



## Multi-family group therapy for adolescent Internet addiction: Exploring the underlying mechanisms



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### HIGHLIGHTS

- We apply the MFGT to the Internet addiction for the first time.
- We examine changes in the measured variables to determine underlying mechanism.
- MFGT shows a significant effect on reducing Internet addiction.
- Parent–adolescent interaction and need satisfaction contribute to the effect.

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### ABSTRACT

**Objective:** Internet addiction is one of the most common problems among adolescents and effective treatment is needed. This research aims to test the effectiveness and underlying mechanism of multi-family group therapy (MFGT) to reduce Internet addiction among adolescents.

**Method:** A total of 92 participants consisting of 46 adolescents with Internet addiction, aged 12–18 years, and 46 their parents, aged 35–46 years, were assigned to the experimental group (six-session MFGT intervention) or a waiting-list control. Structured questionnaires were administered at pre-intervention (T1), post-intervention (T2) and a three-month follow-up (T3).

**Results:** There was a significant difference in the decline both in the average score and proportion of adolescents with Internet addiction in MFGT group at post-intervention ( $M_{T1} = 3.40$ ,  $M_{T2} = 2.46$ ,  $p < 0.001$ ; 100 versus 4.8%,  $p < 0.001$ ) maintained for three months ( $M_{T3} = 2.06$ ,  $p < 0.001$ ; 100 versus 11.1%,  $p < 0.001$ ). Reports from both adolescents and parents were significantly better than those in the control group. Further explorations of the underlying mechanisms of effectiveness based on the changed values of measured variables showed that the improvement in adolescent Internet use was partially explained by the satisfaction of their psychological needs and improved parent–adolescent communication and closeness.

**Conclusions:** The six-session multi-family group therapy was effective in reducing Internet addiction behaviors among adolescents and could be implemented as part of routine primary care clinic services in similar populations. As family support system is critical in maintaining the intervention effect, fostering positive parent–adolescent interaction and addressing adolescents' psychological needs should be included in preventive programs for Internet addiction in the future.

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### 1. Introduction

With the rapid development of the Internet, Internet addiction has become a widespread and problematic phenomenon. Internet

addiction, also known as Pathological Internet Use, Problematic Internet Use and Compulsive Internet Use, is characterized by excessive and compulsive Internet use and a preoccupation with and loss of control over this use that interferes with individuals' daily functioning (Caplan, 2002; Davis, 2001; Van den Eijnden, Meerkerk, Vermulst, Spijkerman, & Engles, 2008; Young & Abreu, 2011). Currently, it is one of the most common behavioral problems for adolescents, who are more exposed to Internet use and consequently more vulnerable than

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adults (Lortie & Guitton, 2013), with a prevalence rate higher than 8% in some countries (Cho, Kim, Kim, Lee, & Kim, 2008; Kuss, Griffiths, & Binder, 2013; Van den Eijnden, Spijkerman, Vermulst, van Rooij, & Engels, 2010). In China, approximately 10% of adolescents (approximately 20 million teenagers) reported a tendency towards or current diagnosis of Internet addiction (Block, 2008; China Internet Network Information Center, 2013). Internet addiction may cause psychological distress, personality development problems, social problems and poor school performance (Brezing, Derevensky, & Potenza, 2010; Young, Pistner, O'Mara, & Buchanan, 2000). In addition, high comorbidity with effective disorders, impulse control disorders and substance abuse disorders has been reported (Petersen, Weymann, Schelb, Thiel, & Thomasius, 2009; Weinstein & Lejoyeux, 2010). There is significant research around the diagnosis, epidemiology, predicting factors and negative outcomes of Internet addiction, but little is known about treating it, which is an imperative for adolescents, families, schools and society, especially in China (King, Delfabbro, Griffiths, & Gradisar, 2011; Winkler, Dörsin, Rief, Shen, & Glombiewski, 2013).

Petersen et al. (2009) conducted a survey at the request of the German health department and argued that clinical recommendations are not possible due to the lack of studies and that further research is urgently needed. In a systematic review of Internet addiction treatment, only eight studies were included. Half of them were psychological approaches, and two utilized cognitive-behavioral therapy (King et al., 2011). Peukert, Sieslack, Barth, and Batra (2010) also indicate cognitive-behavioral and pharmacological approaches as potentially effective treatments in their review. They suggest that interventions with family members could be useful. Winkler et al. (2013) further examine the efficacy of different treatments for Internet addiction (13 studies included) in their meta-analysis, and their results show that CBT did not perform significantly better than other psychological treatments, even though it appears to be the predominant approach for treating Internet addiction. They also suggest that both individual counseling and group therapy have their shortcomings and that further research around different approaches and modalities is needed. However, there is no study that examines which factors contribute to the efficacy of treatment or what predictors cause the behavior change to happen, which is very important to evaluate and improve interventions (Liu, Fang, & Zhou, 2011).

