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Peer Review

Review of: "Are Bidding Behaviors of Jeopardy! Gameshow Contestants Influenced by Gender/Sex?"

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This manuscript, “Are Bidding Behaviors of Jeopardy! Gameshow Contestants Influenced by Gender/Sex?” by Guidry, Rodriguez Huerta, Muñoz, and Dominguez, examines whether perceived sex/gender differences exist in risk-taking behavior as measured by wagering across rounds of Jeopardy! episodes from 1984 to 2022. Using a retrospective observational design, the authors analyze the percentage of current earnings wagered and report no statistically significant differences between men and women, either across rounds or across approximate decades. The topic is timely and addresses a long-standing debate in the literature on sex differences in risk-taking. The dataset is creative and ecologically valid, and the question is compelling. However, substantial methodological and conceptual revisions are required before the conclusions can be considered robust.

The most significant concern is the specification of the statistical model. The manuscript treats decade as a within-subjects factor in a mixed-design ANOVA. This is not appropriate, as contestants do not participate across decades. Decade is therefore a between-subjects variable. By contrast, round (Daily Double 1, 2, and 3) is clearly a within-subjects factor because the same contestant can contribute wagers across multiple rounds within a single game. As currently structured, the model does not properly account for repeated measures within contestants and may yield invalid inferences. The correct analytic structure would include sex and decade as between-subjects factors and round as a within-subjects factor. Alternatively, a mixed-effects model with wagers nested within contestants would provide a more rigorous approach. The results should be reanalyzed accordingly, and interpretations may need to be revised based on corrected analyses.

Relatedly, the manuscript does not report whether the assumptions underlying parametric analyses were tested. Because the percentage wagered is a bounded variable and may be skewed, it is important to

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report tests of normality, homogeneity of variance, and, for repeated measures, sphericity. Percentage data are normally transformed. If assumptions are violated, appropriate corrections (e.g., Greenhouse–Geisser) or alternative modeling approaches should be used. Without this information, it is difficult to evaluate the reliability of the statistical conclusions.

Conceptually, the manuscript would benefit from a clearer articulation of what type of “risk” is being measured. Daily Double wagering is not purely probabilistic in the same sense as financial gambling or laboratory lottery tasks. Contestants know the category before wagering, and the decision is likely influenced by confidence in domain knowledge, current score, and strategic game position. The authors should clarify whether they conceptualize this behavior as confidence-weighted risk, strategic utility maximization, or some other construct. Without clearer theoretical framing, the construct validity of the dependent measure remains somewhat ambiguous, and the findings may be overgeneralized relative to what the data can support.

The abstract currently makes claims that extend beyond the specific context studied. While the manuscript focuses on a structured trivia-based wagering environment, the abstract implies broader conclusions about sex differences in risk-taking. These statements should be narrowed to reflect the specific domain of Daily Double wagering in Jeopardy!. Doing so will align the scope of inference with the design of the study.

The reporting of sample characteristics also requires improvement. The manuscript does not clearly report the total sample size, group sizes by sex/gender, or descriptive statistics such as means and standard deviations in each condition. These should be explicitly included in the Results section and figure captions to improve transparency and interpretability.

The discussion section would benefit from significant strengthening. At present, it provides a general overview of evolutionary and socio-cultural perspectives but does not deeply integrate the current findings with experimental, financial, or epidemiological evidence on sex differences in risk-taking. The authors should engage more directly with laboratory paradigms (e.g., economic risk tasks), financial decision-making studies, and hormonal or neurobiological research that has addressed similar questions. In addition, if the statistical model is revised, the discussion may need to reinterpret the findings accordingly. Expanding the literature base and sharpening the theoretical integration would enhance the scholarly contribution of the manuscript.

Finally, the dataset itself appears rich and potentially capable of supporting additional analyses. For example, the authors could examine whether wagering behavior changes across rounds within

individuals, whether prior success or failure influences subsequent wagers, or whether high-risk behavior (e.g., wagering above a certain threshold such as 75% of current earnings) differs by sex/gender. While these analyses are not strictly necessary for publication, they would deepen the behavioral insight derived from the data.

In summary, this manuscript addresses an interesting and important question using a novel and ecologically valid dataset. However, the statistical modeling requires correction, key assumptions must be reported, the conceptual framing of risk should be clarified, and the discussion should be substantially expanded. With major revision addressing these concerns, the manuscript has the potential to make a meaningful contribution to the literature on contextualized risk-taking behavior.

Declarations

Potential competing interests: No potential competing interests to declare.