Effect of socio-economic status, family smoking and mental health through social network on the substance use potential in adolescents: a mediation analysis

H. Sajjadi, Z. Jorjoran Shushtari, S. Mahboubi, H. Rafiey, Y. Salimi

Social Welfare Management Research Center, University of Social Welfare and Rehabilitation Sciences, Tehran, Iran
Student research committee, University of Social Welfare and Rehabilitation Sciences, Tehran, Iran
Department of Social Welfare Management, University of Social Welfare and Rehabilitation Sciences, Tehran, Iran
Department of Epidemiology, School of Public Health, Kermanshah University of Medical Sciences, Kermanshah, Iran

Article history:
Received 26 August 2017
Received in revised form
9 January 2018
Accepted 9 January 2018

Keywords:
Socio-economic status
Social network quality
Mental health disorder
Substance use potential
Adolescents

Objectives: Understanding pathways that influence substance use potential (SUP) can help with effective substance use prevention interventions among adolescents. The aim of the present study is to contribute to a better understanding of the SUP of adolescents by examining the mediating role of social network quality in the SUP of Iranian adolescents.

Study design: A cross-sectional study.

Methods: Structural equation modeling was conducted to assess the hypothesized model that social network quality would mediate the association of family socio-economic status, a mental health disorder, and family smoking with addiction potential.

Results: The model shows a good fit to the data. Social network quality mediated the effect of family smoking on the SUP for boys. A mental health disorder had a positive significant direct effect on addiction potential for both girls and boys.

Conclusions: Social network quality mediates the effect of family smoking on boys' addiction potential in the context of Iran. Educational programs based on local societal ways and cultural norms are recommended to change tobacco smoking behavior among family members. In addition, to prevent subsequent substance use among adolescents, more effort is needed to improve their mental health.

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Introduction

Substance use disorder as a behavioral health issue among adolescents is a major health concern worldwide. According to the evidence, substance use disorder makes a substantial contribution to the global burden of diseases.1–3 Although there are no official statistics in Iran regarding the prevalence of smoking and drug use among adolescents, the results of different studies indicate that the prevalence of smoking and drug use in adolescents is not low. A study involving 3318 high school students in southeastern Iran reported that the prevalence of drug use among boys and girls was 26.5% and 11.5%, respectively.4 Owing to rapid changes in their physical and mental status, adolescents are one of the more sensitive groups who need more attention from family, school, and society. Most of people’s positive (e.g. diet, exercise, etc.) and negative health behaviors (e.g. alcohol use, smoking and drug use, etc.) are usually initiated and shaped during adolescence. According to the evidence, the start of negative health behaviors such as smoking and drug use in adolescence can increase the risk of diseases and even premature death in adults.5 There are a large number of published studies that describe the role of a family’s socio-economic status (SES), family smoking, and mental health in adolescents’ substance use.6–12 Several studies have shown that a history of substance use and tobacco smoking in a family is associated with an adolescent’s substance use disorder.9,11,13–15 In addition, mental health disorders may have important roles in adolescents’ likelihood to engage in substance use behavior.9,11,16 Patel et al. reported that poor mental health was strongly associated with several health concerns for young people, including substance use.17 In addition, one study found that a mental health disorder can mediate the association between SES and adolescents’ substance use.12 In addition, extensive evidence exists to support the association between social networks and health outcomes such as alcohol use, drug use, and cigarette smoking among adolescents.18–23 For example, one of the studies indicated that adolescents in networks of small size and with a higher frequency of cigarette smoking were more likely to smoke cigarettes and use marijuana.24 Our theoretical model in the present study is based on an existing literature review. Most of the studies in the literature on adolescents focus on cigarette smoking, alcohol use, and substance use; it seems that an important gap in the knowledge is to understand the substance use potential (SUP) as it can be the main cause of starting cigarette smoking and drug use in adolescents. In addition, there is little information about the mediating role of social network quality and the effect of a mental health disorder and family smoking status on the SUP of adolescents.25 Social network quality is defined as ‘a level of risk or protection in a network for negative health behaviors such as smoking or substance use.’25 Although many studies find girls have a lower risk of the SUP than boys, some studies find the opposite.26,27 According to our knowledge, there is no published study that has considered sex differences in the relationship between both a mental health disorder and social network and the SUP using mediation analysis. Given the magnitude of clinical and public health evidence about adolescents’ substance use, it seems that considering a comprehensive approach to understand the related individual and group-level determinants of the SUP is necessary to prevent substance use in adolescents. Knowing about the mediation role of the social network may help researchers to determine possible mechanisms that can be effective in the delivery of prevention interventions. The present study expands on previous research by exploring the contribution of family SES and a mental health disorder on adolescent SUP in Tehran. In addition, this study investigates boys and girls separately to illustrate potential gender differences in direct and indirect associations between SES, a mental health disorder, and adolescents’ SUP.

Methods

This population-based cross-sectional study was conducted among 632 high school students in Tehran city from December 2015 to May 2016. The study covered a representative sample of male and female students. The eligibility criteria were as follows: aged between 15 and 18 years, being a student in the second or final year of a three-year high school program, and attending the selected school for at least six months; adolescents with current substance use were excluded. Multistage sampling was used to select geographical regions, zones, schools, and students. In stage 1, according to different geographical regions (north, south, east, and west), one zone was chosen randomly from each region. In stage 2, in selected zones, two educational areas were randomly chosen, and a total of eight educational areas were included. In the next stage, one boys’ school and one girls’ school were randomly selected from each educational area. Design effect was considered too. Informed consent was obtained from all students and their parents. Ethics approval for this study was obtained from the ethical review board of the University of Social Welfare and Rehabilitation Sciences (IR.USWR.REC.1393.83).

Measures

Addiction potential scale (APS)

To assess addiction susceptibility, the APS was utilized. The APS was developed based on the Minnesota Multiphasic Personality Inventory-2.28 The APS is a 2-point scale (0–1) that is used as a tool for detecting the potential to develop drug or alcohol abuse problems. Psychometric studies of the APS in students have shown good reliability and validity.29 In this study, Cronbach’s alpha coefficient was 0.86.

Family SES

We conducted a polychoric principal component analysis to calculate a composite measure of family SES.30,31 The six items were mother’s education, father’s education, mother’s occupational status, father’s occupational status, house ownership, and household size. The first component of the polychoric principal component analysis with the highest eigenvalue was used as a proxy for the SES of the households. The first component scores were categorized in terciles and used in the analysis.
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