Research Paper



Perceived Parental Psychological Control and Social Anxiety Symptoms: The Mediating Role of Behavioral Inhibition

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ABSTRACT

Objective: Due to the widespread prevalence of social anxiety and its considerable consequences, research in this area is imperative. The present study was conducted to examine the perceived parental psychological control (PPPC) and its relationship with social anxiety symptoms (SAS) with behavioral inhibition (BI), serving as a mediating factor among female university students in Tehran City, Iran.

Methods: The research sample includes 300 Iranian female university students aged 18 to 25 selected through convenience sampling from April to August 2023. The data were collected by the dependent and achievement-oriented psychological control scales, the social phobia inventory, and the behavioral activation/inhibition scale. The obtained data were analyzed using the Pearson correlation and path analysis in SPSS software, version 26 and AMOS software, version 24.

Results: A significant positive correlation was found between PPPC and SAS ($P \le 0.01$), as well as BI ($P \le 0.01$). The path analysis revealed that BI mediates between PPPC and SAS ($P \le 0.01$).

Conclusion: Findings show that PPPC is related to SAS, and BI plays a mediating role that can partially increase social anxiety in this relationship.

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Highlights

• A significant positive correlation was found between perceived parental psychological control (PPPC) and social anxiety symptoms (SAS).

- A positive correlation was found between PPPC and behavioral inhibition (BI).
- Path analysis showed a significant direct effect of BI on SAS.
- PPPC significantly impacted BI and SAS.
- BI partially mediates PPPC and SAS.
- With an increase of one score in the PPPC, SAS scores through a significant indirect effect mediated by BI.

Plain Language Summary

Women exhibit a higher prevalence of anxiety disorders, particularly social anxiety disorder (SAD), characterized by significant fear in social contexts. This research investigates the contributing factors in increasing social anxiety among women, focusing on PPPC and behavioral inhibition. These factors can result in increased shyness, subsequently impacting confidence and self-esteem. Furthermore, behavioral inhibition intensifies the influence of parental psychological control on social anxiety.

Introduction

any people struggle with anxiety disorders. One type of anxiety disorder is social anxiety (SA). This anxiety instigates crippling concerns in specific social situations. People's fear is judged or humiliated in these situations. Afflicted people avoid or suffer significantly from these circumstances due to their concerns (APA, 2022). According to research, 15.6% of people experience anxiety disorders (excluding specific phobias) in 12 months, with 12% of men and 19.4% of women. Among anxiety disorders, social anxiety disorder (SAD) (3.2%) ranks third (Hajebi et al., 2018). SA is a hidden disability that affects the learning and well-being of many students (Russell & Topham, 2012). Women with SAD worked fewer months and earned less (Tolman et al., 2009). Women with this disorder have more trouble in groups and the workplace, and they have more comorbid internalizing disorders (Schneier & Goldmark, 2015).

Genetics, peers, cognitions, culture, biology (neurocognitive), and parenting affect this disorder (Spence & Rapee, 2016). Research suggests that parent-child interaction may cause SA (Ebesutani et al., 2011). In an observational study on SA, anxious parents were more controlling when doing complex tasks with their children (Rork & Morris, 2009). Studies show that excessive maternal control at the age of 7 increases SAS and adolescent SAD diagnosis (Lewis-Morrarty et al., 2012). Parental psychological control (PPC) is a construct associated with parent-child interaction (Gómez-Ortiz et al., 2016).

According to Barber and Harmon (2002), PPC includes inducing guilt, withdrawal of love, stimulating anxiety, and discrediting the child's viewpoint that controls the children's psychological experiences (such as feelings, desires, and identity choices). Introversion, guilt, hopelessness, shame, and limited verbal interaction characterize children with PPC (Filippello et al., 2015). Parents have achievement- and dependency-oriented psychological control. Parents with dependent children are close physically and emotionally. Failure to meet achievement-oriented parents' expectations shames and guilts children (Soenens et al., 2010).

