

## THE MEDIATION BETWEEN METACOGNITIVE BELIEFS AND METAWORRY BY EMOTIONAL COPING ACROSS GENDER

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**Abstract.** The study aimed to explore the moderating role of gender on the relationship between positive beliefs about rumination and metaworry mediated by emotion oriented coping. A total of 514 employed professionals from different organizations participated in the cross sectional study. Responses were collected on Positive Beliefs about Rumination Scale, Metaworry and Emotion Oriented Coping subscales. The correlation analysis showed significant positive relationships among study variables (ranging from .11 to .40;  $p < .01$ ). Further the direct and indirect paths were tested for moderating effects of gender. The results showed that direct path from emotion oriented coping to metaworry was moderated by gender ( $\beta = .14$ ,  $p > .05$  for males and  $\beta = .19$ ,  $p < .05$  for females). The relationship between positive belief about rumination and metaworry was significantly mediated by emotion oriented coping ( $\beta$  indirect = .04,  $p < .05$ ) and further moderated by gender ( $\beta = .05$ ,  $p > .05$  for males and  $\beta = .18$ ,  $p < .05$  for females). The results are suggestive of moderated mediation across gender.

**Keywords:** Moderated Mediation; Positive beliefs about rumination; Emotion oriented coping  
Metaworry

### INTRODUCTION

Psychological functioning is vastly influenced by thoughts (Wegner and Zanakos 1994). Thoughts form beliefs influencing decision making for instance, thinking which type of coping strategies should be employed for the circumstances at hand. Similarly our beliefs are guided by our knowledge of situations that we experience directly or indirectly (Alston 1993). Conditions where we have a lack of control often give rise to worry. Thus humans are the only species who have the ability to reflect their thinking not only in their cognitive processing but also via instrumentation of these thinking (Nolen-Hoeksema, et al. 2008). Life stressors play an inevitable role in our lives prompting negative thinking, rumination (Nolen-Hoeksema 1991)

After negative thinking is activated, it paves the way for an attention concentrated syndrome (i.e., cognitive attentional syndrome) that is responsible for initiating a repetitive thinking

style. This leads to a cognitive bias whereby the individual keeps focusing on certain aspects of thoughts that are dominantly negative (Wells 2005). This type of cognitive functioning is more preservative and indefinitely self-perpetuating in individuals with clinical or neurotic tendencies (Matthews and Wells 2004). Martin and Tesser (1996) support the ruminative processing and described it as “a class of conscious thoughts that revolve around a common theme and that recur in the absence of immediate environmental demands requiring the thoughts (p. 7). According to Wells and (Mathews and MacLeod 1994), the negative preservative thinking is formed due to beliefs of emotionally vulnerable individuals.

Positive beliefs about rumination have been demonstrated to play a significant role in rumination, anxiety and depression in both clinical and nonclinical samples (Papageorgiou and Wells 2003). Authors suggest that future studies should investigate further comparisons of

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models to delineate the mediated relationship (Nolen-Hoeksema, et al. 2008)

The study aimed at exploring the role of gender on the relationship between positive beliefs about rumination and metaworry mediated by emotion oriented coping. Positive beliefs about rumination are indicative of the benefits of rumination. This state furthers the conditions of maladaptive way of dealing with challenging situation leading to a variety of negative consequences including anxiety (Wadsworth 2015), and anger (Papa, et al. 2014). In terms of chronicity of symptoms associations have been found with graver consequences e.g., suicidal ideation (Eshun 2000). Previous investigations have shown that a ruminative style negatively biases thinking that endorses more pessimistic evaluations for experiences and resulted in distorted interpretations of life events (Layous, et al. 2014).

The thinking bias leads to minimized perception of one's successes and maximizing aspects of failures (Liedtka 2015) showing anxious tendencies and lack of control over life and a failure to solve problems effectively or be reluctant in implementing solutions. These styles are usually responsible for swelling normal worry patterns and surfacing worry type II known as metaworry (Wells 1994). Metaworry refers to being worried about one's own thoughts (Roussis and Wells 2008). In an attempt to repel worrying thoughts individuals usually fall into a vicious cycle of increased worrying thoughts causing more dysfunction to normal cognitive processing. The elements of metaworry (Wells 1994) and emotion focused style of coping manifest depressogenic risk factors. The S-REF model proposes that dispositional self-knowledge provides to the situational processing and works in a feedback loop manner of processing. This suggests that after aiding in appraisal the information regarding current status travels again to self-knowledge for updating and modulating purposes. The study presumes in the light of literature that the process may vary across gender, since females are more emotionally prone. Currently a sample specific to work

environment was considered as it provides an active milieu of metacognitive practices.

