to lose interest in activities outside gaming (Griffiths et al., 2004). In addition, individuals with gaming addiction show an inability to control gaming behavior and continue the activity despite negative consequences (Griffiths & Pontes, 2020).

Furthermore, gaming addiction is not only related to gaming behavior but also involves strong psychological dependence on the activity (Kuss, 2013). This condition is reinforced by psychological motives such as the desire to avoid problems and seek emotional comfort through games (Kuss, 2013). Gaming addiction is also associated with difficulty controlling oneself and maintaining healthy limits on gaming time (Pratiwi et al., 2019). More broadly, gaming addiction can disrupt academic functioning, social functioning, and psychological well-being (Griffiths & Pontes, 2020).

After counseling was provided, these tendencies began to decrease, indicating changes in the counselees' cognitive and behavioral aspects. This change shows that individuals began to recognize maladaptive automatic thoughts and replace them with more rational thoughts. In addition, counselees showed improved ability to control gaming behavior through more structured self-management strategies. The changes reflected improvement in cognitive, emotional, and behavioral aspects simultaneously during the reduction of gaming addiction.

3.2.2 Changes in the Counselees' Cognitive Aspects

In the cognitive aspect, all counselees were not only able to identify negative automatic thoughts but also successfully replace them with more rational coping statements and apply them in real situations. ARY, who previously experienced the discounting the positive distortion, showed stronger belief in rational thoughts after the intervention, such as "my worth is not determined by the audience" (belief score 8–9), and consistently used coping statements in triggering situations such as boredom, thesis-related stress, and loneliness. This resulted in more stable emotions and reduced urges to play. SR also showed strong cognitive changes, indicated by increased belief in rational thoughts (score 7–8), such as "game events do not affect real life," as well as consistent success in delaying login in daily monitoring.

Although HEB still experienced fluctuations, cognitive development was evident through a reduction in negative labeling and the development of rational thoughts such as "losing does not determine my ability," with a belief score of 6–7. This was reflected in the ability to stop gaming earlier and maintain better emotional control in some situations. Meanwhile, PAVKN showed increased cognitive awareness through the ability to identify thoughts such as "ranking is not the main priority" and "progress is still safe," with belief scores of 6–7, and began to delay gaming urges although not yet consistently. Overall, reflection, evaluation, and monitoring data showed that all counselees experienced increased cognitive flexibility, characterized by the ability to test thoughts, find counterevidence, and generate more adaptive alternative thoughts.

The findings show a clear change in the counselees' cognitive aspects after cognitive behavioral counseling using cognitive restructuring and self-management techniques. The changes were evident in their ability to identify negative automatic thoughts, evaluate cognitive distortions, and replace them with more rational and adaptive coping statements in

real situations. This is consistent with Beck (2011), who stated that cognitive behavioral counseling focuses on the relationship between thoughts, emotions, and behavior, so changes in the cognitive aspect influence behavioral change. Hidayah and Ramli (2017) also explained that cognitive behavioral counseling helps individuals identify and modify cognitive distortions and maladaptive behaviors into more rational and adaptive forms through a structured and present-oriented process.

The cognitive changes experienced by the counselees were also consistent with the focus of cognitive behavioral counseling theory, which emphasizes that individuals' emotional and behavioral responses are influenced by how they interpret a situation (cognitive appraisal) (Beck, 2011). Counselees no longer automatically interpreted games as the only source of pleasure or escape from problems but began to develop more realistic interpretations of the situations they faced. This was evident in ARY, who previously experienced the discounting the positive distortion and later showed stronger belief in rational thoughts such as "my worth is not determined by the audience," with a belief score of 8–9. This change contributed to more stable emotions and reduced gaming urges. These findings are consistent with Clark and Beck (2011), who explained that changes in automatic thoughts can influence emotional and behavioral responses toward greater adaptability.

In addition, the counselees' success in using coping statements indicates that the cognitive restructuring process operated in line with its objectives, namely helping individuals identify, evaluate, and modify negative thoughts or cognitive distortions into more rational, realistic, and constructive thoughts (Beck, 2011). This is also consistent with Meichenbaum (1977), who stated that cognitive restructuring aims to replace negative thought patterns with self-instructions or coping statements that are more relevant and help individuals respond to situations more adaptively. In this study, SR showed strong cognitive change through increased belief in rational thoughts such as "game events do not affect real life," with a belief score of 7–8, as well as consistent success in delaying login in daily monitoring. This condition shows that cognitive change did not stop at the level of thought but also began to influence the counselees' actual behavior in daily life.

