

An Assessment of the Relationship Between Emotion Regulation, Perceived Stress, and Psychological Inflexibility

Ramiza Rafique Tambe^{#1}, Suparna Deepak^{*2}

Department of Biotechnology, Pillai College of Arts, Commerce and Science (Empowered Autonomous), New Panvel, Navi Mumbai,

^{*2}Corresponding author

¹ramizatambe@gmail.com, ²corresponding.author@mailserver.com

Abstract—

Emotion regulation and psychological inflexibility may influence how individuals perceive and respond to stress. The present study examined the relationships between cognitive reappraisal, expressive suppression, psychological inflexibility, and perceived stress among 161 participants from the general population. A quantitative, cross-sectional, correlational design was employed, and participants were recruited through convenience sampling. Data were collected through an online questionnaire comprising the Emotion Regulation Questionnaire, Acceptance and Action Questionnaire-II, and Perceived Stress Scale-10. Pearson correlation was used to examine the relationships among the study variables. The findings indicated that psychological inflexibility was significantly and positively associated with perceived stress. Cognitive reappraisal showed a small positive association with psychological inflexibility, while its relationship with perceived stress was not statistically significant. Expressive suppression was not significantly associated with psychological inflexibility or perceived stress. Overall, the findings suggest that psychological inflexibility is an important correlate of perceived stress, while the relationship between specific emotion-regulation strategies and perceived stress may be more complex.

Keywords—Emotion regulation; cognitive reappraisal; expressive suppression; psychological inflexibility; perceived stress

I. INTRODUCTION

Mental health and well-being are important components of healthy and adaptive functioning. Individuals rely on various psychological resources, which play a significant role in helping them cope with challenges. Nevertheless, mental health disorders constitute a substantial global health burden, highlighting the importance of understanding psychological factors that may help individuals maintain and promote their well-being [1]. Globally, nearly one in eight people were living with a mental disorder [2].

In a constantly changing world, individuals encounter challenges that require them to adapt effectively to situational demands. The ability to adapt effectively to such challenges can promote psychological well-being, whereas difficulties in adapting to these demands may increase the risk of psychological distress. Psychological flexibility is the ability to adopt varied perspectives, remain in the present moment, approach thinking with openness, and choose behaviors in accordance with deeply held values [3]. It enables making appropriate choices and making purposeful decisions even when faced with difficult or distressing memories, thoughts, emotions, or feelings [4]. Psychological inflexibility refers to a pattern in which individuals have difficulty adapting their behavior effectively in the presence of unwanted thoughts, emotions, memories, or other internal experiences [5]. Psychological flexibility has been associated with psychological outcomes, including depression, anxiety, and stress, highlighting its potential importance in how individuals respond to challenging experiences [4].

Emotion regulation refers to the processes through which individuals influence and manage their emotional experiences

and expressions [6]. The Emotion Regulation Questionnaire (ERQ) assesses two commonly studied emotion-regulation strategies: cognitive reappraisal and expressive suppression [1], [7]. Cognitive reappraisal involves reinterpreting an emotionally provoking situation in a way that alters its emotional impact. Expressive suppression involves attempts to inhibit the outward expression of ongoing emotional responses. Research suggests that greater use of cognitive reappraisal is associated with greater resilience and better mental health, whereas frequent reliance on expressive suppression has been linked to increased psychological symptoms, poorer mental health, and lower well-being [1]. Research on emotion regulation flexibility has highlighted the importance of adapting regulatory strategies to situational demands [7].

Stress is a complex phenomenon that can negatively affect and influence mental and physical well-being while also impairing productivity and overall quality of life. While it is also stated that moderate or positive responses to stress may encourage individuals to cope with challenging demands, prolonged and excessive stress can exceed an individual's coping capacity and negatively affect psychological well-being [1]. Perceived stress is shaped by how individuals appraise situational demands and evaluate their ability to cope with them. Elevated perceived stress has been associated with lower positive affect, suggesting a potential negative impact on psychological well-being [8]. Therefore, understanding psychological processes that influence how individuals respond to and manage stressful experiences is important for understanding adaptive psychological functioning.

Effective emotion regulation plays a crucial role in enabling individuals to respond adaptively to stressful situations [9]. Previous research has reported an association between

psychological flexibility and perceived stress, with greater psychological flexibility associated with lower perceived stress [10]. Previous research has examined cognitive emotion regulation and psychological flexibility in relation to psychological functioning and stress-related outcomes [11]. However, comparatively fewer studies have examined these variables together with the general population using the specific measures employed in the present study. Therefore, the present study aims to examine the relationships between psychological inflexibility, emotion regulation strategies, and perceived stress together in a general population using a standardized questionnaire.