Previous research attempts have scarcely investigated how this processing is associated with gender differences. In an attempt to fill this void, this study explores the path from a ruminative thinking style moderated by gender and mediated by emotion oriented coping. The main objectives for the current research included verifying previously established associations while further investigating mediation relationship between study variables, and moderated mediation of gender for direct and indirect paths. Presently, the study assumes that emotion oriented coping will serve as mediator between positive beliefs about rumination and metaworry. The study contributes by bridging this gap between beliefs about rumination and emotion oriented coping by considering relatively unexplored pattern of relationship.

## **METHODS**

**Sample and Procedure.** A total of 514 adults, comprising of females (26%) and males (64%) were selected from various government, semi-government and private organizations and institutions around twin cities of Pakistan i.e., Rawalpindi and Islamabad. A major portion of the sample was obtained from government (41%) and private (42%) organizations and institutions. The mean age for the present sample was 32.56 years. The executive seats of the organizations and institutions were approached and formal permission was acquired to collect data.

The original English-version for instruments were considered, for that the participants were then purposively selected based on specific inclusion criteria, consisting of a minimum education of graduation, age ranging between 25-45 years and working as permanent employees. This resolved issues if any, related to the comprehension of items in foreign language. The participants were correspondingly informed about the purpose of the study and assured of the confidentiality of the information collected.

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Overall the respondents found items easily understandable.

### Measures

**Positive Beliefs about Rumination Scale (PBRS).** PBRS is a 9-item scale that measures metacognitive beliefs (Papageorgiou & Wells 2001), concentrated on the advantages of the ruminative thinking pattern. Respondents rate each statement using 4-point Likert scale extending between (1) does not agree and (4) agree very much. A composite score is used by summing all items with high scores representing the strong positive metacognitive beliefs about rumination. The original internal consistency and test-retest reliability coefficients were reported as .89 and .85, respectively. The positive correlation ( $r = .43$ ) between positive beliefs about rumination and positive beliefs about worry refers to the concurrent validity of the scale.

### Coping Inventory for Stressful Situations (CISS).

The CISS scale assesses choice of coping strategies in stressful or challenging situations (Endler and Parker 1990). The entire scale consists of 48-items with three subscales emotion oriented, avoidance oriented coping and task oriented consisting coping. Each dimension consists of 16-items. The respondents respond on a 4-point Likert type scale ranging from “(1) Do not agree” to “(4) Agree very much”. Intended for the present research objectives, emotion oriented coping subscale consisting of 16-items was considered. The original internal consistency and test-retest reliability coefficients of emotion oriented coping subscale were reported as .89 and .85, respectively.

**Anxious Thought Inventory (AnTi).** The inventory is a measure of generalized worry (Wells 1994) consisting of 22-items on the dimensions of social worry (9-items), health worry (6-items) and metaworry (7-items). The metaworry dimension of the inventory holding both process and content of worry was included in the present study. Respondents rated each statement on a 6-

point Likert type scale ranging from “(1) Not at all” to “(6) Very much”. The original internal consistency (.75) and test-retest reliability coefficients (.77) demonstrates the psychometric soundness of the subscale.

### RESULTS

The present study constituted a cross sectional design to accomplish the study objectives. The reliability coefficients were estimated to ensure the psychometric appropriateness of the measures employed for the present study.

The results indicated that all subscales met the acceptance range of internal consistency. The measures along with their respective alpha coefficients are given in table 1. Additionally the sample was explored for homogeneity of variances through Levene’s test. The results showed homogenous variances for all study variables for example PBRS showed  $F = .23$ ; EOC indicated  $F = .61$  and metaworry presented  $F = .21$ , the entire list of variables showed nonsignificant values. The  $t$ -test for mean differences between gender depicted that positive beliefs about rumination ( $t = 1.58, p > .05$ ) showed nonsignificant values suggesting no difference in means for gender. The emotion oriented coping ( $t = 4.42, p < .01$ ) and metaworry ( $t = 3.16, p < .01$ ) presented significant differences in means suggestive of gender difference.

