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The Most Influencing Factors for Cigarette Smoking Among Adolescents: A Systematic Review

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ABSTRACT

Cigarette smoking is a major public health problem in the world, and smoking leads to diseases and disabilities and harms nearly every organ of the body. All forms of cigarettes are harmful, and there is no safe level of exposure to tobacco. Nicotine is one of the toxic chemicals found in tobacco and can cause carcinomas. A significant number of students experimented for the first time with cigarette smoking in adolescence. Cigarette smoking during adolescence causes significant health problems, such as an increase in the number and severity of respiratory illnesses, decreased physical fitness, and potential effects on lung growth and function. The participants who smoked had poor academic performance, drank alcohol, were sexually active, and were more likely to smoke with other adolescents. This study aims to identify the most influencing factors for cigarette smoking among adolescents. This systematic review included literature from 2017 to 2022 through databases such as PUBMED, CINHAL, and MEDLINE. The review includes six studies that revealed the influencing personal, environmental, and community factors for cigarette smoking among adolescents through multivariate logistic regression and path analyses

in several countries. The probability of smoking was found to be higher among adolescents with male gender, high body mass index, social anxiety, high grades, sufficient pocket money, and positive attitudes toward smoking. Peer smoking, second-hand smoking (SHS) exposure, smoker parents, free cigarettes from tobacco companies, the indigenous population, and parenting patterns were found as influencing factors to combat the threat of cigarette smoking among adolescents. To combat the threat of cigarette smoking among adolescents, gender- and culture-sensitive prevention programs are required.

1. INTRODUCTION

Cigarette smoking is a major public health problem worldwide, accounting for 100 million deaths in the 20th century (Alqahtani et al., 2019). Scientific data indicate the harmful effects of smoking and identify its contributions to the emergence of various types of cancers (Schuller,2019). Cigarette smoking is the most common form of tobacco use worldwide (World Health Organization, (WHO), 2021). The scientific data indicate the harmful effects of smoking and identify its contributions to the emergence of various types of cancers (Schuller, 2019). According to the American Lung Association (2018), cigarettes contain about 600 ingredients, and they produce 7000 chemicals on combustion, and 69 of these chemicals can cause carcinomas. Nicotine is one of the toxic chemicals found in tobacco smoke (American Lung Association, 2018). If the pattern of smoking all over the globe does change, more than eight million people a year will die from diseases related to cigarette smoking by 2030 (Centers for Disease Control Prevention, CDC, 2022). It is considered that many various potential correlates of susceptibility to smoking include socio-demographic and economic factors (Polanska et al., 2022) information related to Secondhand Smoking (Polańska et al., 2016) knowledge and attitudes regarding tobacco use (Jallow et al., 2018), exposure to smoking advertising (Fulmer et al., 2015) and educational issues related to health consequences of smoking. However, most adult smokers started smoking in their teenage or adolescent years.

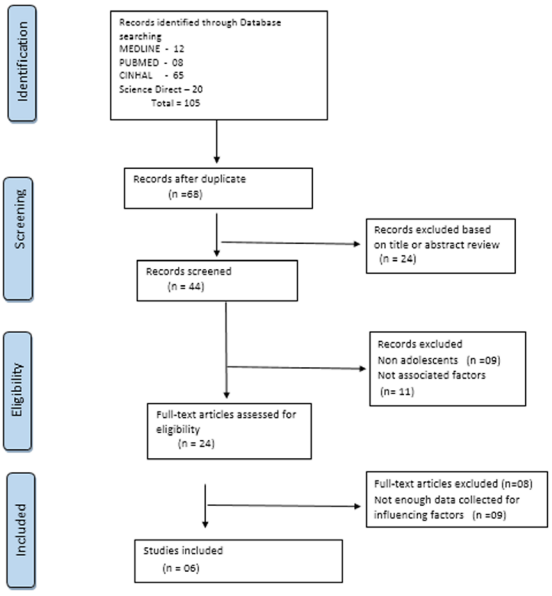
Global Youth Tobacco Survey (GYTS) results from 2013 and 2018 showed a significant increase over this period in the use of cigarette smoking among 13 to 15-year-old students, from 7.9% in 2013 to 9.1% in 2018 (Public Health Institute of the Republic of Srpska, 2019). The existing data indicates that 88 % of adult smokers start smoking before the age of 18 (The Surgeon General, 2016). According to Todorovic et al. (2022), a significant number of students experiment for the first time with cigarette smoking at the age when they enter university. Cigarette smoking during adolescence causes significant health problems, an increase in the number and severity of respiratory illnesses, decreased physical fitness, and potential effects on lung growth and function (Department of Health and Human Services, 2014). The perception of cigarette smoking as trendy and cool and the access to advanced-technology electronic products, such as electronic cigarettes influence adolescents to use cigarettes. Second-hand smoking exposure, peer smokers, and the offer of free cigarettes to adolescents combined to influence youth smoking need comprehensive control urgently. Although various social and behavioural factors of smoking have been identified globally, there is a need to understand the country-specific risk factors of smoking, especially among adolescents (Todorovic et al., 2022). Hence, it is essential to identify the factors associated with adolescent smoking behaviour and take measures to reduce smoking (Pengpid et al., 2020). Therefore, this study aims to determine the most influencing factors for cigarette smoking among adolescents. Therefore, it is understood that more comprehensive antismoking acts

