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GENDER DIFFERENCES

IN PUBLIC SPEAKING ANXIETY ACROSS FORMAL AND INFORMAL SETTINGS

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IN PUBLIC SPEAKING ANXIETY ACROSS FORMAL AND INFORMAL SETTINGS

DIFERENCIAS DE GÉNERO EN LA ANSIEDAD AL HABLAR EN PÚBLICO EN CONTEXTOS FORMALES E INFORMALES

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ABSTRACT

Public speaking anxiety (PSA), also known as glossophobia, is one of the most prevalent social anxieties affecting individuals across demographic groups. This study examined gender differences in public speaking anxiety across formal and informal speaking settings among 200 university students (100 male, 100 female). Using McCroskey's Personal Report of Public Speaking Anxiety (PRPSA), participants reported their anxiety levels for both formal settings (e.g., structured presentations, academic speeches) and informal settings (e.g., classroom discussions, small group conversations). Results revealed that female participants reported significantly higher PSA levels than males in both settings. However, the gender gap was more pronounced in formal settings, where female participants exhibited considerably higher anxiety scores compared to informal contexts. These findings align with prior research documenting females' elevated anxiety levels in public speaking situations, while extending the literature by demonstrating that the formal-informal setting distinction moderates this gender difference. The study underscores the importance of context-sensitive, gender-responsive interventions in educational and professional settings.

Keywords:

Communication apprehension, formal settings, gender differences, glossophobia, informal settings, public speaking anxiety.

RESUMEN

La ansiedad al hablar en público (AAP), también conocida como glosofobia, es una de las ansiedades sociales más prevalentes que afectan a personas de diversos grupos demográficos. Este estudio examinó las diferencias de género en la ansiedad al hablar en público en contextos formales e informales entre 200 estudiantes universitarios (100 hombres y 100 mujeres). Mediante el uso del *Personal Report of Public Speaking Anxiety* (PRPSA) de McCroskey, los participantes informaron sobre sus niveles de ansiedad tanto en situaciones formales (p. ej., presentaciones estructuradas, discursos académicos) como informales (p. ej., debates en clase, conversaciones en grupos pequeños). Los resultados revelaron que las mujeres reportaron niveles de AAP significativamente más altos que los hombres en ambos contextos. Sin embargo, la brecha de género fue más pronunciada en los entornos formales, donde las mujeres mostraron puntuaciones de ansiedad considerablemente más elevadas en comparación con los contextos informales. Estos hallazgos concuerdan con investigaciones previas que documentan niveles de ansiedad más altos en mujeres durante situaciones de oratoria, al tiempo que amplían la literatura existente al demostrar que la distinción entre entornos formales e informales modera esta diferencia de género. El estudio subraya la importancia de implementar intervenciones sensibles al contexto y al género en ámbitos educativos y profesionales.

Palabras clave:

Aprensión comunicativa, entornos formales, diferencias de género, glosofobia, entornos informales, ansiedad al hablar en público.

INTRODUCTION

Public speaking anxiety (PSA), commonly referred to as glossophobia, is a psychological condition characterized by intense fear or apprehension associated with speaking in public or in front of an audience. Dewaele & Furnham (2026) reported that approximately three-quarters of adults experience some degree of anxiety when required to speak publicly, with a considerable proportion experiencing stress that adversely affects their professional and academic performance. PSA ranks among the most common social anxieties, with Blöte et al. (2009) highlighting the close relationship between public speaking anxiety and broader manifestations of social anxiety.

Gender has emerged as an important demographic correlate of PSA. Numerous empirical investigations have documented that women tend to report higher levels of public speaking anxiety than men. Dewaele & Furnham (2026), in their study of 1,049 adult workers, identified gender among the demographic characteristics associated with differences in public speaking anxiety, with women reporting higher levels than men. Similarly, Balakrishnan et al. (2025) examined PSA among TVET undergraduates using the PRPSA and observed that female learners experienced slightly higher anxiety levels than their male counterparts, although the difference was not always statistically significant across all dimensions examined.

Evidence from the broader social anxiety literature provides additional support for the relevance of gender. In a large cross-national investigation involving participants from 18 countries, Caballo et al. (2014) identified significant differences between men and women in several dimensions of social anxiety, demonstrating that gender-related patterns can be observed across diverse sociocultural settings. Within the specific domain of public speaking, Rahman Hz (2022) likewise documented gender differences in public speaking anxiety, reinforcing the importance of examining gender as a potentially relevant factor in anxiety associated with oral performance (Caballo et al., 2014; Dewaele & Furnham, 2026; Rahman Hz, 2022).