The correlation coefficients were estimated to obtain the pattern of association INSERT TABLE 1 between various demographic characteristics of the sample and the study variables. The results revealed that work experience was significantly positively correlated with age ( $r = .83, p < .01$ ). The monthly income was significantly positively correlated with age ( $r = .29, p < .01$ ) and work experience ( $r = .30, p < .01$ ). The emotion oriented coping was found to be significantly negatively associated with age ( $r = -.20, p < .01$ ) and work experience ( $r = -.19, p < .01$ ) while positively associated with positive beliefs about rumination ( $r = .40, p < .01$ ). The metaworry inventory was significantly negatively correlated with age ( $r = -.23, p < .01$ )

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and work experience ( $r = -.17, p < .01$ ) and significantly positively correlated with positive beliefs about rumination ( $r = .29, p < .01$ ) and emotion-oriented coping ( $r = .23, p < .01$ ).

The major objective of the study was to investigate the paths between positive beliefs about rumination and metaworry mediated by emotion oriented coping. Additionally moderated mediation was also presumed in the indirect path. The path model was designed in AMOS version 22. Both direct and indirect effects were estimated. Two tailed significance of indirect paths were estimated at 95% confidence interval using 500 bootstrap samples. The fit indices provided acceptable fit for  $CFI (.95 > .9)$ ,  $RMSEA (.00 < .05)$ ,  $TLI (.97 > .9)$  and  $\chi^2 (1) = .221$  parameter estimates were significant at .01 level.

**Insert Fig 1** The model was further revised to study the moderating role of gender for both direct and indirect effects. Gender was used as grouping variable and model was executed with open estimates for both males and females. The fit indices indicated a good fit of the model to the data. In the next step all parameters were constrained to be equal across male and female participants and change in chi-square values was assessed for significant differences between models. The results suggested that groups were similar at the model level, however, they may be dissimilar at the path level.

**Insert Table 2** The comparison of parameters as presented in Table 2 suggests that merely one parameter in the model (i.e., relationship between metaworry and emotion oriented coping) is being moderated by gender. The parameter appeared to be significant for males only. Gender wise comparison of indirect effect showed that indirect path between positive beliefs about rumination and emotion oriented coping mediated by metaworry is further moderated by gender. The mediated moderating effects resulted in significant indirect effect ( $\beta = .04, p < .05$ ) for male participants and a nonsignificant indirect effect ( $\beta = .01, p > .05$ ) for female participants.

## DISCUSSION

According to Wells (2000) dysfunctional beliefs are majorly responsible for the development and maintenance of clinical problems. Our beliefs about sustained thoughts lead to a cyclic repetition (rumination) that may give rise to negative thinking and metaworry (Mathews and MacLeod 1994). Rumination resembles worry except that it is more liable to focus on relevance from the past and highlights emotional negativity and it is also found to be associated with anxiety (Nolen-Hoeksema, et al. 2008).

The present research investigated the relationships among positive beliefs about rumination, metaworry and emotion oriented coping in an attempt to partially test S-REF model of rumination. The context of present study is suggestive of the ruminative cycle as a cognitive struggle to deal with discrepancies withholding goal progress (Wells 2005).

In line with previous literature the results showed significantly positive relationships between positive beliefs about rumination and emotion oriented coping suggesting that elevation of either may contribute to the other. Previous literature has shown positive beliefs about rumination and metaworry (AnTi) to be positively correlated and these findings were corroborated in the present study by correlations in similar directions. The significantly positive correlation between positive beliefs about rumination, metaworry, emotion oriented coping imply that having elevated positive beliefs about advantages of ruminative coping is associated with higher emotion oriented coping. The positive relationship between positive beliefs about rumination, emotion oriented coping and metaworry also specifies that holding beliefs that rumination serves an advantage elevates the emotional content which is positively associated with metaworry (Wells 1994).

Preceding researches indicate females carrying emotionally vulnerable mechanics in choice of coping strategies (Ptacek, et al. 1994) and anxiety (Donner and Lowry, 2013). Thus we anticipated that gender will moderate the

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relationship between positive beliefs about rumination, emotion oriented coping and metaworry. This was observed in the results of direct effects between emotion oriented coping and metaworry; indirect effects between positive beliefs about rumination emotion oriented coping and metaworry. Especially the direct path between emotion oriented coping and metaworry was expected to be significantly moderated in terms gender.

