Smartphone addiction among Qatar University students: a cross-sectional study

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Background
Smartphone addiction (SPA) is an important emerging public health problem. SPA is defined as excessive smartphone use, which is associated with functional impairment in activities of daily living and substantial dependence-like symptoms.1,2 A growing number of studies have shown that SPA is associated with road traffic accidents and fatalities,3-5 higher stress scores,6-9 anxiety and depression disorders,7,8 poor social relationships,9,10 sleep disturbances,11 low physical activity,12-14 and fast food consumption and weight gain.15 Prior research suggests that adolescents and college students tend to use smartphones heavily,16,17 and were at higher risk of SPA than the general population. Prior studies have shown mixed findings with respect to the relationship between SPA and academic performance among college students.18-23 Other studies reported that SPA among college students was associated with higher stress scores,7 higher anxiety and depression scores,18,19 inadequate sleep duration,20 and lower academic behaviors, such as spending more time on food, lower levels of physical exercise, and increases in body weight.16 This highlights the importance of researching risk factors for SPA and the mechanisms underlying the potential relationships between SPA and negative outcomes of SPA and academic performance, health related behaviors, and psychological well-being among college students. In Qatar, recent estimates show that 95% of the general population and 86% of people aged 18-24 years reported using a smartphone. However, the prevalence of SPA among college students in Qatar is unknown. Identifying characteristics of students at risk of SPA and the extent to which SPA impacts on health and psychological well-being may shed light on potential underlying mechanisms and targeted preventative measures.

Methods
We used a cross-sectional study using a self-administered electronic or paper questionnaire. All undergraduate and graduate students registered in QU during Fall 2019 were included. The first part of the questionnaire collected the following information: age, gender, place of study, academic program (Bachelor, Master, PhD), year of study (1st to 6th year), employment status, chronic disease status (yes, no), current GPA, and daily duration of smartphone use in hours. The second part of the questionnaire measured SPA using the Smartphone Addiction Scale (SAS), which is a self-administered questionnaire that has been validated in English and Arabic.24,25 The SAS questionnaire asks participants to indicate to what extent do they disagree or agree with the 10 statements about their current smartphone use. The SAS questionnaire uses a 6-point Likert scale (strongly disagree, disagree, weakly disagree, weakly agree, agree, strongly agree). The overall SAS score ranges between 6 and 36 (higher scores indicate higher level of smartphone use among females and 21 in males are classified as SPA). The third part of the questionnaire used the General health Questionnaire 28 (GHQ-28) to assess mental health. The GHQ-28 measures the frequency of experiencing 28 behavioral items using a 4-point scale (0= "not at all", 1= "no more than usual", 2= "more than usual", 3= "very much more than usual"). The overall GHQ-28 score ranges between 0 and 84 (higher scores indicate higher level of psychological distress). The fourth part of the questionnaire asked the participants to indicate to what extent do they disagree or agree (6-point Likert scale) with 10 statements (Figure 2) about their perceived impact of smartphone use on their academic performance, learning, sleep at night, social activity, and physical and mental health.

Descriptive statistics were used to summarize the data. Multivariable logistic regression analyses were performed to examine the relationships between the predictor and the outcome variables. We used backwards elimination according to a stepwise complete method (paper and electronic) to assess for potential selection, response, and social acceptability biases. All analyses were performed using IBM SPSS statistics V25.