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The relationship between life stress and smartphone addiction on taiwanese university student: A mediation model of learning self-Efficacy and social self-Efficacy

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ABSTRACT

Although numerous studies have examined factors that influence smartphone addiction, few have analyzed the potential protective factors inherent in individuals that may benefit future intervention programs for smartphone addiction. Thus, this study established a model for analyzing the mediating effect that learning self-efficacy and social self-efficacy have on the relationship between university students' perceived life stress and smartphone addiction. Sampling 387 Taiwanese university students, we distributed scales surveying for university students' life stress, learning self-efficacy, social self-efficacy, and smartphone addiction. Data retrieved from the scales were analyzed using structural equation modeling (SEM). The SEM path analysis yielded the following results: (1) Academic stress had negative predictive power for social and learning self-efficacies, and interpersonal relationship stress had negative predictive power for social self-efficacy. (2) Social self-efficacy had positive predictive power for smartphone addiction. (3) Family and emotional stresses had positive predictive power for smartphone addiction. Generally, the results of this study could be used to significantly predict the life stresses that influenced university students' smartphone addiction. In addition, social self-efficacy can be considered a cognitive mechanism that mediates the relationships between academic stress and smartphone addiction and between interpersonal relationship stress and smartphone addiction. Finally, we discussed the research results and offered relevant suggestions for schools, university students, and future studies.

1. Introduction

In the last decade, the number of studies investigating smartphone addiction has increased, and these studies have defined smartphone addiction using various terms. However, the majority of these studies focused on the potential influences that smartphone addiction has on individuals (Toda, Monden, Kubo, & Morimoto, 2006), and the relationship between smartphone addiction and relevant psychological predictive factors (Beranuy, Oberst, Carbonell, & Charmarro, 2009; Bianchi & Phillips, 2005; Ehrenberg, Juckes, White, & Walsh, 2008; Ezoe et al., 2009; Ha, Chin, Park, Ryu, & Yu, 2008; Hong, Chiu, & Huang, 2012; Jenaro, Flores, Gomez-Vela, Gonzalez-Gil, & Caballo, 2007; Walsh, White, Cox, & Young, 2011; Whiteside & Lynam, 2001), social influencing factors (Walsh et al., 2011), mobile phone usage behavior (Billieux, Linden, D'acremont, Ceschi, & Zermatten, 2007; Billieux, Linden, & Rochat, 2008; Hong et al., 2012; Walsh et al., 2011), and family environmental factors (Toda et al., 2008). Despite the considerable number of studies on smartphone addiction, none have analyzed the potential protective factors individuals possess, which could benefit future intervention programs for smartphone addiction.

Although stress was previously considered to be related to maladjustments such as emotional disorders and psychological distress, it has become an important predictive factor (Cohen, Kessler, & Gordon, 1995; Dougall & Baum, 2001; Maciejewski, Prigerson, & Mazure, 2000; Moeini et al., 2008; Rawson, Bloomer, & Kendall, 1994; Unger et al., 2001). In addition, stress is significantly correlated to poor health (Baldwin, Harris, & Chambliss, 1997) and depression (Unger et al., 2001) among adolescents. Sudden or long-term situations that people struggle to manage, such as disease, life events, and imposed demands, can predispose an individual to psychological or physical risks (Dohrenwend, 1998). Not only is life stress a known risk factor for substance dependence and addiction relapse (Sinha, 2008), but adolescents may develop addictions to cope with social stress (Orford, 2001). Therefore, a

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common correlation exists between stress and various types of addiction (Lam, Peng, Mai, & Jing, 2005). This study attempted to identify the life stresses that were likely to become risk factors for university students' developing an addiction to mobile phones.

Previous studies have found that people with low self-esteem (Bianchi & Phillips, 2005; Ha et al., 2008; Hong et al., 2012) and high anxiety (Bianchi & Phillips, 2005; Billieux et al., 2008; Butt & Phillips, 2008; Hong et al., 2012) are inclined to develop an addiction to mobile phones. People with social anxiety are more sensitive to interpersonal relationships and experience greater difficulty with face-to-face communication (Billieux et al., 2008; Ezoe et al., 2009). By contrast, high self-esteem and low social anxiety are positively correlated to frequent peer contact (McCarroll, Lindsey, MacKinnon-Lewis, Chambers, & Frabutt, 2009). Consequently, people with smartphone addiction may encounter difficulties with interpersonal adjustments, time management, and academic performance (Hong et al., 2012). In summary, this study contended that people with smartphone addiction may experience difficulties with interpersonal adjustments and academic performance.

