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Short Communication

Parental mental health and Internet Addiction in adolescents

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HIGHLIGHTS

- Dyad studies on parental risk factors of Internet Addiction in adolescents are few.
- This is a unique dyad study on the topic.
- Parental depression is related to the Internet Addition status of their children.
- Results are useful for early intervention of youth Internet Addiction.

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ABSTRACT

Purpose: This study aimed to investigate the relationship between parental mental health, particularly depression, and Internet Addiction (IA) among adolescents.
Methods: This was a population-based parent-and-child dyad health survey utilising a random sampling technique. Adolescent IA was measured by the Internet Addiction Test (IAT) designed by Young. The mental health status of the parents was assessed using the Depression, Anxiety, Stress Scale (DASS). Data were analysed using logistic regression modelling techniques with adjustment for potential confounding factors.
Results: A total of 1098 parent-and-child dyads were recruited and responded to the survey providing usable information. For IA, 263 (24.0%) students could be classified as at risk of moderate to severe IA. About 6% (n = 68), 4% (n = 43), and 8% (n = 87) of parents were categorised to be at risk of moderate to severe depression, anxiety, and stress respectively. Regression analysis results suggested a significant association between parental depression at the level of moderate to severe and IA in adolescents after adjusting for potential confounding factors (OR = 3.03, 95% C.I. = 1.67–5.48). On the other hand, no associations between parental anxiety and stress and child's IA were observed.
Conclusions: The result suggested that there was a significant relationship between parental mental health, particularly depression, and the IA status of their children. These results have direct implications on the treatment and prevention of Internet Addiction among young people.

1. Introduction

Internet Addiction (IA), although not yet recognised as an established disorder, has been considered as an emerging behavioural problem particularly among adolescents for decades (American Psychiatric Association, 2013; Lenihan, 2007; Young, 2010).

A number of factors, based on the Problem Behaviour Theory, have been suggested to be associated with IA among adolescents (Hopley & Nicki, 2010; Jessor, Costa, Kruger, & Turbin, 2006). Among these, there is a growing volume of studies in the literature on the relationship between familial and parental factors and IA among adolescents (Huang et al., 2010; Jang & Ji, 2012; Kalaitzaki & Birtchnell, 2014; Kwon, Chung, & Lee, 2011; Lam, Peng, Mai, & Jing, 2009; Li, Garland, & Howard; 2014; Lin, Lin, & Wu, 2009; Liu, Fang, Deng, & Zhang, 2012; Park, Kim, & Cho, 2008; Tsitsika et al., 2011; Van den Eijnden, Spijkerman, Vermulst, & Van Rooij, 2010; Xu et al., 2014; Yang, Sato, Yamawaki, & Miyata, 2013; Yen, Yen, Chen, Chen, & Ko, 2007). Various familial and parental factors were studied including: family relationship (Lam et al., 2009; Liu et al., 2012; Park, Kim, & Cho, 2008; Van den Eijnden et al., 2010; Yen et al., 2007); dysfunction family (Jang, & Ji, 2012; Lam et al., 2009; Tsitsika et al., 2011; Xu et al., 2014; Yen et al., 2007); parental attitudes, supervision or monitoring (Kwon, Chung, & Lee, 2011; Lin, Lin, & Wu, 2009; Park, Kim, & Cho, 2008; Van den Eijnden et al., 2010; Yang et al., 2013; Yen et al., 2007); and parenting styles (Huang et al., 2010; Kalaitzaki & Birtchnell, 2014; Liu et al., 2012; Xu et al., 2014). Results of a recent review study on familial factors and IA in youth suggested

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that there were significant relationships between divorced parents, single parent household, and being the only child in the family and adolescent IA (Xu et al., 2014). It was also highlighted that there were methodological shortcomings in the studies included in the review, and all these studies suffered from the same drawback with parental information collected through the report of the child, not from the parents per se.

It has been well established that mental health problems, such as Attention Deficit disorder, obsessive–compulsive disorder, depression, anxiety, and hostility, are co-morbidities of IA among adolescents (Huang et al., 2010; Ko et al., 2012; Yen et al., 2008) However, in the search for potential risk or protective factors of IA among young people, particularly among familial and parental factors, none of the studies in the current literature attempted to examine the role of parental mental health in adolescent IA. This study aims to bridge the knowledge gap through examining the relationship between parental mental health, with parental information obtained directly from parents and the IA among adolescents.

2. Methods

2.1. Study design and recruitment of the parent-and-child sample

This cross-sectional health survey was conducted among parent-and-child dyads in Hong Kong in March 2014 among 13–17 year old high school students. The sample was generated from the total student population of adolescents who attended high schools within a specific local school region. Two schools were randomly selected from the list of registered high schools to be the target schools. A class was also randomly selected from each grade, from grade 7 to 11, with all students and parents in the class invited to participate in the study. Informed consent was obtained from participants with a signed consent form indicating the wilful participation of the parent-and-child dyad. Institute ethics approval for the study was granted by the Hong Kong Institute of Education.

