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Metacognition and Psychological Distress: A Parallel Mediation Model of Rumination and Ostracism

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ABSTRACT

The developmental stage of young adults is marked with increased vulnerability to psychological distress as cognitive, emotional and social processes interact in complex ways. This study examined the relationship between metacognition, rumination, ostracism and psychological distress in Young Adults. A total of 327 participants under the age range of 18-25 were recruited through purposive sampling from different public and private universities. The scales employed were the Metacognitions Questionnaire-30, Ruminative Inertia Scale, Ostracism Experience Scale, and Kessler Psychological Distress Scale. Pearson correlation and Linear regression analysis were conducted along with Parallel mediation analysis. The results revealed significant positive correlations in all the study variables. Self-rumination had a strong positive relationship with psychological distress ($r = .60^{**}, p < .01$). Psychological distress also showed moderate correlations with negative beliefs about the uncontrollability and danger of thoughts ($r = .57^{**}, p < .01$), cognitive confidence ($r = .46^{**}, p < .01$), and ostracism experience ($r = .48^{**}, p < .01$). In addition, self-rumination was moderately associated with maladaptive metacognitive beliefs ($r = .56^{**}, p < .01$), implying a shared cognitive vulnerability. Negative metacognitive beliefs about uncontrollability and danger, self-rumination, social rumination, and ostracism experience emerged as significant predictors of distress. The whole model explained 52.7% of the variance in distress. Additionally, a parallel mediation analysis was conducted which revealed that both rumination and ostracism significantly mediated the relationship between metacognition and psychological distress. The findings suggest how maladaptive thinking patterns and negative social experiences contribute to emotional difficulties. Future research should explore these relationships longitudinally with diverse demographic factors and to develop culturally tailored strategies and interventions to enhance mental well-being in Young Adults.

Keywords: Metacognition, Rumination, Ostracism And Psychological Distress.



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Introduction and Literature Review

Young adults are increasingly becoming a breeding ground of psychological distress, A critical period as they face different challenges such as economic instability, educational competition, societal expectations, lack of mental health awareness and uncertainty about the future where the population is specifically more susceptible to psychological distress thereby encompasses symptoms of depression, anxiety, and emotional suffering (Zhu et al., 2022). According to an overview of mental health trends reported in 2025, the CDC, WHO, and NHS reported nearly 40% of high school students with ongoing feelings of sadness or hopelessness and a significant increase in suicide attempts and self-injury behaviors in several countries (Padder, 2025). While, study by Eisenberg et al. (2013) showed about 17.3% had depression, 7.0% anxiety, and 6.3% reported suicidal thoughts in U.S. Recent systematic analyses find that depression, one of the key indicators of distress which is a leading cause of disability in individuals under 30 years of age as it reflected a widespread emotional burden across regions (Liu & Kuai, 2025). Similarly, Research focusing on tertiary students further highlighted that young adults continue to face distinct patterns of distress relative to their non-student peers (Teo et al., 2025).

In Pakistan, urban young adults show notably high psychological distress, with over 72.9% reporting significant levels on standardized measures, underscoring the local relevance of these global patterns (Nourina & Ishaque, 2025). M. Khan et al. (2021) reported that 42.66% of populations faced moderate to severe psychological distress in the university students of Pakistan. Followed by genetics, it often takes on additional layers due to various cultural and social expectations such as discouraged to express themselves freely, respect for elders, good social image and other collective family values often leads to suppression of emotions and feelings (Bukhari, 2024 ; Mansoor, 2024). Lower and middle socio-economic backgrounds showed higher distress levels as compared to upper class families. The demographics such as parental education and occupation were also predictive where students whose parents had lower educational qualifications or those who worked in private/labor sectors tend to had more severe symptoms. Furthermore, anxiety levels were higher among students who were living in joint family systems than those in nuclear setups. (Khan & Nadeem, 2020). Females tend to report higher distress levels as compared to males with intersecting pressures of biology, social roles, and cultural expectations across various countries (Bayram and Bilgel 2008 ; T. Abdullah et al. 2024 ; Gondal et al. 2025 ; Jillani and Malik, 2025 ; Smith & Wesselbaum, 2025). Therefore, the cultural dynamics further complicate how distress is experienced, expressed, interpreted and treated in young adults (Ahmad & Koncsol, 2022).