The present study aimed to investigate the interplay between emotion regulation, psychological inflexibility, and perceived stress among the study participants. In particular, the study examined whether cognitive reappraisal and expressive suppression were associated with perceived stress and psychological inflexibility, and whether psychological inflexibility was associated with perceived stress. It was expected that these psychological variables would demonstrate significant associations with one another.

II. METHODOLOGY

A. Research Design

The present study employed a quantitative, cross-sectional correlational research design to examine the relationships among psychological inflexibility, emotion regulation, and perceived stress. Data were collected at a single point in time using standardized self-report questionnaires, including the AAQ-II, ERQ, and PSS-10. Pearson's product-moment correlation analysis was used to determine the strength and direction of associations among the study variables.

B. Sample Size and Participants

The study included 161 participants from the general population. Participants were recruited through convenience sampling and voluntarily completed the online questionnaire. The sample included both male and female participants and represented a broad age range, including young adults and older adults. Participants who provided consent and completed the required study measures were included in the analysis. The distribution of participants across these demographic categories is presented in Table 1

TABLE I. DEMOGRAPHIC CHARACTERISTICS OF PARTICIPANTS.

Demographic Variable	Category	No. of Respondents	Percentage (%)
Gender	Male	80	49.7
	Female	81	50.3
Age	18-25	88	54.6
	26-35	34	21.1
	36-45	17	10.5
	46-60	22	13.7
Occupation	Student	78	48.4
	Working professional	56	34.8
	Homemaker	9	5.6
	Self employed	12	7.5
	Retired	4	2.5
	Other	2	1.2

^a Note. It was found that the majority of respondents are aged between 18-25 (54.6%). The number of female and male respondents is almost equal. Most of the respondents are students.

C. Measures

1) Emotion Regulation Questionnaire

Emotion regulation was assessed using the Emotion Regulation Questionnaire (ERQ) developed by Gross and John (2003). The ERQ contains 10 items assessing two emotion-regulation strategies: cognitive reappraisal and expressive suppression.

Six items assess cognitive reappraisal, and four assess expressive suppression. Responses are recorded on a 7-point Likert scale, and scores for two subscales are calculated separately, with higher scores indicating greater use of the respective emotion regulation strategy [6].

2) Acceptance and Action Questionnaire-II (AAQ-II)

Psychological inflexibility was assessed using the 7-item Acceptance and Action Questionnaire-II developed by Bond et al. (2011). The questionnaire assesses psychological inflexibility and experiential avoidance. Items are scored to obtain a total score, with higher scores generally reflecting greater psychological inflexibility [5].

3) Perceived Stress Scale (PSS-10)

Perceived stress was assessed using the 10-item Perceived Stress Scale (PSS-10), a standardized measure of perceived stress developed by Cohen et al. (1983). Items are rated on a 5-point scale, and combined to obtain a total score, with higher scores indicating perceived stress [12]. Previous research conducted among a Brazilian population demonstrated adequate reliability and validity of the PSS-10, supporting its use as a measure of perceived stress [13].

D. Procedure

Data for this research were collected using an online questionnaire created through Google Forms. The questionnaire consisted of multiple sections, including demographic questions followed by standardized self-report measures assessing psychological inflexibility, emotion regulation, and perceived stress. The link was personally shared with participants through appropriate communication channels. Responses were collected anonymously, and participants were free to discontinue at any stage. Completed responses were scored according to the respective scoring procedures of the AAQ-II, ERQ, and PSS-10. The resulting data were then used for statistical analysis.

E. Ethical Consideration

Participation was voluntary, and participants received information regarding the purpose and nature of the study

before participation. Informed consent was obtained from all participants prior to the completion of the questionnaire. Participants were informed that they could withdraw from the study at any time without providing a reason. No personally identifying information was collected, and the responses were kept confidential and used solely for academic research purposes. The study involved the completion of standardized psychological questionnaires.

F. Statistical Analysis

The collected data were analyzed using Statistcy. Descriptive statistics, including the mean, standard deviation, minimum and maximum values, skewness, and kurtosis, were computed to examine the distributional characteristics of the study variables. Pearson's product-moment correlation coefficient was used to assess the relationships among cognitive reappraisal, expressive suppression, AAQ-II scores, and perceived stress. Statistical significance was evaluated at the $p < .05$ level.

