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# Perceived Stress, Rumination, and Self-Control in Patients with Posttraumatic Stress Disorder

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## ABSTRACT

**Aim of the Study:** To examine relationships among perceived stress, rumination, and self-control in adults receiving hospital-based care for posttraumatic stress disorder (PTSD) in Pakistan and explore demographic differences in these constructs.

**Methodology:** A cross-sectional correlational design was used. Purposive sampling recruited 120 adults aged 20–60 years, comprising 59 men and 61 women, from inpatient and outpatient hospital services. Urdu-translated versions of the Perceived Stress Scale, Ruminative Responses Scale, and Brief Self-Control Scale were administered. Descriptive statistics, internal consistency estimates, Pearson correlations, and independent-samples t tests were calculated.

**Findings:** Perceived stress correlated positively with rumination ($r = .55$, $p < .01$) and negatively with self-control ($r = -.37$, $p < .01$). Rumination also correlated negatively with self-control ($r = -.50$, $p < .01$). Older participants reported greater stress and rumination, whereas participants without formal education reported greater stress. Rural participants reported higher stress, rumination, and self-control than urban participants. No significant differences were reported by gender, financial problems, family system, or marital status. Internal consistency was acceptable for perceived stress and rumination but weak for self-control ($\alpha = .56$). The reported stress-score maximum exceeded the PSS-10 scoring range and requires verification against the original data.

**Conclusion:** Stress appraisal, repetitive negative thinking, and self-regulatory functioning warrant integrated consideration in PTSD research. The cross-sectional design, weak self-control reliability, and unresolved stress-scoring discrepancy limit interpretation. Longitudinal research using validated Urdu measures is needed before causal or treatment conclusions can be drawn.

**Keywords:** Posttraumatic stress disorder, Perceived stress, Rumination, Self-control.

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## 1. INTRODUCTION

Posttraumatic stress disorder (PTSD) is a psychological disorder that can result from experiencing actual or threatened death, serious injury or sexual violence. Intrusive memories, avoidance of trauma-related stimuli, negative changes in cognition and mood, and increased arousal and reactivity are all features of it. These symptoms can significantly impact emotional, social, cognitive and functional functioning. In addition to the basic diagnostic signs and symptoms, those suffering from PTSD will often go on to experience chronic psychological distress, heightened sensitivity to perceived threats, and challenges with emotional and behavioral reactions. Maladaptive cognitions, emotional dysregulation, and executive functioning have been shown to be important factors to understand in relation to difficulties with PTSD (Ouhmad et al., 2023, 2024; O'Brien et al., 2025; Safi et al., 2025).

Additional studies have shown that psychological challenges resulting from trauma can occur beyond initial emotional responses. Zhou et al. (2023) found relationships between acute sleep disturbance and subsequent posttraumatic stress symptoms, as well as emotional regulation and symptoms of posttraumatic stress. In a similar study, Messman et al. (2023) investigated positive affect processes between PTSD symptoms and sleep difficulties. In addition, Werner et al. (2024) examined temporal relations between sleep disturbance related to trauma and PTSD symptoms in daily life. The results show that there is an interrelated cognitive, emotional and physiological effect of psychological functioning that is related to PTSD. There has also been recent systematic evidence highlighting the significance of emotion regulation difficulties throughout the stages of emotion regulation, such as recognition, selection of emotion regulation strategies, and effective implementation of emotion regulation strategies (Agathos et al., 2025).

Perceived stress is the degree that one feels their life situation as being stressful, unpredictable and uncontrollable (Cohen et al., 1983). Perceived stress is a person's subjective interpretation of the demands of the environment and the resources he or she has to deal with them, rather than objective exposure to stressful events. People in similar situations may feel different degree of stress with different interpretations, perceptions of their ability, and coping experiences. The Transactional Model of Stress and Coping (Lazarus & Folkman, 1984) accounts for this process by focusing on the process of transaction between the perceived demands of the environment and an individual's appraisal of the situation.

