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#### Full length article

### The influence of juvenile preference for online social interaction on problematic Internet use: The moderating effect of sibling condition and the moderated moderating effect of age cohort



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#### ABSTRACT

Previous studies have demonstrated that the preference for online social interaction (POSI) is one of the most important factors affecting problematic Internet use (PIU). As self-worth orientation theory suggests, however, only-child could buffer the effect of POSI on PIU, given the fact that children without siblings (the only-child) typically enjoy more resources from parents than do children with siblings. As children grow, particularly after school age, they would become more susceptible to the peers' influence than parents'. Thus, the buffering effect of only-child would decrease along with age due to the lessening effect of parents. To examine the moderating effect of sibling condition (only-child vs. children with siblings) and moderated moderating effect of age cohort (adolescent vs. emerging adult) on the relationship between POSI and PIU, we collected data from 12,051 Chinese students and measured their POSI, PIU, sibling condition, age and other demographics. The results showed that (a) the PIU score of only-child was significantly lower than that of children with siblings; (b) the POSI significantly predicted the PIU; (c) sibling condition moderated the relationship between POSI and PIU, and age cohort further moderated the moderation of sibling condition; (d) age cohort moderated the relationship between POSI and PIU. The implications for the prevention of Internet addictive behaviors among adolescents were discussed.

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#### 1. Introduction

Internet has been the most important part of people's lives in modern China. The youth, who are still premature, are among the largest Internet users. According to the data released by China Internet Network Information Center, China's Internet users reached 649 million in 2014, and the juvenile population accounts for 54.3% of the total number of Internet users (China Internet Network Information Center, 2015). It is true that Internet makes

youth's life more convenient and imparts valuable information. However, it also has a negative influence on the juveniles. For instance, abundant studies have demonstrated that problematic Internet use (PIU), which was defined as "use of the Internet that creates psychological, social, school and/or work difficulties in a person's life " (Beard & Wolf, 2001), caused juveniles' sufferings from life disorders (Adam, Snell, & Pendry, 2007; Kardefelt-Winther, 2014; Kim et al., 2012; L. G.; Wang, Luo, Luo, Gao, & Kong, 2012), low well-being (Caplan, 2002; Casale, Lecchi, & Fioravanti, 2015; van den Eijnden, Meerkerk, Vermulst, Spijkerman, & Engels, 2008), and poor academic performance (Chen & Peng, 2008; Kubey, Lavin, & Barrows, 2001; Wu et al., 2016).

Previous studies have documented many factors that could predict PIU, for example, personality traits (Ko et al., 2010; Kuss, Shorter, Van Rooij, van de Mheen, & Griffiths, 2014), emotional intelligence (Parker, Taylor, Eastabrook, Schell, & Wood, 2008),

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parent-child intimacy (Yang, Zhu, Chen, Song, & Wang, 2016), and so on. Among them, preference for online social interaction (POSI) is one of the most important. Numerous studies have shown that juveniles prefer online communication to face-to-face communication (Bonetti, Campbell, & Gilmore, 2010; Valkenburg & Peter, 2009, 2011; Walther, 1996). It is a developmental task for youth to build intimate relationship with peers or friends of the opposite sex (Brown & Larson, 2009). During this period, juveniles are also experiencing physical and psychological changes, exhibiting high levels of social anxiety (Gregory et al., 2007; Haller, Kadosh, Scerif, & Lau, 2015). On the one hand, juveniles are eager to share with others; on the other hand, due to the impression management and self-presentation concerns during face-to-face communication, juveniles tend to refrain themselves from self-disclosing too much with others. Internet, allowing for safe and free online communication with sufficient anonymity, thereby provides a better and more convenient approach for youth to establish connections and communicate with others, even strangers. (Bonetti et al., 2010; Subrahmanyam & Greenfield, 2008; Valkenburg & Peter, 2009, 2011; Walther, 1996). Relevant studies have demonstrated that online communication promotes intimate relationship (Desjarlais & Willoughby, 2010), alleviates social anxiety (Weidman et al., 2012), provides social supoort (Kaczmarek & Drążkowski, 2014; Li, Chen, & Popiel, 2015), and strengthens interpersonal skills (Lehenbauer, Kothgassner, Kryspin-Exner, & Stetina, 2013; Markovitzky, Anholt, & Lipsitz, 2012). However, some researchers have also shown that a large number of youth are too dependent on Internet and even addicted to it, specifically because of the safety and continued interpersonal relationships that online communication provides (Amichai-Hamburger & Furnham, 2007; Caplan, 2003; Fioravanti, Dettore, & Casale, 2012; Lee, Ko, & Chou, 2015; McKenna & Bargh, 2000; Smahel, Brown, & Blinka, 2012). Moreover, the mechanism underlying the relationship between POSI and PIU has not been established clearly (Caplan & High, 2007). Why don't all juveniles, preferring online communication, indulge in internet and only some are Internet addicts? What are the possible moderators that qualify the effect of POSI on PIU?

