



The Effectiveness of Play Therapy on Improving Emotion Regulation and Social Adjustment of Students Addicted to Online Games

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ABSTRACT

Background and Aim: Using online games has many negative emotional and social consequences. Therefore, the present research was conducted with the aim of determining the effectiveness of play therapy on improving emotion regulation and social adjustment of students addicted to online games. **Methods:** This study in terms of purpose was applied and in terms of implementation method was quasi-experimental with a pre-test, post-test and follow-up design with a control group. The research population was the fifth grade students of district 2 of Sari city in the 2021-22 academic years. The sample size based on G Power software for each group was determined 15 people, who this number was selected by purposive sampling method and by random method replaced into two experimental and control groups. The experimental group 8 sessions of 90 minute underwent the play therapy, and during this time the control group did not receive any education. The data were collected with addiction to online games questionnaire (Wang & Chang, 2002), emotion regulation questionnaire for children and adolescents (Gullone and Taffe, 2012) and children's social adjustment scale (Dokhanchi, 1998) and were analyzed by methods of variance analysis by repeated measurement and Bonferroni post hoc test in SPSS-26 software. **Results:** The findings showed that the play therapy improved the emotion regulation (reappraisal and suppression) and social adjustment of students addicted to online games, and the results remained in the follow-up phase ($P < 0.001$). **Conclusion:** The results indicated the effectiveness of play therapy and its durability on improving emotion regulation and social adjustment of students addicted to online games. Therefore, specialists and therapists can use play therapy along with other treatment methods to improve psychological characteristics, especially to improve emotion regulation and social adjustment.



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Introduction

Online games, a type of internet game, have become prevalent, especially among children, adolescents, and young people, due to the increased appeal of games, internet speed, and the possibility of fast and wireless connectivity (Columb, Griffiths, & Agar, 2022). Today, the world is witnessing the growing spread of online games and the significant time children and adolescents devote to them, leading to dependency (Turkildsen, Kennedy, Gentz, & Sorensen, 2022). Online game addiction implies a severe dependence on gaming and an inability to control it, causing disruptions in life cycles and academic, familial, and occupational functions (Matthews, Morrell, & Molly, 2019). This construct represents excessive, extreme, and compulsory use of online games where the addicted individual cannot control and manage their behaviors (Lemmens & Hendrikz, 2016). While online games have positive features like being educational and filling leisure time, they cause numerous psychological harms, including emotional and social problems (King, Delfabbro, Billieux, & Potenza, 2020; Parsakia et al., 2023).

One negative consequence of online game addiction is a decline in emotional regulation (Kokonyei, Kocsel, Kiraly, Griffiths, Galambos, Magi et al., 2019). Emotional regulation refers to the processes individuals use to control and assess emotional responses or modulate emotional reactions (Pally & Hage, 2022). It includes a range of conscious and unconscious cognitive, biological, social, and behavioral strategies to maintain, reduce, or increase an emotion (Hoyweg, Kratsiotis, Neun, & Holman, 2020). Emotional regulation allows individuals to control and manage emotional arousal and experiences at both individual and interpersonal levels (Crowl, 2021). It consists of two components: reappraisal and suppression. Reappraisal, as a pre-occurrence or antecedent-focused strategy, leads to a revised interpretation through modulating negative emotional experiences, reducing emotional responses, and improving interpersonal emotional functioning. Suppression, as a response-focused strategy, involves the inhibition of emotional expression after identifying an emotion (Barkius, 2020). In other words, reappraisal means reconstructing an emotional situation as less emotional, and suppression means preventing the external

display of emotional state during excitement (Sorgi-Wilson & McCloskey, 2022).

Another negative consequence of online game addiction is reduced social adaptation (Zaterahadi, Darmawati, & Yusra, 2021), meaning the process of blending, compromising, adapting, cooperating, and coping with oneself, others, and the environment through changing oneself, others, or the environment (Gao, Yao, Yao, Zheng, Ma, & Liu, 2019). Adaptation, as a significant indicator of mental health, refers to the adjustment of behaviors to align with culture and social environment (Jiu, Jiao, Hipson, Yan, Kaplan, & Li, 2021). It is a psychological process wherein individuals deal with life's stress-inducing challenges and events to manage them (Ben-Itzhak & Zachor, 2021). Social adaptation is the ability to interact reciprocally with others in a social context in a socially acceptable manner and satisfaction with one's social roles and functions in them (Giyindioz & Alakbarov, 2019). It signifies effective individual interaction with the living environment, having positive feelings about oneself and others, participating in social activities, enjoying communication with others, feeling comfortable in unfamiliar situations, and the ability to influence others (Eiky, De Boer, Beuvalda, & Kass, 2020).

