

# Perceived Stress and Health Risk Behaviour among Adolescents: A Comprehensive Analysis with an Intervention Mapping Approach

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**Abstract:** *Adolescence is a critical developmental stage marked by profound biological, psychological, and social changes. During this period, perceived stress has emerged as a significant determinant of health risk behaviours (HRBs), which contribute substantially to morbidity and mortality. This study provides a comprehensive review and analytical framework examining the relationship between perceived stress and HRBs among adolescents. Drawing on recent literature, the paper explores psychological, behavioural, and socio-environmental mechanisms linking stress to risk behaviours such as substance use, unhealthy diet, physical inactivity, and problematic digital engagement. Furthermore, the study proposes a structured intervention mapping framework to guide the development of school-based preventive strategies. Evidence suggests that elevated perceived stress is strongly associated with maladaptive coping mechanisms, thereby increasing engagement in HRBs. The findings underscore the need for early identification, targeted interventions, and integration of mental health programs within school systems to promote long-term well-being.*

**Keywords:** perceived stress, adolescents, health risk behaviour, intervention mapping, school health, coping mechanisms

## 1. Introduction

Adolescence represents a formative stage of life characterized by rapid developmental transitions that influence physical, emotional, and social well-being. Behavioural patterns established during this period often persist into adulthood, significantly shaping long-term health outcomes. Among these behaviours, health risk behaviours (HRBs)—including substance use, poor dietary habits, physical inactivity, unsafe sexual practices, and excessive digital engagement—are of particular concern due to their association with chronic diseases and psychosocial problems.

Perceived stress, defined as the degree to which individuals appraise situations in their lives as overwhelming or beyond their coping capacity, plays a crucial role in shaping adolescent behaviour. Unlike objective stressors, perceived stress reflects subjective interpretation, making it a more reliable predictor of behavioural outcomes (Meine et al., 2025). Adolescents in higher secondary education face numerous stressors, including academic demands, peer pressure, family expectations, and uncertainty regarding future career paths. In contexts such as India, where academic competition is intense, these stressors are further amplified.

Emerging research indicates a strong association between perceived stress and engagement in HRBs. Adolescents experiencing high stress are more likely to adopt maladaptive coping strategies, such as substance use, emotional eating,

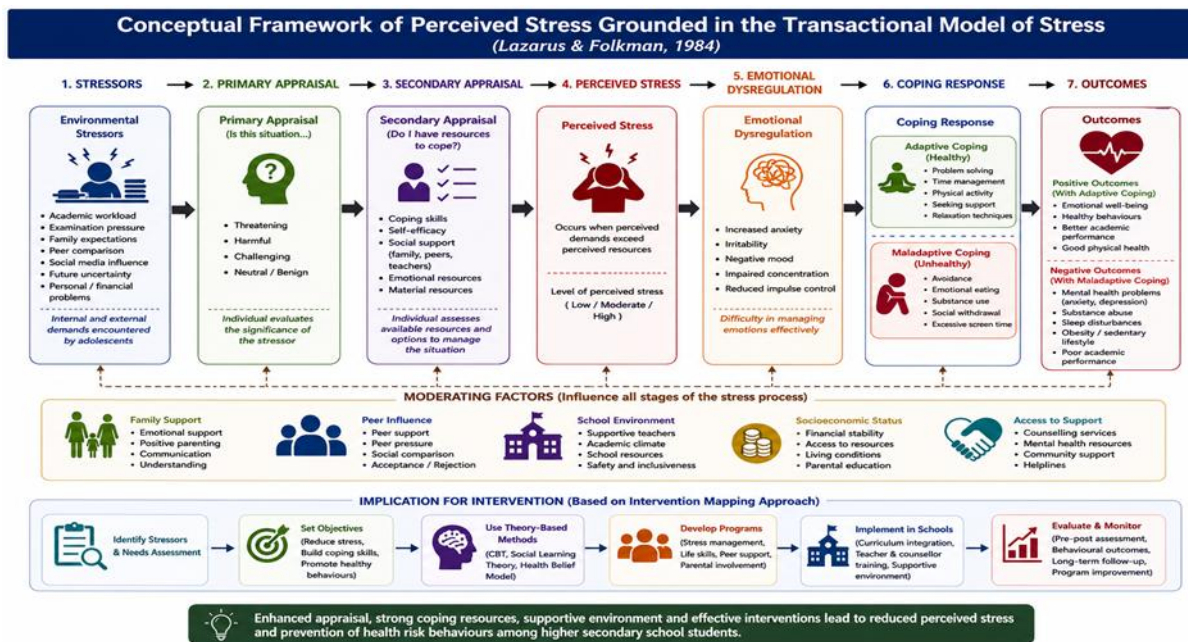
and excessive screen time (Compas et al., 2023). Despite growing evidence, there remains a need for a comprehensive framework that not only examines this relationship but also guides effective intervention strategies.

