



Video game addiction and psychological distress among expatriate adolescents in Saudi Arabia



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ABSTRACT

Introduction: Few studies have estimated screen time among Arab adolescents, and no studies, to date, have published data on addiction to video games or Internet games among Arab adolescents. This study aimed to assess the prevalence of addiction to video games and its correlation with mental health in a sample of expatriate high school students from the Al-Qassim region of Saudi Arabia.

Methods: The survey was conducted in 2016 among 276 students enrolled in ninth through twelfth grades in the International Schools in Buraidah, Al-Qassim. Students who returned signed consent forms from their parents filled out a self-administered questionnaire that included validated scales on addiction to video games, general health, and lifestyle.

Results: The proportion between the sexes and the schools were roughly equal. Around 32% were overweight or obese, 75% had screen time ≥ 2 h/day, and 20% slept < 5 h/night. Sixteen per cent (16%) were addicted to video games and 54% had psychological distress. Addiction to video games was strongly associated with psychological distress (OR = 4.1, 95% CI = 1.80, 9.47). Other significant correlates were female gender, higher screen time, and shorter sleep hours.

Conclusions: The proportion of students with psychological distress was high. Future studies should investigate other potential correlates of distress such as personal traits, family relations, and academic performance.

1. Introduction

Video games are a popular source of entertainment among children and adolescents. Video games and the associated implications have become increasingly pervasive in societies around the world (Kuss, 2013). Several studies have examined excessive use of video games, and others have tried to characterize video game addiction as well as to distinguish between the former and the latter (Billieux, Schimmenti, Khazaal, Maurage, & Heeren, 2015; Kardefelt-Winther et al., 2017; Schou Andreassen et al., 2016). Video game addiction falls into the category of “Internet gaming disorder,” which is closely related to impulse control disorder and often compared with gambling addiction. Consensus has not officially been reached regarding its assessment and diagnosis (James & Tunney, 2017), and theoretically-driven research on behavioural addiction is sparse (Kardefelt-Winther et al., 2017). Currently within the DSM-5, Internet gaming disorder is considered to be the “persistent and recurrent use of the Internet to engage in games,

often with other players, leading to clinically significant impairment or distress as indicated by five (or more) criteria in a 12-month period” (American Psychiatric Association, 2013). The diagnostic criteria include a preoccupation with gaming, withdrawal symptoms, tolerance (i.e. spending more time gaming), lack of control, loss of other interests, use despite negative consequences, deception, mood modification, and losing a relationship, job, or similarly important aspects of life (American Psychiatric Association, 2013). Kardefelt-Winther et al. provides an operational definition of behavioural addictions that may provide useful guidance: “A repeated behaviour leading to significant harm or distress. The behaviour is not reduced by the person and persists over a significant period of time. The harm or distress is of a functionally impairing nature.”

Epidemiological studies provide us with estimates of the prevalence and correlates of video game addiction. The prevalence estimates of video game addiction vary widely across studies, but those focused on youth reported to be around 8% in the U.S. (Gentile, 2009) and

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Australia (Porter, Starcevic, Berle, & Fenech, 2010), 10% in China (Wang et al., 2014), 4% in Korea (Park, Jeon, Son, Kim, & Hong, 2017), and 3% in Germany (Rehbein, Kliem, Baier, Mößle, & Petry, 2015).

Cross-sectional studies that have compared people with Internet gaming disorders to those without the disorder reported that those with the disorders played games for longer periods, skipped school more often, had lower grades in school, reported more sleep problems and more often endorsed feeling 'addicted to gaming' than their counterparts (Greitemeyer & Mügge, 2014; Hale & Guan, 2015; Higuchi, Motohashi, Liu, & Maeda, 2005; Mak et al., 2014; Mei, Yau, Chai, Guo, & Potenza, 2016). The higher screen time that comes along with this video game addiction disrupts normal sleep pattern, resulting in a pattern with less sleep overall, longer time to fall asleep, and more interruptions during sleep (Hale & Guan, 2015; Higuchi et al., 2005; Hysing et al., 2015).

Video game addiction may have both short and long-term effects on adolescents, which span psychological, emotional, and neurological ramifications (Higuchi et al., 2005; Meng, Deng, Wang, Guo, & Li, 2015; Spada & Caselli, 2017). Several studies have shown that anxiety and depression are common among those who are addicted to video games (Schou Andreassen et al., 2016; Wei, Chen, Huang, & Bai, 2012; Wenzel, Bakken, Johansson, Göttestam, & Øren, 2009). Other research suggests that there are cognitive and neurological correlates of Internet gaming disorder (King & Delfabbro, 2014; Marino & Spada, 2017; Meng et al., 2015; Weinstein & Lejoyeux, 2015). There are strong cognitive reinforcements such as social acceptance, self-esteem, and goal achievement that perpetuate video game use (King & Delfabbro, 2014; Rasmussen et al., 2015). Brain imaging studies report that there are significant changes in the areas of the brain that regulate impulse control and decision making among individuals with Internet gaming disorder (Meng et al., 2015). Addicted video gamers who have poor self-control or poor social skills are more likely to exhibit aggressive behaviour (Anderson et al., 2010; Liau et al., 2015). This aggressive behaviour is shaped by the various psychological responses, such as anger, cruelty, or hostility, which video games, especially the violent types, typically invoke (Greitemeyer & Mügge, 2014). Furthermore, studies have shown that once an adolescent has become 'addicted,' the symptoms usually persist over time (Strittmatter et al., 2016). One longitudinal study showed that 84% of the adolescents who were addicted to video games at the baseline remained addicted to them two years later (Gentile et al., 2011). Longitudinal follow-up data suggests that these comorbid conditions are not a mere correlate, but a direct consequence of this addiction (Gentile et al., 2011).