and effective strategies are required to prevent adolescent cigarette smoking. Thus, this study identifies the most influencing factors for cigarette smoking among adolescents. The specific objectives of the study include identifying the personal and socio-cultural factors that influence cigarette smoking among adolescents. The study findings would lead to further research to find out the comprehensive interventions to increase awareness of the harmful effects of smoking among adolescents and interrupting access to cigarettes through social networks can reduce cigarette smoking among adolescents.

2. METHODOLOGY

This is a systematic review that directly focuses on influencing factors for cigarette smoking among adolescents. According to the systematic review process, the framework of opulation, Exposure and Outcome (PEO) was used for the formulation of the research question while "Population" includes adolescents, "Exposure" mentions cigarette smoking and the "Outcome" comprises the most influencing factors of cigarette smoking. A literature search of this study was conducted to obtain relevant literature for the study utilizing several databases such as PUBMED, CINHAL, MEDLINE, and Science Direct. The studies, which were published between 2018 and 2022, investigated the most influential determinants of cigarette smoking among adolescents. Keywords such as cigarette smoking, adolescents, and influencing factors were utilized to discover relevant studies throughout the literature search. Using these keywords, 105 related publications were discovered, including 12 papers from MEDLINE, eight from PUBMED, 65 from CINHAL, and 20 articles from Science Direct. The review includes international English-language publications published between 2018 and 2022 that analyzed the most influential factors for cigarette smoking among adolescents both male and female, worldwide. The studies conducted before 2017, and tobacco components except cigarettes were not included in the literature search. Duplicate articles were also excluded from this search. Following this procedure, a total of 37 duplicate articles were removed from the filtered literature, reducing the number of relevant articles to 68. The number of related articles was reduced to 24 after completing another eligible review of the selected 68 articles. Finally, the 24 publications chosen from the search databases were filtered based on their methodological quality and research findings. Using the PRISM flow chart, six research articles were finally selected. A PRISMA flow chart was designed to show the full transparency of the review process of the current study which is given in Figure 1.

Figure 1: PRISMA flow chart of the article selection



Data extraction allows reviewers to work with the raw data from the original authors and their interpretations to conduct arguments in the systematic review of their findings (Butler et al., 2016). Following a thorough assessment of all included original studies on the influencing factors for cigarette smoking among adolescents, relevant data was extracted to find the answer to

the research question (Taylor et al., 2020) of the current study. Data synthesis is another important aspect of a systematic review (Berg et al., 2013) and the data were synthesized by combining the findings of six research studies. In the current study, findings from selected primary research relevant to the influencing factors for cigarette smoking among adolescents were synthesized.

3. RESULTS

This review will involve six publications. Six of them are cross-sectional studies, while the rest are thematic review studies. These articles were also critically evaluated with the CASP (Critical Appraisal Skill Program) tool.