Additionally, psychological distress does not exist alone rather it is deeply influenced by the way individuals process their own thoughts and emotions. One of the key cognitive factors involved in this process is metacognition which help the individuals to become aware, evaluate and the ability to manage their internal experiences through different emotional responses and coping strategies (Flavell, 1979). When meta-cognitive skills are effectively functioning, it allows individuals to find, evaluate and adjust thought patterns in real time by enhancing insight and emotional stability. However, maladaptive metacognitive patterns such as excessive worry known as rumination or difficulties in controlling thought processes are more susceptible to persistent distress as these patterns can exacerbate symptoms of anxiety, depression, and emotional dysregulation (Wells, 2009 ; Normann & Morina, 2014). These harmful thinking patterns appear suddenly rather they emerge gradually over time through repetition of emotional experiences and learned outcomes.



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Rumination is not a unitary construct and is commonly divided into brooding and reflective forms. Brooding rumination refers to a passive and judgmental focus on one's distress and perceived shortcomings and has been consistently associated with higher levels of depression, anxiety, and psychological distress. In contrast, reflective rumination involves a more purposeful and analytical approach aimed at understanding and resolving emotional difficulties which is often considered relatively less maladaptive but becomes alarming if it changes into constant moral repetition without finding any solutions. Evidence suggests that brooding rather than reflective rumination plays a stronger role in maintaining emotional distress among young adults, particularly when combined with maladaptive metacognitive beliefs (Mansueto et al., 2024). This thinking pattern doesn't develop on its own, rather it is influenced by the mixture of psychological and environmental factors. In Pakistan, as mental awareness is yet to be developed so rumination is often misinterpreted or normalized. As the internalized stress tends to build up slowly and silently which then later feeds into an endless cycle of repetitive and distressing thoughts. In the absence of proper resources of mental health, it becomes a default response where rumination is considered as a coping tool which further deepens the psychological distress (Yousefi et al., 2021).

While metacognition and rumination offer a significant framework to understand distress, emerging evidence suggests that social experiences such as ostracism or perceived social exclusion may interact with these cognitive processes. It can either be direct through physical meetings or indirect through various online platforms. Experiences of ostracism can heighten self-focused attention and trigger ruminative thinking, thereby intensifying psychological distress (Williams & Nida, 2022). It causes invisible damages to their self-worth and feeling of belonging (Vonderlin et al., 2020). Investigating these interconnected pathways is essential to capture the complex mechanisms underlying emotional suffering in young adults and to inform interventions that target both cognitive and social contributors to mental health.

Overall, psychological distress among young adults is influenced not only by life stressors but also by the way individuals think about their thoughts and interpret their social experiences. Maladaptive metacognitive beliefs can lead to rumination, which increases emotional distress, while experiences of ostracism may further intensify these negative thinking patterns. Despite growing evidence on these variables individually, research has been conducted to examine rumination as a mediating mechanism between metacognition and psychological distress while simultaneously considering the role of ostracism among young adults in Pakistan. Therefore, the present study aims to explain the relationships among metacognition, rumination, ostracism, and psychological distress to better understand the pathways contributing to mental health difficulties in this population.

Rationale of the Study

Young adults in Pakistan often face academic, social and cultural pressures that increase the risk of psychological distress. These variables have been widely studied in Western contexts but are underexplored in Pakistan. This study will help in developing culturally relevant interventions and different mental health programs for young adults primarily within the university settings. Followed by the research gap, the following two hypotheses were generated:

It is hypothesized that metacognition, ostracism and rumination will have a positive relationship with psychological distress in young adults.



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It is hypothesized that metacognition, ostracism and rumination will predict psychological distress in young adults.

It is hypothesized that rumination and ostracism will simultaneously mediate the relationship between metacognition and psychological distress in young adults.

Conceptual Framework of Study

Figure 1: Parallel mediation representing rumination and ostracism as mediators (M1) and (M2) on the association between Metacognition (X) and Psychological Distress (Y).

