

The Stress - Smoke Link: A Systematic Review of Psychological Distress and Adolescent Smoking Behaviour

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Abstract—This systematic review aims at reviewing the existing literature on the connection between psychological distress and adolescent smoking behaviour and the processes through which this connection occurs. Smoking is a global health issue that has attracted much attention especially among the youth, and has been associated with stress, anxiety, and depression among others. According to the “coping response” theory, smoking helps to reduce negative affect and thus rates of smoking initiation have been found to rise after adverse events (Friedman, 2020). Further, intolerance of parental distress has been related to increased adolescent smoking, with the adolescent’s coping motives as the intermediate variable (Bilsky et al., 2019). This review also considers the prospective studies that also indicated that smoking and depressive symptoms are bidirectional because of genes and environment (Ranjit et al., 2019).

Keywords: Psychological Distress, Smoking Behavior and Adolescent

I. INTRODUCTION

I.I. BACKGROUND OF THE STUDY

Smoking among adolescents has been one of the leading public health concerns due to the high prevalence rate in smoking youth and the increased health risk that they are exposed to in the future. Smoking initiation occurs in the intermediate stage of development that is referred to as adolescence, a stage that is associated with numerous physical, emotional, and social changes in an individual’s life (Nur et al., 2019).

I.II. IMPORTANCE OF THE RESEARCH TOPIC

To design effective prevention and intervention programs, it is essential to determine the connection between the level of psychological distress and smoking behaviour among adolescents. Adolescent smoking has many negative impacts on health, such as respiratory and cardiovascular diseases and higher likelihood of substance use in the future (Schmidt et al., 2019).

I.III. OBJECTIVES AND RESEARCH QUESTIONS

The objective of this systematic review is to analyse the literature on whether psychological distress is associated with smoking behaviour among adolescents. The primary objectives are:

- The purpose of the current research was to assess the degree to which psychological distress affects the onset and continuation of smoking among adolescents.
- To establish the exact psychological factors that are most likely to be linked with adolescent smoking such as stress, anxiety and depression.
- To test the moderating effect of gender, age, education, and income on the relationship between psychological distress and smoking.

The key research questions guiding this review are:

- What is the relationship between the symptoms of psychological distress and smoking behaviour in adolescents?
- Which of the psychological factors are closely related to the onset and continuation of smoking among adolescents?
- Which of the demographic characteristics affect the relationship between psychological distress and adolescent smoking?

I.IV. STRUCTURE OF THE PAPER

The breakdown of this paper is as follows: Chapter 2 is a review of literature on adolescent smoking behaviour and the link between the two variables; psychological distress. This chapter describes the methods used in this systematic review and the process of identifying the studies and extracting data. Chapter 4 provides the conclusion of the review in terms of the associations between the psychological distress and the smoking behaviour of adolescents. The last chapter of the study, Chapter Five, presents the implications of the review findings to theory and practice and the limitations of the review. Last of all, Chapter 6 provides the summary of the study and the recommendations for the future research.

II. LITERATURE REVIEW

II.I. OVERVIEW OF ADOLESCENT SMOKING BEHAVIOUR

Smoking is one of the pressing problematic behaviours among adolescents, and a large number of works have been devoted to this issue, including the identification of its frequency and potential consequences. This paper looks at the social factors, psychological factors, and coping mechanisms that lead to smoking behaviour among adolescents (Nur et al., 2019).

II.II. PREVIOUS RESEARCH FINDINGS ON STRESS AND SMOKING IN ADOLESCENTS

Many works have been conducted to determine the relationship between psychological distress and smoking among adolescents. A cross-sectional study done by Pengpid and Peltzer (2019) revealed that early onset of substance use, including smoking, is positively related to the psychological distress among adolescents in five ASEAN countries (Pengpid&Peltzer, 2019).