2.2. Measurements

The Parent's and Student's Health Survey Questionnaires included similar questions with some specifically designed for parents or students. Internet Addiction was assessed by the Internet Addiction Test (IAT, Young, 2014). The IAT is a 20 item self-reported scale and the design was based on the concepts and behaviours exhibited by pathological gamblers as definite by the DSM-IV diagnostic criteria. It includes questions that reflect typical behaviours of addiction. An example question is: "How often do you feel depressed, moody, or nervous when you are off-line, which goes away once you are back on-line?" Respondents were asked to indicate the propensity of their responses on a Likert scale ranging from 1 (rarely) to 5 (always). A study on the psychometric properties of the IAT suggested good reliability with Cronbach's alpha values ranged from 0.82 to 0.54 for various factors (Widyanto & McMurran, 2004). Based on the total scores calculated, the severity of addiction was then classified according to the suggested cut-off scores with 20–49 points as "normal", 50–79 points as "moderate", and 80–100 points as "severe" (Young, 2010). For ease of analysis, the variable was dichotomised into two categories: "Severe/moderate" and "Mild/normal" for both parent and child.

Parent's and child's mental health was measured using the Depression, Anxiety, Stress Scale (DASS), a fully validated and commonly used instrument designed for the assessment of stress, depressive symptoms, and anxiety with good psychometric properties including strong reliability and validity (Antony et al., 1988). The DASS was designed as a quantitative measure of distress along three axes, however, it was not meant to be a categorical assessment of clinical diagnosis (Antony et al., 1988). Nevertheless, the scale could be useful for identifying individuals who were of high risk of mental health problems. In this study the stress score of the individual was classified according to the recommended categorisation with 0–7 as "Normal"; 8–9 as "Mild"; 10–12 as "Moderate"; and 13 or above as "Severe or Extremely severe". For ease of analysis, the variable was also dichotomised into two categories: "Mild/normal" or "Moderate or above". The depression, anxiety, and stress of child were also assessed using the DASS. The validity of DASS has been demonstrated and has also been recommended for use among children and adolescents (Szabó & Lovibond, 2006).

Other information collected in the students' survey included demographics, location of family residence, whether the child was born in Hong Kong, and some detail on the means and patterns of accessing the Internet. For parents, questions on sex, age, occupation, and access to the Internet were also included in the questionnaire.

2.3. Data analysis

Data were analysed using the Stata V10.0 statistical software program. Descriptive analyses were conducted using percentages, means, and standard deviation. Bivariate analyses were conducted to examine unadjusted relationships between student's IA, all parent-and-child variables of interest, child's mental health, and parental mental health. With the main focus of analyses on the relationship between parental mental health and their children's IA, potential confounding variables identified from the bivariate analyses were included in further logistic regression analyses. A significant bivariate result with a $p < 0.10$ was used as the selection criteria of potential confounding variables. The adjusted relationship between parental mental health and child IA was further examined using the multiple logistic regression approach with the calculation of the 95% Confident Intervals (C.I.). To further examine the possible effect of modification between parental mental health and other variables on child's IA, in particular child's stress levels, the interaction terms were tested using a Type I error rate of 1%.

3. Results

A total of 1098 parent-and-child dyads were recruited and responded to the survey providing usable information and allowed matching of parent-and-child data. This represented a response rate of 95.3% of parents completing the questionnaire. Comparisons between those students with a respondent parent and those whose parent did not respond indicated no statistically significant differences in all demographics, including age, sex, grade, and place of birth. The parent-and-child characteristics and outcome measures of the respondents were summarised in Table 1.

In terms of mental health, about 19% ($n = 209$), 25% ($n = 251$), and 14% ($n = 157$) of students could be classified with moderate to severe depression, anxiety, and stress respectively. For parents, about 6% ($n = 68$), 4% ($n = 43$), and 8% ($n = 87$) were categorised as moderate to severe depression, anxiety, and stress respectively. In terms of the IA, 263 (24.0%) children could be classified as moderate and severe users.

The bivariate relationships between child IA, variables of interest and parental mental health were examined. The results were also summarised in Table 1. As shown, child IA was significantly associated with parental mental health, including depression, anxiety, and stress unadjusted for other potential confounding factors ($\chi^2_1 = 30.37$, $p < 0.001$; $\chi^2_1 = 15.93$, $p < 0.001$; $\chi^2_1 = 10.25$, $p = 0.001$). However, no other parental variables were related to the child's IA. Results suggested that age and sex of the child were significantly associated with their IA ($\chi^2_1 = 5.33$, $p = 0.021$; $\chi^2_1 = 8.54$, $p = 0.003$). Other students' variables, including owning a smartphone, daily access to the Internet, spending more than 3 h on the net, playing online games more than 3 h per day, visiting pornographic sites, sending or receiving offensive texts to images, short duration of sleep, and the their mental health, were significantly associated with student IA.