




XGBoost-Based Prediction of Family Resilience from Psychological Flexibility, Social Support, Family Cohesion, and Emotional Regulation

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1. Round 1

1.1. Reviewer 1

Reviewer:

In the paragraph beginning “The concept of resilience has evolved considerably over the past several decades,” the authors discuss resilience as a dynamic and systemic process. However, the manuscript does not sufficiently explain how this conceptualization informed the selection of the predictor variables. The authors should explicitly connect psychological flexibility, social support, family cohesion, and emotional regulation to specific dimensions of the resilience framework being adopted.

The paragraph stating “Despite its theoretical relevance, the predictive role of psychological flexibility in family resilience remains underexplored” requires stronger empirical justification. The authors should provide a more systematic review of previous findings regarding psychological flexibility and family-level outcomes, including contradictory findings if available, to better establish the research gap.

The paragraph describing participant characteristics indicates recruitment from Ontario, British Columbia, Alberta, and Quebec. However, no information is provided regarding the actual provincial distribution of participants. Because cultural and

socioeconomic factors may vary substantially across provinces, descriptive statistics for geographic representation should be reported.

The description of the Family Resilience Assessment Scale (FRAS) is comprehensive, yet the manuscript does not report internal consistency coefficients (e.g., Cronbach's alpha or McDonald's omega) for the current sample. Reliability estimates calculated from the present dataset should be included for all measurement instruments.

Response: Revised and uploaded the manuscript.

1.2. Reviewer 2

Reviewer:

In the section discussing social support, the sentence "Social support may strengthen resilience indirectly by fostering feelings of belonging, security, and collective efficacy" presents a potentially important mechanism. However, this proposed pathway remains speculative in the current manuscript. The authors should either provide additional empirical evidence supporting this mediational explanation or clearly identify it as a theoretical proposition.

The paragraph introducing family cohesion argues that it "may represent one of the most influential predictors of resilience within family systems." This assertion closely anticipates the study's findings and may introduce confirmation bias in the theoretical framing. The authors should present alternative possibilities and maintain a more neutral tone when discussing expected predictor importance.

The emotional regulation section would benefit from a more nuanced discussion of the two dimensions assessed by the ERQ. Since the ERQ measures both cognitive reappraisal and expressive suppression, the authors should justify why a total score was apparently used rather than examining the differential predictive effects of these theoretically distinct emotional regulation strategies.

In the paragraph beginning "Although substantial evidence supports the relevance of psychological flexibility, social support, family cohesion, and emotional regulation," the critique of traditional statistical approaches is somewhat overstated. The authors should acknowledge that methods such as structural equation modeling can accommodate complex relationships and mediation effects, thereby providing a more balanced rationale for employing machine learning techniques.

The statement "relatively few studies have applied XGBoost to investigate family resilience and its determinants" requires stronger documentation. The authors should provide a brief literature synthesis identifying previous machine learning studies on resilience and clearly demonstrate how the present investigation differs from existing work.

In the Study Design and Participants section, the authors report using a "stratified convenience sampling strategy." However, no details are provided regarding the stratification variables or procedures. The manuscript should specify how strata were defined, how participants were distributed across strata, and whether proportional representation was achieved.

Response: Revised and uploaded the manuscript.

2. Revised

Editor's decision after revisions: Accepted.

Editor in Chief's decision: Accepted.