



Open Access



Metacognition and Interpersonal Sensitivity: A Mediation of Ruminative Study in Pakistani Sample

Sumaya Batool¹ Urooj Niaz² Nazish Andleeb³ Muhammad Kamran⁴

Abstract: *Metacognition is changing, interpreting, and managing one's ideas and thoughts. Rumination and depression are predicted by having specific problematic metacognitive beliefs. The focus of this study was to explore rumination's mediating role in the association between metacognition and interpersonal sensitivity. It included 304 participants selected through convenient sampling from different cities in Punjab, Pakistan. A total of 304 participants were from various schools, colleges, universities, training centers, and Academies of Malakwal, Sargodha, Lahore, Faisalabad, Phalia, and Islamabad. Three scales have been demonstrated to test the hypotheses: Metacognitive Self-Assessment Scale, Ruminative Response Scale, and Interpersonal Sensitivity Measure. Findings suggest a significant positive relationship between interpersonal sensitivity and metacognition. Rumination partially mediated the association between metacognition and interpersonal sensitivity. Various patterns of correlations that surfaced throughout this investigation are thought to have significant practical relevance. Future studies should go deeper into the connection between these constructs.*

Key Words: Metacognition, Rumination, Interpersonal Sensitivity

Introduction

Metacognition is changing, interpreting, and managing one's ideas and thoughts (Wells & Hatton, 2004). Both positive and negative metacognitive beliefs exist on a continuum; optimistic metacognitive beliefs promote self-regulation, whereas negative metacognitive beliefs foster rumination (Huntley & Fisher, 2016). Similarly, bothersome thoughts persistent about adverse experiences and feelings are described as ruminating thoughts (Smith & Alloy, 2009). Rumination is also a type of cognition that primarily concentrates on causes of emotional distress and unpleasant present and past information (Sansone & Sansone, 2012). Rumination can be a temporary unpleasant sensation, but it could also make someone feel as if their mind is out of control, leading to sadness or anxiety symptoms, loss of self-regulation, and excessive reassurance from others. Hence, they did not perform so well in interpersonal relations (Starr & Davila, 2012). Likewise, the above two definitions, interpersonal sensitivity, is the term used to describe how accurately and appropriately we judge, perceive, and respond to one another (Carney & Harrigan, 2003). Interpersonal sensitivity is associated with accurate judgments and evaluations of others because "it takes one to know one effect" (Carney & Harrigan, 2003).

Metacognitive processes form an important part of the triarchic model of intelligence (Sternberg, 2018). In metacognition, humans can consider their perceptions, thoughts, and behavior (Valk et al., 2016; Sternberg, 2018). Metacognition provides several unique insights into a person's typical daily functioning and shows how the absence of these stances jeopardizes everyday life's normal functioning. Resultantly, the least healthy functioning occurs (Chick, 2013). Rumination and depression are predicted by having specific problematic metacognitive beliefs (Papageorgiou & Wells, 2009). Rumination is a well-known correlate of metacognition. Matthews and Wells' (2004) S-REF model includes metacognition, which explains the better association between depression and rumination. People with positive metacognitive

¹ Lecturer, Department of Psychology, University of Sargodha, Punjab, Pakistan.

² Research Scholar, Department of Psychology, University of Sargodha, Punjab, Pakistan.

³ Lecturer in Education, University of Gujrat, Punjab, Pakistan.

⁴ Assistant Professor, Department of Education, University of Loralai, Balochistan, Pakistan.

▪ **Corresponding Author:** Muhammad Kamran (kamrankundi86@gmail.com)

▪ **To Cite:** Batool, S., Niaz, U., Andleeb, N., & Kamran, M. (2023). Metacognition and Interpersonal Sensitivity: A Mediation of Rumination Study in Pakistani Sample. *Qlantia Journal of Social Sciences*, 4(4), 363-368. <https://doi.org/10.55737/qjss.090360352>



beliefs about the benefits of rumination, such as, to make sense of the past terrible events, I need to dwell on them," had a higher propensity to do so. These unfavorable metacognitive assumptions significantly influence the onset, development, and duration of depression. Response Styles Theory states that rumination focuses on the symptoms of distress, its origins, and its effects rather than its remedies (Nolen-Hoeksema, 1998). It is a form of perseverative cognition that emphasizes unfavorable information, typically from the past or the present, and results in emotional suffering.