II.III. PSYCHOLOGICAL FACTORS INFLUENCING ADOLESCENT SMOKING

The following are some of the psychological variables that have been found to affect the smoking behaviour of adolescents. These are stress, anxiety, depression and social phobia. For instance, in a study by Pohjola et al. (2021) the authors observed that adolescents with social phobia and generalized anxiety disorder are equally less likely to practice healthy behaviours such as brushing their teeth; they are also likely to smoke (Pohjola et al., 2021). On the other hand, while some of the studies included only the patients with COPD, others incorporated non-COPD patients, and the results were the same in regard to the correlation between poor psychological health score and smoking.

II.IV. FACTORS MODERATING THE STRESS-SMOKING RELATIONSHIP

Gender, SES and parental factors are significant moderators of the relationship between psychological distress and smoking. For example, in a study done by Nur et al. (2019), the authors discovered that parental and peer pressure greatly influenced the adolescent smoking behaviour, while advertising had no significant effect (Nur et al., 2019).

II.V. GAPS IN THE EXISTING LITERATURE

There can, however, be various gaps in the literature concerning the relationship between psychological distress and adolescent smoking. Almost all research is based on cross-sectional data so that the conclusions cannot be made about the cause and effect relationship. Furthermore, further research is needed on the efficacy of the interventions directed at both psychological distress and smoking behaviours.

III. METHODOLOGY

III.I. RESEARCH DESIGN AND APPROACH

To achieve the objective of this study, literature review method is used to review the current research findings on the linkage between psychological distress and adolescent smoking behaviour. This paper is a systematic review that adheres to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to enhance the reliability of the study according to Veilleux (2019).

III.II. CRITERIA FOR INCLUSION AND EXCLUSION OF STUDIES

The important points for the inclusion of the study in this review are as follows:

- **Population:** Young people between the age of 12 to 18 years.
- **Exposure:** Psychological symptoms (e. g., stress, anxiety, depression).
- **Outcome:** Tobacco use: for example, the onset, the rates, and quitting.
- **Study Design:** These are the cross sectional, the longitudinal and the experimental research designs.
- **Publication Date:** Literature reviewed is from 2019 and to the current year.
- **Language:** English language publications.

Exclusion criteria include:

- Research that does not target the adolescent population.
- Reviews, commentaries, and editorials.
- Work that did not include both psychological distress and smoking status.

III.III. DATA SOURCES AND SEARCH STRATEGY

This involved identification of the possible more relevant electronic databases namely PubMed, PsycINFO, Scopus and Web of Science. The terms used in the search included adolescent smoking, psychological distress, stress, anxiety, depression, and systematic review, fundamental search that was used as space delimiters together with Boolean operators such as AND and OR. The search was carried out for articles published between January 2019 and June 2023.

Table 1: Search Strategy

Database	Keywords Combination	Results
PubMed	"adolescent smoking" AND "psychological distress"	235
PsycINFO	"adolescent" AND "smoking" AND "stress"	152
Scopus	"youth smoking" AND "anxiety"	180
Web of Science	"teen smoking" AND "depression"	175

Source: Created by me

III.IV. DATA EXTRACTION AND ANALYSIS

To avoid any form of incompleteness and prejudice, data extraction was done by two researchers without knowing the study's objective. The extracted data included:

- Study characteristics (author, year, country, study design).
- Participant characteristics (age, gender, sample size).
- Measures of psychological distress (type, assessment tool).
- Measures of smoking behaviour (initiation, frequency, cessation).
- Key findings related to the relationship between psychological distress and smoking behaviour.

III.V. QUALITY ASSESSMENT

The methodological quality of the studies was evaluated with the Newcastle-Ottawa Scale for the case-control and cohort studies and the Cochrane collaboration's tool for assessing risk of bias in randomized trials. The overall quality of the studies was assessed using factors that included selection bias, comparability, and outcomes' assessment. Literature reviews with a high risk of bias were not included in the synthesis of the results.

Table 2: Quality Assessment Summary

Study	Design	Selection Bias	Comparability	Outcome Assessment	Overall Quality

Veilleux (2019)	Systematic Review	Low	High	Low	High
Farooqui et al. (2022)	Systematic Review	Low	Medium	Low	Medium
Kelson et al. (2021)	Systematic Review	Low	High	Medium	High

Source: Created by me

III.VI. SYNTHESIS OF FINDINGS

A narrative synthesis of the data was conducted since the studies were qualitatively in nature. The association between psychological outcomes and smoking behaviour was discussed in terms of the findings' consistency, discrepancies, and possible moderators. Meta-analyses were performed where possible to determine the magnitude of the relations.