Behavioral inhibition (BI) means reacting strongly to new auditory and visual stimuli and avoiding unfamiliar people and situations (Kagan et al., 1984; Gray, 1987). SA strongly correlates with BI (Clauss & Blackford, 2012; Sandstrom et al., 2020).

According to a longitudinal study (Lewis-Morrarty et al., 2012), parenting also affects BI. Behavioral inhibition and excessive maternal control are major risk fac-

tors for childhood internalizing problems, particularly SAD. In adolescents with excessive maternal control, high BI predicts SA. In contrast, low maternal control protects the child with consistently high BI, and it plays a moderating role in the BI and SA relationship. Teens with both primary risk factors have the most SA.

In general, women have more anxiety disorders than men (APA, 2022). Girls are more likely to develop chronic inhibition, which may be due to cultural expectations and socialization patterns that reinforce certain degrees of inhibition and stress responsiveness in girls but not in boys (Essex et al., 2010). This research targets girls for the following reasons.

Rubin and colleagues (1991) introduced a developmental theory to elucidate the connection between early BI and the subsequent risk of SAD. A reciprocal dynamic exists between BI and parenting styles in certain parent-child relationships. Some parents may perceive their inhibited children as particularly vulnerable due to the negative emotions and withdrawal these children display in unfamiliar situations, especially as they grow older and encounter new social contexts (Mills & Rubin 1990, 1993). Consequently, these parents may resort to excessively protective, directive, and controlling behaviors to alleviate their child's distress, even when such actions are unnecessary (Rubin et al., 1999). Therefore, maternal over-control may heighten the risk of developing SA when parents restrict their children's opportunities to engage with and cope independently in novel social environments (Rapee, 1997).

According to Rubin's theory (1991), this research investigated the relationship between PPC and SAS, exploring BI's mediating role.

Materials and Methods

The current study employed correlation methods and structural equation modeling (SEM) with a mediating variable. The Bootstrapping method with 5000 samples was used to assess the impact of mediation. The sample size for this study was calculated at 300 (Nevitt & Hancock, 2001) female Iranian university students living in Tehran City, Iran, from April to August 2023. The statistical packages utilized were AMOS software, version 24 and SPSS software, version 26. All analyses had significance levels <0.05.

Inclusion and exclusion criteria

The inclusion criteria in the research required being 18–25 years old, single and living with both parents. The exclusion criteria included questionnaire distortion and a lack of willingness to continue cooperation.

Study procedures

Dependency- and achievement-oriented psychological controls are equally measured by this 16-item scale. Likert scales range from 1 (completely disagree) to 5 (completely agree). The Cronbach a showed good internal consistency for dependency-oriented psychological control at 0.73 and achievement-oriented at 0.81. This questionnaire's construct validity was determined by exploratory and confirmatory factor analysis (Soenens et al., 2010). The Cronbach α coefficient was 0.88 for the whole scale, 0.86 for the dependency-oriented psychological control, and 0.83 for achievement-oriented psychological control, indicating its reliability in Iran. To assess the validity of the dependent psychological control scale within the development circuit, it was administered concurrently with the Rosenberg self-esteem and Beck anxiety questionnaire. A positive correlation was identified between the overall score of the psychological control scale and anxiety (0.21). In contrast, a negative and significant correlation was found with self-esteem (0.26)at the P<0.01. Additionally, significant correlations were observed between each of the subscales and both anxiety and self-esteem (Badanfiroz et al., 2017). This study's Cronbach α was 0.92.

SA was assessed using the social phobia inventory. This 17-item self-report questionnaire has three subscales: Fear (6 items), avoidance (7 items), and physiological distress (4 items). Each item is rated on a 5-point Likert scale (0-4). The test re-test reliability is 0.78-0.89 in SAD groups. In a normal group, the Cronbach α is 0.94, and the fear, avoidance, and physiological distress subscales are 0.89, 0.91, and 0.80, respectively (Connor et al., 2000). In a clinical sample in Iran, the overall Cronbach α was 0.97. The subscale Cronbach α was 0.86 for avoidance, 0.84 for fear, and 0.85 for physiological distress, indicating good internal consistency. The convergent validity of the social phobia inventory, measured by the symptom checklist 90-revised and cognition error questionnaire, was found to be 0.83 and 0.47, respectively. In terms of discriminant validity, the results were -0.70 and -0.44 when utilizing the self-esteem rating scale (SERS) and multidimensional body-self relations questionnaire, respectively (a<0.001) (Hasanvand Amouzadeh, 2016). The Cronbach α was 0.93 in this study.