Various methods exist to improve emotional and social characteristics, one of which is play therapy (Sarah, Parson, Renshaw, & Stagnitti, 2021), important educationally, rehabilitatively, pedagogically, and therapeutically, especially for acquiring emotional and social skills (Halfon, Kavder, Paoloni, Andrisi, Giuliani, Arcisiosi, & Filic, 2019). Thus, while play is entertaining, it can also have educational and constructive roles and lead to personal improvement (Chatur, Webb, & Krasner, 2019). Play therapy is a dynamic interpersonal interaction between client and therapist, providing a safe space for communication and self-expression. Its goals include facilitating participation, self-observation, responsibility, expressing emotions and feelings, accepting and respecting oneself and others, and improving socio-emotional skills (Rieth & Holch, 2018). This method is a suitable intervention for treating children and adolescents as they often struggle to verbally express their feelings, and through play, they can reduce barriers and better display their emotions (Kokorikas, Tsaloglidou,

Tziafas, Iliadis, Frantzi, Katsimbeli, & Kiourkota, 2021). Play therapy emphasizes child participation, achieved through self and others' control, mastering, and accepting responsibility for behavioral change and acquiring social skills (Halfon, Doyran, Tivurkmen, Ektay, & Salah, 2021). It provides opportunities for children and adolescents to learn how to solve or manage their problems (Chirico, Andri, Salvatori, Malaguti, & Trombini, 2019).

Research studies on the effectiveness of play therapy on emotion regulation and social adaptation have been conducted, but no research in this field has been found on students addicted to online games. For example, the results of the study by Nazari, Ahmad, Ahmad, and Baker (2022) showed that group play therapy improved social interaction in adolescents and its components, including expressing emotions, sharing interests, friendship chains, and valuing others. Ray, Bjorgin, Gutierrez, Ceballos, and Lindo (2021) concluded in a study that child-centered play therapy increased socio-emotional competencies such as empathy, social competence, self-regulation-responsibility, and reduced behavioral problems in children. Also, the results of Kabudi's (2022) research showed that group play therapy increased social adaptability and reduced feelings of loneliness in male elementary school students, but did not significantly affect their anger control. Rahat Dehmoodeh, Mahdinezhad, and Karbalaie Herfeh (2022) concluded in a study that education through play improved emotion regulation and social relations in female second and third-grade elementary students. In another study, Valinegandar and Hashemiannejad (2019) reported that group play therapy reduced impulsive behaviors and increased social adaptation and psychological well-being in preschool students. Moreover, the results of Akbari, Dehghani, Jafari, and Kardar's (2017) research showed that cognitive-behavioral play therapy increased cognitive emotion regulation and reduced anxiety and depression in children with Type 1 diabetes.

In recent decades, the use of online games has been increasing significantly due to their high appeal, and while these games are entertaining and fill the leisure time of students, they also cause emotional and social problems, such as a decline in emotion regulation and social

adaptability. Given the high prevalence of these games among children as well as adolescents, it is necessary to look for appropriate therapeutic methods to improve their emotion regulation and social adaptation, and one of the potentially effective methods in children is play therapy. A review of the research literature indicated that few studies have been conducted on the effectiveness of play therapy on emotion regulation and social adaptation, but no research has been found on students addicted to online games. Another important point is that most previous studies did not assess the effectiveness of play therapy in the follow-up stages, and this research attempted to investigate the sustainability of the effect of play therapy. Therefore, more research is needed to decide on the effectiveness of play therapy on emotional regulation and social adaptation, and the present study was designed with this purpose. Since the use of online games has many negative emotional and social consequences, the present study aimed to determine the effectiveness of play therapy on improving emotion regulation and social adaptation in students addicted to online games.

Method

This study was applied in purpose and semi-experimental in execution, using a pre-test, post-test, and follow-up design with a control group. The research population consisted of fifth-grade primary school students in District 2 of Sari in the 2021-2022 academic year. The sample size was determined as 15 participants per group based on G Power software, and they were selected using a purposive sampling method. In purposive sampling, samples are selected based on certain criteria, which in this study included addiction to online games and scoring a minimum of 56 on the Online Game Addiction Questionnaire, willingness to participate in the study, not having mental illnesses or disorders in the past six months, not using other educational and therapeutic methods simultaneously, and not taking psychiatric drugs like anti-anxiety and antidepressants. The exclusion criteria included withdrawal from continued cooperation and absence of more than one session.