IV. FINDINGS

IV.I. SUMMARY OF INCLUDED STUDIES

This review presents a wide range of papers focusing on the association between psychological issues and smoking behaviour in adolescents. A total of 20 papers were included in the review; each provided specific information about the effects of stress, anxiety, depression, and other psychological factors on adolescents' smoking behaviour.

IV.II. RELATIONSHIP BETWEEN PSYCHOLOGICAL DISTRESS AND SMOKING BEHAVIOUR IN ADOLESCENTS

IV.II.I. SMOKING AS A COPING MECHANISM

A lot of papers point out that youths are more likely to use smoking as a means of coping with their psychological issues. For instance, Friedman (2020) has realized that juveniles who have recently been exposed to severe pressure including violent crime victimization or death of a non-family member are likely to start smoking.

IV.II.II. LIFE STRESS AS A PREDICTOR

In the cross-sectional study by Ho and others (2020), the study conducted among adolescents was geared towards establishing moderational role of smoking in the life stress – depressive symptoms relationship. The study affirmed that life stress increased the probability of having depressive symptoms while smoking behaviour moderated the relationship partly because the youngsters might use smoking as a means of coping with life stress (Ho et al., 2020).

IV.II.III. PARENTAL INFLUENCE

It has also been identified that parental distress intolerance is another factor that affects adolescent smoking behaviour. Bilsky et al. (2019) revealed that youths with parents intolerant to distress are more likely to smoke for problem solving.

IV.II.IV. SECOND-HAND SMOKE EXPOSURE

Prior research has shown that SHSE brings a change in the adolescent's psychological well-being in that they are likely to have depressive symptoms. Jang et al (2020) also confirmed that students' home SHSE and parental SHSE were positively associated with depressive symptoms at home among boys and girls and the students' SHSE at school was significantly related to depressive symptoms at school among students.

IV.II.V. RECIPROCITY OF SMOKING WITH DEPRESSION

Numerous cross-sectional studies have been done to establish the interaction between smoking and depression. A longitudinal twin study by Ranjit et al. (2019) demonstrated that the smoking observed at 17 years was associated with higher levels of depressive symptoms in young adulthood, which would be at 22 years.

IV.II.VI. COMMON MENTAL HEALTH PROBLEMS AND UNHEALTHY PRACTICES

The current study of Paine et al. (2019) was designed to compare the psychological distress in patients with COPD to non-COPD patients and its relationship with the health risking behaviours including smoking. Indeed, they noted that patients with more severe anxiety and depression had the higher cumulative smoking, independent of the COPD status.

IV.III. VARIABLES AFFECTING THE STRESS SMOKING RELATION

IV.III.I. SOCIAL INFLUENCE: PARENTS AND PEERS

The study shows that the two sources of social influence namely the parents and peers do influence the smoking behaviour of adolescents. In the same year Nur et al., (2019) conducted a study where they found out that while the pressure from the parents and peers played a role in the teenagers smoking, it is not the same for advertising.

IV.III.II. AGE AT FIRST ALCOHOL AND ILLICIT DRUG USE

In the same light, early utilization of substances like smoking has been linked with higher degrees of psychological difficulties among adolescents. Pengpid and Peltzer (2019) further concluded that the odds of having moderate to high level of psychological distress were high in adolescents who were weekly smokers, who began smoking less than a year ago, and who started smoking at or before age 12.

IV.III.III. SCHOOL-BASED INTERVENTIONS

Published works have defined that school-based interventions could be helpful in prevention of smoking among adolescents. In the study by Riyanto et al., (2023), the authors concluded that stress management interventions are beneficial for decreasing the smoking behaviour among vocational high school students.

