

Structural Modeling of Generalized Anxiety Disorder Symptom Level Based on Positive and Negative Metacognitive Beliefs: The Mediating Role of Intolerance of Uncertainty among University Students

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1. Round 1

1.1. Reviewer 1

Reviewer:

The paragraph beginning “The study of generalized anxiety symptoms is especially important among university students” presents several plausible stressors, including academic pressure, financial concerns, interpersonal challenges, and uncertainty about the future, but these claims are only briefly developed. The authors should provide a more explicit theoretical explanation of why university students represent an appropriate population for testing the proposed model. In particular, the manuscript should explain how recurrent academic evaluation, career uncertainty, transitional identity development, and limited control over future outcomes may activate metacognitive beliefs and intolerance of uncertainty. It would also be useful to clarify whether the model is expected to function similarly in clinical and nonclinical populations or whether symptom-continuum assumptions underlie its application to university students.

In the paragraph stating that generalized anxiety symptoms “may be better understood through cognitive and metacognitive mechanisms,” the manuscript moves rapidly from a broad description of worry to the metacognitive model without sufficiently differentiating cognitive content from metacognitive appraisal. The authors should define primary worry, meta-worry, cognitive

attentional syndrome, threat monitoring, and maladaptive thought-control strategies more precisely. A clearer conceptual distinction is needed between worrying about external events and holding beliefs about the usefulness, danger, and controllability of worry. This distinction is especially important because the study operationalizes only two MCQ-30 subscales, while the theoretical description sometimes appears to invoke the broader metacognitive model in its entirety.

The manuscript indicates that participants were recruited from “different faculties” of Islamic Azad University, Najafabad Branch, but provides no information about the distribution across faculties, academic disciplines, degree levels, ages, or genders. The only demographic result reported is occupational status. This is inadequate for evaluating sample representativeness and potential confounding. The authors should provide a comprehensive demographic table including age, gender, marital status, educational level, field of study, semester, and employment status. They should also report whether these characteristics were associated with the principal variables and whether any demographic covariates needed to be controlled in the structural model.

The inclusion criterion requiring participants to provide “complete responses to the main research instruments” and the exclusion of questionnaires with “careless or patterned responses” require operational clarification. The manuscript should specify how missingness, careless responding, and patterned responding were detected; how many questionnaires were excluded for each reason; whether response-time or long-string indices were used; and whether missing data were handled through listwise deletion, imputation, or full-information maximum likelihood. Reporting only that six questionnaires were excluded does not permit evaluation of data quality procedures or the possibility of systematic attrition.

The measures section states that only two MCQ-30 subscales were used, but it does not report the number of items in each subscale, response options, possible score ranges, scoring procedures, or evidence of reliability and validity in the present sample. Similar information is missing for the intolerance-of-uncertainty measure. The authors should identify the exact version of the intolerance-of-uncertainty questionnaire, because the reported range and mean suggest use of a longer form, while several short forms are widely used. For every instrument, the manuscript should report the translation or cultural adaptation process, previous psychometric evidence in Iranian samples, internal consistency coefficients in the present sample, and preferably confirmatory factor-analytic evidence supporting the use of composite scores.

Authors uploaded the revised manuscript.

1.2. Reviewer 2

Reviewer:

The paragraph beginning “Metacognitive beliefs are generally divided into positive and negative beliefs about worry” risks implying that metacognitive beliefs as a whole consist only of these two domains. The MCQ-30 includes additional dimensions, such as cognitive confidence, need to control thoughts, and cognitive self-consciousness. The authors should state explicitly that the present study focuses selectively on positive beliefs about worry and negative beliefs concerning uncontrollability and danger because these dimensions are most directly implicated in the metacognitive model of generalized anxiety. The theoretical and empirical rationale for excluding the other MCQ-30 dimensions should be explained, particularly because omitted metacognitive dimensions may correlate with both intolerance of uncertainty and generalized anxiety symptoms and could therefore affect the estimated structural paths.

In the paragraph stating that positive beliefs “may initiate and maintain worry by making worry appear useful or necessary, whereas negative beliefs may intensify anxiety,” the manuscript presents a theoretically important distinction that should be translated into explicit hypotheses. The authors should specify whether they expected both positive and negative metacognitive beliefs to have direct effects on generalized anxiety symptoms, whether negative beliefs were expected to demonstrate a stronger effect, and whether intolerance of uncertainty was hypothesized to mediate both relationships. At present, the introduction describes plausible pathways but does not formulate sufficiently precise, directional, and testable hypotheses. A formal hypothesis section would improve correspondence among the theoretical framework, structural model, statistical analyses, and interpretation of findings.

The paragraph beginning “Another central factor in generalized anxiety is intolerance of uncertainty” defines the construct broadly but does not clarify whether intolerance of uncertainty is being treated as disorder-specific, transdiagnostic, dispositional, or situational. This issue is important because the literature increasingly conceptualizes intolerance of uncertainty as a transdiagnostic vulnerability that is elevated across anxiety, obsessive-compulsive, depressive, and health-anxiety presentations. The authors should acknowledge this debate and explain why intolerance of uncertainty is positioned as a mediator specifically in a generalized anxiety model. The manuscript should also distinguish intolerance of uncertainty from related constructs such as ambiguity tolerance, perceived unpredictability, anxiety sensitivity, and need for control, which are currently used in partially overlapping ways.

The manuscript states that “metacognitive beliefs may increase intolerance of uncertainty by shaping the way students interpret uncertain events,” but the direction of this relationship is insufficiently justified. It is equally plausible that individuals who are highly intolerant of uncertainty develop positive beliefs about worry because worry gives them an illusion of preparedness, or develop negative beliefs after repeated experiences of uncontrollable worry. Because the study is cross-sectional, the proposed ordering cannot establish temporal precedence. The authors should provide stronger theoretical justification for positioning metacognitive beliefs as exogenous variables and intolerance of uncertainty as the mediator, discuss plausible reverse or reciprocal pathways, and explicitly acknowledge that structural equation modeling of cross-sectional data does not confirm causal direction.

The final paragraph of the introduction states that the study aimed “to develop and test a structural model,” yet the reported model appears to be a relatively simple observed-variable path model rather than a full latent-variable structural equation model. The authors should clarify whether each construct was represented as a latent variable with multiple indicators or as an observed composite score. The methods later indicate that subscale and total scores were used as observed indicators, suggesting path analysis rather than latent SEM. The terminology should be corrected throughout the manuscript, and the path diagram should clearly identify observed variables, residual terms, covariance paths, and standardized coefficients. Calling the analysis “structural equation modeling” without clarifying its observed-variable nature may overstate the psychometric sophistication of the model.

In the methods section, the manuscript reports that “an initial sample of 300 students was selected using accessible purposive sampling,” but no a priori sample-size justification is provided. The authors should report how the required sample size was determined, including the number of estimated parameters, anticipated effect sizes, desired statistical power, significance level, and allowance for incomplete responses. Reliance on general rules such as a minimum participant-to-parameter ratio would be insufficient without reference to the actual complexity of the model. If the Hoelter index is used as supporting evidence, it should not substitute for prospective power analysis because Hoelter’s critical N is a model-fit diagnostic rather than a sampling-design calculation.

Authors uploaded the revised manuscript.

2. Revised

Editor’s decision after revisions: Accepted.

Editor in Chief’s decision: Accepted.