Literature endorses a better probability of rumination in women, along with their vulnerability for emotional coping (Woody, et al. 2014) that was presently reflected in majority of the paths across direct, indirect and total effects in terms of the standardized scores obtained for both genders. The positive beliefs about rumination were mediated by emotion oriented coping on metaworry that appeared significant for females only suggesting moderating role of gender on the paths. These findings are suggestive of females engaging more in seeking emotional support in times of psychological distress (Kelly, et al. 2008).

The present study highlighted findings that gives important implications with respect to gender differences in the relationship between positive beliefs about rumination taking account of important mediator i.e., emotion oriented coping. These findings may help in tailoring interventions based on the universal nature of the model for both genders and provide further elaboration to the S-REF mechanism. Several limitations must however be overcome in later research attempts for example, a repeated measure design, would better depict how gender differences stand a function of time and perhaps an important factor e.g., personality disposition, should be considered in future attempts.

The present study was composed of healthy nonclinical sample, conceivably a comparison with a clinical sample would show a more concrete picture. Despite these caveat, present study investigated relatively unexplored associations between important variables relevant to therapeutic interventions.

## REFERENCES

- Alston, William P  
1993 Perceiving God: The Epistemology of Religious Experience. Cornell University Press.
- Endler, Norman S, and James D Parker  
1990 Multidimensional Assessment of Coping: A Critical Evaluation. *Journal of Personality and Social Psychology* 58(5):844.
- Eshun, Sussie  
2000 Role of Gender and Rumination in Suicide Ideation: A Comparison of College Samples from Ghana and The United States. *Cross-Cultural Research* 34(3):250-263.
- Kelly, Megan M, et al.  
2008 Sex Differences in Emotional and Physiological Responses to the Trier Social Stress Test. *Journal of Behavior Therapy And Experimental Psychiatry* 39(1):87-98.
- Layous, Kristin, Joseph Chancellor, and Sonja Lyubomirsky  
2014 Positive Activities as Protective Factors Against Mental Health Conditions. *Journal of Abnormal Psychology* 123(1):3.
- Liedtka, Jeanne  
2015 Perspective: Linking Design Thinking with Innovation Outcomes Through Cognitive Bias Reduction. *Journal of Product Innovation Management* 32(6):925-938.
- Martin, Leonard L, and Abraham Tesser  
1996 Some Ruminative Thoughts. *Advances in social cognition* 9:1-47.
- Mathews, Andrew, and Colin MacLeod  
1994 Cognitive Approaches to Emotion and Emotional Disorders. *Annual Review of Psychology* 45(1):25-50.
- Matthews, GERALD, and Adrian Wells  
2004 Rumination, depression, and metacognition: The S-REF model. *Depressive rumination: Nature, theory and treatment*:125-151.
- Nolen-Hoeksema, Susan

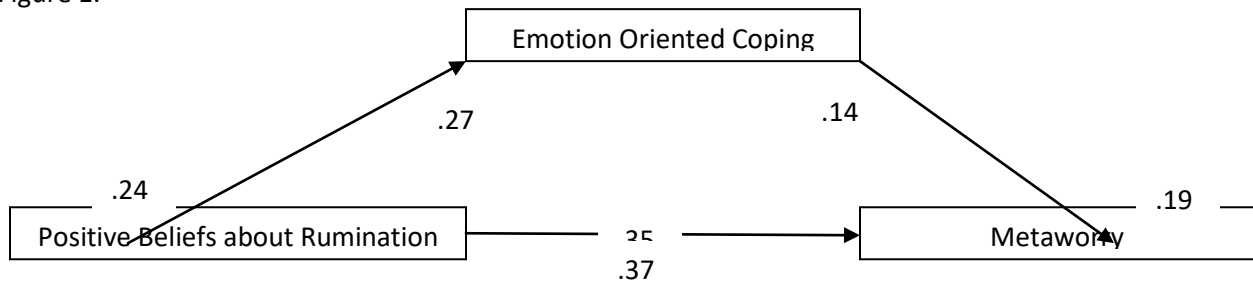
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- 1991 Responses to Depression and Their Effects on the Duration of Depressive Episodes. *Journal Of Abnormal Psychology* 100(4):569.
- Nolen-Hoeksema, Susan, Blair E Wisco, and Sonja Lyubomirsky  
2008 Rethinking Rumination. *Perspectives on Psychological Science* 3(5):400-424.
- Papa, Anthony, Julie Kahler, and Clair Rummel  
2014 Stress, Coping, and Resilience in the Face of Trauma. *Health, Happiness, and Well-Being: Better Living Through Psychological Science*:90.
- Papageorgiou, Costas, and Adrian Wells  
2003 An Empirical Test of a Clinical Metacognitive Model of Rumination and Depression. *Cognitive Therapy and Research* 27(3):261-273.
- Ptacek, John T, Ronald E Smith, and Kenneth L Dodge  
1994 Gender Differences in Coping With Stress: When Stressor and Appraisals Do Not Differ. *Personality and social psychology bulletin* 20(4):421-430.
- Roussis, Panagiotis, and Adrian Wells  
2008 Psychological factors predicting stress symptoms: metacognition, thought control, and varieties of worry. *Anxiety, Stress, & Coping* 21(3):213-225.
- Wadsworth, Martha E  
2015 Development of maladaptive coping: A functional adaptation to chronic, uncontrollable stress. *Child development perspectives* 9(2):96-100.
- Wegner, Daniel M, and Sophia Zanakos  
1994 Chronic thought suppression. *Journal of personality* 62(4):615-640.
- Wells, Adrian  
1994 A multi-dimensional measure of worry: Development and preliminary validation of the Anxious Thoughts Inventory. *Anxiety, Stress and Coping* 6(4):289-299.  
2005 Detached Mindfulness in Cognitive Therapy: a Metacognitive Analysis and Ten Techniques. *Journal of Rational-Emotive and Cognitive-Behavior Therapy* 23(4):337-355.
- Woody, Mary L, John E McGeary, and Brandon E Gibb  
2014 Brooding Rumination and Heart Rate Variability in Women at High and Low Risk for Depression: Group Differences and Moderation by Comt Genotype. *Journal of Abnormal Psychology* 123(1):61.