However, the literature on gender and PSA reveals important nuances. While aggregate findings generally point toward higher anxiety among females, gender alone may not adequately explain variations in public speaking anxiety. Khalil et al. (2025) emphasize the multifaceted nature of public speaking anxiety, highlighting the contribution of psychological, cognitive, and situational factors to its development. Dewaele & Furnham (2026) further demonstrate that PSA is associated not only with demographic characteristics but also with personality-related factors among adult workers, underscoring the importance of examining individual differences beyond gender. From this perspective, anxiety responses may vary according to the interaction between individual characteristics and the conditions under which public speaking occurs, reinforcing the need to examine gender alongside psychological and contextual factors rather than treating it as an isolated determinant.

Nik Fauzi et al. (2025) further noted that while female students generally scored higher, the disparity varied significantly based on the specific academic discipline and year of study. Rahman Hz (2022) also contributes to this discussion by showing that gender differences in public speaking anxiety should be understood within the social and educational contexts in which speaking takes place. Moreover, the cross-national evidence reported by Caballo et al. (2014) indicates that gender differences in social anxiety are not necessarily uniform across dimensions and cultural settings. These findings suggest that gender differences in PSA may be moderated by contextual and individual factors rather than representing a fixed and universally expressed trait.

One such contextual factor is the formality of the speaking setting. Formal settings, characterized by structured presentations, evaluative audiences, and high-stakes outcomes, are typically associated with elevated anxiety. Informal settings, such as small group discussions or casual conversations, generally elicit lower anxiety levels. Yet, the interaction between gender and setting formality remains underexplored. Romadloni et al. (2025) found that female students reported significantly higher anxiety specifically when called upon without preparation, when fearing negative evaluation, and when speaking before the whole class, while both genders experienced comparable anxiety during scripted formal presentations.

Nik Fauzi et al. (2025) also emphasized that item-level analysis of the PRPSA can reveal distinct patterns that aggregate scores often mask. Considered alongside evidence that both demographic and psychological characteristics contribute to variation in public speaking anxiety (Dewaele & Furnham, 2026), these findings point toward a more complex relationship: gender differences in PSA may be particularly salient under specific situational conditions rather than being uniformly distributed across all speaking scenarios.

This study is grounded in McCroskey's (1970) conceptualization of communication apprehension, which addresses fear or anxiety associated with real or anticipated communication with others. McCroskey (1970) developed the Personal Report of Public Speaking Anxiety (PRPSA) to measure anxiety specifically associated with public speaking. The PRPSA has subsequently been employed in research examining speaking anxiety across different populations, including recent studies investigating gender-related patterns among university students (Balakrishnan et al., 2025; Nik Fauzi et al., 2025).

Additionally, MacIntyre's Willingness to Communicate (WTC) Model offers a complementary framework for understanding how individual and situational factors interact to influence communication behavior. Within this broader

perspective, gender-related differences in PSA can be examined in conjunction with individual psychological characteristics and the situational demands surrounding public speaking. This approach is consistent with contemporary evidence indicating that demographic characteristics, personality-related factors, social context, and specific speaking conditions may jointly contribute to variations in anxiety (Caballo et al., 2014; Dewaele & Furnham, 2026; Khalil et al., 2025).

Given the variability documented in the existing literature and the limited attention paid to the moderating role of setting formality, the present study was designed to systematically examine whether gender differences in PSA are consistent across formal and informal speaking environments and whether the magnitude of these differences varies as a function of the situational demands imposed by each setting.

MATERIALS AND METHODS

A total of 200 undergraduate students, comprising 100 male and 100 female participants, were recruited from a public university using convenience sampling. Participants ranged in age from 18 to 25 years (M = 20.4, SD = 1.8). Eligibility criteria required participants to be enrolled as full-time undergraduate students and to have prior experience with both formal and informal public speaking in an academic context. Students with a diagnosed anxiety disorder or those receiving treatment for a psychological condition were excluded. All participants provided informed consent before data collection, and the study was approved by the university's institutional review board.

