


Unsupervised Clustering of Intimate Partner Violence Typologies: Analyzing Communication Deviance, Attachment Anxiety, and Trait Impulsivity via Machine Learning

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1. Round 1

1.1. Reviewer 1

Reviewer:

The rationale for selecting the three clustering features needs deeper conceptual grounding: strengthen the construct justification by synthesizing current theory and evidence linking communication deviance, attachment anxiety, and impulsivity to distinct IPV patterns, and explicitly note whether other salient risk dimensions (e.g., coercive control, substance use, trauma exposure) were considered but excluded (and why).

The implications section would be more actionable if it translated each cluster into tailored clinical/prevention recommendations (assessment priorities, counseling targets, risk-management strategies) and discussed feasibility—how practitioners in educational/community settings could implement typology-informed screening or treatment triage without overburdening services.

The Limitations should more directly address threats to inference: cross-sectional design (no temporal ordering), self-report and social desirability bias (especially in IPV contexts), measurement constraints of the selected scales, potential selection bias

in recruitment, and the core epistemic issue that data-driven clusters are heuristic unless replicated (risk of reifying clusters as “true types”).

Response: Revised and uploaded the manuscript.

1.2. Reviewer 2

Reviewer:

The manuscript should provide a more explicit sample description—recruitment setting, inclusion/exclusion criteria, key demographics, and relationship characteristics—especially because the study is conducted in Iran; a culturally informed discussion is needed on how local gender norms and relational expectations may shape the expression/measurement of attachment anxiety, impulsivity, and communication deviance, affecting cluster interpretation and generalizability.

To improve reproducibility, the Methods must report the full clustering pipeline: missing-data handling, scaling/standardization, outlier treatment, distance metrics (if applicable), and the criteria used for selecting the number of clusters (e.g., silhouette, elbow, gap statistic) along with any stability or sensitivity checks to demonstrate that the solution is not an artifact of preprocessing decisions.

The Results would be more interpretable if clusters are presented with (a) clear, theory-aligned labels, (b) descriptive statistics (means/SDs) for each clustering variable and key IPV outcomes by cluster, and © at least one visualization (e.g., centroid profile plot/radar chart) so readers can quickly see how clusters differ in their multivariate profiles.

The Discussion should explicitly compare the derived clusters to established IPV frameworks (e.g., situational couple violence vs. coercive controlling violence; dysregulated/borderline vs. antisocial patterns), identifying convergences and divergences and clarifying whether the obtained profiles represent refinements, hybrids, or context-specific variants.

Response: Revised and uploaded the manuscript.

2. Revised

Editor’s decision after revisions: Accepted.

Editor in Chief’s decision: Accepted.