In patients with PTSD, excessive threat sensitivity, ongoing trauma-related concerns and problems regulating emotional reactions may be linked to increased perceived stress. Hernández-Posadas et al. (2024) found three transdiagnostic factors associated with posttraumatic stress symptoms and depressive symptoms: intolerance of uncertainty, emotional dysregulation, and rumination. Likewise, Meuleman et al. (2024) studied the association between emotion regulation difficulties and PSS in psychological treatment. It is concluded that subjective appraisal and psychological regulation play a relevant role in the study of distress in people with PTSD, corroborating findings that suggest that subjective appraisal is essential when studying distress among individuals with PTSD.

Recent experimental and integrative research also has supported the relationship between stress and emotional regulation. Langer et al. (2025) summarized the research on the impact of acute stress and stress hormones on cognitive emotion regulation, emphasizing the significance of the timing and the individual differences. They conclude that the impact of stress on regulatory functioning is not consistent, but depends on the physiological stress reaction and regulatory response. In addition, Sloan et al (2026) found evidence that emotion regulation deficits can be found in a wide range of psychiatric disorders and thus are transdiagnostic. These studies do not directly link trait self-control to perceived stress in the context of PTSD, but they do lay the groundwork for an examination of psychological regulation in stressful situations more recently.

Rumination involves passive and repetitive thoughts about distressing experiences and their causes with or without engaging in constructive problem solving (Nolen-Hoeksema, 1991). Response Styles Theory

suggests that ruminative thinking can contribute to a prolonging of negative emotional states because it keeps the focus on negative thoughts and disrupts adaptive coping. People in PTSD can often wonder why the trauma happened, brood about its effects, or expect that bad things will continue to happen. Rumination and intrusive memories are associated with each other but are conceptually different processes. Intrusive memories are involuntary memories of past traumatic events, and rumination often refers to repetitive evaluative thinking about the meaning and implications of distressing events.

In recent years, there has been a significant amount of research reporting a link between rumination and posttraumatic psychological distress. In a systematic review and meta-analysis, Miethe et al (2023) found that rumination was significantly positively associated with posttraumatic stress symptoms. Likewise, Hernández-Posadas et al. (2024) determined rumination as a relevant transdiagnostic process in PTSD and depression. In an experimental study with trauma exposed individuals with and without PTSD, Wisco et al. (2023) concluded that rumination instead of distraction was associated with higher levels of subjective distress following trauma-focused rumination. These results highlight the implications of repetitive negative thinking for not only maintaining distressful cognitions, but also emotional reactions after trauma reminders.

Additional evidence is found in studies of rumination in psychological treatment. Schumm et al. (2022) investigated the role of rumination as a potential mechanism of change in trauma-focused treatment for PTSD, highlighting its relevance to therapeutic processes. Di Tella and Romeo (2025) identified a relationship between intrusive rumination and PTSD symptoms at various stages after trauma exposure. Their results also indicated that the link between intentional rumination and symptoms of PTSD might differ as a function of time since trauma. These findings highlight the need for identifying intrusive and repetitive negative thinking from more purposeful attempts to process traumatic experiences.

Other areas of psychological functioning post-trauma have been investigated in relation to rumination. Among adults who had experienced trauma, repetitive negative thinking was correlated with insomnia symptoms and lower sleep quality (Arditte Hall et al., 2024). The positive emotion regulation strategies of positive rumination and dampening were examined by Kiefer et al. (2023) in the context of childhood trauma and PTSD symptoms. The results suggest that there are psychological associations between the various types of repetitive thinking. Therefore, rumination should not be viewed as a uniform, always dysfunctional process, but rather it should be understood in terms of the content, purpose, and context.

### *1.1 Self-control and Regulatory Functioning in PTSD*

Self-control is the capacity to manage thoughts, emotions, impulses and behaviors in line with one's own aspirations and socially acceptable standards (Tangney et al., 2004). It is also a major factor in behavioral adjustment, in decisions making, emotional stability and function to achieve goals. People with high levels of self-control might have greater control over their initial automatic reactions, be able to shift their focus, and be better able to behave in an adaptive way in stressful situations. But ongoing emotional distress can also be accompanied by attention and emotional control problems and behavioral out-of-controlness.