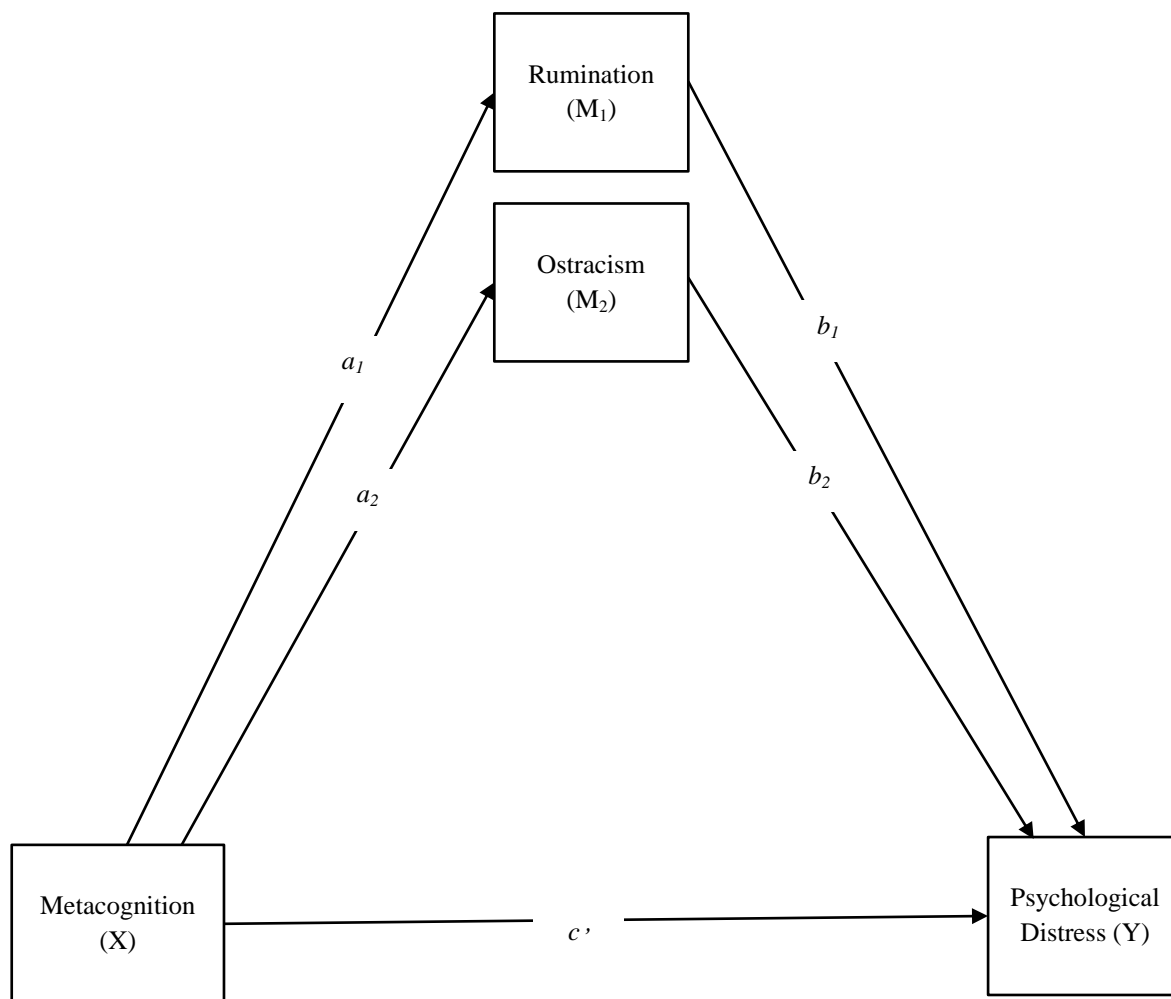


Figure 1. Hypothetical Model

Method

Research Design and Sampling Strategy

The study employed a correlational research design to investigate the relationship in metacognition, rumination, ostracism, and psychological distress in young adults. Whereas, a purposive sampling was used in order to select young adults from universities.



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Participant Characteristics

The sample size was determined using GPower analysis. A sample of approximately 327 participants was considered adequate to achieve sufficient statistical power where those individuals were only included who were actively enrolled in undergraduate or postgraduate programs at public or private universities within the age range of 18 to 25.

Instruments

Demographic Performa

Brief demographic information such as age, gender, level of education (undergraduate or postgraduate), academic discipline, type of university attended (public or private), current living situation (living alone or with family or a hostel), mother's and father's education and occupation including family structure and monthly income was asked. Past reported history of psychological or medical conditions was also asked.

Metacognitions Questionnaire-30 (MCQ-30)

The MCQ-30 of 30 items was used to evaluate the metacognitive beliefs and processes within the following five domains which included positive beliefs about worry, negative beliefs concerning uncontrollability and danger, cognitive confidence, the need to control thoughts, and cognitive self-consciousness, by using the 4-point Likert scale options. The scale had strong internal reliability with the Cronbach's alpha of 0.93 (Wells & Cartwright-Hatton, 2004).