The findings also show that counselees were able to recognize their cognitive distortions and replace them with new, more rational thoughts. This is consistent with the indicators of successful cognitive restructuring proposed by Ghasemi (2023), namely the ability to recognize distorted thoughts, understand their negative impact, describe the negative thoughts they have, and develop new, more rational thoughts as replacements. These changes indicate that cognitive behavioral counseling not only helps counselees understand the cognitive sources of their problems but also equips them with more adaptive coping and self-control skills when dealing with excessive urges to play games.

3.2.3. Impact of Cognitive Changes on Behavior

The cognitive changes were followed by more concrete behavioral changes. ARY reduced the duration of game live streaming from an average of about 4 hours 40 minutes per day to 2 hours per day. SR reduced gaming time from 4 hours 32 minutes per day to 1 hour 45 minutes per day. PAVKN showed a reduction from about 260 minutes per day (approximately 4 hours 20 minutes) to 80 minutes per day (approximately 1 hour 20 minutes), while HEB reduced gaming frequency from 3 times to once per week. This indicates that self-management techniques were effective in helping counselees control behavior through time limits, activity

substitution, and reinforcement. This finding suggests that self-management is an individual's ability to regulate and control factors influencing behavior, motivation, and learning through appropriate strategies so that optimal conditions can be created and obstacles to achieving goals can be addressed.

The behavioral changes among the counselees also showed increased self-control and responsibility in managing gaming behavior. This is consistent with the view that self-management is an individual's ability to regulate thoughts, emotions, and behavior independently through self-direction, monitoring actions, and making necessary changes without relying entirely on others. In practice, counselees not only reduced gaming time but also began to manage daily activities, limit gaming time, and replace gaming with more productive activities. This indicates that self-management techniques help counselees improve self-control and productivity in daily life.

These findings are also consistent with the objectives of self-management techniques, namely helping individuals develop the ability to manage behavior, thoughts, and motivation independently so that they can control their actions, set realistic goals, and strengthen adaptive behavior without dependence on external control. The reduction in gaming duration and frequency experienced by the counselees shows that they began to set behavioral limits consciously and consistently. Astuti & Lestari (2020) also explained that successful self-management is demonstrated by an individual's ability to consciously control behavior to achieve positive and effective goals. This condition was evident in counselees who maintained behavioral changes by limiting gaming time and replacing gaming with more adaptive activities.

The behavioral change process among the counselees was also consistent with a structured self-management process, beginning with setting target behaviors to be reduced, behavior monitoring, regulation of antecedents and consequences, and reinforcement of new, more adaptive behaviors. Counselees gradually learned to monitor gaming duration, identify situations that triggered gaming, limit access to games, and reinforce their successes. From a cognitive behavioral counseling perspective, this process not only focuses on behavioral change but also involves changes in automatic thoughts and beliefs underlying maladaptive behavior. Therefore, integrating cognitive change through cognitive restructuring with behavioral reinforcement through self-management produced mutually supportive changes, strengthening the effectiveness of the service in reducing gaming addiction.

The changes among the counselees also indicated the development of several self-management aspects, namely self-motivation, self-organization, self-control, and self-development. Counselees demonstrated self-motivation through their conscious willingness to reduce excessive gaming, self-organization through managing time and daily activities, self-control through the ability to resist excessive urges to play games, and self-development through involvement in more productive and adaptive activities. These findings show that self-management techniques not only help reduce gaming addiction but also promote healthier and more sustainable self-management abilities.

3.2.4. Statistical, Theoretical, and Research Implications

Statistically, the Wilcoxon test showed a one-tailed significance value of 0.043 ($p < 0.05$), indicating a marked difference between conditions before and after the service. In addition, all

data were in the negative-ranks category, showing that all subjects experienced score reductions. This strengthens the finding that the observed changes were not merely coincidental but were associated with the intervention. The findings can be explained through the cognitive behavioral counseling framework, which emphasizes the relationship among thoughts, emotions, and behavior. Cognitive restructuring helped counselees recognize and change distorted thinking underlying addictive behavior, such as the belief that gaming is the only way to obtain satisfaction. Through this change in thinking, counselees became better able to evaluate situations rationally and no longer rely on games as the primary mechanism for coping with problems. Meanwhile, self-management techniques strengthened this change through more concrete behavioral control. Subjects were trained to conduct self-monitoring, set gaming time limits, and reinforce more productive behaviors. This process supported the development of more adaptive habits, making the changes more likely to be maintained over the long term rather than being temporary.