Rumination strengthened the link between hopelessness and no suicidal injury and the association between self-criticism and hopelessness (Gong et al., 2019). Although rumination gives people the impression that they are addressing an issue and is intended to help them regulate their emotions, it has the opposite effect. This demonstrates that when people ruminate, they have a hard time shifting their attention from the unfavorable information that is already present in their work environment to something more pertinent. People are more vulnerable in interpersonal relations; they do not let go of things quickly and have wrong perceptions. As a result, rumination produces more harmful and less happy feelings, as well as anxiety, and can be collectively categorized as persistently bleak thinking (Beckwé et al., 2014). An excessive and profound awareness of the actions, thoughts, and ideas of others constitutes a personality trait known as interpersonal sensitivity. People with high interpersonal sensitivity are, in contrast to other individuals, more sensitive to self-deficiencies and interpersonal interactions. High interpersonal sensitivity might result in low self-esteem and insecurities.

According to the findings, the group at risk for psychosis had a considerably greater average level of interpersonal sensitivity (112.5) than fit individuals (91.8). Results demonstrate the significant distinction between the two groups ($t = -5.049$; $P.0001$), clearly implying that individuals with ARMS had more robust levels of interpersonal sensitivity than people who were not at risk (Mushtaq et al., 2017). More specifically, it may be assumed that interpersonal sensitivity, metacognition, and rumination share some common features. An evaluation of whether rumination mediates the relationship between metacognition and interpersonal sensitivity would enrich the literature. This research investigates the association between interpersonal sensitivity, rumination, and metacognition based on the S-REF model.

Method

Objectives

1. To find the relationship between Metacognition, Rumination, and Interpersonal Sensitivity among Adolescents and Adults.
2. To identify the mediating role of Rumination among Metacognition and Interpersonal Sensitivity.

Hypotheses

1. There would be a positive relationship between Metacognition and Rumination among adolescents and Adults.
2. There would be a positive relationship between Metacognition and Interpersonal Sensitivity among adolescents and Adults.
3. There would be a positive relationship between Rumination and Interpersonal Sensitivity among adolescents and Adults.
4. Rumination would have a mediating role between Metacognition and Interpersonal Sensitivity.

Sample

The participants were from different schools, colleges, universities, training centers, and Academies of Malakwal, Sargodha, Lahore, Faisalabad, Phalia, and Islamabad. The study included 304 Adolescents and Adults with Adolescence ($n = 76$; $n = 38$ men, $n = 38$ women), Early adults ($n = 76$; $n = 38$ men, $n = 38$ women), Middle adults ($n = 76$; $n = 38$ men, $n = 38$ women) and Late adults ($n = 76$; $n = 38$ men, $n = 38$ women). The sample was selected through convenient sampling from Malakwal, Sargodha, Lahore, Faisalabad, Phalia, and Islamabad cities.

Procedure

Participants of the study were selected from different Schools, Colleges, Universities, Training Centres, and Academies of Malakwal, Sargodha, Lahore, Faisalabad, Phalia, and Islamabad cities. Data collection was done by distributing a questionnaire booklet in person and online. Informed consent was attached to every questionnaire. It consists of information about the purpose of the research and related to data privacy. The three Scales mentioned above were administered in a serene environment.

Measures

Metacognition Self-Assessment Scale (MSAS) was used to assess metacognition; it consists of 18 items and is being developed by (Pedone et al., 2017). The MSAS yields raw scores ranging from 18 to 90, graded on a five-point Likert scale (1 = never to 5 = almost always). Metacognitive abilities can be assessed through MSAS, including observation, differentiation, integration, decency, and mastery. Low MSAS scores suggest a poor self-evaluation of metacognitive abilities, whereas higher MSAS scores are associated with a more favorable self-assessment of metacognitive skills. Pedone et al. (2017) provided a reliable alpha reliability coefficient ($\alpha = .91$) for this scale. All correlations were statistically significant within the metacognitive domains, and total scales varied from medium ($r = .438$) to high ($r = .860$).

A 22-item Ruminative Response Scale (RRS) was used to measure rumination and was developed by (Nolen-Hoeksema, 1998). Items are scored on a four-point Likert scale on the RRS (4 = almost always to almost never = 1). The overall score range is between 22 to 88, and greater scores signify more ruminative symptoms. The RRS has a good Cronbach's alpha, which stands between 0.88 and 0.92. The alpha coefficient provided by a study was .90, and the test-retest correlation was .67 (Treyner, 2003).