PTSD is characterized by intrusive cognitions, hyperarousal, avoidance and sleep disturbances, which can place additional demands on regulation. Ouhmad et al. (2024) explored executive functioning impairment related to PTSD, and Safi et al. (2025) explored executive functioning relationship to severity and daily functioning of PTSD. Swick et al. (2024) also explored inhibition, switching, and task modality in PTSD, further exemplifying the complexity and variability of EF studies in this context. The relevance of cognitive regulation in psychological functioning of trauma-related was shown in these studies. Both constructs of executive functioning and trait self-control, however, are related but not identical, and results from studies of executive functioning should be viewed as indirect evidence for self-control.

There has been recent systematic research that adds to our understanding of the relationship between cognitive regulation and psychological functioning. In a review of randomized controlled trials of

attention control training for PTSD, Clauss et al. (2025) found high levels of uncertainty as there was variation in results and methodological flaws. Likewise, Rahapsari and Levita (2025) explored the link between adverse childhood experiences and cognitive control across the lifespan, emphasizing the significance of developmental experiences in the understanding of regulatory functioning. These investigations continue efforts to explore cognitive control processes and highlight the importance of precise measurement and interpretation.

The stress appraisal and stress response style, as well as the self-regulation related to stress, can be integrated to help explain the relationships between perceived stress, rumination and self-control. Pessimistic appraisal of the situation can lead to more frequent repetitive negative thinking, and chronic rumination can occur at the same time as a failure to focus attention on adaptive coping, and goal-directed activities. Within this context, reduced self-control might be linked to an increased problem with control of distressing thoughts and behavioral reactions.

Considering emotional awareness, regulatory flexibility, and strategy selection, O'Brien et al. (2025) emphasized the need to understand PTSD. Agathos et al. (2025) also found challenges in emotion regulation at several points in the process with adults with PTSD. Coyne et al. (2024) investigated within-patient associations between emotion regulation and treatment outcomes during prolonged exposure therapy, further highlighting the clinical relevance of regulatory functioning. In a larger perspective, Schulze et al. (2026) found small correlations among cognitive control skills and emotion regulation strategies, such as rumination, and noted that there was significant variability in the results from different studies. The results show that it is worthwhile to investigate interrelationships between regulatory processes in a non-equivalence and non-causality manner.

The combined evidence from the literature indicates that perceived stress and rumination and self-control might be interrelated elements of psychological functioning in people with PTSD. Previous research, however, has tended to focus on the role of stress appraisal, repetitive negative thinking, emotional regulation and executive functioning as disparate processes. Furthermore, executive functioning or emotion regulation findings cannot be translated to trait self-control. Thus, there is a need for additional investigations to explore the interlinkages between perceived stress, rumination and self-control in clinical populations.

To this end, the present study examines these 3 constructs in hospital based patients with PTSD in Pakistan. It also discusses population differences related to age, gender, and education, place of residence, financial problems, family system and marital status. Knowing these relationships could offer cultural-specific evidence of psychological functioning in persons with PTSD, and future research on assessment and intervention.

### *1.2 Rationale of the Present Study*

Although there is research that has focused on perceived stress, rumination or self-control individually, there is less research that has investigated all three constructs simultaneously in a clinical sample of patients with PTSD in Pakistan. Stress appraisal and coping also could be influenced by cultural and socioeconomic factors. Exposure to demands and availability of psychological services could be affected by financial strain, access to education, family structure, marital responsibilities, and rural versus urban residence. The examination of the demographic differences, together with the main relationships, can thus offer clinically meaningful context.