Based on social cognitive theory, personal faith is self-regulating and serves as the foundation of personal agency. Personal faith can adjust human functional operations through cognition, motivation, affect, and career decisions, and provide individuals with the ability to influence their cognition, affect, and behaviors and shape their environments (Bandura, 1997). In addition, personal faith is correlated to diligence, persistence, and resilience, and characterizes personal behavioral traits in adverse environments. Thus, self-efficacy is believed to influence perceived life stress and the degree of involvement in a certain task or the execution of certain behaviors. Empirical research has found that a significant correlation exists between high self-efficacy and increased psychological well-being (Cheung & Sun, 2000; Endler, Kocovski, & Macrodimitris, 2001; Moeini et al., 2008; Schiaffino & Revenson, 1992; Shelley & Pakenham, 2004). Furthermore, previous studies have asserted that self-efficacy plays an important role in adolescents' psychological health (Muris, 2002; Muris, Schmidt, Lambrichs, & Meesters, 2001). This indicates that self-efficacy is a critical protective factor for psychological adjustment and health.

Because motivational beliefs are multidimensional, domain-specific, and mission-specific, different ability expectations are generated according to scenarios, subjects, and tasks (Bandura, 1986, 2006; Linnenbrink & Pintrich, 2002; Zimmerman & Cleary, 2006). Social self-efficacy is related to effective social behavior and widely adopted in the fields of psychological adjustment and psychological health (Iskender & Akin, 2010). Similarly, learning self-efficacy possesses strong predictive power for students' academic achievements (Bandura, 1997, 2000; Pajares & Kranzler, 1995; Pajares & Miller, 1995a). Therefore, social self-efficacy and learning self-efficacy may exert crucial influences on the likelihood of smartphone addiction for people with poor interpersonal adjustment and academic performance. To examine the potential psychological influencing mechanism between university students' life stress and smartphone addiction, this study established a model to identify correlations between variables. We hope that our model can provide a reference for reducing university students' life stress and smartphone addiction.

2. Literature review

2.1. Life stress and self-efficacy

Social cognitive theory asserts that personal capabilities may be used to evaluate the control of adverse events, and possesses centrality in its protective and enabling functions regarding posttraumatic recovery (Benight & Bandura, 2004). Self-efficacy may be considered as the way people respond to an external scenario, and relevant responses consist of personal behaviors and efforts that address problems regarding individual objectives (Schwarzer, Boehmer, Luszczynska, Mohamed, & Knoll, 2005). People with high self-efficacy are capable of managing personal functions and are inclined to adopt positive problem-focused coping strategies. Therefore, they appear to be less affected by stressful events. By contrast, people with low self-efficacy are inclined to apply negative coping strategies and, therefore, tend to be more affected by stressful events (Bandura, 1997; Luszczynska, Scholz, & Schwarzer, 2005; Schwarzer & Jerusalem, 1995). Previous studies have contended that self-efficacy plays a critical role in stress relief (Kreitler, Peleg, & Ehrenfeld, 2007; Matsushima & Shiomi, 2003; McCammon, Durham, Allison, & Williamson, 1988; Moeini et al., 2008). People with high self-efficacy are less likely to be influenced by extremely stressful scenarios (Heinrichs et al., 2005; Prati, Pietrantoni, & Cicognani, 2010; Regehr, Hill, & Glancy, 2000; Regehr, Hill, Knott, & Sault, 2003). Although people with high self-efficacy are less affected by stressful situations, this study further analyzed whether specific motivational beliefs in various domains can increase people's ability to cope with different life stresses. Based on a literature review, this study proposed the following hypotheses:

H1. Various life stresses negatively predict social self-efficacy.

H2. Various life stresses negatively predict learning self-efficacy.

2.2. Life stress and smartphone addiction

When an individual experiences internal or external stress, Internet addiction can be induced. Providing a distraction from stressful experiences, this addiction serves as a coping mechanism for stress. Young (2007) indicated that the impulsive behaviors of people with Internet addiction can be considered a reward that reduces emotional tension and facilitates future behavior. In other words, Internet addiction is converted into a strategy for alleviating daily pain and tension. This argument has been verified by empirical studies, which contend that Internet addiction is accompanied by other potential risk factors, such as alcoholism, dissatisfaction with one's family, and recent experiences of stressful events (Beranuy et al., 2009; Lam et al., 2005). Consequently, mobile phone users may employ smartphone addiction to relieve negative emotions and experiences caused by pain and tension in daily life. Thus, this study proposed the following hypothesis:

H3. Various life stresses positively predict smartphone addiction.

2.3. Self-efficacy and smartphone addiction

Because of the association between smartphone addiction and issues related to interpersonal relationships and academic adjustment, social and learning self-efficacies may be effective methods for preventing smartphone addiction. Social self-efficacy is significantly correlated to low social anxiety, loneliness, social dissatisfaction (Galanaki & Kalantzi-Azizi, 1999; Smith & Betz, 2000, 2002), and high self-esteem (Betz & Schifano, 2000; Connolly, 1989; Hermann & Betz, 2004, 2006; Smith & Betz, 2000, 2002). In addition, low self-esteem positively predicts problematic mobile phone use (Bianchi & Phillips, 2005), excessive mobile phone use (Ha et al., 2008), mobile phone involvement (Walsh et al., 2011), and smartphone addiction (Hong et al., 2012). Furthermore, high anxiety significantly predicts smartphone addiction (Bianchi & Phillips, 2005; Hong et al., 2012). Considering the significant correlation between social self-efficacy, smartphone addiction,