Table 1: CASP (Critical Appraisal Skill Program) tool

Lim et al. (2019)	Joung & Chung (2019)	Authors and Date
Smoking susceptibility among nonsmoking school-going adolescents in Malaysia: findings from a national school-based survey	Factors affecting cigarette smoking among adolescents in South Korea, Vietnam, and Thailand.	Article Question
13980 non-smoking school-going adolescents.	7th to 9th grade students in South Korea [N = 4,228], 8th to 10th grade students in Vietnam [N = 3,552], and students in Thailand [N = 1,872]	Sample Size
A cross-sectional study	A cross-sectional descriptive design.	Methods
various findings that reported an association and causal relationship between smoking scenes in movies and smoking initiation among adolescents, as well as several human behavioural theories such as social learning theory and contextual effect theory.	The findings suggest that personal, familial, social, and public area characteristics are associated with smoking among adolescents from these nations.	Results

Polanska et al. (2022)	Todorovic et al. (2022)	Liang et al. (2022)	Park et al. (2022)
Susceptibility to tobacco use and associated factors among Youth in five central and Eastern European Countries	Prevalence of Cigarette Smoking and Influence of Associated Factors among Students of the University of Banja Luka.	Influence of Personal, Environmental, and Community Factors on Cigarette Smoking in Adolescents: A Population-Based Study from Taiwan.	Factors Influencing Smoking among Multicultural Adolescents.
10783 participants	1200 students	27,524 participants	57,303 participants
Random-effect meta-analysis	The Cross-sectional study	The population-based cross-sectional analysis study.	a cross-sectional survey.
Exposure to passive smoking in public places was associated with increased susceptibility to tobacco use among the studied populations	The multivariate logistic regression analysis revealed that variables such as medical school, accessible funds, second-hand smoking at home, second-hand smoke in the faculty, and second-hand smoke in public places can all influence the outcome.	The following factors were prominently and positively associated with adolescent cigarette smoking; personal, community, and environmental factors.	the statistically significant variables of general characteristics, health risk behaviours, and mental health to determine the factors influencing smoking in multicultural adolescents

All six articles explained many influencing factors associated with cigarette smoking among adolescents worldwide. Mainly socio-demographic, economic, environmental, and

community factors were detected. The first study, it is demonstrated that personal, familial, social, and public area characteristics are associated with smoking among adolescents from South Korea, Vietnam, and Thailand (Joung and Chung, 2019). According to the second study, smoking susceptibility was 34% greater among male adolescents who had ever seen someone smoke in school, and the chance of smoking susceptibility was significantly higher among individuals who had encountered and found appealing cigarette promotions at points of sale (Lim et al., 2019). The third study emphasized that adolescents from multicultural families are more vulnerable to psychological stress as a result of complicated issues such as cultural conflicts and differences in appearance (Park et al., 2022). The fourth study soundly reflected community characteristics, adolescents from areas where tobacco companies offered free cigarettes presented significantly higher smoking risk than those from other areas such as free cigarettes from tobacco companies, home SHS exposure, smoker friends, SHS exposure outside of the home and school, indigenous population, smoker parents, and pocket money (Liang et al., 2022). The final study emphasized a variety of potential predictors of smoking susceptibility, such as socio-demographic and economic factors, information about second-hand smoking, knowledge and attitudes about cigarette smoking, pro and anti-tobacco media advertising, and educational issues about the health consequences of smoking (Polanska et al., 2022). To conclude, the most influencing personal factors for cigarette smoking, male sex among adolescents, and high grade and sufficient pocket money were identified. As the most influencing socio-cultural factors, the myth that smoking is good for socialization, parent and peer smoking, second-hand smoking at home and public places, and cigarette promotions at points of sale were identified.

4. DISCUSSION

4.1 Personal Characteristics

Male adolescents were more likely than female adolescents to smoke in all nations. These findings are identical to gender differences in cigarette smoking among adult populations around the world (Drope et al., 2018). While men tend to smoke more than women generally, the gender disparity in cigarette smoking prevalence is higher in Asian countries than in other regions (WHO, 2017). Women's societal acceptance of smoking is low in the socio-cultural setting. In contrast, smoking is equally acceptable among men and women in many Western countries (Liang et al., 2022). In a Canadian study, disparities in smoking initiation by boys and girls were linked to different social and cultural situations, as well as familial influences such as a parent or sibling smoking (Sylvestre et al., 2017). To reduce smoking prevalence, suitable interventions that address the specific characteristics of the smoking habit for each gender are required.