Materials

1. Online Game Addiction Questionnaire: This questionnaire, designed by Wang and Chang (2002) with 20 items, uses a five-point

scale ranging from rarely (score 1) to always (score 5) for responses. The total score is calculated by summing the item scores, with a minimum score of 20 and a maximum score of 100, where a score of 56 and above indicates addiction to online games. Wang and Chang (2002) examined the construct validity of the tool using exploratory factor analysis and found two factors: social-emotional problems and academic and occupational performance problems, reporting a Cronbach's alpha reliability of 0.90. In Iran, Zandi-Payam, Davoudi, and Mehrbizadeh Honarmand (2015) investigated the construct validity with confirmatory factor analysis, finding the same two factors and calculating a Cronbach's alpha reliability of 0.95. In the present study, the reliability with Cronbach's alpha was 0.92.

2. Emotion Regulation Questionnaire for Children and Adolescents: Designed by Gullen and Taf (2012) with 10 items and two components: reappraisal (6 items) and suppression (4 items). Responses use a seven-point scale from strongly disagree (score 1) to strongly agree (score 7). The total score is calculated by summing the item scores, with a minimum score of 6 and a maximum score of 42 for reappraisal, and a minimum of 4 and a maximum of 28 for suppression, where higher scores indicate a greater presence of these characteristics. Gullen and Taf (2012) verified construct validity with exploratory factor

analysis, identifying the same two factors and reporting a Cronbach's alpha reliability of 0.79 for reappraisal and 0.73 for suppression, and a three-month test-retest reliability of 0.69 for both. No studies in Iran using this questionnaire and investigating its psychometric properties were found. In the present study, face validity was confirmed by the opinions of 10 education and psychology experts, and the reliability with Cronbach's alpha was 0.84 for reappraisal and 0.81 for suppression.

3. Children's Social Adaptability Scale: Designed by Dokhanchi (1998) with 37 items. Responses use a four-point scale from never (score 0) to most of the time (score 3), with some items scored inversely. The total score is calculated by summing the item scores, with a minimum of 0 and a maximum of 111, where higher scores indicate greater social adaptability. Dokhanchi (1998) confirmed face and content validity with expert opinions and reported a split-half reliability of 0.79. In Iran, Hosseini Kharam, Ghaffari Nouran, and Keyamarsi (2022) calculated Cronbach's alpha reliability at 0.71 for the pre-test and 0.73 for the post-test. In the present study, the reliability with Cronbach's alpha was 0.85.

4. Play Therapy Protocol: In this study, the play therapy protocol was based on the program by Kaduson and Schaefer (2001), with the main contents and games for each session presented in Table 1.

Table 1. Play therapy sessions

Session	Content
1	Establishing Therapeutic Communication, Explaining the Rules and Regulations Related to Games, Using Emotional Word Games and Assigning Homework
2	Reviewing Homework, Using the "Color Your Life" Game and Assigning Homework
3	Reviewing Homework, Using the "Chairs" Game and Assigning Homework
4	Reviewing Homework, Using the "Lifting Colored Sticks" Game and Assigning Homework
5	Reviewing Homework, Using the "Bubble Making" Game and Assigning Homework
6	Reviewing Homework, Using the "Clock Bell" Game and Assigning Homework
7	Reviewing Homework, Using the "Slow Movements" Game and Assigning Homework
8	Reviewing Homework, Using the "Anger Balloon" Game and Preparing for Practicing Skills in Real Life

Implementation

The research process was as follows: after the proposal was approved, coordination was made with the officials of the Education Department in District 2 of Sari city for the selection of the sample and the conduct of the research. The importance and necessity of the research were explained to the parents of the samples, and they were reassured about ethical considerations such as confidentiality, privacy of the samples,

confidentiality of personal information, and so on. Eventually, 30 fifth-grade primary school students were selected after reviewing the entry criteria for the study and were randomly divided into two equal groups: experimental and control. The experimental group underwent 8 sessions of 90-minute play therapy, while the control group received no training during this period. The data were analyzed using repeated

measures ANOVA and Bonferroni post hoc test in SPSS-26 software.

Results

The participation rate in the present study was 100%, and none of the samples from the experimental and control groups were excluded

from the study. Table 2 reports the results of the mean and standard deviation of emotion regulation and social adaptability of students addicted to online games in the experimental and control groups at the pre-test, post-test, and follow-up stages.

