

Group therapy for adolescent gaming disorder: intervention efficacy

Anthony Miller^{1, a, *}, Diane Adams^{2, b},

¹University of Pennsylvania, 3451 Walnut Street, Philadelphia, PA, 19104, USA

²NPD Group, 900 West Shore Road, Port Washington, NY 11050, USA

a.anthony_miller_544217@sina.com, b.diane_a37@outlook.com

*Corresponding Author

Abstract: This study investigated the therapeutic efficacy of group psychotherapy for adolescent internet gaming disorder (IGD). Forty adolescents meeting diagnostic criteria for IGD were randomly allocated to an intervention cohort (n=20) or a control cohort (n=20). Both cohorts received sertraline pharmacotherapy over a 4-month period; concomitantly, the intervention cohort underwent 4 months of structured group psychological intervention comprising seventeen 60-minute weekly sessions. Assessments—including weekly internet usage reports, Internet Addiction Test (IAT), and Zung Self-Rating Anxiety Scale (SAS)—were conducted at baseline, intervention termination, and 1-, 3-, and 6-month follow-ups. Repeated-measures analysis of variance revealed significant between-group effects, within-subject temporal effects, and group-by-time interactions for IAT scores, SAS scores, and weekly online duration (all $p < 0.05$). Group psychotherapy demonstrated efficacy in reducing internet usage and ameliorating anxiety symptomatology among adolescents with IGD, with sustained benefits supporting long-term rehabilitation and relapse prophylaxis following pharmacological treatment.

Keywords: internet addiction, internet gaming disorder, adolescents, intervention, group psychotherapy

1. Introduction

Internet gaming disorder (IGD), also termed internet addiction, has not yet been formally incorporated into established diagnostic criteria. The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition [1] (DSM-5) includes IGD under the section "Conditions for Further Study," proposing tentative diagnostic criteria: persistent and recurrent participation in internet gaming, frequently with other players, resulting in clinically significant impairment or distress, with five of nine specified criteria manifested within a 12-month period. Higher prevalence rates have been reported in Asia, particularly China and South Korea. Interventions encompassing educational approaches for IGD and pharmacological treatments targeting affective symptomatology have been documented [2-3]. Empirical investigations [4] demonstrate that standardized, rationalized interventions can effectively modulate adolescent IGD. Domestic research on IGD [5-9] has progressively expanded. The present study employs group psychological intervention for adolescents with IGD, aiming to elucidate the therapeutic efficacy of such intervention for this population.

2. Subjects and methods

2.1. Subjects

Participants comprised patients aged 12–16 years who presented at the outpatient clinic of this hospital between July and December 2015, met the proposed diagnostic criteria for IGD in DSM-5, and obtained IQ scores ≥ 70 on the Wechsler Intelligence Scale for Children (WISC). Exclusion criteria encompassed diagnoses of autism spectrum disorder, bipolar disorder, psychotic disorders, alcohol abuse/dependence, or other comorbid conditions. A total of 40 adolescents were enrolled and randomly allocated via simple randomization to an intervention group (n=20) or a control group (n=20). No statistically significant between-group differences were observed in age [(14.08±1.49) years vs. (13.90±1.37) years, $t=0.386$, $P>0.05$], gender ($\chi^2=0.125$, $P>0.05$), or illness duration [(13.50±5.35) months vs. (13.40±5.53) months, $t=0.058$, $P>0.05$]. All enrollees and their guardians provided informed consent prior to participation.

2.2. Methods

Both the intervention and control cohorts received conventional pharmacotherapy for 4 months, with both administered sertraline (Zoloft) at a dosage of 50 mg/d. Concomitantly, adolescents in the intervention cohort underwent group psychological intervention. The 20 adolescents were divided into two treatment subgroups, each led by one facilitator. Each intervention session lasted 1 hour, conducted once weekly for a total of 17 sessions over 4 months. Intervention objectives: self-confidence, mutual trust, collaborative effort, moderate internet use, and healthy living.

Group Intervention Protocol: Warm-up activities; internet knowledge sharing; games; group discussion; facilitator summary. Group Intervention Content: understanding the internet; establishing psychological support groups; emotional catharsis; cognitive introspection; relaxation training; life planning; discussion on internet's impact on life; role simulation; psychological suggestion and self-confidence training; interpersonal skills training; establishing supervision groups; controlling online time, etc. Through group activities, members were encouraged to provide mutual feedback, assistance, support, and share feelings.