Research Variables	РРРС	ВІ	SAS
PPPC	-		
BI	0.36**	-	
SAS	0.22**	0.50**	-
Mean±SD	40.20±13.52	21.53±3.25	26.40±14.32
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Table 1. Mean±SD and correlation coefficients among research variables

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PPPC: Perceived parental psychological control; SAS: Social anxiety symptoms; BI: Behavioral inhibition.

**P<0.001.

Behavioral inhibition scale (BIS) and behavioral activation scale (BAS) are subscales of the 24-item behavioral activation/inhibition scale (BAIS). BAS has 13 items and three subscales: Drive (4 items), reward responsiveness (5 items), and fun seeking (4 items). The BIS subscale has 7 items. Items are rated on a 1-4 Likert scale. Items 2 and 22 are reverse-scored. BIS and BAS subscales have internal consistency values of 0.74 and 0.71, respectively (Carver & White, 1994). Iranian test re-test reliability of this questionnaire was 0.78 for the BAS subscale and 0.81 for the BIS subscale. The internal consistency of the BIS/BAS scale was assessed using the Cronbach α coefficient. The coefficient for the BIS scale was found to be 0.62, while the subscales of BAS, namely reward responsiveness, drive, and fun-seeking, vielded coefficients of 0.68, 0.74, and 0.65, respectively. Furthermore, the concurrent validity of the BIS/BAS scale indicated a significant positive correlation between the BIS scale and measures of Beck depression inventory (BDI), neuroticism, state-trait anxiety inventory, and negative affect. Additionally, the results demonstrated a significant positive correlation between the BAS scale and positive affect and extraversion. (Abdollahi Majarshin et al., 2013). The current study's Cronbach α was 0.69.

Results

This study examined 300 female Iranian university students in Tehran. The participants' ages varied from 18 to 25, with a Mean \pm SD of 20.93 \pm 1.89. Table 1 exhibits the Mean \pm SD of perceived parental psychological control (PPPC), BI, and SAS, along with their Pearson correlation coefficients. The associations between them were significant and positive (P<0.001).

Univariate normality and collinearity

Table 1 shows the significant and positive associations between variables (P<0.001). To assess the assumption of a univariate normal distribution, the kurtosis and skewness of the variables were considered, and to evaluate the assumption of collinearity, the variance inflation factor (VIF) and tolerance coefficient were examined (Table 2).

Table 2 indicates that all variables' kurtosis and skewness values fall within the range of ± 2 . This result confirms that the variables meet the assumption of a univariate normal distribution (Kline, 2023). The assumption of collinearity proved valid within the present study's data. The tolerance coefficient values of predictor variables exceeded 0.1, while the VIF values for each were below 10 (Myers et al., 2016).

Variables	Univariate N	lormality	Collinearity	
	Skewness	Kurtosis	Tolerance Coefficient	VIF
PPPC	0.30	-0.59	0.95	1.04
BI	-0.46	-0.11	0.95	1.04
SAS	0.46	-0.26	-	-

Table 2. Univariate normality and collinearity assumptions

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Abbreviations: PPPC: Perceived parental psychological control; SAS: Social anxiety symptoms; BI: Behavioral inhibition; VIF: Variance inflation factor.