The availability and use of electronic gadgets among the youth in Arab countries in the Gulf region are likely as common as elsewhere in developed countries (80% have a laptop or desktop; 67% of the remaining 20% who do not possess one have access to one) (Jacobson, Bailin, Milanaik, & Adesman, 2016). Published data related to video games is limited to studies that have focused on excessive screen time. Two Emirati studies and one Bahraini study reported the proportion of their study participants that had greater than 2 h/day of screen time was 37% (age 5–15 years), 85% (age 11–16 years), and 65% (age 15–18 years) respectively (Henry, Lightowler, & Al-Hourani, 2004; Musaiager, Bader, Al-Roomi, & D'Souza, 2011; Yousef, Eapen, Zoubeidi, & Mabrouk, 2014). The corresponding prevalence was even higher in Saudi Arabia (The Arab Teens Lifestyle Study, age: 14–19 years, male: 84%, female: 91%) (Al-Hazzaa et al., 2014). It is reasonable to assume that screen time and video game addiction could be correlated, but it is well-established that addiction and/or Internet gaming disorder is distinctly different from excessive use and should include the individual context and distress caused to the addict.

Little is known about screen time or video game addiction among the expatriate children in Saudi Arabia. They are the sons and daughters of expatriate professionals in Saudi Arabia, who represent a significant portion of current jobholders in the education, engineering, health, and business sectors in Saudi Arabia (Shah, 2009). Many of

these children go to schools that follow an English curriculum and do not speak Arabic; furthermore, it is likely that they engage in risky behaviours (e.g. smoking) and have limited physical activity (Al-Hazzaa et al., 2014; Asfour, Stanley, Weitzman, & Sherman, 2015). We hypothesize that social isolation, coupled with inclement weather, may force them to stay indoors more than they would otherwise, and they may resort to spending more time with the television, computer, cell phone, Internet, etc.

In order to address this gap in knowledge, we surveyed two expatriate schools in the Al-Qassim region of Saudi Arabia. We assessed their screen time and addiction to video games, along with other lifestyle practices, with validated questionnaires (Al-Hazzaa, Musaiager, & Group, 2011; Gentile, 2009). We further evaluated their psychological distress with the General Health Questionnaire (GHQ-28), a widely used screening tool (Sterling, 2011). We hypothesized that the prevalence of addiction to video games would be high in this population. In addition, based on the literature, we hypothesized that addiction to video games and higher screen time would be associated with higher psychological distress.

2. Method and measures

2.1. Sample

This cross-sectional study included 276 students who were enrolled in the Indian or Pakistani international secondary schools in the city of Buraydah in Al-Qassim province in Saudi Arabia. The inclusion criteria included (a) Non-Saudi, and (b) currently enrolled in either of the schools. The study protocol was approved by the ethics committee at Sulaiman Al-Rajhi Colleges (SRC) as well as by the respective school administrators.

2.2. Data collection

The researchers described the study's purpose and procedures to the students and provided them with the informed consent form to be signed by the parents. Out of 324 eligible students from these two schools, a total of 48 students did not return the signed consent form. Those who returned the consent ($n = 276$; response rate = 85%) were given the paper survey, which was self-administered.

2.3. Assessment

The survey included scales for video game addiction and a general health assessment. It also included a lifestyle questionnaire used previously in the Arab Teen Lifestyle Study (ATLS), which includes questions on diet, physical activity, screen time, and sleep (47-item) (Al-Hazzaa et al., 2011). Questions related to video game addiction did not have missing data, general health assessment had < 1% missing, and covariate data had < 4% missing.

2.4. Dietary habits

The diet section included 10 questions using a 7-point response scale ranging from none to seven times weekly. Each question stem addressed how often a particular food was eaten per week. The questions included homemade breakfast, fruits, vegetables, milk, fast food (e.g. hamburger, shawarma), french-fries, cookies, chocolate, sugary drinks, and energy drinks. The items were categorized as either healthy food choices or unhealthy food choices. The healthy food items included breakfast, fruits, vegetables, and milk; and the other items comprised the unhealthy food items. Summary scores were calculated for each of the categories: a) Healthy: 0 to 28, and b) Unhealthy: 0 to 42.

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