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Article

# Co-Rumination as a Mediator Between Interpersonal Needs and Rumination

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**Abstract:** *Objectives.* – Suicidal ideation reflects a person's desire not to survive and, if persistent, can lead to suicide, a significant mental health issue. While various pathways to suicide have been studied, some remain unexplored, particularly the role of individual and social factors. Research identifying these psychosocial mechanisms' impact on suicide risk is essential for informing prevention interventions. This study aimed to investigate the mediating role of co-rumination in the relationship between interpersonal needs and suicidal ideation. *Methods.* – Using a descriptive-correlational approach, we included 304 undergraduate and graduate students selected through convenience sampling from a higher education institution in Mashhad during the second semester of the 2023-2024 academic year. Data were collected using the Co-Rumination Questionnaire (CRQ), the Beck Scale for Suicidal Ideation (BSSI), and the Interpersonal Needs Questionnaire-10 (INQ-10). Path analysis was conducted using SPSS<sub>27</sub> and Amos<sub>24</sub> to test the study hypotheses. *Results.* – The analysis revealed that interpersonal needs are a significant predictor of suicidal ideation, both directly and indirectly through co-rumination. Moreover, the fit indices (GFI = .98, CFI = .90, IFI = .90, RMSEA = .08) supported the proposed model. *Conclusions.* – The results indicate that unmet interpersonal needs increase co-rumination, which subsequently raises suicidal ideation levels. Awareness of this pathway can help develop preventive measures to control and reduce suicidal ideation.

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## The Mediating role of Co-Rumination in the Relationship Between Interpersonal Needs and Ruminative Responding: A Test of the Interpersonal Theory of Suicidal Behaviour

Suicidal behaviour represents a significant global public health concern, particularly among academic students who face unique psychological stressors. Understanding the mechanisms that contribute to suicidal ideation within this population is crucial for the development of effective prevention strategies. The Interpersonal Theory of Suicidal Behaviour (IPTB) [1] provides a theoretical framework for understanding these mechanisms, proposing that thwarted belongingness and perceived burdensomeness are key precursors to suicidal ideation [2]. Furthermore, the transition from suicidal ideation to action is contingent upon the acquired capability for suicide, which develops through repeated exposure to painful and provocative experiences [3].

Academic environments may heighten these interpersonal vulnerabilities, as students frequently encounter social isolation due to competitive pressures, while academic failure, financial strain, and external expectations can intensify feelings of perceived burdensomeness [4]. These adverse experiences may contribute to maladaptive cognitive patterns, particularly rumination and co-rumination. Rumination, characterized by repetitive focus on distressing thoughts, is a well-established risk factor for depression and anxiety [5]. Co-rumination, its interpersonal counterpart, involves excessive discussion of personal problems within close relationships. While this process may provide temporary emotional validation, it has been shown to reinforce negative thinking patterns and increase emotional distress [6]. Within the framework of IPTB, co-rumination may act as a

cognitive mechanism that mediates the relationship between thwarted belongingness, perceived burdensomeness, and suicidal ideation.

The interaction between thwarted belongingness and perceived burdensomeness is particularly concerning, as research suggests that when individuals experience both constructs concurrently, they face a significantly heightened risk of developing suicidal thoughts [7]. Thwarted belongingness, defined as a persistent sense of social disconnection, is associated with feelings of loneliness and isolation that exacerbate emotional distress [8]. Similarly, perceived burdensomeness, which manifests as a belief that one is a liability to others, has been consistently linked to increased suicidal risk, particularly when accompanied by self-hatred and feelings of worthlessness [9]. The co-occurrence of these two factors fosters a sense of hopelessness that may facilitate the emergence of suicidal ideation [10].

Co-rumination may serve as a key cognitive pathway through which interpersonal needs contribute to suicidal ideation. While discussing distressing experiences with others may temporarily alleviate negative emotions, excessive co-rumination tends to prolong psychological distress and reinforce maladaptive cognitive processing [11]. Empirical evidence indicates that co-rumination exacerbates depressive symptoms and heightens suicidal ideation by amplifying emotional dysregulation and reinforcing negative self-perceptions [12, 13]. Individuals experiencing thwarted belongingness may engage in co-rumination in an attempt to seek validation and connection, but when their distress remains unresolved, it may intensify their feelings of social disconnection. Likewise, those who perceive themselves as burdensome may engage in co-rumination as a means of seeking reassurance but may ultimately reinforce their negative self-perceptions, further exacerbating suicidal thoughts [14].

By investigating the mediating role of co-rumination in the relationship between interpersonal needs and ruminative responsiveness, this study aims to extend the IPTS framework. Understanding this cognitive pathway may provide critical insights into the psychological mechanisms underlying suicidal ideation in academic students. Identifying co-rumination as a mediating factor not only clarifies the interplay between interpersonal vulnerabilities and cognitive processes but also highlights potential targets for therapeutic intervention. Addressing co-rumination through cognitive restructuring and social support interventions may represent an effective strategy for mitigating suicidal risk and promoting mental well-being in vulnerable populations.