This paper aims to (a) analyze the relationship between perceived stress and HRBs among higher secondary school students, and (b) develop an intervention mapping framework to inform school-based prevention programs.

## 2. Conceptual Framework of Perceived Stress

The concept of perceived stress is grounded in the **transactional model of stress**, which emphasizes the dynamic interaction between individuals and their environment. According to this model, stress occurs when perceived demands exceed an individual's coping resources. This perception is influenced by cognitive appraisal processes, emotional regulation capacity, and social support systems.

Adolescents with high perceived stress often exhibit impaired emotional regulation, increased anxiety, and reduced resilience. These psychological vulnerabilities contribute to maladaptive decision-making and risk-taking behaviours (Compas et al., 2023). Neurobiological evidence further suggests that chronic stress affects brain regions involved in impulse control and reward processing, thereby increasing susceptibility to risky behaviours.



### Health Risk Behaviours among Adolescents

Health risk behaviours in adolescents are multifaceted and interrelated. They can be broadly categorized into the following domains:

#### Substance Use

Substance use, including tobacco, alcohol, and illicit drugs, is a common coping mechanism among stressed adolescents. Peer influence and accessibility further exacerbate this behaviour.

#### Dietary Behaviour

Stress is strongly associated with unhealthy eating patterns, such as increased consumption of high-calorie, low-nutrient foods. Emotional eating is a common response to stress, contributing to obesity and metabolic disorders.

#### Physical Inactivity

High stress levels often lead to reduced motivation for physical activity. Sedentary behaviour, combined with poor diet, increases the risk of non-communicable diseases.

#### Sleep Disturbances

Stress disrupts sleep patterns, leading to insomnia or poor sleep quality, which in turn affects cognitive function and emotional stability.

#### Digital Risk Behaviour

Recent studies highlight a growing concern regarding excessive screen time, social media addiction, and gaming disorders. These behaviours are often used as coping mechanisms but can exacerbate stress and mental health issues (Zhang et al., 2025).

#### Psychosocial Risk Behaviour

This includes aggression, self-harm, and risky sexual behaviour, which are often linked to emotional distress and lack of coping skills.

### Relationship between Perceived Stress and Health Risk Behaviour

#### Psychological Mechanisms

Perceived stress influences emotional regulation and coping strategies. Adolescents with poor coping skills are more likely to engage in maladaptive behaviours as a means of stress relief. Emotional dysregulation serves as a key mediator in this relationship (Compas et al., 2023).

#### Behavioural Pathways

Stress affects daily routines and lifestyle choices. For instance, stressed adolescents may skip meals, consume unhealthy foods, avoid physical activity, and experience disrupted sleep patterns. These behaviours collectively contribute to adverse health outcomes (Islam et al., 2021).

#### Cognitive and Social Influences

Cognitive factors such as low self-efficacy and poor decision-making increase vulnerability to HRBs. Social influences, including peer pressure and family environment, also play a significant role (da Silva-Domingues et al., 2022).