The study was designed to explore the relationships between perceived stress, rumination, and self-control in individuals with PTSD, and (b) to determine if there were any gender, age, education, residence, financial difficulty, family system, or marital status differences in perceived stress, rumination, and self-control in patients with PTSD. It was predicted that perceived stress would positively correlate with rumination, negatively correlate with self-control, and that rumination would negatively correlate

with self-control. Demographic differences were also tested to explore whether they exist in the exploratory manner.

### *1.3 Conceptual Study Model*

The present study is guided by the Transactional Model of Stress and Coping (Lazarus & Folkman, 1984), Response Styles Theory (Nolen-Hoeksema, 1991), and self-regulation theory (Tangney et al., 2004). These perspectives explain the interrelationships among perceived stress, rumination, and self-control in patients with posttraumatic stress disorder (PTSD). Perceived stress reflects individuals' appraisal of overwhelming circumstances, whereas rumination involves repetitive negative thinking that may intensify psychological distress (Hu et al., 2014; Miethe et al., 2023). Self-control refers to the ability to regulate thoughts, emotions, and behaviors despite stressful experiences. Recent evidence highlights the importance of emotional regulation difficulties in PTSD (Meuleman et al., 2024). See figure 1 for presenting study model.

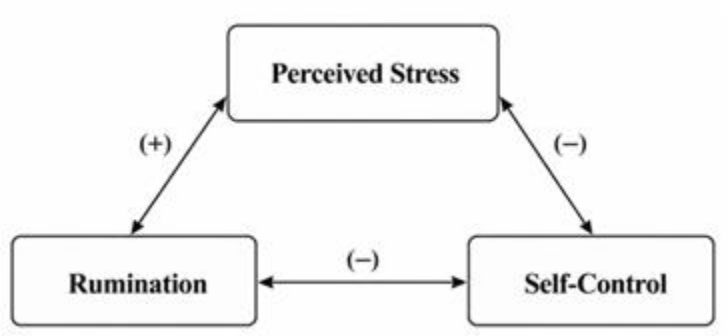



**Figure 1:** *Perceived Stress, Rumination, and Self-Control in Patients with PTSD.*

## 2. METHOD

### *2.1 Research Design*

The cross-sectional correlational design was used. The study consisted of a translation and pilot study, followed by the main study. The data of 120 patients with PTSD were analyzed for the main study. Participants included 120 adults, who were identified by purposive sampling from inpatient and outpatient hospital services, identified as having PTSD. The sample comprised 59 men (49.2%) and 61 women (50.8%), ranging in age from 20 to 60 years. Most participants were ages 20-40 years (n = 91, 75.8%), educated (n = 88, 73.3%), and urban residents (n = 79, 65.8%). Seventy-two participants (60.0%) reported financial problems. Among them, 68 (56.7%) were living in joint families while 52 (43.3%) were living in nuclear families. Marital-status data were available for 120 respondents (60 married, 60 unmarried). Demographic characteristics are summarized in Table 1. The eligible patients were those identified as identified as having PTSD. Individuals presenting with another disorder without PTSD were excluded. The source manuscript does not specify the diagnostic instrument, clinician assessment procedure, or trauma-exposure criteria; these details should be confirmed before publication.

**Table 1:** *Demographic Characteristics of the Sample (N = 120)*

| Characteristic | n | % |
|---|---|---|
| Gender: Men | 59 | 49.2 |
| Gender: Women | 61 | 50.8 |
| Age: 20-40 years | 91 | 75.8 |
| Age: 41-60 years | 29 | 24.2 |
| Education: Educated | 88 | 73.3 |
| Education: No formal education | 32 | 26.7 |

| Characteristic | n | % |
|---|---|---|
| Residence: Rural | 41 | 34.2 |
| Residence: Urban | 79 | 65.8 |
| Financial problems: Yes | 72 | 60.0 |
| Financial problems: No | 48 | 40.0 |
| Family system: Joint | 68 | 56.7 |
| Family system: Nuclear | 52 | 43.3 |
| Marital status: Married | 60 | 50 |
| Marital status: Unmarried | 60 | 50 |

## *2.2 Measures*

### *2.2.1 Perceived Stress Scale*

The 10-item Perceived Stress Scale (PSS-10; Cohen et al., 1983) assessed the extent to which respondents appraised recent experiences as unpredictable, uncontrollable, or overwhelming. Items use a five-point response scale (0 = never to 4 = very often). Positively phrased items are reverse scored before summation, with higher total scores indicating greater perceived stress. The internal consistency coefficient in the present sample was $\alpha = .77$.