Table 1 showing Internal Consistency Coefficients, Mean, Standard Deviation and Correlation Coefficients for study variables

|                                     | Items | $\alpha$ | 1     | 2     | 3        | 4     | 5     | 6      | 7      |
|-------------------------------------|-------|----------|-------|-------|----------|-------|-------|--------|--------|
| 1 Age                               | -     | -        | -     | .83** | .29**    | -.07  | -.06  | -.20** | -.23** |
| 2 Work Experience                   | -     | -        |       | -     | .30**    | -.07  | -.09  | -.19** | -.17** |
| 3 Salary                            | -     | -        |       |       | -        | .07   | -.02  | .01    | -.01   |
| 4 Working hours                     | -     | -        |       |       |          | -     | .06   | .06    | .04    |
| 5 Positive Beliefs about Rumination | 9     | .85      |       |       |          |       | -     | .40**  | .29**  |
| 6 Emotion Oriented Coping           | 16    | .77      |       |       |          |       |       | -      | .23**  |
| 7 Metaworry                         | 7     | .77      |       |       |          |       |       |        | -      |
| <i>M</i>                            | -     | -        | 32.56 | 9.41  | 48310.80 | 10.29 | 10.41 | 47.27  | 16.12  |
| <i>SD</i>                           | -     | -        | 6.96  | 6.30  | 31237.44 | 8.19  | 3.30  | 9.07   | 4.42   |

\* $p < .05$ , \*\* $p < .01$

Figure 1.



Effects of Positive Beliefs about Rumination (PBRS) on Metaworry (AnTi) mediated by Emotional coping (EOC).

Table 2 showing Direct, Indirect and Total Effects across Emotion Oriented Coping and Gender (N=514).

|          | Predictors | Gender  | Dependent |     |         |     | $\Delta R^2$ |
|----------|------------|---------|-----------|-----|---------|-----|--------------|
|          |            |         | Metaworry |     | EOC     |     |              |
|          |            |         | B         | P   | $\beta$ | p   |              |
| Direct   | PBRS       | Males   | .35       | .03 | .24     | .02 |              |
|          |            | Females | .37       | .01 | .27     | .01 |              |
|          | EOC        | Males   | .14       | .24 |         |     | .11          |
|          |            | Females | .19       | .01 |         |     | .17          |
| Indirect | PBRS       | Males   | .05       | .41 |         |     | .11          |
|          |            | Females | .18       | .02 |         |     | .16          |
|          | EOC        | Males   |           |     |         |     |              |
|          |            | Females |           |     |         |     |              |
| Total    | PBRS       | Males   | .44       | .02 | .24     | .01 |              |
|          |            | Females | .57       | .01 | .27     | .01 |              |
|          | EOC        | Males   | .14       | .04 |         |     |              |
|          |            | Females | .14       | .01 |         |     |              |