III. RESULTS

1) Preliminary Analysis

Descriptive statistics were calculated for all study variables, including the mean, standard deviation, minimum, maximum, skewness, and kurtosis. Table 2 presents the descriptive statistics and distributional characteristics of cognitive reappraisal, expressive suppression, psychological inflexibility, and perceived stress. The mean score for cognitive reappraisal was 27.83 (SD = 7.70), while the mean score for expressive suppression was 18.21 (SD = 5.64). The mean scores for psychological inflexibility, measured using the Acceptance and Action Questionnaire-II (AAQ-II), and perceived stress, measured using the Perceived Stress Scale-10 (PSS-10), were 28.73 (SD = 9.87) and 19.36 (SD = 6.13), respectively. Skewness values ranged from -0.74 to -0.03, and kurtosis values ranged from -0.54 to 0.64, indicating no substantial deviation from normality.

TABLE II. DESCRIPTIVE STATISTICS OF STUDY VARIABLES

Variable	No. of Respondents	Mean	SD	Minimum	Maximum	Skewness	Kurtosis
CR	161	27.8	7.7	6	42	-0.74	0.44
ES	161	18.2	5.6	4	28	-0.41	-0.42
PSS-10	161	19.3	6.1	3	35	-0.03	0.64
AAQ-II	161	28.7	9.9	7	49	-0.13	-0.54

^b. Note. N = 161. SD = standard deviation; CR = Cognitive Reappraisal; ES = Expressive Suppression; PSS-10 = Perceived Stress Scale-10; AAQ-II = Acceptance and Action Questionnaire-II.

2) Correlation Analysis

Pearson's correlation analysis was conducted to examine the relationships between cognitive reappraisal, expressive suppression, psychological inflexibility, and perceived stress.

Table 3 presents the results of the correlation analysis for the relationships among study variables. Cognitive reappraisal showed a significant positive correlation with expressive suppression ($r = .22$, $p = .005$) and psychological inflexibility (r

= .16, $p = .040$). However, cognitive reappraisal was not significantly correlated with perceived stress ($r = -.11$, $p = .178$). Expressive suppression was not significantly correlated with psychological inflexibility ($r = .07$, $p = .399$) or perceived stress ($r = .15$, $p = .053$). Psychological inflexibility showed a significant positive correlation with perceived stress ($r = .35$, $p < .001$).

TABLE III. PEARSON CORRELATION ANALYSIS AMONG STUDY VARIABLES

Variable	r	p	Interpretation
Cognitive Reappraisal Perceived Stress	-.0.11	0.178	Not significant; weak negative
Expressive Suppression Perceived Stress	-0.15	0.053	Not significant; weak positive
Cognitive Reappraisal Psychological inflexibility	-0.16	0.04	Significant; weak positive
Expressive Suppression Psychological inflexibility	-0.07	0.399	Not significant; very weak positive
Psychological inflexibility Perceived Stress	-0.35	<.001	Significant; moderate positive
Cognitive Reappraisal Expressive Suppression	-0.22	0.005	Significant; weak positive

^c Note. N = 161. r = Pearson correlation coefficient. Statistical significance was set at $p < .05$.

IV. DISCUSSION

The present study investigated the relationships between emotion regulation strategies, psychological inflexibility and perceived stress among the participants. Specifically, we examined cognitive reappraisal and expressive suppression in relation to perceived stress and psychological inflexibility, and psychological inflexibility in relation to perceived stress. The results also indicated that some of the hypothesized relationships were statistically significant and some were not. Overall, the results suggested that psychological inflexibility may be more consistently related to perceived stress than the individual emotion regulation strategies examined in the present study.

Cognitive reappraisal was negatively associated with perceived stress in the present study ($r = -.11$, $p = .178$). Although this direction suggests that greater use of reappraisal may be related to lower perceived stress, the present findings do not provide sufficient evidence for a significant association. This differs from previous research reporting relationships between reappraisal and lower stress. Brown et al. (2022) found that greater cognitive reappraisal was associated with lower stress [16]. Moore et al. (2008) also observed that cognitive reappraisal was generally related to fewer stress-related symptoms [14]. One possible explanation is that the present study assessed the general use of cognitive reappraisal, whereas recent research suggests that the effectiveness of reappraisal may also depend on how flexibly it is adapted to different stressful situations [15].

Expressive suppression showed a small positive relationship with perceived stress, but this association was not statistically

significant ($r = .15$, $p = .053$). The direction of the finding is consistent with earlier research. Brown et al. (2022) reported higher perceived stress among individuals who used expressive suppression more frequently, while Moore et al. (2008) found suppression to be associated with greater stress-related symptoms [14], [16]. The present study did not reach statistical significance, suggesting that the strength of this relationship may vary according to sample characteristics, cultural context, and individual differences.