The findings are consistent with previous studies showing that cognitive restructuring techniques are effective in reducing gaming addiction because they can modify the cognitive distortions underlying addictive behavior (Hidayah et al., 2023). Previous research has also reported that self-management can support improvements in behavioral control. However, the present study provides a more comprehensive contribution by integrating both techniques into one service, allowing changes to occur simultaneously in cognitive and behavioral aspects. Compared with approaches that rely primarily on the counseling relationship, the present intervention did not rely solely on the counseling relationship but also on concrete skills that counselees developed to change thought patterns and behavior. This suggests that an integrative cognitive behavioral counseling approach has advantages in producing more targeted and measurable change. Although the study demonstrated service effectiveness, several limitations should be acknowledged. The small number of subjects and the absence of a control group mean that the findings cannot be widely generalized. In addition, external factors such as the social environment, academic demands, and technology-use habits may have influenced gaming addiction levels but were not analyzed in depth in this study.

Furthermore, the strength of the intervention effect was supported by the effect size calculation, which yielded $r = 0.92$, categorized as very large. This value indicates that the changes were not only statistically notable but also had strong practical meaning for the service. The large effect size suggests that the intervention had a substantial impact on reducing gaming addiction among the subjects. Theoretically, this finding is consistent with the cognitive behavioral counseling approach developed by Aaron T. Beck, which emphasizes that changes in thought patterns directly influence changes in emotions and behavior. The integration of cognitive restructuring and self-management in this study shows that cognitive changes did not stop at the level of understanding but were also implemented as concrete behavioral changes. This strengthens the assumption that services combining cognitive and behavioral approaches may be more effective than approaches focusing on only one aspect. The study therefore not only supports existing theory but also provides empirical evidence that an integrative cognitive behavioral counseling approach can produce more optimal changes in addressing gaming addiction.

Overall, the results show that cognitive behavioral counseling combined with cognitive restructuring and self-management techniques is an effective approach for reducing gaming addiction among university students. Integrating the two techniques enables more

comprehensive change, not only in ways of thinking but also in everyday behavioral patterns, thereby providing a strong basis for sustainable change. These findings indicate that guidance and counseling services in higher education play an important role in helping university students address psychological and academic problems. Zamroni et al. (2016) stated that the high prevalence of stress, anxiety, and depression among university students demonstrates the importance and necessity of guidance and counseling services in higher education. In addition, revitalizing the role and function of guidance and counseling in higher education is needed to help students develop academic hardiness and the ability to cope with pressure. These findings reinforce the importance of strengthening responsive guidance and counseling services in higher education, particularly in addressing gaming addiction among university students.

4. Conclusion

Based on the research findings, cognitive behavioral counseling combined with cognitive restructuring and self-management techniques is effective in reducing gaming addiction among university students. This effectiveness was demonstrated by decreased gaming addiction scores in all research subjects after the intervention. The Wilcoxon Signed-Rank Test showed a one-tailed significance value of 0.043 ($p < 0.05$), while the effect size of 0.92 indicated a very large practical effect. Changes were also observed in the counselees' cognitive and behavioral aspects, including their ability to identify cognitive distortions, replace negative automatic thoughts with more rational coping statements, regulate emotions and behavior, reduce gaming duration and frequency, manage time, and engage in more productive activities. These findings indicate that integrating cognitive restructuring and self-management techniques can support more adaptive and sustainable self-control.

Future research should use a larger number of subjects to achieve broader generalizability. Future studies may also include more participants with high and moderate levels of gaming addiction so that service effectiveness can be assessed more comprehensively across levels of addiction. Future research is also recommended to include a control group so that the effect of the service can be compared more objectively and validly. In addition, future researchers may consider using different researchers or counselors or providing supervision with the subjects to minimize potential bias and strengthen objectivity. Further studies may also examine other factors influencing gaming addiction, such as the social environment, academic stress, emotion regulation, and digital media use, to obtain a more comprehensive understanding of interventions for gaming addiction among university students.

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