Interpersonal Sensitivity Measure is a self-report questionnaire intended to evaluate excessive sensitivity to social feedback and negative evaluations of oneself by others and other people's interpersonal conduct. Boyce & Parker (1989) develop it. On a 4-point Likert-type scale, the 36 items on the IPSM are scored between 36 and 144, with the anchors (4 for very like me, 3 for moderately like me, 2 for moderately unlike me, and 1 for very unlike me). Boyce & Parker (1989) provided Internal consistency of construct ranged from .55 to .79 across subscales and was strong for the overall score ($\alpha = .85$). Over six weeks, test-retest reliability varied from $r = .55$ to $.77$.

Results

To analyze the data, the researchers used descriptive and inferential statistics to get the study's objectives. Further, the association between interpersonal sensitivity, rumination, and metacognition was evaluated using Pearson's correlation analysis. Mediation models were tested to determine if rumination mediates the association between interpersonal sensitivity and metacognition. Before investigating the mediation effects, a correlative analysis was conducted in line with Baron and Kenny (1986) to make sure that rumination (mediator), interpersonal sensitivity (dependent variable DV), and metacognition (independent variable IV) all related to one another. Baron and Kenny's (1986) criteria were used to assess the mediation model. This criterion pre-supposes if the relationship between the IV and DV is still significant or not significant after accounting for the mediator's impact, and then there is either a whole or partially mediating relationship. IBM-SPSS Statistics 26 was used for statistical analysis.

The researchers have shown the internal consistency reliability of the scale below, indicating that the Cronbach reliability coefficient was in the acceptable range to use the scale in the current study.

Table 1

Psychometric properties for scales

Scale	M	SD	Range	Cronbach's α
Metacognition	58.90	8.62	33-85	.706
Rumination	47.97	10.85	23-85	.810
Interpersonal Sensitivity	97.92	12.91	41-134	.843

Table 1 indicates the psychometric properties of the scales used in the current study. The Cronbach's value for Metacognition, Rumination, and Interpersonal sensitivity scale was sequentially .706(>.70), .810 (>.70), and .843(>.70), which shows high internal consistency.

**Table 2**

Correlations for study variables

Variables	1	2	3
Metacognition	-	.19**	.17**
Rumination	-	-	.12*
Interpersonal Sensitivity	-	-	-

* $p < .05$. ** $p < .01$. *** $p < .001$

Table 2 highlighted a significant positive correlation between metacognition and rumination ($r = .19, p < .01$), metacognition and Interpersonal sensitivity ($r = .17, p < .01$). Interpersonal sensitivity also has a significant positive correlation with rumination ($r = .12, p < .05$).

Table 3

Regression analysis for mediation effects of rumination in relationship between metacognition and interpersonal sensitivity

Variable	B	95%CI	SE B	B	R ²	Δ R ²
Step 1					.31	.31***
Constant	26.41***	[19.89, 31.04]	2.51			
Metacognition	0.95***	[.66, 1.17]	0.13	.51***		
Step 2					.41	.10***
Constant	22.20***	[14.31, 26.10]	2.70			
Metacognition	0.69***	[.41, .94]	0.14	.38***		
Rumination	0.61***	[.28, .78]	0.13	.42***		

* $p < .05$. ** $p < .01$. *** $p < .001$

Note: CI=confidence interval.

In Step 1, the value of R^2 .31 highlights that metacognition accounts for a 31% variance in interpersonal sensitivity with $F(3, 301) = 50.92, p < .001$. The results indicate that metacognition positively predicted interpersonal sensitivity ($\beta = .51, p < .001$). In the second step, the R^2 .41 indicates that the metacognition and rumination account for 41% variance in the interpersonal sensitivity with $F(4, 300) = 36.48, p < .001$. The results highlight that metacognition ($\beta = .38, p < .001$) and rumination positively predicted interpersonal sensitivity ($p = .28, p < .001$). The value of ΔR^2 .10 revealed a 10% change in model 1 variance and model 2 with $\Delta F(4, 300) 17.73, p < .001$. The metacognition regression weights were then decreased from Model 1 to Model 2 (.51 to .38) but remained significant, confirming the partly mediation role of rumination. More precisely, interpersonal sensitivity is impacted by metacognition both directly and indirectly.

Discussion

The association between interpersonal sensitivity and metacognition, as well as the role of rumination as a mediator, were studied in this study. To our awareness, limited research has been conducted on this important subject, even though it is highly pertinent and can potentially diminish the harmful effects of excessive ruminating on human well-being. Lyubomirsky and Lepper (1999) found that increased experiment-induced rumination makes depression worsen. Rumination is a significant predictor of metacognition (Meyer et al., 2009) and has been correlated to detrimental subservient interpersonal behavior. The main finding of the present research, which built on prior research, was rumination's mediating role in shedding light on the association between interpersonal sensitivity and metacognition. Its second key conclusion was the study's significant association between interpersonal sensitivity and metacognition. The results of this research seem to back the idea that rumination can partially mediate the relationship between interpersonal sensitivity and metacognition.