The present work adopts the framework of Self-Worth Orientation as a possible interpretation of youth's Internet addictive behavior. The Self-Worth Orientation Theory assumes that human is a reasonable and socialized animal, prone to find out the reasons underlying their doing (Jin & Shan, 2011; Jin, 2010). Following this assumption, the theory goes on to highlight that people need to construct and interpret the explanation systems inside and outside of themselves, and find out who they are as well as the meaning of life. Self-worth, according to the interpretation of self-worth orientation, is the ultimate motivation of behavior. As an important resource for youth' self-worth, the lack of cares and supports from significant others in reality may result in their indulging in online communities for compensatory fulfilment (Chung, 2013; Li, Yu, Zhang, & Jin, 2015; Mazzoni, Baiocco, Cannata, & Dimas, 2016). Thus, based on the Self-Worth Orientation Theory, the effect of risk factors of PIU would magnify if individuals were lack of supporting resources for self-worth; conversely, when there is enough support resources for self-worth, the effect of risk factors of PIU would dim.

#### 1.1. Moderating effect of sibling condition

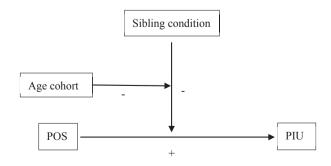
In China, the issues on only-child has been a hot topic since its implementation of the One-child policy in the 1980s. A number of researchers has found that only-child tend to be selfish, lonely, narcissistic, and uncooperative (Cameron, Erkal, Gangadharan, & Meng, 2013; Wan, Fan, Lin, & Jing, 1994). Other researchers,

however, have proposed that, though only-child may develop some negative characters because of not having siblings to be playmates, they can enjoy the luxury of abundant emotional support and quality resources due to parents' exclusive investment of time, energy, and financial resources. (Blake, 1989; Chen, Feng, Wang, & Li, 2008; Falbo & Polit, 1986; Steelman, Powell, Werum, & Carter, 2002). Some studies have also demonstrated that the development of children without siblings may be better than those with siblings (Chen, 2015; Falbo & Hooper, 2015). In other words, only-child may embrace a much firmer supporting system for self-worth than that of children with siblings. Therefore, the present study hypothesized that only-child, rather than children with siblings, would be immune from problem Internet use (PIU) when showing a preference for online social interaction (POSI).

#### 1.2. Moderated moderating effect of age cohort

The differences concerning the supporting resources of self-worth between only-child and children with siblings may decrease as youth grow old due to the lessening effect of parents. Specifically, the advantages that only-child enjoys, to a large extent, are contingent on the dominant impact of parents. As children grow, however, they would be less and less affected by their parents, and relied more on their extended social networks, including friends and colleagues (Collins & Laursen, 2004; Hostinar, Johnson, & Gunnar, 2015). Thus, there would be a decrease in only-child's self-worth advantages along with age. In the present study, we adopted two different age cohorts: adolescent (elementary and middle school students) and emerging adult (high school and college students). It was hypothesized that the moderating effect of sibling condition on the relationship between POSI and PIU may be further moderated by the children's age (see the model in Fig. 1).

Age not only moderates the moderating effect of sibling condition on the relation between POSI and PIU, but may also moderate the relation between POSI and PIU. As adolescents grow, they become increasingly independent and autonomous (Shaffer, 2008). Given the grater accessibility to computers among modern high school and college students, the supervision of guardian tends to become less and less weak (Douglas et al., 2008). Compared with adolescents, emerging adults suffer much more from academic, employment, and other psychological pressures caused by physiological development. This distress directly increases the risk of Internet addiction (Leung, 2007; Li, Zhang, Li, Zhen, & Wang, 2010). Moreover, unlike adolescents who seek for acceptance from peers, emerging adults aim to build lasting, steady, and quality interpersonal and romantic relationships (Bigelow & LaGaipa, 1980; Brown & Larson, 2009; Gummerum & Keller, 2008). Thus, online social interaction would bring less satisfaction to emerging adults than adolescents, causing adolescents to be more inclined to PIU. We



**Fig. 1.** The present study hypothesis model: the moderating effect of sibling condition and moderated moderating effect of age cohort between POSI and PIU.

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