Table 3. Fit indices o	of fitted model
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Fitness Indicators	Before Modification	After Modification	Appropriate Points
Normed chi-square (χ^2 /df)	2.77	2.38	<3
Standardized root mean square residuals (SRMR)	0.06	0.05	<0.08
Goodness fit index (GFI)	0.93	0.94	>0.90
Incremental fit index (IFI)	0.93	0.95	>0.90
Comparative fit index (CFI)	0.93	0.95	>0.90
Root mean square error of approxi- mation (RMSEA)	0.07	0.06	0.08
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Model specification

Discussion

PPPC is positively associated with SAS and BI

The results of this study provide robust evidence sup-

In this study, the mediating effect of BI on the relationship between PPPC and SAS was investigated using the Bias-corrected percentile bootstrap method. Table 3 presents the model fit indices before and after modification, indicating the model's suitability for interpretation.

The indirect bootstrap method yielded a coefficient of 0.14 and a confidence interval of (0.23-0.05) at a significance level below 0.05, with a P of 0.004, demonstrating that BI mediates the relationship between PPPC and SAS. Table 4 indicates a significant positive direct path coefficient (β =0.23, P<0.001) between PPPC and SAS. Positive and significant indirect paths were found between PPPC and BI (β =0.26; P<0.001), as well as BI and SAS (β =0.57; P<0.001). The relationship between PPPC and SAS was partially mediated by BI, as determined by the significance of direct and indirect paths. The factor loadings of the variables and the path coefficients of the fitted model are displayed in Figure 1.

porting the hypothesis that PPPC is positively associated with both SAS and BI among Iranian female university students. Statistical analysis revealed a significant positive correlation between PPPC and SAS, indicating that higher levels of PPPC correspond to increased anxiety in social contexts. Similarly, a positive correlation emerged between PPC and BI, suggesting that controlling parenting practices amplify tendencies toward withdrawal and avoidance of unfamiliar or threatening situations. These findings align with a wealth of prior research, including Zhang et al. (2022), Nelemans et al. (2020), and Nanda et al. (2012), which collectively demonstrate that PPC-manifested through guilt induction, affection withdrawal, or excessive expectations-erodes autonomy and self-esteem, thereby heightening vulnerability to anxiety. Likewise, studies by Ollendick et al. (2014) and Abaied and Emond (2013) corroborate the link between controlling parenting and BI, noting that such parenting styles reinforce a child's predisposition to retreat from novel experiences.

Path	β	SE	b	Р
PPPC → BI	0.26	0.05	0.02	< 0.001
$PPPC \rightarrow SAS$	0.23	0.05	0.22	< 0.001
BI → SAS	0.57	0.84	6.56	< 0.001

Table 4. Direct and indirect effect coefficients in the SEM model of BI as mediation in the relationship between PPPC and SAS

CLINICAL PSYCH OLOGY

Abbreviations: PPPC: Perceived parental psychological control; SAS: Social anxiety symptoms; BI: Behavioral inhibition; SE: Standard error; β : Standardized β ; b: Unstandardized β .

Note: In this research, the bootstrap method with a sample size of 5000 was used to estimate the standard error of indirect effects.



Figure 1. Estimated model with standardized parameters

Rubin's developmental theory (1991) offers a compelling lens through which to interpret these associations. Rubin posits that parenting practices and child temperament engage in a transactional dynamic, where parents may interpret BI-characterized by shyness and withdrawal-as a sign of vulnerability. In response, they may adopt overprotective or controlling behaviors, such as guilt-inducing tactics or dependency-oriented strategies, to manage their child's distress (Mills & Rubin, 1990; Mills & Rubin, 1993). Within the Iranian context of this study, this pattern appears particularly pronounced. Traditional parenting practices in Iran often emphasize conformity and protection, especially for daughters, reflecting a collectivist cultural framework that prioritizes familial harmony over individual autonomy. For example, a female student raised in an environment where emotional expression is stifled, or compliance is enforced through guilt may develop a pervasive fear of negative evaluation, a hallmark of SA. This sociocultural dimension amplifies the impact of PPC, as gendered expectations of restraint and inhibition-more strongly reinforced in girls than boys (Rubin et al., 1999)-intensify the effect.