#### Digital Environment

The digital landscape has introduced new dimensions of risk behaviour. Stress-driven engagement in social media and gaming can lead to addiction, cyberbullying exposure, and reduced academic performance (Zhang et al., 2025).

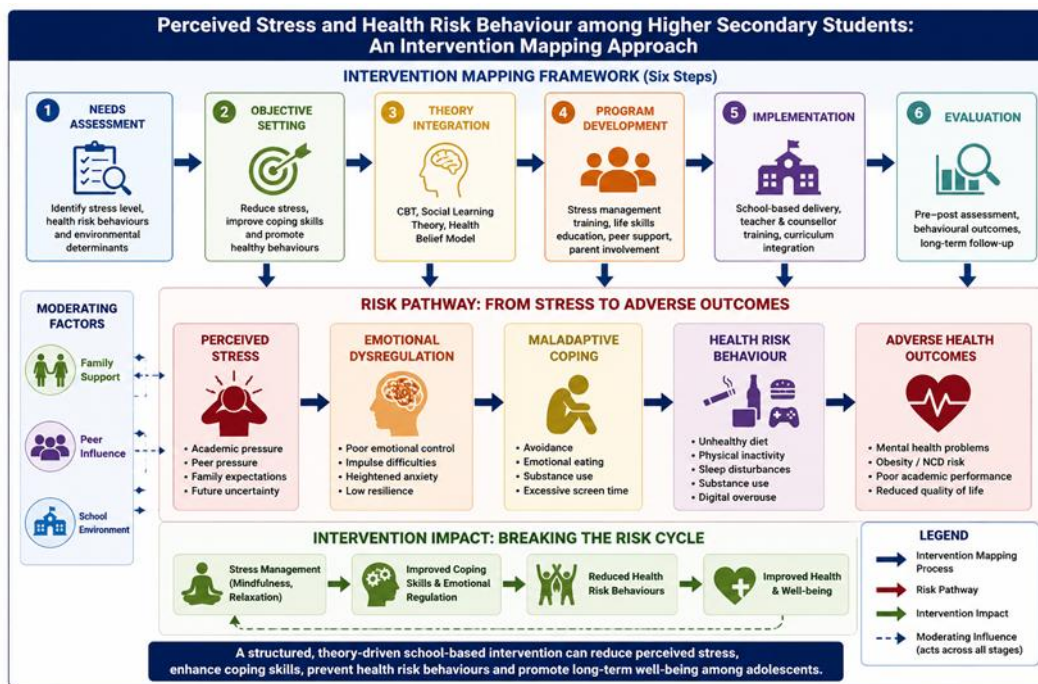
Recent literature provides strong evidence supporting the association between perceived stress and HRBs:

- Studies report that over 50% of adolescents experience moderate to high stress levels.
- High stress is associated with increased likelihood of substance use and poor lifestyle behaviours.
- Digital addiction has emerged as a significant risk behaviour linked to stress.
- Indian studies highlight rising levels of stress-related mental health issues, including suicidal ideation (Senapati et al., 2024).

- Protective factors such as self-esteem, resilience, and social support reduce engagement in HRBs (Orth & Robins, 2024).

**Intervention Mapping Framework**

Intervention mapping is a systematic, theory-driven approach to developing health promotion programs. It involves six key steps:



**Step 1: Needs Assessment**

This step involves identifying the prevalence of perceived stress and HRBs among students, as well as understanding environmental and social determinants.

**Step 2: Setting Objectives**

Objectives should focus on reducing stress, improving coping skills, and promoting healthy behaviours.

**Step 3: Theory-Based Methods**

Behavioural theories such as Cognitive Behavioural Theory, Social Learning Theory, and the Health Belief Model provide a foundation for designing interventions.

**Step 4: Program Development**

Interventions should include stress management training, life skills education, peer support programs, and parental involvement.