Ruminative Inertia Scale (RIS)

The Ruminative Inertia Scale (RIS) was employed in order to assess persistent ruminative thinking by using a 5-point Likert Scale options. The scale assessed three factors which included Self-ruminations, Social-ruminations, and Spiritual-ruminations. The scale had Cronbach's value of 0.89 which indicated strong validity and reliability (A. Shahzad et al., 2021).

Ostracism Experience Scale (OES)

The Ostracism Experience Scale (OES) was a self-administered questionnaire on a Likert Scale of 5, which evaluated two factors called as Ostracism experience and the psychological effect. The scale had a Cronbach value of 0.97 which indicated a very strong validity (B. Shahzad et al., 2022).

Kessler Psychological Distress Scale (K10)

The scale was developed by Kessler (1992) which was a self-report questionnaire in order to measure psychological distress with the total no 10 items. It assessed symptoms such as feelings of nervousness, hopelessness, and depression. The participants were asked to rate each item on a Likert Scale of 5 which was under the range of 1 (none of the time) to 5 (all of the time). The K10 had Cronbach value of 0.94 which indicated strong internal consistency (Kessler et al., 2003).

Procedure

The approval was taken from the Institutional Review Board Committee before conducting the research. The data was collected from 327 students physically from private and public universities by using the self-administered questionnaires. Consent was taken orally and the participants were instructed properly regarding the forms to be



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filled. Confidentiality and Data anonymity was assured. Lastly, relevant statistical analysis were used in order to investigate the links between the variables.

Statistical Analysis

Statistical Package for Social Sciences (SPSS) version 25 was used to analyze the results . The linear regression analysis was used in order to find out the predicting role of rumination in metacognition and psychological distress. Mediation Analysis was carried out on PROCESS using Hayes Model (Hayes, 2018).

Ethical Considerations

Proper informed consent was taken from the participants where data confidentiality and anonymity was assured. The students had the right to withdraw anytime without facing any consequences and were debriefed accordingly. Proper psychological support was provided to those who felt uncomfortable during their participation.

Results

Sample Description

In this section, the demographic characteristics of the participants have been analyzed through frequencies and percentages which includes variables such as gender, marital status of the participant, institution, mother's education, father's education, education of the participant and family system including the age and the year of their study were analyzed with its mean and standard deviation as reported.

Table 1

Mean and Standard Deviation of Demographic Variables (N=327)

Variables	<i>M</i>	<i>SD</i>
Age of Respondent	21.55	1.75

Note. *M*=Mean, *SD*= Standard deviation.

The above table shows the mean age of the respondents was 21.55 years with a standard deviation of 1.75, which indicated that the average participant was approximately 21 and a half years old. The standard deviation suggests a moderate variability in age, meaning that most participants' ages were within approximately 1.75 years above or below the mean (i.e., between about 19.8 and 23.3 years). This reflects a relatively homogeneous sample.

Table 2

Frequencies and Percentages of the Demographic Variables of Participants (N = 327)

Variables	<i>f</i>	%
Gender		
Male	115	35.2



Variables	<i>f</i>	%
Female	212	64.8
Educational Level		
Undergraduate	308	94.2
Postgraduate	19	5.8
Year of Study		
1st Year	40	12.2
2nd Year	50	15.3
3rd Year	100	30.6
4th Year	137	41.9
University Type		
Public	157	48.0
Private	170	52.0
Family Structure		
Nuclear	245	74.9
Joint	82	25.1
Father's Education		
Basic	153	46.8
Advance	174	53.2
Mother's Education		
Basic	178	54.4
Advance	149	45.6



Note. *F*= Frequency, %= Percentage.

The sample consisted of 327 young adults. Most were females (64.8%), while males made up 35.2%. The majority of young adults were undergraduate (94.2%), with only 5.8% in postgraduate programs. In terms of study year, most were in their fourth year (41.9%), followed by third year (30.6%), second year (15.3%), and first year (12.2%). Young adults were almost evenly split between public (48.0%) and private (52.0%) universities. The majority lived in nuclear families (74.9%), while 25.1% lived in joint families. For parental education, 53.2% of fathers and 45.6% of mothers had advanced education, while the rest had basic education. Overall, the sample was mostly of young, single, female adults of undergraduate programs who belonged to nuclear families, from both public and private universities.