Public speaking anxiety was assessed using McCroskey's (1970) Personal Report of Public Speaking Anxiety (PRPSA), a 34-item self-report instrument developed specifically to measure anxiety associated with public speaking. The instrument uses a five-point Likert-type response format, with individual items scored from 1 to 5. Following the scoring procedure established by McCroskey (1970), responses are combined to obtain an overall measure of public speaking anxiety, with higher total scores reflecting greater levels of anxiety. To examine whether public speaking anxiety varied according to the speaking context, the PRPSA was administered twice to each participant. In one administration, participants were instructed to respond with reference to formal speaking situations, whereas in the other, they responded with reference to informal speaking situations. The order of administration was counterbalanced to minimize potential order effects.

A brief demographic questionnaire was also administered to collect information on age, gender, year of study, and previous public speaking experience. Data collection was conducted over an eight-week period during the regular academic semester. Participants were recruited through classroom announcements and university email lists. Students who expressed interest were invited to a designated research session, during which the purpose of the study, procedures, and participation requirements were explained.

To minimize potential order effects, administration of the two PRPSA conditions was counterbalanced. Half of the participants completed the formal-setting condition first and the informal-setting condition second, whereas the remaining participants completed the conditions in the reverse order. In the formal condition, participants were instructed to answer the PRPSA items with reference to structured and evaluative speaking situations, including academic presentations, conference presentations, and formal speeches. In the informal condition, participants responded with reference to lower-stakes situations, such as classroom discussions, small-group conversations, and informal presentations to peers. The demographic questionnaire was completed after both PRPSA administrations to reduce potential priming effects. Each research session lasted approximately 30 minutes.

Data were analyzed using SPSS, version 27.0. Descriptive statistics, including means and standard deviations, were calculated for the study variables. Independent-samples t tests were used to compare male and female participants' PRPSA scores separately within the formal and informal conditions. Subsequently, a 2 × 2 mixed-design analysis of variance was conducted, with gender (male vs. female) specified as the between-subjects factor and speaking setting (formal vs. informal) as the within-subjects factor. This analysis examined the main effects of gender and setting, as well as the gender × setting interaction. Effect sizes were estimated using Cohen's d for the independent-samples comparisons and partial eta squared (η^2p) for the analysis of variance. Statistical significance was established at $\alpha = .05$.

RESULTS AND DISCUSSION

Table 1 presents the descriptive statistics for PRPSA scores across gender and setting conditions. For formal settings, female participants reported a mean PRPSA score of 128.45 (SD = 18.32), while male participants reported a mean of 112.37 (SD = 19.65). For informal settings, female participants reported a mean of 101.28 (SD = 16.74), while male participants reported a mean of 94.56 (SD = 15.43).

Table 1. Descriptive Statistics for PRPSA Scores by Gender and Setting.

Setting	Gender	n	M	SD
Formal	Female	100	128.45	18.32
Formal	Male	100	112.37	19.65
Informal	Female	100	101.28	16.74
Informal	Male	100	94.56	15.43

Independent samples t-tests revealed significant gender differences in PSA for both settings. As shown in Table 2, in formal settings, female participants reported significantly higher anxiety than male participants, $t(198) = 6.07$, $p < .001$, $d = 0.86$. In informal settings, female participants also reported significantly higher anxiety than male participants, $t(198) = 3.01$, $p = .003$, $d = 0.43$. These results indicate that females experience greater public speaking anxiety than males across both formal and informal settings, which is consistent with the broader patterns identified by Balakrishnan et al. (2025); and Furnham (2026).

Table 2. Independent Samples t-Tests for Gender Differences in PRPSA Scores Across Settings.

Setting	Female (M ± SD)	Male (M ± SD)	t	df	p	Cohen's d
Formal	128.45 ± 18.32	112.37 ± 19.65	6.07	198	< .001	0.86
Informal	101.28 ± 16.74	94.56 ± 15.43	3.01	198	.003	0.43

The 2 × 2 mixed-design ANOVA revealed a significant main effect of gender, $F(1, 198) = 37.82$, $p < .001$, $\eta^2p = .16$, confirming that females reported higher overall PSA than males. A significant main effect of setting was also observed, $F(1, 198) = 312.45$, $p < .001$, $\eta^2p = .61$, indicating that both genders reported higher anxiety in formal settings compared to informal settings. The complete ANOVA summary is presented in Table 3.

Table 3. Two-Way Mixed-Design ANOVA Summary for PRPSA Scores.