Family plays a central role in the socializing process for adolescents, and parents provide emotional connection, behavioral constraints and modeling (Gray & Steinberg, 1999; Lau, Quadrel, & Hartman, 1990). Family-based intervention is the most thoroughly studied treatment modality for adolescent substance dependence and addiction, and there is a large body of research to support its efficacy (for a review, see Liddle, 2004). Previous research also proved that a good relationship and communication with parents are protective factors for adolescents from Internet addiction (Kim, Jeong, & Zhong, 2010; Van den Eijnden et al., 2010). Family members involved in interventions facilitate the process of recovery and help the addict maintain a lasting effect of intervention after sessions (Liddle, 2004; Zhong et al., 2011). Grounded in family system theory and integrated in family and group therapy, multi-family group therapy (MFGT) was proposed as a promising new approach to treat Internet addiction behaviors, but no empirical study was conducted (Liu et al., 2011). The effectiveness of MFGT has been empirically demonstrated among adolescents with psychological disorders (Chien & Chan, 2013; McDonnell & Dyck, 2004), children at risk for special educational services (Kratochwill, McDonald, Levin, Scalia, & Coover, 2009) and in addiction related areas (Conner et al., 1998; Zubrick et al., 2005). In this field, Zhong et al. (2011) found that family-based intervention is more effective in reducing Internet addiction than group therapy that involved only the adolescents. The multi-family group offers both adults and adolescents the advantages of a peer group, which help them to get support and learn from peer confrontation. Transferential reactions occur not only

within one family but also across family lines, facilitating the group to serve both as an arena for cross transferences based on each person's introject and as a reality tester (Leichter & Schulman, 1974). Connection within family members is also helpful for high treatment attendance (Nieter, Thornberry, & Brestan-Knight, 2013). Moreover, family-oriented intervention might be particularly effective in Chinese culture, where the cohesion between family members is highly emphasized. Therefore, the present study aims to explore both the effectiveness of MFGT on Internet addiction and the underlying mechanisms of the effectiveness.

One mechanism through which MFGT may effectively reduce Internet addiction is improving parent-adolescent communication and closeness. Compared with non-addicts, adolescents with Internet addiction have poorer communication with their parents (Park, Kim, & Cho, 2008) and are more likely to receive rejection and negative feedback from their parents (Van den Eijnden et al., 2010). Poor parent-adolescent communication and low perceived parent-adolescent closeness, in turn, predicted adolescents' Internet addiction (Liu, Fang, Deng, & Zhang, 2012; Liu, Fang, Zhou, Zhang, & Deng, 2013). According to the Circumplex Model of Marital and Family Systems proposed by Olson (Olson, 2000; Olson, Sprenkle, & Russell, 1974), family communication is critical in facilitating intimacy among family members and strengthening the family's adaptability to change. MFGT emphasizes improving family cohesion and motivation to change within the family; it not only focuses on the parent-adolescent interaction but also values the style and strength of attachment between family members (Dickerson & Crase, 2005). Therefore, it could be a well-suited approach to treat Internet addiction among adolescents.

The second mechanism through which MFGT may take effect in treating adolescents' Internet addiction is by fulfilling their psychological needs through strengthening their communication and relationship with their parents. Psychological need is considered one of the most important driving forces that promotes behavioral change. Fulfillment of psychological needs through Internet use has been proposed as an internal motive in adolescents' Internet addiction (Morris & Ogan, 1996; Suler, 1999). Adolescents' unfulfilled needs for competence and relatedness in life and perceived need satisfaction online are the major precursors of their excessive Internet use (Cai, Cui, & Li, 2007; Shen, Liu, & Wang, 2013; Wan, Zhang, Liu, Deng, & Fang, 2010). Compared with non-addicts, Internet addicts perceived higher need satisfaction online and lower need satisfaction in real life (Deng, Fang, Wan, Zhang, & Xia, 2012). Therefore, if parent-adolescent communication practices and relationships are improved, adolescents' psychological needs for relatedness or competence might be more easily fulfilled through their daily life interactions with their parents, which, in turn, could be helpful to reduce their reliance on the Internet for fulfilling their needs. As fundamental as these two underlying mechanisms appear to be in affecting adolescents' Internet addiction, they have nevertheless been barely examined explicitly in prior Internet addiction intervention studies. In this study, we include these two underlying mechanisms as major intervening variables to examine whether the effectiveness of family group intervention for adolescent Internet addiction depends on them.

Based on a quasi-experimental design, the present study examines the effectiveness of the MFGT for adolescent Internet addiction among 46 pairs of adolescents and their parents. The study aims to examine three hypotheses: First, the intervention group shows a reduction in Internet addiction both at the end of the intervention and at a three-month follow-up compared with the control group. Second, adolescents in the intervention group show improved communication and relationship with their parents and psychological need satisfaction in real life. Third, the effectiveness of the intervention is partially explained by the improved parent-adolescent relationship and communication, and adolescents' psychological need satisfaction in real-life.

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