Correlation Analysis

A Pearson correlational analysis was conducted in order to examine the relationship between metacognition, rumination, ostracism, and psychological distress in young adults. The results revealed that self-rumination had a strong positive correlation with psychological distress ($r = .60^{**}$, $p < .01$), suggesting that individuals who frequently engage in repetitive, self-focused thinking are more likely to experience an increase in emotional distress. Psychological distress also showed moderate correlations with negative beliefs about the uncontrollability and danger of thoughts ($r = .57^{**}$, $p < .01$), cognitive confidence ($r = .46^{**}$, $p < .01$), and ostracism experience ($r = .48^{**}$, $p < .01$). In addition, self-rumination was moderately associated with maladaptive metacognitive beliefs ($r = .56^{**}$, $p < .01$), implying a shared cognitive vulnerability. These findings underscore how unhelpful thinking patterns and social rejection collectively contribute to psychological strain in young adults. In conclusion, metacognitive beliefs showed positive and moderate relationships with rumination, ostracism, and psychological distress which highlighted their role as a shared cognitive risk factor. Rumination showed a weak positive relationship with ostracism. Lastly, both rumination and ostracism demonstrated moderate positive associations with psychological distress which suggested their combined impact on emotional well-being in young adults.

Table 3

Descriptive Statistics and Correlations of the Study Variables (N = 327).

Note. *M*= Mean, *SD*= Standard Deviation, * $p < .05$, ** $p < .01$, *** $p < .001$.

Regression Analysis

A linear regression analysis was conducted in order to examine the combined effect of cognitive and emotional predictors on psychological distress. The overall model was statistically significant, $F(13, 313) = 26.78$, $p < .001$ and accounted for 52.7% of the variance in psychological distress ($R^2 = .53$). Among the predictors such as self-rumination ($\beta = .34$, $p < .001$), negative beliefs about uncontrollability and danger ($\beta = .22$, $p < .001$), ostracism experience ($\beta = .23$, $p < .001$), and social rumination ($\beta = .10$, $p = .03$) emerged as significant contributors to psychological distress. Therefore, an



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individual having uncontrollability and danger, self-rumination and ostracism are more likely to have psychological distress.

Table 4

Linear Regression of Variables as Predictors of Psychological Distress (N=327).

Note. CI = Confidence Interval, LL = Lower limit, UL = Upper limit.

p* < 0.05. *p* < 0.01. ****p* < 0.001.

Predictors	B	95% CI		SE B	β	T	p
		LL	UL				
Constant	0.32	-6.07	6.72	3.25	—	0.10	.92
Gender	1.10	-0.42	2.61	0.77	0.06	1.43	.16
University Type	-0.68	-2.05	0.68	0.70	-0.04	-0.98	.33
Family Structure	-1.41	-2.98	0.17	0.80	-0.07	-1.76	.08
Cognitive Confidence	0.16	-0.03	0.34	0.09	0.09	1.69	.09
Positive Beliefs	0.07	-0.10	0.23	0.08	0.04	0.80	.42
Cognitive Self-Consciousness	-0.01	-0.22	0.20	0.11	-0.01	-0.11	.91
Uncontrollability and Danger	0.36	0.18	0.55	0.10	0.22	3.81	.00***
Need to control thoughts	-0.02	-0.22	0.18	0.10	-0.01	-0.21	.84
Self-Rumination	0.33	0.20	0.45	0.06	0.34	5.09	.00***
Spiritual Rumination	-0.08	-0.21	0.05	0.07	-0.06	-1.21	.23
Social Rumination	0.18	0.01	0.34	0.08	0.10	2.13	.03*
Ostracism Experience	0.22	0.11	0.33	0.06	0.23	3.94	.00***
Psychological Effect	0.02	-0.19	0.23	0.11	0.01	0.18	.86

Parallel Mediation Analysis

Parallel Mediation analysis was conducted to see the mediating role of rumination and ostracism between metacognition and psychological distress by using Hayes model bootstrapping approach.