## Method

### *Participants*

This descriptive-correlational study used path analysis to examine students from a Mashhad, Iran university during spring 2024. Using a 10:1 participant-to-parameter ratio for our 21-parameter model, we recruited 250 participants (minimum required: 210) via convenience sampling. Data were collected through online questionnaires distributed via student social media groups (May 29-June 8, 2024). Inclusion criteria required no recent mental health treatment (past 6 months) and voluntary participation, while excluding incomplete responses (>10% missing). The sample (72.3% female) had a mean age of  $22.86 \pm 3.58$  years (range:18-30), with 66.8% unmarried, 77.2% undergraduates, and 54.4% humanities majors.

### *Measures*

**The Interpersonal Needs Questionnaire (INQ-10).** The INQ-10 [1] assesses perceived burdensomeness (items 1–5) and thwarted belongingness (items 6–10) using a 7-point Likert scale (1 = *not at all true*, 7 = *very true*), with items 6, 9, and 10 reverse scored. Higher scores indicate greater interpersonal distress. The scale's factorial validity has been confirmed [15, 16], with Cronbach's alpha ranging from .82 to .94 [17]. Among students, it showed good reliability ( $\alpha = .81-.83$ ) and split-half reliability (.79–.81) [18]. In this study, Cronbach's alpha was .81.

**The Co-Rumination Questionnaire (CRQ).** The 26-item CRQ [19], adapted from Rose (2002), assesses Reflection (items 1, 4, 5, 9), Encouragement of Talking about Problems (items 2, 3, 6, 7, 8, 10, 11), and Co-Rumination (items 12–26) on a 5-point Likert scale (1 = *not at all true*, 5 = *really true*). Higher scores indicate stronger tendencies in each subscale. Validity and reliability have been confirmed [19],

with significant correlations between co-rumination, stress, anxiety, depression, and ruminative response ( $p < .01$ ) [20]. The scale demonstrated excellent reliability ( $\alpha = .89-.95$ , split-half =  $.89-.94$ ). In this study, Cronbach's alpha was  $.95$ .

**The Ruminative Response Scale (RRS).** The 22-item RRS [21] measures ruminative responses on a 4-point Likert scale (1 = *never*, 4 = *always*), with total scores ranging from 22 to 88. Higher scores indicate greater rumination in stressful situations. Reliability is well-established ( $\alpha = .88-.92$ , test-retest =  $.67$ ) [22]. In a student sample,  $\alpha = .88$  [23], with significant correlations to anxiety and depression. In this study,  $\alpha = .93$ , confirming excellent reliability.

### Statistical Strategy

Data screening included identifying and correcting outliers, replacing missing values with the mean, and checking for univariate (box plots) and multivariate outliers (Mahalanobis distances), with none detected. Assumptions for path analysis—normality, multicollinearity, independence of errors, and homoscedasticity—were verified. Univariate normality was confirmed (skewness  $\pm 2$ , kurtosis  $\pm 7$ ). Multivariate normality was assessed via standardized residuals and the Kolmogorov-Smirnov test. Tolerance and variance inflation factor (VIF) indices confirmed no multicollinearity. Analyses included descriptive statistics, Pearson's correlation, and path analysis using SPSS<sup>27</sup> and AMOS<sup>24</sup>.

### Results

Table 1 presents descriptive statistics and the correlation matrix. Interpersonal needs showed a significant positive correlation with co-rumination dimensions and ruminative responding ( $p < 0.05$ ). Co-rumination dimensions also correlated positively with ruminative responding ( $p < 0.01$ ).

**Table 1.** Descriptive statistics and correlation matrix.

Variables	Mean	SD	Kurtosis	Skewness	1	2	3	4	5
1. perceived burdensomeness	10.90	3.66	0.28	-0.57	-				
2. thwarted belongingness	18.24	3.29	0.03	-0.30	0.27	-			
3. rehashing	45.79	8.96	-0.14	-0.02	0.18	0.20	-		
4. mulling	14.20	3.44	0.08	-0.39	0.18	0.21	0.15 *	-	
5. encouraging problem talk	23.89	5.16	0.09	-0.01	0.16 *	0.17	0.16 *	0.16 *	-
6. ruminative responses	48.34	7.12	0.01	-0.23	0.22	0.21	0.19 *	0.22 **	0.22 **

SD: standard deviation.; \*\* $p < 0.01$ ; \* $p < 0.05$ .

Residuals followed a normal distribution ( $Z = 0.05$ ,  $P > 0.05$ ). Tolerance coefficients (0.87–0.94) and VIF values (1.07–1.14) confirmed no multicollinearity. The Durbin-Watson statistic (2.18) indicated independent errors.

Subsequently, the model was estimated using the maximum likelihood method, and standardized direct and indirect effect coefficients for the paths were calculated. The model fit indices were also examined. The  $\chi^2/df$  was 2.753. The root mean square error of approximation (RMSEA) was 0.086. The incremental fit index (IFI), comparative fit index (CFI), and goodness-of-fit index (GFI) were 0.947, 0.940, and 0.988, respectively, all indicating a good fit. The amount of explained variance in ruminative responding based on interpersonal needs and co-rumination was  $R^2 = 0.12$ . The indirect and total effect coefficients are presented in Table 2. The significance of the coefficients was examined using the bootstrap method.