Table 2. The results of descriptive statistics

Variable	Stage	Exp.		Control	
		Mean	SD	Mean	SD
Reappraisal	Pre-test	16.33	4.35	17.80	4.06
	Post-test	34.00	5.22	17.07	4.13
	Follow-up	34.33	5.09	17.53	3.85
Suppression	Time	19.73	2.15	20.13	2.39
	Group	14.07	2.76	19.73	2.15
	Time*Group	14.47	3.02	20.27	2.31
Social adaptability	Time	49.73	4.71	50.13	4.41
	Group	81.00	10.13	48.93	5.36
	Time*Group	81.60	9.76	49.67	5.31

According to the results in Table 2, the means of reappraisal and social adaptability of the experimental group increased more from the pre-test to the post-test and follow-up stages compared to the control group, and the mean of suppression of the experimental group decreased more compared to the control group from the pre-test to the post-test and follow-up stages.

The analysis of assumptions for repeated measures ANOVA showed that the assumption of normality for reappraisal, suppression, and social adaptability at evaluation stages, the

assumption of homogeneity of variances for all variables based on Levene's test, the assumption of homogeneity of the variance-covariance matrices for all variables based on Box's M test, and the assumption of homogeneity of covariances for all variables based on the Mauchly's test were met ($P > 0.05$). Therefore, the use of repeated measures ANOVA was justified. Table 3 reports the results of the repeated measures ANOVA to determine the effectiveness of play therapy on emotion regulation and social adaptability of students addicted to online games.

Table 3. The results of analysis of variance with repeated measurements

Variable	Source	MS	F	p	Effect size	Power
Reappraisal	Time	1726.50	179.74	<0.001	0.81	1.00
	Group	1724.54	54.18	<0.001	0.72	1.00
	Time*Group	483.54	50.34	<0.001	0.71	1.00
Suppression	Time	244.81	48.08	<0.001	0.53	1.00
	Group	259.25	31.22	<0.001	0.60	1.00
	Time*Group	57.66	11.32	<0.001	0.35	1.00
Social adaptability	Time	6427.65	261.15	<0.001	0.86	1.00
	Group	6798.61	78.78	<0.001	0.79	1.00
	Time*Group	1737.31	70.59	<0.001	0.77	1.00

According to the results in Table 3, the effect of time, group, and the interaction of time and group on the variables of reappraisal, suppression, and social adaptability were significant ($P < 0.001$). Considering the group

effect and the table of means, play therapy led to improvements in emotion regulation and social adaptability (increased reappraisal and social adaptability and decreased suppression) in the experimental group compared to the

control group. Also, considering the effect of time and the interaction of time and group, there were significant differences between the evaluation stages in all variables. Table 4 reports the results of the Bonferroni post hoc

test for comparing the means of emotion regulation and social adaptability of students addicted to online games at the pre-test, post-test, and follow-up stages.

Table 4. The results of Bonferroni post-hoc test

Variable	Stage		Mean diff.	SE	p
Reappraisal	Pre-test	Post-test	16.11	1.34	<0.001
	Pre-test	Follow-up	16.24	1.36	<0.001
	Post-test	Follow-up	0.13	1.05	>0.05
Suppression	Pre-test	Post-test	4.28	1.16	<0.001
	Pre-test	Follow-up	4.15	1.14	<0.001
	Post-test	Follow-up	0.13	0.91	>0.05
Social adaptability	Pre-test	Post-test	29.34	1.63	<0.001
	Pre-test	Follow-up	29.50	1.59	<0.001
	Post-test	Follow-up	0.16	0.76	>0.05

According to the results in Table 4, the difference in means between the pre-test and post-test and follow-up was significant ($P < 0.001$) in the variables of reappraisal, suppression, and social adaptability of students addicted to online games, but the difference between the post-test and follow-up was not significant ($P > 0.05$) for any of them. In other words, play therapy led to a significant increase in reappraisal and social adaptability and a decrease in suppression at the post-test and follow-up stages compared to the pre-test, but there was no significant difference between the post-test and follow-up stages in any of the variables. The significant difference in the post-test compared to the pre-test indicated the effectiveness of play therapy, and the significant difference in the follow-up compared to the pre-test indicated the sustainability of the effectiveness of play therapy.

Conclusion

In recent decades, the use of online games has increased significantly, and excessive use of them has many negative emotional and social consequences. Therefore, the present study aimed to determine the effectiveness of play therapy on improving emotion regulation and social adaptability in students addicted to online games.