Source	SS	df	MS	F	p	η^2p
Gender (Between)	18,724.32	1	18,724.32	37.82	< .001	.16
Error (Between)	98,013.68	198	495.02			
Setting (Within)	64,521.89	1	64,521.89	312.45	< .001	.61
Gender × Setting	1,840.21	1	1,840.21	8.91	.003	.04
Error (Within)	40,889.34	198	206.51			

Critically, a significant gender × setting interaction was found, $F(1, 198) = 8.91$, $p = .003$, $\eta^2p = .04$. Post-hoc pairwise comparisons using Bonferroni correction were conducted to decompose this interaction. As detailed in Table 4, while both genders experienced elevated anxiety in formal settings, the gender gap was substantially larger in formal settings (mean difference = 16.08, SE = 2.65, $p < .001$) compared to informal settings (mean difference = 6.72, SE = 2.23, $p = .003$). Additionally, within each gender, formal settings elicited significantly higher anxiety than informal settings for both females (mean difference = 27.17, SE = 2.03, $p < .001$) and males (mean difference = 17.81, SE = 2.03, $p < .001$). These findings demonstrate that the formality of the speaking setting moderates the gender difference in PSA, consistent with the contextual patterns advanced by Nik Fauzi et al. (2025); and Romadloni et al. (2025).

Table 4. Pairwise Comparisons for Gender × Setting Interaction (Bonferroni Adjustment).

Comparison	Mean Difference	SE	p	95% CI
Formal: Female – Male	16.08	2.65	< .001	[9.85, 22.31]
Informal: Female – Male	6.72	2.23	.003	[2.09, 11.35]
Female: Formal – Informal	27.17	2.03	< .001	[22.97, 31.37]
Male: Formal – Informal	17.81	2.03	< .001	[13.61, 22.01]

Following the PRPSA scoring conventions established by Alsaiari et al. (2022), PSA levels were classified as low (PRPSA < 98), moderate (PRPSA 98–131), and high (PRPSA > 131). As presented in Table 5, in formal settings, 52% of female participants fell into the high anxiety category compared to 28% of males, while 38% of females and 48% of males fell into the moderate category. In informal settings, 18% of females and 8% of males fell into the high anxiety category, with 44% of females and 38% of males in the moderate category. These patterns are consistent with previous research by Nik Fauzi et al. (2025), who documented that female participants have a higher percentage of moderate and high PRPSA scores compared to males, particularly in evaluative contexts.

Table 5. Classification of PRPSA Anxiety Levels by Gender and Setting.

Setting	Gender	Low (< 98) n (%)	Moderate (98–131) n (%)	High (> 131) n (%)
Formal	Female	10 (10%)	38 (38%)	52 (52%)
Formal	Male	24 (24%)	48 (48%)	28 (28%)
Informal	Female	38 (38%)	44 (44%)	18 (18%)
Informal	Male	54 (54%)	38 (38%)	8 (8%)

This study examined gender differences in public speaking anxiety across formal and informal settings. The findings provide robust evidence that gender and setting formality interact in meaningful ways, contributing to the growing body of literature on demographic and contextual correlates of PSA.

Consistent with prior empirical research, female participants in this study reported significantly higher PSA levels than their male counterparts in both formal and informal settings. The magnitude of this difference was moderate to large (Cohen's d ranging from .43 to .86, as shown in Table 2), suggesting that gender is a meaningful predictor of PSA. These findings align directly with the large-scale occupational study conducted by Furnham (2026), who reported comparable effect sizes among working adults, as well as with the educational context findings of Balakrishnan et al. (2025) among TVET undergraduates.

These findings also align with broader patterns in anxiety research. Blöte et al. (2009) noted in their meta-analytic review that women consistently demonstrate higher prevalence rates of anxiety disorders and phobias compared to men. Within the specific domain of public speaking, the gender disparity may be attributed to multiple factors. Romadloni et al. (2025) suggested that societal expectations and gender role socialization disproportionately impact female students' willingness to participate in public speaking, particularly in competitive academic environments. Additionally, female students may experience heightened sensitivity to negative evaluation and judgment, which are core components of social anxiety, as highlighted by the item-level analyses of Nik Fauzi et al. (2025).