**Table 2.** Direct, indirect and total effects.

Paths	Direct effects		Indirect effects		Total effects	
	$\beta$	$P$	$\beta$	$P$	$\beta$	$P$
PB→ RE	0.131	0.028	-	-	0.131	0.028
PB→ MU	0.130	0.017	-	-	0.130	0.017
PB→ EPT	0.120	0.070	-	-	0.120	0.070

PB→RE→RU	-	-	0.014	0.054	0.122	0.046
PB→MU→RU	-	-	0.018	0.023	0.126	0.039
PB→EPT→RU	-	-	0.018	0.028	0.126	0.039
PB→RU	0.128	0.038	0.049	0.007	0.177	0.012
TB→RE	0.169	0.007	-	-	0.169	0.007
TB→MU	0.174	0.008	-	-	0.174	0.008
TB→EPT	0.138	0.029	-	-	0.138	0.029
TB→RE→RU	-	-	0.019	0.045	0.121	0.064
TB→MU→RU	-	-	0.024	0.032	0.126	0.014
TB→EPT→RU	-	-	0.020	0.041	0.123	0.024
TB→RU	0.102	0.088	0.062	0.001	0.165	0.003
RE→RU	0.108	0.076	-	-	0.108	0.076
MU→RU	0.135	0.022	-	-	0.135	0.022
EPT→RU	0.148	0.009	-	-	0.148	0.009

PB: perceived burdensomeness; TB: thwarted belongingness; RE: rehashing; MU: mulling; EPT: encouraging problem talk; RU: ruminative responses.

Table 2 shows that perceived burdensomeness did not significantly predict encouraging problem talk or ruminative responding ( $p > 0.05$ ). Thwarted belongingness had no direct effect on ruminative responding ( $p > 0.05$ ).

Perceived burdensomeness had no significant indirect effect on ruminative responding via rehashing ( $p > 0.05$ ) but showed significant indirect effects via mulling and encouraging problem talk ( $\beta = 0.018$ ).

All three co-rumination dimensions (rehashing, mulling, and encouraging problem talk) significantly mediated the relationship between thwarted belongingness and ruminative responding, with mulling having the strongest effect ( $\beta = 0.024$ ). The total effect of thwarted belongingness on ruminative responding via rehashing was not significant ( $p > 0.05$ ), though its overall total and indirect effects were greater.

## Discussion

This study provides key insights into the relationship between interpersonal needs, co-rumination, and ruminative responding within the IPTS framework, demonstrating that thwarted belongingness and perceived burdensomeness significantly contribute to co-rumination among students. These findings not only support the IPTS claim that unmet interpersonal needs drive psychological distress, but also align with prior research [19, 24] showing how individuals with unfulfilled social needs seek validation through repetitive discussions, thereby reinforcing negative thought patterns. Importantly, the study reveals a strong link between co-rumination and ruminative responding, suggesting that dwelling on negative experiences with others exacerbates distress and may consequently heighten suicidal ideation - a connection that underscores the potential value of targeting these cognitive patterns in therapeutic interventions to mitigate the adverse effects of unmet interpersonal needs.

Delving deeper into these relationships, the pathway analysis yielded nuanced findings: while perceived burdensomeness showed no direct influence on ruminative responding, its indirect effects emerged through deep thinking and encouragement to discuss problems. In contrast, thwarted belongingness affected ruminative responding through all dimensions of co-rumination, indicating its more pervasive psychological impact. Interestingly, the finding that perceived burdensomeness didn't significantly predict encouragement to discuss problems points to distinct cognitive processing patterns that merit further investigation, particularly as these differential pathways may inform more tailored intervention approaches.

However, several limitations must be acknowledged when interpreting these results. The cross-sectional design prevents definitive causal conclusions, highlighting the need for longitudinal research to establish temporal relationships. Moreover, the predominantly female and humanities-focused sample limits generalizability, suggesting that future studies should incorporate more diverse populations to validate these findings across different demographic and academic contexts. Building

on these results, subsequent research could productively explore additional mediators in the interpersonal needs-suicidal behavior link and examine how cultural factors might influence co-rumination's role in psychological distress.

Taken together, these findings significantly advance our understanding of suicide risk factors by demonstrating how co-rumination mediates the relationship between interpersonal needs and ruminative responding, thereby reinforcing IPTS claims about the psychological consequences of thwarted belongingness and perceived burdensomeness. The clinical implications are clear: effective suicide prevention strategies should simultaneously address cognitive processes through co-rumination disruption techniques while also fostering social connections and alleviating burdensomeness perceptions. Ultimately, this research underscores the importance of integrating cognitive and interpersonal perspectives to develop comprehensive, targeted mental health interventions for vulnerable student populations.

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