Adolescents in higher grades were more likely to smoke in all countries (Chung & Joung, 2014). Adolescents who are stressed out tend to smoke at a higher rate (Song et al., 2017). Another significant conclusion of the study conducted by Chung and Joung (2014) was that students with more money were more likely to smoke cigarettes. This reflects the findings of a study conducted in Yemen, a low-income country where family income is a strong predictor of smoking among university students (Nasser et al., 2018). Nasser et al. (2018) noted that in most research, adolescents from higher socioeconomic status families were at an increased risk for cigarette smoking and had a direct association between cigarette smoking and children having higher grades of pocket money. Parents should pay closer attention to how their children spend their pocket money.

4.2. Socio-cultural Characteristics

Adolescents who thought that smoking was not socially beneficial were more likely to smoke (Sylvestre et al., 2017; Lee et al., 2015; El-Toukhy et al., 2016). Further, Polanska et al. (2022) stated that tobacco made people feel more at ease at celebrations, parties, or other social events, and those who emphasized the attractiveness of smokers in their peer groups in some countries were at higher risk of susceptibility to cigarette use. Increasing access to anti-tobacco information in schools can help pupils to understand the dangers of smoking and develop their anti-tobacco attitudes (Huong et al., 2016). As a result, efforts should be directed toward changing beliefs, norms, and acceptance of tobacco use.

Adolescent smoking can be influenced by parents and peers. Having smoking parents and friends was positively related to adolescent smoking initiation (Global Youth Tobacco Survey, 2019). If at least one parent smokes, the risk of smoking in childhood and adolescence doubles, and the risk nearly triples when both parents smoke and adolescent smoking behaviour might also be influenced by their social development (Bee et al., 2011). Peer networks and their effect are particularly significant during adolescence for both engaging in and abstaining from risk-taking behaviours (Cable et al., 2017). According to this study, friends and same-grade peers had a greater influence on older adolescents. Furthermore, smoker parents and friends were significant predictors of all types of SHS exposure (Vitoria et al., 2020). Adolescents in all nations who had SHS at home were more likely to smoke cigarettes. Furthermore, SHS at home was a major risk factor for cigarette smoking. Veeranki et al. (2014) found a significantly increased risk of Secondhand Smoke (SS) in individuals who had SHS exposure at home and in places other than the home in their global investigation. SHS exposure in indoor public spaces was found to be a significant risk factor for cigarette smoking among South Korean adolescents (O'Loughlin et al., 2017; Sylvestre et al., 2017). SHS exposure in a variety of settings, including cars (Sylvestre et al., 2017) may influence the onset of smoking habits in children and adolescents. To minimize SHS exposure in public areas, notices of rigorous prohibitions on smoking in indoor public spaces should be displayed.

The possibility of susceptibility (PoS) to smoking was significantly higher among those who had met and found appealing tobacco promotions at points of sale (PoS). According to Stephanopoulos et al. (2014), adolescents who saw advertisements at PoS during store visits had a more than threefold greater risk of smoking susceptibility. PoS cigarette marketing is intended to promote memorability through the mechanism of the mere exposure effect, which is based on the individual's limited cognitive resources for perceiving, processing, and remembering the information in their environment (Robinson et al.,2016). Tobacco product memory is enhanced by both direct (exposed cigarettes) and indirect (brand image) visual smoking cues, as well as related material such as taglines, marketing messages, and health warnings. Further limitations included the fact that certain relevant research was not available in full text, was not free to download, and was related to unrelated studies.

5. CONCLUSION

The current findings are mostly influencing personal factors for cigarette smoking were male sex among adolescents and having high grades and sufficient pocket money. The myth that smoking is good for socialization, parent and peer smoking, second-hand smoking at home and public places, and cigarette promotions at points of sale were identified as the most influencing socio-cultural factors for cigarette smoking. Our findings highlight the significance of having policies, strategies, and action plans in place to ensure a smoke-

free environment. Furthermore, to combat the threat of cigarette smoking among adolescents, sex- and culture-sensitive prevention programs emphasizing various social and behavioural factors are required. Schools and family institutions should aggressively promote tobacco-free living by making it clear that tobacco use is not acceptable. Since this has been demonstrated to be an essential preventive factor for smoking experimentation and initiation, all schools should implement a smoking prevention program, such as integrating lectures on the health impacts of smoking into the school curriculum. In addition to school-based tobacco prevention programs at all levels. In addition to enforcing existing legislation, additional steps to reduce social acceptance of smoking and establish a non-smoking trend are required.

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