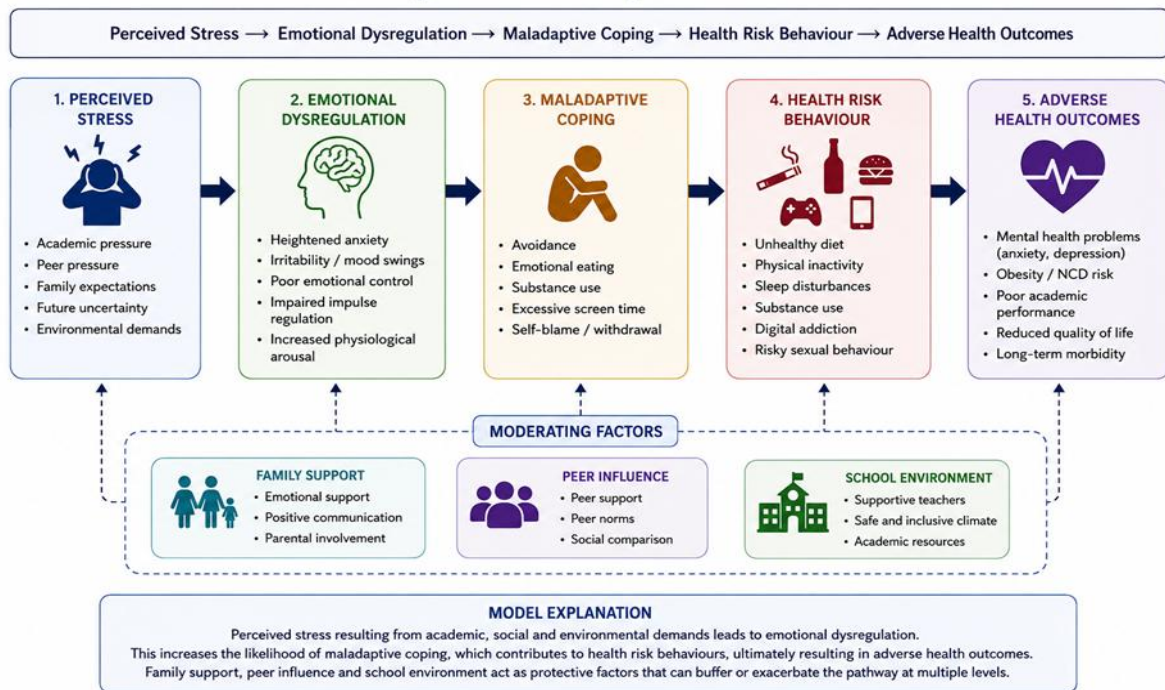
**Step 5: Implementation**

Programs should be integrated into school curricula and supported by trained teachers and counsellors.

**Step 6: Evaluation**

Evaluation should include pre- and post-intervention assessments, behavioural outcome analysis, and long-term follow-up.

## Proposed Conceptual Model



### 3. Discussion

The findings highlight the complex interplay between perceived stress and HRBs among adolescents. Stress not only influences individual behaviour but also interacts with environmental and social factors. The increasing prevalence of digital risk behaviours underscores the need for updated intervention strategies.

School-based interventions are particularly effective, as they provide a structured environment for early identification and support. Integrating mental health education into the curriculum can significantly improve coping skills and reduce risk behaviours.

### 4. Implications for Practice

- Implementation of school-based mental health programs
- Training teachers in stress management and counselling
- Promoting physical activity and healthy lifestyle habits
- Addressing digital addiction through awareness programs
- Encouraging parental involvement

### 5. Limitations

- Cross-sectional design limits causal inference
- Self-reported data may introduce bias
- Cultural and regional differences may affect generalizability

### 6. Conclusion

Perceived stress is a critical determinant of health risk behaviour among adolescence. Addressing stress through structured, theory-based interventions can significantly improve adolescent health outcomes. Intervention mapping provides a comprehensive framework for designing effective

prevention programs. Early intervention is essential to reduce the burden of chronic diseases and promote lifelong well-being.

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