Future research should look into possible confounders mediating the association between interpersonal sensitivity and metacognition. Various research has demonstrated significant levels of ruminative thinking regarding interpersonal approaches, which was attributed to an unhelpful deferential

interpersonal style contributing credence to this argument. In a negative spiral, metacognitions foster the notion that rumination might help resolve interpersonal conflicts and avert unfavorable future outcomes. Additionally, prior research connected interpersonal issues to metacognition (Nordahl et al., 2021). Further, because ruminators worry so much about how others perceive them and the impressions they consider leaving on them, this cognitive intrusion may increase their sensitivity to environmental cues, which could help them use their social skills to perform well during social situations but also create issues for them. Interpersonal sensitivity subscales exhibited relationships with specific major depressive episodes, anxiety disorders, early parental environment, and consistent associations with negative affectivity (Wilhelm, 2004). It is also likely that metacognition directly influences interpersonal sensitivity. If this is the case, then longitudinal studies of these constructs are necessary to prove the claimed relationship. Given that the relationship between interpersonal sensitivity, metacognition, and rumination has not been studied before, the current research contributes something new to the body of literature. More in-depth analysis is needed to comprehend the connections between interpersonal sensitivity and metacognition completely.

Limitations

The recent research has some shortcomings that need to be addressed. Its cross-sectional design is its primary drawback. Longitudinal research would be more appropriate for determining the causal association of rumination, interpersonal sensitivity, and metacognition and their correlation across time. Second, although our sample size is reasonable, a bigger one would have allowed us to conduct more in-depth analysis, such as assessing gender disparities.

Conclusion

Limited work has been done to find the exact connection between interpersonal sensitivity and metacognition, along with rumination's mediating role. The research's primary findings are: (1) there is a strong correlation between metacognition and interpersonal sensitivity, and (2) the relationship between metacognition and interpersonal sensitivity is explained by the partially mediating effect of rumination. These findings may have significant consequences for socially sensitive individuals. Rumination is not a disease, but by addressing its cognitive aspects, people's perception of the nature of rumination in interpersonal sensitivity can be aided.

References

- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173–1182. <https://doi.org/10.1037/0022-3514.51.6.1173>
- Beckwé, M., Deroost, N., Koster, E. H., De Lissnyder, E., & De Raedt, R. (2014). Worrying and rumination are both associated with reduced cognitive control. *Psychological research*, 78(5), 651–660. <https://doi.org/10.1007/s00426-013-0517-5>
- Boyce, P., & Parker, G. (1989). Interpersonal Sensitivity Measure. *PsycTESTS Dataset*. <https://doi.org/10.1037/t10324-000>
- Carney, D. R., & Harrigan, J. A. (2003). It takes one to know one: Interpersonal sensitivity is related to accurate assessments of others' interpersonal sensitivity. *Emotion*, 3(2), 194–200. <https://doi.org/10.1037/1528-3542.3.2.194>
- Chick, N. (2013). Metacognition. Vanderbilt University Center for Teaching. Retrieved [today's date] from <https://cft.vanderbilt.edu/guides-sub-pages/metacognition/>.
- Gong, T., Ren, Y., Wu, J., Jiang, Y., Hu, W., & You, J. (2019). The associations among self-criticism, hopelessness, rumination, and NSSI in adolescents: A moderated mediation model. *Journal of Adolescence*, 72(1), 1–9. <https://doi.org/10.1016/j.adolescence.2019.01.007>
- Huntley, C. D., & Fisher, P. L. (2016). Examining the role of positive and negative metacognitive beliefs in depression. *Scandinavian journal of psychology*, 57(5), 446–452. <https://doi.org/10.1111/sjop.12306>
- Lyubomirsky, S., & Lepper, H. S. (1999). A Measure of Subjective Happiness: Preliminary Reliability and Construct Validation. *Social Indicators Research*, 46(2), 137–155. <https://doi.org/10.1023/a:1006824100041>