Table 5 shows the findings of the parallel mediation analysis. The model was statistically significant with the combined mediators which explained a significant proportion of the variance in Psychological Distress ($R^2 = .46$, $F = 90.93$, $p < .001$). The total effect of Metacognition on Psychological Distress as represented by path c, was significant ($\beta = .15$, $p < .001$) which indicated a significant association between metacognition and psychological Distress in the presence of mediators. Metacognition also had significant direct effects on the mediators followed by Rumination ($\beta = .50$, $p < .001$) and Ostracism ($\beta = .35$, $p < .001$) which proved that higher levels of Metacognition are associated with increased Rumination and Ostracism. Furthermore, both mediators had significant direct effects on Psychological Distress as Rumination ($\beta = .15$, $p < .001$) and Ostracism ($\beta = .18$, $p < .001$). These findings suggest that both Rumination and



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Ostracism significantly contribute to Psychological Distress in young adults. The direct effect of Metacognition on Psychological Distress after accounting for the mediators (path c') remained significant ($\beta = .15, p < .001$) which indicated that Rumination and Ostracism partially mediate the relationship between Metacognition and Psychological Distress.

Table 5

Regression Coefficients of Parallel Mediated Analysis (N=327)

Antecedents	Rumination (M_1)				Ostracism (M_2)				Psychological Distress (Y)			
	β	CI		β	CI		β	CI				
		LL	UL		LL	UL		LL	UL			
Metacognition (X)	a_1 .50***	.40	.60	a_2 .35***	.27	.43	c' .15***	.09	.20			
Rumination (M_1)	---	---	---	---	---	---	b_1 .16***	.11	.21			
Ostracism (M_2)	---	---	---	---	---	---	b_2 .18***	.12	.24			
R^2	.24***				.19***				.46***			
F	99.97				75.02				90.93			

Note. MCQ-30 = Metacognition Scale, OES = Ostracism Experience Scale, RIS = Ruminative Inertia Scale, K10 = Kessler Psychological Distress Scale; * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 6

Indirect Effects of Metacognition on Psychological distress through Rumination and Ostracism.

Effects	Product of Coefficients		Bootstrapping 95% Bias-Corrected and Accelerated Confidence Interval	
	Post Estimates	SE	Lower	Upper
Total Direct Effects	.15	.03	.09	.20
MCQ30 → RIS → K10	.08	.02	.05	.11
MCQ30 → OES → K10	.06	.02	.04	.10

Note. MCQ-30 = Metacognition Scale, OES = Ostracism Experience Scale, RIS = Ruminative Inertia Scale, K10 = Kessler Psychological Distress Scale; * $p < .05$, ** $p < .01$, *** $p < .001$.

Findings reported in **Table 6** indicated a significant total direct effect as well as significant indirect effects through each mediator. The indirect effect of Metacognition on Psychological Distress through Rumination was significant ($\beta = .08, SE = .02, 95\% CI [.05, .11]$) which showed that higher levels of Metacognition are associated with increased Rumination which further contributes to higher Psychological Distress. Similarly, the indirect effect through Ostracism was also significant ($\beta = .06, SE = .01, 95\% CI [.04, .10]$), which indicated how Metacognition is linked to greater Ostracism experiences which further increases distress. These findings suggest that both



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Rumination and Ostracism partially mediate the association between Metacognition and Psychological Distress. The total direct effect of Metacognition on Psychological Distress remained significant ($\beta = .15$, $SE = .03$, 95% CI [.09, .20]) which is a **partial mediation** effect.

