

Artificial Intelligence Modeling of Risk-Taking Behavior: Contributions of Sensation Seeking, Delay Discounting, Emotional Dysregulation, and Peer Influence

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1. Round 1

1.1. Reviewer 1

Reviewer:

The opening paragraph of the introduction states that “risk-taking behavior is a multifaceted psychological construct...,” but it remains largely descriptive and lacks a clear theoretical anchoring in a specific framework (e.g., dual systems model or SOMA model). It is recommended that the authors explicitly situate their conceptualization within a dominant theoretical paradigm and clarify how their model extends or challenges existing frameworks.

In the paragraph beginning with “Recent advances in artificial intelligence...,” the phrase “identified complex patterns that may not be detectable באמצעות conventional statistical methods” contains a non-English term (“באמצעות”), which disrupts readability and academic consistency. This should be corrected, and the entire manuscript should be carefully proofread for similar language inconsistencies.

The paragraph discussing sensation seeking includes the sentence “Neurobiologically, sensation seeking is associated with dopaminergic reward systems...,” yet no critical evaluation of competing neurobiological explanations is provided. The authors should incorporate alternative perspectives or conflicting findings to strengthen the scholarly rigor and avoid confirmatory bias.

In the data analysis section, the authors mention “recursive feature elimination and correlation-based filtering,” but no results or justification are reported. This omission weakens methodological transparency; details on selected features and thresholds should be included.

The use of “Mahalanobis distance” for outlier detection is appropriate, yet the manuscript does not report how many cases were removed or retained. This information is essential for reproducibility and should be explicitly stated.

Authors revised and uploaded the document.

1.2. Reviewer 2

Reviewer:

In the delay discounting section, the statement “Empirical evidence suggests that delay discounting is not only a predictor...” is overly general and lacks specificity regarding effect sizes or study contexts. The authors should integrate more precise empirical evidence (e.g., magnitude of associations or population differences) to enhance scientific depth.

The paragraph on emotional dysregulation states that it “refers to difficulties in managing and responding to emotional experiences...,” but does not clarify whether the construct is treated as trait-based or state-based in this study. The authors should explicitly define the operationalization used and justify the selection of DERS accordingly.

In the peer influence paragraph, the sentence “Peer influence encompasses both direct and indirect mechanisms...” would benefit from clearer operational differentiation. The manuscript should specify whether the RPI scale captures susceptibility, resistance, or both, and how this aligns with the theoretical construct described.

The integrative paragraph beginning with “Importantly, these psychological constructs... do not operate in isolation” introduces interaction effects conceptually but does not test them empirically. The authors should either incorporate interaction terms in regression or justify their absence, especially given the emphasis on multidimensional interplay.

In the methods section under “Study Design and Participants,” the use of “stratified convenience sampling” is methodologically ambiguous. The authors must clarify the stratification criteria and explain how convenience sampling did not bias representativeness, particularly given claims of generalizability.

The sentence “absence of diagnosed severe psychiatric disorders” lacks detail regarding screening procedures. The authors should specify whether this was self-reported or clinically assessed, and discuss potential misclassification bias.

Within the measures section, the statement “all instruments demonstrated acceptable to high internal consistency (Cronbach’s $\alpha > 0.80$)” is insufficient without reporting actual alpha values for each scale. It is recommended to provide exact reliability coefficients for transparency.

Authors revised and uploaded the document.

2. Revised

Editor’s decision after revisions: Accepted.

Editor in Chief’s decision: Accepted.