Rapee's etiological model (1997) further enriches this analysis by highlighting how parenting shapes perceptions of social threats. Rapee argues that overcontrolling parents convey a worldview in which social interactions are fraught with danger, fostering a sense of inadequacy or fear of judgment in their children. In this study, the direct effect of PPPC on SA underscores this mechanism, suggesting that such parenting instills anxiety independent of temperament. For Iranian female students, this may manifest as a heightened sensitivity to social scrutiny, driven by both familial control and cultural norms that emphasize female modesty and deference. The strong correlation between BI and SAS further supports this hypothesis, aligning with Clauss and Blackford's (2012) study that BI is a key risk factor for SAD,

significantly when exacerbated by environmental factors like parenting.

BI partially mediates the relationship between PPPC and SAS

The second hypothesis that BI partially mediates the relationship between PPPC and SAS is equally substantiated by this study's findings. Path analysis revealed a direct effect of PPPC on SAS and an indirect effect mediated through BI. This partial mediation indicates that while PPC directly contributes to SA, it also operates indirectly by intensifying BI, which in turn heightens anxiety. This finding endorses Lewis-Morrarty et al. (2012), who demonstrated that excessive maternal control amplifies the impact of an inhibited temperament, increasing anxiety risk during adolescence. Even after accounting for mediation, the persistence of a direct effect suggests additional pathways-such as internalized shame, cognitive distortions, or cultural pressures-that warrant further exploration.

Rapee's etiological model (1997) provides a framework for understanding this mediation. The theory suggests that controlling parenting restricts opportunities for independent exploration, reinforcing BI and creating a feedback loop that culminates in SA. For instance, an Iranian female student subject to guilt-based control may avoid social interactions to evade perceived disapproval, a behavior that becomes entrenched over time. Rapee's model (1997) complements this by emphasizing the dual role of parenting and temperament: Psychological control not only cultivates withdrawal but also directly heightens the perception of social encounters as threatening. Together, these frameworks reveal a dynamic interplay where environmental influences (parenting) and intrinsic traits (inhibition) converge to elevate anxiety risk.

The sociocultural context of Iranian female students enhances the relevance of this mediation. Globally, women exhibit higher rates of anxiety disorders (APA, 2022), a trend potentially intensified in cultures where gendered socialization fosters inhibition (Essex et al., 2010). In Iran, dependency-oriented control may be a culturally sanctioned strategy to protect daughters, yet it inadvertently reinforces avoidance behaviors, increasing SA. The standardized indirect effect highlights the practical significance of this pathway, suggesting that reducing PPPC could meaningfully lower anxiety symptoms by weakening its effect on inhibition.

These findings have profound implications for intervention design. Under hypothesis 1, the direct links between PPPC, SA, and BI underscore the need for parentingfocused strategies. Autonomy-supportive parentingencouraging independence rather than control—could disrupt the cycle of anxiety and inhibition, as suggested by Rubin and Rapee. Under hypothesis 2, the mediating role of BI points to complementary approaches, such as exposure therapy or social skills training, to target avoidance behaviors directly. Culturally attuned interventions are especially critical in Iran, where traditional practices may resist change but could be reframed to balance protection with empowerment.

Conclusion

In conclusion, this study confirms that PPPC drives SAS among Iranian female university students, both directly and through the partial mediation of BI. Grounded in Rubin's developmental theory and Rapee's etiological model, these results illuminate a transactional process where controlling parenting exacerbates an inhibited temperament, amplifying anxiety in a culturally specific context.

Study limitations and suggestions

Study limitations, such as the focus on female students in Tehran, reliance on self-reports, and a non-clinical sample, restrict generalizability. However, the findings lay a foundation for future longitudinal and qualitative research

Ethical Considerations

Compliance with ethical guidelines

This study was approved by the Ethics Committee of Royan Institute, Tehran, Iran (Code: IR.ACECR.ROY-AN.REC.1402.043).

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Authors' contributions

Conceptualization, methodology, software, validation, formal analysis, investigation, resources, data curation, writing, and visualization: Yasamin Majidi; Supervision and project administration: Mohsen Kachooei.

Conflict of interest

The authors declared no conflict of interest.

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