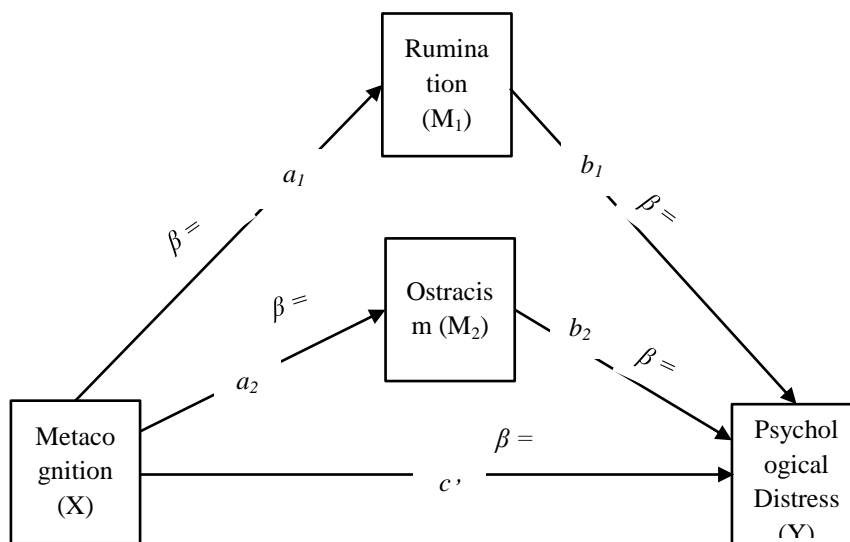


Figure 2. Parallel Mediation Model

Discussion

Young adulthood is a critical stage for identity establishment but brings unique challenges as different stressors can interact with cognitive processes like metacognition and rumination, potentially intensifying feelings of ostracism and leading to elevated psychological distress (Afzal et al., 2023). Another study by Shaikh et al. (2004) reported over 90% of medical students reported experiencing stress, with final-year students who showed the highest levels. Most participants in our study were female, unmarried undergraduates in their early twenties, living in nuclear families. This age group is at a phase of life where they face increased educational demands, ambiguity about the upcoming, and the need to find their identity and individuality (Arnett, 2018). In collectivist cultures like Pakistan, where communal agreement and harmonious relations are exceedingly valued, disturbances in social connections can be particularly harmful (W. Li et al., 2021). Understanding these interconnections in this population is essential for developing targeted interventions to promote mental well-being.



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Pearson correlations were conducted to examine bivariate relationships between metacognition, rumination, ostracism and psychological distress in young adults. The correlations revealed significant positive associations between Metacognition, rumination, ostracism and psychological distress including their subscales. The correlational analysis showed that self-rumination was strongly associated with psychological distress ($r = .60^{**}$, $p < .01$). This is aligned with the international study from Kolubinski et al. (2020) who found that self-critical rumination significantly exacerbated distress not only in the experimental but in the naturalistic settings as well. Another qualitative study related to the emotional and cognitive factors among the young Pakistani adults who were involved in non-suicidal self-injury (NSSI). Rumination appeared as a key theme while contributed to the emotional turbulence as well as the low distress tolerance which showed its role in psychological distress (Batool et al., 2023; S. Khan et al., 2024). This aligns with international findings which showed how repetitive, self-focused thinking prolongs and intensifies negative mood further reducing problem-solving and increased vulnerability to distress (Nolen-Hoeksema et al., 2008; McLaughlin et al., 2011; Cheung et al., 2022).

Self-rumination also had a moderate relationship with negative metacognitive beliefs about uncontrollability and danger ($r = .56^{**}$, $p < .01$) while negative beliefs showed a moderate relationship with distress ($r = .57^{**}$, $p < .01$). Studies consistently showed that stronger negative metacognitive beliefs co-occur with more rumination and greater distress in young adults and these patterns replicate across cohorts (Wells & Matthews, 1996). Studies in adolescent and university populations of young adults also showed that such maladaptive metacognitive beliefs also predicted higher levels of anxiety and depression over time (Topper et al., 2018; Fergus et al., 2013). In Pakistan, though specific empirical studies are rare but the preliminary scale development research among young adults also suggested similar cognitive structures of rumination and emotional distress (S. Khan et al., 2024; Riasat & Bano, 2022).

Ostracism experience also had a moderate relationship with distress ($r = .51^{**}$, $p < .01$) which indicated that feeling socially rejected or ignored can elicit emotional strain. This supports broader findings from social psychology, where ostracism had been shown experimentally and in community studies to threaten belonging, self-esteem, and emotional well-being (Gerber & Wheeler, 2009). In the Pakistani context, qualitative and psychometric studies among academic and workplace young adults reflect that ostracism is psychologically harmful where rejection experiences correspond with increased distress and negative affect (Fatima et al., 2019; B. Shahzad et al., 2021).

Lastly, social rumination showed a weak correlation with psychological distress ($r = .37^{**}$, $p < .01$). Social rumination which is thinking about one's relationships or others' perceptions showed only a weak correlation with psychological distress. This suggested that ruminating about social matters exerts a lesser emotional impact as compared to self-rumination. Internationally, research also differentiated between brooding (self-focused) and reflective (social-oriented) rumination where the former is more strongly linked to depression and the latter often has weaker associations (Treyner et al., 2003). Moreover, social rumination didn't show any relationship with cognitive self-consciousness ($r = .01$, $p > .05$) which suggested that tendencies to ruminate with others about personal concerns function independently from self-monitoring of one's own thoughts.

