KMAN PUBLISHING INSTITUTE
Journal Website

Article history:
Received 10 September 2025
Revised 08 February 2026
Accepted 15 February 2026
Published online 01 May 2026

Journal of Adolescent and Youth Psychological Studies

Open peer-review report

E-ISSN: 2981-2526

Bayesian Network Modeling of Youth Substance Use Risk Based on Trauma Exposure, Reward Sensitivity, Peer Pressure, Sleep Instability, and Psychological Inflexibility

Shana. Clarke[1], Allison. Freeman[2*]

[1] Department of Behavioral Psychology, University of the West Indies, Cave Hill, Barbados
[2] Department of Clinical Psychology, Stanford University, Stanford, USA

*** Corresponding author email address**: allison.freeman@stanford.edu

Editor	Reviewers
Ahmad Amani Associate Professor, Counseling Department, University of Kurdistan, Sanandaj, Iran a.amani@uok.ac.ir	**Reviewer 1:** Mohammad Salehi Associate Professor, Department of Educational Management, Sari Branch, Islamic Azad University, Sari, Iran. Email: drsalehi@iausari.ac.ir **Reviewer 2:** Kamdin Parsakia Department of Psychology and Counseling, KMAN Research Institute, Richmond Hill, Ontario, Canada. Email: kamdinarsakia@kmanresce.ca

1. Round 1

1.1. Reviewer 1

Reviewer:

The sentence “These findings underscore the importance of examining trauma exposure as a central upstream factor within broader probabilistic models of adolescent substance use risk” is conceptually compelling; however, the manuscript does not provide sufficient theoretical rationale for directional assumptions within the Bayesian network. Since Bayesian networks infer directed acyclic structures, the authors should explain whether directional constraints were imposed a priori based on developmental psychopathology theory or whether all directional paths emerged entirely data-driven from the Hill-Climbing algorithm.

In the Methods section, the paragraph beginning “The final sample consisted of 1,248 participants selected through multistage stratified sampling” requires more detail regarding sampling implementation. The manuscript states that schools and educational centers were randomly selected from four states, but no information is provided regarding sampling strata proportions, institutional participation rates, refusal rates, or demographic balancing procedures. Greater methodological transparency is needed to evaluate sample representativeness and potential selection bias.

The sentence “Exclusion criteria included severe cognitive impairment, active psychotic symptoms, or incomplete response patterns exceeding 15% of the questionnaire items” raises an important methodological concern because the manuscript does

not explain how severe cognitive impairment or psychotic symptoms were screened. Were these conditions self-reported, institutionally documented, or assessed through screening items? Clarification is necessary because inconsistent screening procedures could affect sample validity.

Authors uploaded the revised manuscript.

1.2. Reviewer 2

Reviewer:

In the paragraph discussing reward sensitivity beginning "In addition to trauma exposure, reward sensitivity has emerged as a major neuropsychological mechanism…," the manuscript would benefit from deeper integration of neurodevelopmental models of dual-systems imbalance during adolescence. Specifically, the discussion of rapidly maturing reward systems versus immature executive control systems is introduced briefly but not theoretically elaborated. Inclusion of developmental neuroscience frameworks such as the imbalance model or incentive sensitization theory would improve conceptual rigor and clarify why reward sensitivity was expected to function as a direct probabilistic predictor.

The paragraph beginning "Peer pressure also plays a critical role in shaping adolescent behavioral trajectories…" presents peer influence as a unidimensional construct. However, contemporary adolescent social psychology differentiates between descriptive norms, injunctive norms, direct coercion, and affiliation-based peer modeling. The authors should clarify which dimensions are captured by the Peer Pressure Inventory and discuss whether different forms of peer influence may exert differential effects on substance use vulnerability within the Bayesian network architecture.

In the paragraph beginning "Another factor receiving increasing attention in adolescent psychopathology research is sleep instability…," the conceptualization of sleep instability requires greater operational precision. The authors state that reverse scoring was implemented for the Sleep Condition Indicator so that higher scores reflected greater instability; however, it is unclear whether the construct represents insomnia severity, circadian irregularity, sleep fragmentation, or subjective dissatisfaction. More detailed operational clarification is needed because different sleep dimensions may influence substance use risk through different mechanisms.

The paragraph beginning "Psychological inflexibility represents another central mechanism…" appropriately identifies experiential avoidance as a transdiagnostic process, yet the manuscript does not adequately acknowledge ongoing psychometric controversies surrounding the Acceptance and Action Questionnaire-II. Several recent studies have questioned whether the AAQ-II measures psychological inflexibility specifically or broader negative emotionality. The authors should acknowledge this limitation and discuss how potential construct overlap with distress variables may have influenced the strong predictive importance observed in the Bayesian model.

In the final Introduction paragraph beginning "Although previous research has independently examined trauma exposure…," the authors correctly identify a literature gap; however, the novelty claim requires stronger substantiation. The manuscript should explicitly explain why Bayesian network modeling offers meaningful advantages over structural equation modeling, latent profile analysis, or ensemble machine learning methods previously used in adolescent psychopathology research. Without such clarification, the methodological innovation remains somewhat underdeveloped.

Authors uploaded the revised manuscript.

2. Revised

Editor's decision after revisions: Accepted.
Editor in Chief's decision: Accepted.

JAYPS Adolescent and Youth Psychological Studies
E-ISSN: 2981-2526