- Matthews, G., and Wells, A. (2004). "Rumination, depression, and metacognition: the S-REF model," in *Depressive Rumination*, eds C. Papageorgiou and A. Wells. (West Sussex: John Wiley & Sons Ltd), 125–151.
- Mushtaq, A., Fatima, B., Fatema, A. A., Syed, H., & Sohail, H. (2017). Interpersonal sensitivity in the at-risk mental state for psychosis in Karachi, Pakistan. *European Psychiatry*, 41, S563. <https://doi.org/10.1016/j.eurpsy.2017.01.819>
- Nolen-Hoeksema, S. (1998). Ruminative coping with depression. In J. Heckhausen & C. S. Dweck (Eds.), *Motivation and self-regulation across the life span* (pp. 237–256). Cambridge University Press. <https://doi.org/10.1017/CBO9780511527869.011>
- Nordahl, H., Hjemdal, O., & Wells, A. (2021). Metacognitive Beliefs Uniquely Contribute to Interpersonal Problems: A Test Controlling for Adult Attachment, Big-5 Personality Traits, Anxiety, and Depression. *Frontiers in Psychology*, 12. <https://doi.org/10.3389/fpsyg.2021.694565>
- Papageorgiou, C., & Wells, A. (2001). Positive beliefs about depressive rumination: Development and preliminary validation of a self-report scale. *Behavior Therapy*, 32(1), 13–26. [https://doi.org/10.1016/s0005-7894\(01\)80041-1](https://doi.org/10.1016/s0005-7894(01)80041-1)
- Papageorgiou, C., & Wells, A. (2009). A Prospective Test of the Clinical Metacognitive Model of Rumination and Depression. *International Journal of Cognitive Therapy*, 2(2), 123–131. <https://doi.org/10.1521/ijct.2009.2.2.123>
- Pearson, K. A. (2010). The interpersonal context of rumination: An investigation of interpersonal antecedents and consequences of the ruminative response style. *Ore.exeter.ac.uk*. <https://ore.exeter.ac.uk/repository/handle/10036/113445?show=full>
- Pearson, K. A., Watkins, E. R., & Mullan, E. G. (2011). Rejection sensitivity prospectively predicts increased rumination. *Behaviour Research and Therapy*, 49(10), 597–605. <https://doi.org/10.1016/j.brat.2011.06.004>
- Pedone, R., Semerari, A., Riccardi, I., Procacci, M., Nicolò, G., & Carcione, A. (2017). Development of a self-report measure of metacognition: The Metacognition Self-Assessment Scale (MSAS). Instrument description and factor structure. *Clinical Neuropsychiatry: Journal of Treatment Evaluation*, 14(3), 185–194.
- Sansone, R., & Sansone, L. A. (2012). Rumination: relationships with physical health. *Innovations in Clinical Neuroscience*. <https://www.semanticscholar.org/paper/Rumination%3A-relationships-with-physical-health-Sansone-Sansone/44fadfe25d216b41a994f52d1c61282024886bca>
- Smith, J. M., & Alloy, L. B. (2009). A roadmap to rumination: a review of the definition, assessment, and conceptualization of this multifaceted construct. *Clinical psychology review*, 29(2), 116–128. <https://doi.org/10.1016/j.cpr.2008.10.003>
- Starr, L. R., & Davila, J. (2012). Responding to Anxiety with Rumination and Hopelessness: Mechanism of Anxiety-Depression Symptom Co-Occurrence?. *Cognitive therapy and research*, 36(4), 321–337. <https://doi.org/10.1007/s10608-011-9363-1>
- Sternberg, R. J. (2018). Theories of intelligence. *APA Handbook of Giftedness and Talent*, 145–161. <https://doi.org/10.1037/0000038-010>
- Treynor, W. (2003). Rumination Reconsidered: A Psychometric Analysis. *Cognitive Therapy and Research*, 27(3), 247–259. <https://doi.org/10.1023/a:1023910315561>
- Valk, S. L., Bernhardt, B. C., Böckler, A., Trautwein, F.-M., Kanske, P., & Singer, T. (2016). Socio-Cognitive Phenotypes Differentially Modulate Large-Scale Structural Covariance Networks. *Cerebral Cortex*, bhv319. <https://doi.org/10.1093/cercor/bhv319>
- Wells, A., & Cartwright-Hatton, S. (2004). A short form of the metacognitions questionnaire: properties of the MCQ-30. *Behaviour research and therapy*, 42(4), 385–396. [https://doi.org/10.1016/S0005-7967\(03\)00147-5](https://doi.org/10.1016/S0005-7967(03)00147-5)
- Wilhelm, K. (2004). The relationship between interpersonal sensitivity, anxiety disorders and major depression. *Journal of Affective Disorders*, 79(1-3), 33–41. [https://doi.org/10.1016/s0165-0327\(02\)00069-1](https://doi.org/10.1016/s0165-0327(02)00069-1)