### *2.2.2 Ruminative Responses Scale*

The 22-item Ruminative Responses Scale based on the response styles framework (Nolen-Hoeksema & Morrow, 1991) was used to assess rumination. This measure evaluates repetitive responses to distress including to symptoms, causes and consequences. Total scores were rated on a 4-point scale with higher scores signifying more frequent ruminations. The test had satisfactory internal consistency with a value of $\alpha = .88$ for the main sample.

### *2.2.3 Brief Self-Control Scale*

The Brief Self-Control Scale (13 item version) (Tangney et al., 2004) was used to measure self-control. The scale is an assessment of the perception of resisting temptation, regulating impulses and sustaining goal-directed behavior. The items ranged from 1 (not at all like me) to 5 (very much like me) (reverse-keyed items were scored according to the instrument key). The higher the total scores, the higher the degree of self-control. The internal consistency was low for the present sample (alpha = .56), thus results based on this measure should be interpreted with caution.

## *2.3 Translation and Pilot Testing*

All the three measures were translated into Urdu by a multistep back translation procedure as suggested by Brislin (1976). Forward translations were done independently by bilingual psychology professionals. An expert committee worked to resolve differences and chose language that would ensure that the concepts and cultural significance remain intact. Two bilingual experts who were not aware of the original items translated the Urdu versions into English again. The back-translations were checked against the original scales by a review committee that reached a consensus in resolving the discrepancies. A pilot test was administered to determine the clarity and preliminary psychometric performance prior to the main test.

## *2.4 Procedure and Ethical Considerations*

The research topic was initially reviewed and approved by the University Board of Studies, research supervisor, and institutional ethical review committee of University of Sargodha. Following ethical approval, formal permission for data collection was obtained from the hospital administration. The researchers approached eligible inpatients and outpatients diagnosed with posttraumatic stress disorder (PTSD) under the supervision of designated physicians. Participants were informed about the study's

objectives, procedures, potential risks, and benefits. Written informed consent was obtained before administering the demographic information form and psychological assessment measures. Participation was entirely voluntary, and participants were assured of their right to withdraw at any stage without consequences for their medical treatment. Confidentiality and anonymity were maintained by ensuring that responses were not linked to participants' identities and that findings would be reported only in aggregate form. Completed questionnaires were reviewed for missing responses to ensure data completeness and accuracy.

### *2.5 Data Analysis*

SPSS Version 27 was used for data analysis. Descriptive statistics and Cronbach's alpha coefficients were determined for each scale. The main hypotheses were tested with Pearson product-moment correlations. Independent-samples t tests were used to compare means between two categorical groups on demographic variables; Cohen's d measured effect size. Two-tailed tests with an alpha level of .05 were used to determine statistical significance. Because several demographic comparisons were conducted, nominally significant exploratory results should be interpreted cautiously in the absence of multiplicity adjustment. No causal, mediational, or predictive effects were estimated.

## 3. RESULTS

### *3.1 Descriptive Statistics and Reliability*

Table 2 presents descriptive statistics and internal consistency estimates. Participants reported a mean perceived stress score of 32.78 (SD = 7.10), a mean rumination score of 61.79 (SD = 10.41), and a mean self-control score of 42.38 (SD = 6.36). Reliability was acceptable for perceived stress and good for rumination. Reliability for self-control was below conventional standards.