It is worth noting, however, that public speaking anxiety is a multifaceted phenomenon that cannot be explained solely by gender differences. Khalil et al. (2025) highlight the contribution of psychological, cognitive, and situational factors to the development and intensity of public speaking anxiety. In this regard, the present study's use of the validated PRPSA across two distinct speaking settings may have enhanced sensitivity to contextual variations in anxiety, providing a more nuanced understanding of how gender differences manifest under different situational demands.

The significant gender × setting interaction (Table 3) provides important insights into the contextual nature of gender differences in PSA. While both genders experienced higher levels of anxiety in formal than in informal speaking situations, the gender gap widened considerably in formal contexts, as evidenced by the pairwise comparisons presented in Table 4. These findings indicate that PSA varies according to the situational conditions in which public speaking occurs and extend the assessment of public speaking anxiety originally operationalized through McCroskey's (1970) PRPSA by demonstrating that the magnitude of gender differences may vary across speaking contexts.

This pattern suggests that formal settings may activate gender-specific anxiety triggers. Romadloni et al. (2025) found that female students report significantly higher anxiety when fearing negative evaluation and when speaking before the whole class. Formal presentations typically involve both of these elements: public visibility and explicit evaluation. The high-stakes nature of formal settings may disproportionately amplify the concerns that women already experience regarding judgment and performance, which aligns with the situational triggers identified by Nik Fauzi et al. (2025) in their comparative study of Malaysian university students.

In contrast, informal settings, characterized by lower stakes, smaller audiences, and less formal evaluation, appear to attenuate gender differences. While women still reported higher anxiety in these contexts, the gap was substantially smaller, at 6.72 points compared with 16.08 points in formal settings. This finding has important implications for understanding the mechanisms underlying gender differences in PSA. Rather than reflecting a uniformly expressed trait-like difference, the observed disparity appears to be, at least in part, situationally contingent. The marked variation in the magnitude of the gender gap across speaking settings indicates that contextual demands may play an important role in shaping the intensity of public speaking anxiety.

These results also align with broader research on communication apprehension and the multifactorial nature of public speaking anxiety. Khalil et al. (2025) emphasize that public speaking anxiety emerges from the interplay of psychological, cognitive, and situational factors rather than from a single determinant. The present findings extend this perspective by showing that, although gender differences are evident across both speaking settings, their magnitude varies according to the formality of the situation. This pattern suggests that gender-related

differences in public speaking anxiety are not uniform but are significantly shaped by contextual demands, particularly those associated with formal and evaluative speaking environments.

From a theoretical standpoint, these findings reinforce the importance of considering both individual differences and situational factors when examining PSA. McCroskey's (1970) conceptualization and measurement of public speaking anxiety provided an important foundation for systematically examining individual differences in anxiety associated with public speaking, while subsequent research has demonstrated the broader psychological complexity of this phenomenon (Blöte et al., 2009).

The present findings extend this perspective by showing that gender-based differences in PSA vary according to the formality of the speaking context, suggesting an interaction between individual characteristics and situational demands. Furthermore, the results underscore the multidimensional nature of PSA, which may involve cognitive, emotional, physiological, and anticipatory responses. Different speaking settings may intensify particular components of anxiety, and these patterns may vary between male and female speakers, highlighting the value of examining specific manifestations of speaking anxiety alongside overall anxiety scores (Romadloni et al., 2025).

From a practical standpoint, the results highlight the need for gender-sensitive, context-aware interventions. Generic public speaking training programs may be insufficient if they fail to address the specific concerns that disproportionately affect female speakers, particularly in formal, high-stakes settings. As Fauziyah et al. (2022) demonstrated, speaking anxiety may differ according to gender, with female students exhibiting higher levels of anxiety than their male counterparts. These findings highlight the importance of considering gender-related differences when designing strategies to reduce speaking anxiety and support students in developing greater confidence in oral communication.

Based on the present findings and the recommendations of Balakrishnan et al. (2025), the following strategies are proposed:

Gender-responsive scaffolding: Providing structured support that addresses specific anxiety triggers for female students, such as fear of negative evaluation and impromptu speaking demands.

Confidence-building workshops: Implementing gender-specific workshops that target societal perceptions and cultural expectations, as recommended by Furnham (2026) in his analysis of workplace anxiety.

Tiered speaking activities: Progressing from low-stakes informal discussions to higher-stakes formal presentations to build confidence incrementally, a pedagogical approach supported by Alsaiari et al. (2022).