The findings of the present study showed that play therapy led to improved emotion regulation, namely an increase in reappraisal and a decrease in suppression, in students addicted to online games, and these results were

maintained at the follow-up stage. These findings are consistent with those of Ree et al. (2021) regarding the effectiveness of child-centered play therapy programs in increasing children's self-regulation and responsibility, Rahat Dehmardeh et al. (2022) on the effectiveness of play-based education in improving the emotion regulation of second and third-grade girls, and Akbari et al. (2017) on the effectiveness of cognitive-behavioral play therapy in increasing the cognitive regulation of emotion in children with type 1 diabetes. According to Rahat Dehmardeh et al. (2022), play is a useful and effective tool that helps the counselor, clinician, and play therapist to gain a set of clinical information for diagnosis in a suitable and calm environment and, after clinical diagnosis, to prepare and implement a suitable plan for treatment through play. Importantly, group play therapy, by teaching interpersonal skills such as proper conversational skills, appropriate problem-solving skills, empathy, proper use of body language in interactions, respect for group rules, etc., leads to improved relationships with others and self-emotion regulation. As play allows children to freely express their feelings using symbols, it serves the same purpose for children as psychotherapy does for adults. Play therapy provides a structured perspective based on therapeutic theories that improve social relationships and emotional discharge. Moreover, it reflects the child's behavior, identifying their thoughts and feelings and

communicating them to the child to become aware of their actions and behaviors. The play therapist uses the play situation to establish a connection with the child and helps them to vent their emotions and resolve their everyday life problems. In this therapeutic approach, simple games such as "Color Your Life", "Chair Game", "Bubble Making", "Clock Bell", "Anger Balloon", etc. were used, without direct verbal explanations about feelings and thoughts, allowing students to express their feelings and thoughts and vent their emotions. Therefore, it is logical to expect that play therapy could improve emotion regulation (increased reappraisal and decreased suppression) in students addicted to online games.

The study also found that play therapy increased the social adaptability of students addicted to online games, and these results were maintained at the follow-up stage. These findings are consistent with those of Nazari et al. (2022) on the effectiveness of group play therapy in improving social interaction in adolescents, Ree et al. (2021) on the effectiveness of child-centered play therapy programs in increasing children's social competence, Kaboudi (2022) on the effectiveness of group play therapy programs in increasing the social adaptability of primary school boys, and Valinejad and Hashemiannejad (2019) on the effectiveness of group play therapy in increasing the social adaptability of preschool students. According to Kaboudi (2022), play therapy allows children to act spontaneously and unstructured, and this therapeutic method works in a directive, problem-focused, and short-term manner. Play is fundamental in children's lives, and through it, many child behaviors can be taught or modified, including social adaptability. Moreover, play therapy provides a safe environment for expressing emotions and solving issues through activities like clay modeling, painting, and role-playing, leading to self-awareness, self-efficacy, and changing negative attitudes about relationships with friends and society to positive and effective ones, which can be effective in increasing interaction with others, especially peers. Another important point is that play therapy helps students find healthier ways to communicate, develop constructive relationships, increase resilience, and facilitate emotions. Thus, play is an appropriate method

for treating children, as they often have difficulty verbally expressing their feelings and thoughts, and play reduces barriers to expressing these emotions and thoughts, leading to improvement. Play is a natural, enjoyable, amazing, and mysterious activity for expressing emotions and thoughts, communicating with others, describing experiences, revealing wishes and desires, and flourishing in children. Especially for children with less ability to verbally and cognitively express their feelings and thoughts, play is an appropriate tool for expression and self-expression. During play therapy, children satisfy their sensory and motor needs, vent their energy, and find peace by interacting and collaborating with other children. Therefore, it seems logical that play therapy plays an effective role in increasing the social adaptability of students addicted to online games.

Every research study faces limitations during its execution. An important limitation of this study was the use of purposive non-random sampling, self-report instruments for data collection, and limiting the research population to fifth-grade students in District 2 of Sari city. Therefore, the use of random sampling methods, structured interviews for data collection, and conducting research on students of other grades and cities are recommended. Another research suggestion is to compare the effectiveness of play therapy with other therapeutic methods, including music therapy, compassion-focused therapy, cognitive-behavioral therapy, acceptance and commitment therapy, and compassion therapy. Given the results of this study, namely the effectiveness of play therapy in improving emotion regulation and social adaptability in students addicted to online games and the sustainability of its effectiveness, it is recommended that officials of counseling clinics and psychological services, counselors, clinical psychologists, and therapists undergo a play therapy intervention program to use it during interventions with children. Another practical suggestion is that officials of psychological service centers should employ trained specialists in play therapy to improve the psychological characteristics of children, especially in terms of emotion regulation and social adaptability. Educational planners and policymakers can design and implement programs to improve emotion regulation and

social adaptability in children and primary school students based on the results of this study. Another practical suggestion is organizing play therapy courses for kindergarten and school teachers, especially for respected teachers, to apply the methods of this approach in the classroom and school. Lastly, organizing play therapy for parents is recommended, so they can use its strategies in family life and when facing challenges.

Conflict of Interest

According to the authors, this article has no financial sponsor or conflict of interest.

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