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 meta worry 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, Meta worry 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 meta worry was moderated by gender (β = .14, p > .05 for males and β = .19, p < .05 for females). The relationship between positive belief about rumination and meta worry was significantly mediated by emotion oriented coping (β indirect = .04, p < .05) and further moderated by gender (β = .05, p > .05 for males and β = .18, p < .05 for females). The results are suggestive of moderated mediation across gender.

Keywords: Moderated Mediation; Positive beliefs about rumination; Emotion oriented coping; Meta worry

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
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.
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 ruminate 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 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 \((r = -.23, p< .01)\).
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. 

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.

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 metaworry 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 (Patek, et al. 1994) and anxiety (Donner and Lowry, 2013). Thus we anticipated that gender will moderate the
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.

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Roussis, Panagiotis, and Adrian Wells
Wadsworth, Martha E
Wegner, Daniel M, and Sophia Zanakos
Wells, Adrian
Woody, Mary L, John E McGeary, and Brandon E Gibb
Table 1 showing Internal Consistency Coefficients, Mean, Standard Deviation and Correlation Coefficients for study variables

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*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).

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