**Table 2:** *Descriptive Statistics and Internal Consistency of Study Variables*

| Variable | Items | M | SD | Alpha | Observed range |
|---|---|---|---|---|---|
| Perceived stress | 10 | 32.78 | 7.10 | .77 | 15-47 |
| Rumination | 22 | 61.79 | 10.41 | .88 | 36-83 |
| Self-control | 13 | 42.38 | 6.36 | .56 | 28-58 |

### *3.2 Association among Study Variables*

Perceived stress was as hypothesized, moderately positively correlated with rumination ($r = .55$, $p < .01$), and moderately negatively correlated with self-control ($r = -.37$, $p < .01$). Self-control also showed a moderate negative correlation with rumination $r = -.50$, $p < .01$. In other words, individuals who rated their overall lives as more stressful tended to have more repetitive negative thinking and less self-control, and those who experienced more ruminative thinking tended to experience less self-control (Table 3). The stress–rumination association accounted for approximately 30% of shared variance ($r^2 = .30$), the stress–self-control association for approximately 14% ($r^2 = .14$), and the rumination–self-control association for approximately 25% ($r^2 = .25$).

**Table 3:** *Means, Standard Deviations, and Correlations Among Study Variables*

| Variable | 1 | 2 | 3 |
|---|---|---|---|
| 1. Perceived stress | - | | |
| 2. Rumination | .55** | - | |
| 3. Self-control | -.37** | -.50** | - |

*Note.* N = 120. **p < .01 (two-tailed).

### *3.3 Demographic Differences*

There were no significant gender differences for perceived stress, rumination or self-control. By age, participants ages 41-60 years reported higher perceived stress (M = 35.34, SD = 8.23) than those ages 20-40 years (M = 31.96, SD = 6.54), t(118) = -2.26, p = .02, d = 0.45. Older participants also reported greater rumination (M = 65.13, SD = 9.39) than younger participants (M = 60.72, SD = 10.53), t(118) = -2.01, p = .04, d = 0.44. There were no significant differences between age groups in terms of self-control. These age comparisons were exploratory, used broad categories rather than continuous age, and were not adjusted for potentially relevant differences in trauma exposure, duration of illness, treatment status, or other demographic characteristics.

Participants without formal education reported higher perceived stress (M = 35.21, SD = 8.39) than educated participants (M = 31.89, SD = 6.40), t(118) = -2.30, p = .02, d = 0.44. There were no significant education differences in rumination or self-control. Rural participants scored higher than urban participants on perceived stress, t(118) = 2.75, p < .01, d = 0.49; rumination, t(118) = 3.47, p < .01, d = 0.65; and self-control, t(118) = 2.61, p = .01, d = 0.47. There were no statistically significant differences in the mean scores for the study variables by financial problem, family system or marital status. Full group statistics are shown in Table 4. Notably, rural participants also reported significantly higher self-control, a finding that should not be omitted or interpreted as evidence of a uniform rural disadvantage. Because multiple t tests were performed, isolated p values near .05 may be sensitive to multiplicity correction.

**Table 4:** *Independent-Samples t Tests for Demographic Group Differences*

| Comparison / variable | Group 1 M (SD) | Group 2 M (SD) | t(118) | p | d |
|---|---|---|---|---|---|
| Gender - perceived stress | Men 32.44 (7.33) | Women 33.11 (6.91) | -.51 | .60 | .02 |
| Gender - rumination | Men 63.06 (9.96) | Women 60.55 (10.76) | 1.32 | .18 | .24 |
| Gender - self-control | Men 43.33 (6.90) | Women 41.45 (5.70) | 1.62 | .10 | .29 |
| Age - perceived stress | 20-40: 31.96 (6.54) | 41-60: 35.34 (8.23) | -2.26 | .02 | .45 |
| Age - rumination | 20-40: 60.72 (10.53) | 41-60: 65.13 (9.39) | -2.01 | .04 | .44 |
| Education - perceived stress | Educated 31.89 (6.40) | None 35.21 (8.39) | -2.30 | .02 | .44 |
| Residence - perceived stress | Rural 35.19 (8.80) | Urban 31.53 (5.71) | 2.75 | < .01 | .49 |
| Residence - rumination | Rural 66.17 (10.62) | Urban 59.51 (9.59) | 3.47 | < .01 | .65 |
| Residence - self-control | Rural 44.43 (7.69) | Urban 41.31 (5.30) | 2.61 | .01 | .47 |

*Note.* Only all gender tests and statistically significant age, education, and residence tests are displayed. N = 120. Negative t values reflect the order in which groups were entered. Cohen's d values are reported as positive magnitudes in the source thesis.