Quality Control: During the study period, both cohorts received identical pharmacological agents and dosages to ensure comparability; group intervention facilitators underwent standardized training to ensure consistency in psychological intervention levels within subgroups; prior to administering the Internet Addiction Test (IAT) [10] and Zung Self-Rating Anxiety Scale (SAS) at each stage, unified instructions were provided to both cohorts to ensure assessment accuracy.

Prior to intervention, at intervention completion, and at 1, 3, and 6 months post-intervention, parents recorded adolescents' weekly online time (hours); concurrently, the following scales were administered to both cohorts: IAT: developed by Young in 1996, comprising 20 items rated on a 5-point scale (1=hardly ever, 2=occasionally, 3=sometimes, 4=often, 5=always); completed by adolescent participants, with higher scores indicating greater addiction severity. SAS: developed by Zung in 1971, comprising 20 items rated on a 4-point scale (1=none or a little of the time, 2=some of the time, 3=good part of the time, 4=most or all of the time); completed by adolescent participants. Raw scores were converted to standard scores, with higher scores indicating more severe anxiety.

Data were analyzed using SPSS 19.0 statistical software; measurement data were analyzed using analysis of variance with two-tailed tests; $P < 0.05$ was considered statistically significant.

3. Results

Repeated-measures analysis of variance comparing IAT scores, SAS scores, and weekly online time between the two cohorts before and after intervention revealed the following: for IAT scores, significant group main effect ($F=6.391, P < 0.05$), significant time main effect ($F=84.024, P < 0.05$), and significant group \times time interaction ($F=55.064, P < 0.05$); for SAS scores, significant group effect ($F=5.575, P < 0.05$), significant time main effect ($F=74.095, P < 0.05$), and significant group \times time interaction ($F=46.093, P < 0.05$); for online time, significant group main effect ($F=7.845, P < 0.05$), significant time main effect ($F=78.611, P < 0.05$), and significant group \times time interaction ($F=40.053, P < 0.05$). The intervention cohort demonstrated significantly greater reductions in IAT scores, SAS scores, and online time over time compared with the control cohort. See Table 1.

Table 1 IAT, SAS, and Weekly Online Time by Cohort and Time Point ($\bar{x} \pm s$)

Group	Pre-treatment	End of Intervention	1Month Post-intervention	3 Months Post-intervention	6 Months Post-intervention
Intervention Group (n=20)					
IAT	73.20 \pm 15.12	66.55 \pm 14.43	62.60 \pm 12.84	56.55 \pm 11.49	55.36 \pm 10.68
SAS	64.25 \pm 17.07	55.85 \pm 15.80	53.60 \pm 14.92	50.30 \pm 12.67	46.55 \pm 10.63
Weekly Internet Use (hours)	22.93 \pm 5.31	17.70 \pm 6.19	15.35 \pm 5.09	13.73 \pm 4.33	12.35 \pm 4.16

Control Group (n=20)					
IAT	74.75±14.30	73.25±13.81	73.25±13.46	72.80±13.28	72.65±13.60
SAS	66.05±15.46	65.15±14.82	64.50±14.28	64.20±14.26	64.10±14.39
Weekly Internet Use (hours)	21.73±6.15	20.43±5.51	20.35±5.38	20.25±5.39	20.18±5.30

4. Discussion

The group psychological intervention method applied in this study integrates intervention techniques from cognitive behavioral therapy, relaxation training, and play therapy, providing multi-faceted psychological and behavioral interventions for adolescents with Internet addiction. Follow-up assessments were conducted after the intervention ended. The results indicate that, compared to adolescents receiving only medication intervention, those receiving combined group psychological intervention showed significantly greater improvement in anxiety levels after the treatment concluded. This suggests that comprehensive group psychological intervention is effective in improving the mood of adolescents addicted to online gaming. Therefore, in the treatment process for adolescent Internet gaming disorder, comprehensive group psychological intervention should be considered alongside conventional medication intervention.