Error-friendly environments: Cultivating classroom and workplace cultures that reduce the fear of negative evaluation, thereby attenuating the heightened anxiety females experience in formal settings.

These strategies align with evidence from Nik Fauzi et al. (2025) suggesting that tailored approaches addressing both demographic differences and specific manifestations of anxiety may contribute to reducing gender-related disparities in public speaking experiences. Several limitations of this study should be acknowledged. First, the use of a convenience sample of university students limits the generalizability of the findings to broader populations. Dewaele and Furnham (2026) demonstrated the relevance of examining public speaking anxiety among adult workers and identified demographic and personality characteristics associated with individual differences in anxiety.

Future research should therefore determine whether the patterns observed in the present study also emerge among working professionals, older adults, and populations from diverse cultural and occupational contexts. Second, the study relied exclusively on self-report data obtained through the PRPSA (McCroskey, 1970), which may be influenced by participants' perceptions and response tendencies. Future studies could complement self-reported anxiety with behavioral and physiological indicators to obtain a more comprehensive assessment of public speaking anxiety and to examine whether gender and speaking context are similarly associated with these different manifestations of anxiety.

Third, while the study distinguished between formal and informal settings, these categories encompass considerable variation. Balakrishnan et al. (2025) suggested that formal settings may range from low-stakes classroom presentations to high-stakes conference presentations, and informal settings may range from casual conversations to structured small group discussions. Future research should examine more fine-grained distinctions within these categories. Fourth, the study focused on gender as a demographic variable but did not assess other individual and psychological factors that may contribute to public speaking anxiety. Khalil et al. (2025) emphasize that public speaking anxiety is influenced by multiple psychological, cognitive, and situational factors. Future research should therefore incorporate measures of relevant psychological characteristics and contextual influences to provide a more comprehensive understanding of how individual differences interact with gender in shaping public speaking anxiety.

Finally, the cross-sectional design precludes causal inferences. Longitudinal studies tracking PSA development over time and across various speaking experiences, as recommended by Nik Fauzi et al. (2025), would provide valuable insights into how gender differences emerge and evolve across educational and professional trajectories.

CONCLUSIONS

This study examined gender differences in public speaking anxiety across formal and informal settings among university students. The findings showed that female participants experienced significantly higher levels of PSA than male participants, consistent with previous research reporting gender-related differences in public speaking anxiety (Balakrishnan et al., 2025; Blöte et al., 2009; Dewaele & Furnham, 2026). More importantly, the study demonstrated that setting formality moderated this relationship: the gender gap was substantially larger in formal, high-stakes speaking situations than in informal, lower-stakes contexts. This finding contributes to the existing literature by providing empirical evidence that gender differences in PSA may vary according to situational demands, complementing recent research emphasizing the relevance of gender and contextual factors in speaking anxiety (Nik Fauzi et al., 2025; Romadloni et al., 2025).

These results have important implications for theory, research, and practice. Theoretically, they support an understanding of PSA that considers the interplay between individual characteristics and situational demands rather than treating anxiety as a uniform response across speaking contexts. From a practical perspective, the findings underscore the importance of context-sensitive interventions that recognize the greater anxiety experienced by female participants, particularly in formal speaking situations. Educational institutions and organizations could implement progressively challenging speaking activities, confidence-building opportunities, and supportive environments in which errors are treated as part of the learning process. Such strategies may help students develop the skills and confidence required to communicate effectively across diverse speaking contexts while addressing the contextual conditions associated with heightened public speaking anxiety.

As public speaking remains an essential skill in academic, professional, and social domains, understanding the factors that contribute to anxiety and the contexts in which these factors are most influential is crucial for developing effective support strategies. This study contributes to that understanding by elucidating the interplay between gender and setting formality in shaping public speaking anxiety, thereby providing a clearer roadmap for future research and intervention design.

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Conflicts of Interest:

The authors declare no conflicts of interest.

Author Contributions:

Roshan Babaalipour, Nadia Talimian: Conceptualization, data curation, formal analysis, investigation, methodology, supervision, validation, visualization, original draft writing, and writing, review, and editing.

Ethical statement:

The study was conducted in accordance with established ethical principles for research involving human participants. Participation was voluntary, and all participants provided informed consent prior to data collection. Confidentiality and anonymity were maintained throughout the research process, and no personally identifiable information was collected or reported. The study protocol was reviewed and approved by the university's institutional review board.