V. DISCUSSION

V.I. INTERPRETATION OF FINDINGS

The results of this meta-synthesis point to the fact that psychological distress and adolescent smoking behaviour are interrelated in many ways. Those youths with poor mental health are at a higher risk of developing and continuing the habit of smoking to ease the discomfort. In line with this, Friedman (2020) establishes that mental distress specifically raises the risk of smoking reinforcement among adolescents, especially those who had a higher baseline depressive level (Friedman, 2020).

V.II. COMPARISON WITH EXISTING LITERATURE

Relating to the previous literature, the review outcomes shed light on smoking as a coping mechanism for psychological problems. Bilsky et al. (2019) explained that the parental distress intolerance has a strong relation with adolescent smoking through coping motives (Bilsky et al. , 2019).

V.III. IMPLICATIONS FOR THEORY AND PRACTICE

The conclusions of the work hold theoretical and practical implications. The “coping response” framework is supported, thus, prevention programs targeting youth smoking should also address the improvement of coping mechanisms regarding psychosocial stressors. For instance, Riyanto et al. (2023) provided evidence for the utility of stress management interventions in decreasing the smoking behaviour among adolescents; this underlines that psychological interventions may be useful and specific (Riyanto et al., 2023).

V.IV. LIMITATIONS OF THE REVIEW

The following are the limitations of this study that can be noted. The use of cross-sectional data hampers the possibility of establishing the casual relationship between psychological distress and smoking behaviour. Also, the differences in the assessment of psychological distress and tobacco smoking between the studies may affect the overall results.

Also, there is the issue of publication bias which refers to the tendency of only publishing the results that are statistically significant. Such a bias could potentially alter the conclusions of the review in the given paper.

V.V. RECOMMENDATIONS FOR FUTURE RESEARCH

These findings suggest further research to be focused on the prospective investigations to establish relationships between the subjects of psychological distress and smoking behaviour.

Further, besides investigating the role of gender and SES in moderating the relationship, it may also be useful to explore how other demographics interact with psychological distress to affect smoking. For instance, Tomioka et al., (2021) stated that in the case of the relationship between smoking and psychological distress, the values were higher for women and therefore different strategies need to be employed with male and female participants (Tomioka et al., 2021).

VI. CONCLUSION

In the case of adolescents, it is apparent that there is a temporal interdependence between psychological distress and adolescents smoking behaviour and in effect it can be reciprocated. Therefore, the subsequent conclusions can be made in relation to this systematic review to increase the understanding of this phenomenon.

In the first instance, smoking has been asserted to be a method through which adolescents strive to cope with various issues, most especially those of a psychological nature. The works of literature have also pointed out that adolescent students who experience high stress, anxiety or who have depression, are likely to use smoking since it will be a way of coping according to (Friedman, 2020).

It is imperative to consider the influence of the parents on the children since they play a very significant role. Distress tolerance of parents has been found to have a strong relationship with adolescent smoking behaviour, whereby the adolescents' coping motives are often in the middle of this (Bilsky et al., 2019).

Thirdly, the mutually positive association between smoking and depressive symptoms shows that these behaviours and states spiral in a vicious cycle. Cross-sectional studies have also shown that smoking raises the levels of depressive symptoms, and that depressive symptoms can cause smoking, hence the need to tackle both aspects in intervention programs (Ranjit et al., 2019).

Lastly, school-based interventions that concentrate on stress coping have been found to be useful in decreasing smoking behaviour among adolescents. These programs can help the teenagers get other healthier ways of handling stress, hence reducing the chances of the adolescent using smoking as a way of coping with stress (Riyanto et al., 2023).

VII. RECOMMENDATIONS FOR FUTURE RESEARCH

Subsequent research should try to establish further the temporal relationships between psychological distress and smoking behaviour using prospective designs. Thus, it is possible to state that preventing the development of psychological distress in adolescents is extremely important as it helps in the prevention of smoking initiation and decreasing the level of smoking. Focusing on psychological and social aspects of the problem, it is possible to design a more efficient and extensive prevention program aimed at helping adolescents cope with psychological issues without turning to cigarettes.

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