Furthermore, during the follow-up period after the intervention ended, compared to the control group, the adolescents in the intervention group showed continued improvement in the severity of their online gaming addiction and anxiety levels, and their Internet usage time continued to decrease. This indicates that the therapeutic effect of group psychological intervention for adolescent Internet gaming disorder can persist even after the intervention concludes. This may be related to the impact of group psychological intervention on adolescents' coping styles and interpersonal relationships. Adolescents with Internet addiction often experience higher levels of stress in various aspects of life and academics compared to their healthy peers, yet they lack effective coping strategies. They frequently resort to fantasy as a coping mechanism to regulate negative emotions like anxiety and depression. Psychological intervention can facilitate the development of healthier coping styles in adolescents, thereby reducing their compensatory dependence on the Internet for venting or escape. Sakuma et al. [11] used a Self-discovery camp (SDiC) approach to intervene in adolescents with Internet gaming disorder and found that group-based intervention could enhance adolescents' self-efficacy and reduce their online gaming time. Domestically, Ma Na et al. [12] also found in their study on middle school students with Internet addiction that a positive peer relationship atmosphere is a protective factor against Internet addiction in adolescents. Through group psychological intervention, this study allowed members of the intervention group to practice their social skills during the treatment process and establish mutually supportive peer relationships. This enables the power of the group to continue functioning after the intervention ends, helping adolescents with Internet gaming disorder improve their self-efficacy and reduce feelings of loneliness, thereby making it easier for them to overcome excessive craving and dependence on online games.

5. Conclusion

In summary, to effectively address Internet Gaming Disorder, it is essential not only to implement targeted interventions for emotional and behavioral symptoms but also to improve the adverse environments in aspects such as learning and social interaction for adolescents with this disorder. Concurrently, it is crucial to cultivate the adolescents' ability to cope with unfavorable circumstances, preventing them from reverting to the maladaptive pattern of excessive online gaming when faced with stress again. Future research could further explore multi-faceted interventions to more comprehensively improve the living environment of adolescents with Internet Gaming Disorder and promote their healthy development.

6. References

- [1] American Psychiatric Association. Diagnostic and statistical manual of mental disorders (DSM-5) [M]. American Psychiatric Pub, 2013.
- [2] Nakayama H, Mihara S, Higuchi S. Treatment and risk factors of Internet use disorders [J]. *Psychiatry and Clinical Neurosciences*, 2016. doi:10.1111/pcn.
- [3] King DL, Delfabbro PH. Internet gaming disorder treatment: a review of definitions of diagnosis and treatment outcome [J]. *Journal of Clinical Psychology*, 2014, 70(10): 942-955.
- [4] Lei Li. The empirical basis for intervention in adolescent "Internet addiction" [J]. *Advances in Psychological Science*, 2012, (6): 791-797.
- [5] Gao Wenbin, Chen Zhiyan. Research on the psychopathological mechanisms and comprehensive psychological intervention of Internet addiction [J]. *Advances in Psychological Science*, 2006, (4): 596-603.
- [6] Wang Boqun. A review of psychological mechanisms and intervention studies on adolescent Internet addiction [D]. Jilin University, 2008.
- [7] Liu Yinghai, Dan Yujin. Research on the attribution and intervention of adolescent Internet addiction from the perspective of exercise psychology [J]. *Journal of Beijing Sport University*, 2009, 44(7): 44-48.
- [8] Chen Qiuming, Wu Yeguang. Psychotherapy for childhood Internet addiction disorder [J]. *Chinese Journal of Clinical Rehabilitation*, 2004, 8(18): 3473-3485.
- [9] Young KS. Treatment outcomes using CBT-IA with Internet-addicted patients [J]. *Journal of Behavioral Addictions*, 2013, 2(4): 209-215.
- [10] Young KS. Internet addiction: The emergence of a new clinical disorder [J]. *Cyber Psychology and Behavior*, 1996, 1(3): 237-244.
- [11] Sakuma H, Mihara S, Nakayama H, et al. Treatment with the self-discovery camp (S Di C) improves Internet gaming disorder [J]. *Addictive Behaviors*, 2017, 64: 357-362.
- [12] Ma Na, Zhang Wei, Yu Chengfu, et al. Perceived school climate and Internet gaming disorder in junior high school students: a moderated mediation model [J]. *Chinese Journal of Clinical Psychology*, 2017, 25(1): 65-69, 74.