Overall, the current findings showed that metacognition, rumination and ostracism were interconnected together that significantly contributed to distress in young adults. The beliefs of uncontrollability and danger showed a positive and moderate relationship with



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both rumination and psychological distress (S. Khan et al., 2024); (Wells & Matthews, 1996). Rumination was weakly but positively related to ostracism which suggested that cognition and social exclusion are distinct but both exert a harmful influence on the psychological well-being of an individual. Rumination (self-rumination) had a strong relationship with distress as compared to social rumination which reinforces its role as a transdiagnostic process in emotional disorders which is consistent with the Response Styles Theory (Nolen-Hoeksema et al., 2008). Ostracism also demonstrated a moderate positive relationship with distress which aligns with the social psychological evidence that how exclusionary experiences threaten belonging and psychological health of an individual (Gerber & Wheeler, 2009; Williams, 2007; Fatima et al., 2019; Shahzad et al., 2021). The results suggested how cognitive risk factors such as metacognitive beliefs and rumination with social risk factors such as ostracism can have a combined effect on emotional well-being.

Linear regression analysis was conducted in order to identify the significant predictors of distress. The regression analysis revealed that the overall model significantly predicted psychological distress which collectively explained 52.7% of the variance. The regression results showed self-rumination ($\beta = .34, p < .001$) as the strongest predictor with negative metacognitive beliefs about uncontrollability and danger ($\beta = .22, p < .001$) as the second highest predictor of psychological distress. This supported the idea that certain thinking patterns serve as shared cognitive vulnerabilities. International research indicated that individuals who believed that their thoughts pose a threat or are uncontrollable were more prone to be engaged in maladaptive rumination and subsequently experienced lasting emotional distress (Schultz et al., 2023). Within Pakistan, psychological interventions targeting thinking patterns and rumination such as in clinical counseling centers demonstrated that if maladaptive metacognitive attitudes are reduced which can effectively lower the distress levels in young adults (Sheykhangafose et al., 2024).

Social rumination ($\beta = .10, p = .03$) significantly predicted distress and aligned with the with international evidence that persistent focus on interpersonal concerns amplified mood disturbances (Moberly & Watkins, 2008). Furthermore, ostracism experience ($\beta = .23, p < .001$) emerged as a significant predictor of distress. This finding resonates with local studies in Pakistan which revealed that employees who perceive exclusion increases interpersonal deviance, which in turn contributes to psychological distress (Anjum & Shah, 2021). In Pakistan, where social connectedness is valued among the society but workplace ostracism was a predictor to emotional exhaustion and interpersonal deviance. This showed the psychological toll among the collectivist cultures (Jahanzeb & Fatima, 2017). These also support the regression conclusion as due to the cultural salience of reputation and relational belonging where ostracism significantly contributed to psychological distress. While, another research showed that perceived ostracism among young adults also leads to mental exhaustion if it is mediated by doomscrolling and moderated by digital detox. This further illustrated the real impact in Pakistan (Abbasi et al., 2025).

Parallel Mediation Analysis revealed how rumination and ostracism acted as mediators indicating partial mediation. Higher metacognitive beliefs were associated with increased levels of ruminations thereby elevated levels of distress. . A systematic review and meta-analysis by Cano-López and colleagues found that maladaptive metacognitive beliefs are significantly associated with rumination and depressive symptoms in both clinical and non-clinical samples, suggesting that metacognitive processes may predispose individuals to engage in repetitive negative thinking styles that exacerbate



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distress (López et al., 2021). Additionally, a study of Pakistan on individuals with traumatic amputation found that rumination predicted depression, anxiety and stress which amplifies distress (Iqbal et al., 2021).

The significant indirect effect of ostracism on psychological distress showed how social exclusion can be detrimental to mental health. Research on adolescents demonstrated how ostracism is associated with poorer psychological outcomes with rumination partially explaining the effect (Li et al., 2019). Pakistani studies also suggest that being marginalized or excluded by others may activate negative cognitive processes like rumination, which then contribute to greater psychological distress (Abbas et al., 2025; Bilal & Batool, 2024)

The persistent direct effect of metacognition on distress suggests that metacognitive beliefs influence distress through different and additional pathways beyond the mediators. This is consistent with the Self-Regulatory Executive Function (S-REF) model as these beliefs contribute to Cognitive Attentional Syndrome characterized by worry and rumination further intensifies distress (Adnoy et al., 2023).

Overall, The findings support the partial mediating role of these variables, indicating that maladaptive cognitive and social processes play an important role in explaining distress among young adults.

Conclusion

To conclude, the study highlights the important role of metacognitive beliefs, rumination, and ostracism in shaping psychological distress among young adults. It emphasizes the need for interventions targeting maladaptive thinking patterns and social awareness to promote better mental well-being.

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