## 4. DISCUSSION

The present study examined relationships among perceived stress, rumination, and self-control in patients with PTSD in Pakistan. Perceived stress was positively associated with rumination (r = .55, p < .01) and negatively associated with self-control (r = −.37, p < .01). Rumination was negatively associated with self-control (r = −.50, p < .01). These associations support the three hypothesized relationships, subject to the measurement limitations described below.

The positive correlation between rumination and perceived stress is supported by Response Styles Theory (Nolen-Hoeksema, 1991) which states that negative thoughts remain despite psychological symptoms. Those with more perceived stress could have more trigger thoughts around trauma and the repercussions. This is consistent with the systematic review and meta-analysis conducted by Miethe et al. (2023), which showed a significant link between rumination and symptomology of posttraumatic stress disorder. Likewise, Hernández-Posadas et al. (2024) found that rumination and emotional dysregulation are psychological processes related to PTSD. Intrusive rumination was also significantly correlated with symptoms of post-traumatic stress in both Di Tella and Romeo (2025).

From the correlation results, it can be seen that there is a negative relationship between perceived stress and self-control, which means that the more stressful a person feels, the more difficult they find it to control their thoughts, feelings, and behavior. This result is found to be compatible with the Transactional Model of Stress and Coping (Lazarus & Folkman, 1984) that suggests that psychological adjustment is dependent on perceived coping resources. Executive functioning difficulties have recently been identified as being associated with PTSD (Ouhmad et al., 2024), and associations between EF, behavioral regulation, and everyday functioning have been identified (Safi et al., 2025). Executive functioning is conceptually distinct from self-control, but these results further support the importance of regulatory challenges in PTSD.

Additionally, the strong negative correlation between rumination and self-control suggests that the more that people ruminate, the less their self-control. This discovery aligns with the work of O'Brien et al. (2025) who stressed the importance of emotional awareness, regulatory flexibility and choice of different strategies in PTSD. Likewise, Meuleman et al. (2024) reported that emotion regulation problems were related to later symptoms of PTSD in treatment. The results indicate that for people with PTSD, there may be a combination of both repetitive negative thinking and psychological regulation issues.

Demographic analyses showed older participants had significantly higher perceived stress and rumination than younger participants. The participants with no formal education also perceived more stress. In addition, the rural participants presented significantly higher scores in perceived stress, rumination and self-control than the urban participants. These differences could be due to socioeconomic differences, educational experiences and training, coping experiences, and psychological services. But it is important to note that, again, this difference in self-control among the rural participants is not necessarily interpreted as being disadvantageous to rural participants, since there was a higher level of reported self-control among them. There were no significant differences between gender, financial difficulties or family system and marital status.

In sum, the results highlight the need to take perceived stress, rumination, and self-control into account in a combined manner when studying psychological functioning in a patient with PTSD. From a clinical perspective, the findings suggest the need for continued research on interventions focusing on maladaptive thinking patterns, stress appraisal, and regulatory functioning. However, since this is a cross-sectional design, no causal conclusions can be drawn, and because the Brief Self-Control Scale had a low internal consistency ($\alpha = .56$), one should be cautious in interpreting associations with the self-control scale. The inconsistency of scores reported in the Perceived Stress Scale needs to be addressed before publication. Longitudinal studies using psychometrically sound measures are suggested in the future to elucidate these relationships and their implications for psychological treatment.

### *4.1 Clinical Implications*

The findings suggest that clinicians could consider stress appraisal and rumination during assessment, while avoiding routine clinical interpretation of the present Urdu self-control scores until their psychometric properties are improved. Clinicians might find it helpful to separate external demands from appraisal patterns and thinking that are not avoidable from those that are modifiable. Psychoeducation regarding rumination, attention-shifting practice, structured problem solving, behavioral activation, grounding, and cognitive trauma-focused interventions can be used to decrease rumination. Treatment planning should also focus on decreasing reliance on willpower, as this was also found to be lower among participants who reported more stress and rumination. Goal-directed behavior can be more attainable during times of increased distress by using environmental supports, reminders, routine simplifications, sleep stabilization and collaborative coping plans.

The demographic information also indicates a need for services to be available for older adults, those with no formal education and rural communities. The language and phrasing of the measures/ interventions in Urdu should be simple, culturally relevant and interviewer-administered if required.

### *4.2 Limitations and Recommendations for Future Research*

There are a number of limitations to interpretation. First, the cross-sectional design is not able to establish temporal ordering or cause. Longitudinal studies should examine whether perceived stress is a predictor of future rumination and decreased self-control, whether rumination is a mediator of these relationships, and whether self-control is a mediator of perceived stress and exposure and appraisal. Second, the purposive recruitment of hospital services does not provide generalizability to untreated community population and other areas of Pakistan. The external validity would be improved by multisite probability or consecutive sampling.

Third, all variables were self-reported, resulting in common method variance and the possibility of recall and social desirability biases. Future research should include clinician rated PTSD severity, behavioral measures of inhibition, reports of daily functioning and ecological momentary assessment. Fourth, the internal consistency of the Brief Self-Control Scale was weak (alpha = .56), reducing the confidence with which associations with the Brief Self-Control Scale were drawn. Strong conclusions cannot be drawn from the Urdu version as it needs to be further cognitive-tested, item analyzed, factor analyzed, and validated. Fifth, a standardised diagnostic procedure, type of trauma, severity of symptoms, duration of illness, use of medication, comorbidities or treatment status were not specified in the article. These factors need to be recorded and measured statistically.

## 5. CONCLUSION

Understanding psychological adjustment after trauma requires attention to how individuals appraise demands, process distressing experiences, and regulate their responses. A culturally sensitive approach to PTSD research should consider these processes alongside the social circumstances in which recovery occurs. Further work should establish the validity of Urdu measures, resolve scoring inconsistencies, and use longitudinal designs to clarify how these processes unfold over time. Such evidence may inform more contextually appropriate assessment and support without implying that the present study establishes causal relationships or treatment effectiveness.

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**Authors Contribution**

Aiza Nassar contributed to the study design, data collection, manuscript drafting, and revision. Amira Iftekhar (Supervisor) provided research supervision, guidance in study design, critical review, manuscript revision, and proofreading. Both authors read and approved the final manuscript.

**Disclosure Statement**

No potential conflict of interest was reported by the authors.

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**Data Availability Statement**

The survey data generated and analyzed for this study are not publicly available and will not be deposited in any repository, to protect the confidentiality and anonymity of participants, who were assured that no

identifying information would be shared beyond the research team. The quantitative data set in this paper may be made available by the corresponding author upon reasonable request.

**Ethical Approval**

The research topic was initially reviewed and approved by the University Board of Studies, research supervisor, and institutional ethical review committee of University of Sargodha. Following ethical approval, formal permission for data collection was obtained from the hospital administration. The researchers approached eligible inpatients and outpatients diagnosed with posttraumatic stress disorder (PTSD) under the supervision of designated physicians. Participants were informed about the study's objectives, procedures, potential risks, and benefits. Written informed consent was obtained before administering the demographic information form and psychological assessment measures. Participation was entirely voluntary, and participants were assured of their right to withdraw at any stage without consequences for their medical treatment. Confidentiality and anonymity were maintained by ensuring that responses were not linked to participants' identities and that findings would be reported only in aggregate form. Completed questionnaires were reviewed for missing responses to ensure data completeness and accuracy.

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