Cognitive reappraisal showed a small but significant positive correlation with AAQ-II scores ($r = .16$, $p = .040$). Since higher AAQ-II scores conventionally represent greater psychological inflexibility, this indicates that the greater use of cognitive reappraisal was associated with slightly greater psychological inflexibility in the present sample. The unexpected direction of the present finding may reflect the distinction between simply using reappraisal and using it flexibly and appropriately across situations. Marciniak et al. (2024) similarly emphasized the importance of flexibility in the use of reappraisal [15]. However, the small correlation and the correlational design of the study suggest that the findings should be interpreted with caution.

Expressive suppression was not significantly associated with AAQ-II scores ($r = .07$, $p = .399$). This differs from Öztekin et al. (2025), who reported an association between psychological flexibility and expressive suppression [1]. Differences in measurement, sample characteristics, and scoring direction may contribute to this discrepancy. It is also important to distinguish expressive suppression, which concerns the outward expression of emotions, from psychological inflexibility, which involves difficulty adapting behavior in the presence of unwanted internal experiences. Thus, the use of expressive suppression does not necessarily indicate greater psychological inflexibility. The strongest significant association in the present study was observed between AAQ-II scores and perceived stress ($r = .35$, $p < .001$). The positive relationship indicates that participants with greater psychological inflexibility tended to report higher perceived stress. The finding is consistent with Paladines Costa et al. (2021), who found a positive association between AAQ-II scores and perceived stress, and Perez Alcalde et al. (2026), who similarly reported a positive relationship between psychological inflexibility and perceived stress among adults experiencing self-perceived chronic stress [17], [18]. These findings support the presence of an association between psychological inflexibility and perceived stress. However, the correlational design of the present study does not allow any causal conclusions.

As an additional finding, cognitive reappraisal was significantly and positively correlated with expressive suppression ($r = .22$, $p = .005$). This suggests that participants who use cognitive reappraisal more frequently also tend to use expressive suppression more frequently. Although these strategies function differently, individuals may employ multiple emotion regulation strategies rather than relying exclusively on one. Moore et al. (2008) similarly treated cognitive reappraisal and expressive suppression as distinct dimensions of emotion regulation [14].

Taken together, the results were consistent with some of the hypothesized relationships, while other expected associations were not statistically significant. Psychological inflexibility

showed the clearest association with perceived stress, whereas the relationships between the individual emotion regulation strategies and perceived stress were not statistically significant. Previous research has also reported associations between emotion regulation and perceived stress [19], and between psychological inflexibility and perceived stress [20]. The findings therefore suggest that the relationship between emotion regulation and stress may be more complex than simply classifying strategies as adaptive or maladaptive. The benefit of an emotion regulation strategy may also vary depending on the demands of the situation and how appropriately the strategy is used in response to those demands [15]. Future research using larger and more diverse samples and additional measures of coping, resilience, anxiety, and emotion-regulation flexibility could provide a broader understanding of these relationships.

V. CONCLUSION

The current study explored associations between emotion regulation, psychological inflexibility, and perceived stress. These findings indicated that perceived stress was significantly and positively correlated with psychological inflexibility, with participants reporting higher psychological inflexibility also tending to report higher perceived stress. Cognitive reappraisal was positively yet weakly associated with psychological inflexibility, but the association between cognitive reappraisal and perceived stress was not statistically significant. Expressive suppression was not significantly related to perceived stress and psychological inflexibility. Cognitive reappraisal and expressive suppression were also weakly positively associated. Overall, findings suggest that psychological inflexibility may be an important correlate of perceived stress, while the relation between specific emotion regulation strategies and stress may be more complex. Because the present study employed a correlational design, the findings should not be interpreted as evidence of causal relationships. Further study using larger, more diverse samples and more psychological factors may shed more light on these relationships.

ACKNOWLEDGMENT

The author gratefully acknowledges Pillai College of Arts, Commerce and Science, Panvel, Navi Mumbai for providing academic support necessary to conduct this study.

REFERENCES

- [1] G. G. Öztekin, J. Gómez-Salgado, and M. Yıldırım, "Future anxiety, depression and stress among undergraduate students: Psychological flexibility and emotion regulation as mediators," *Frontiers in Psychology*, vol. 16, Art. no. 1517441, 2025. <https://doi.org/10.3389/fpsyg.2025.1517441>
- [2] World Health Organization, *World mental health report: Transforming mental health for all*. Geneva: World Health Organization, 2022.
- [3] A. Machulska and T. Klucken, "The interplay between perceived stress, psychological flexibility, and interpretation biases in undergraduate mental health," *Scientific Reports*, vol. 15, no. 1, Art. no. 38992, 2025. <https://doi.org/10.1038/s41598-025-26492-1>
- [4] E. Polat, Ş. Çirış, Z. Çelikbas, and A. Chaudhry, "Relationship between perceived stress level, psychological flexibility, depression, and anxiety in patients with acute myocardial infarction," *Medicina (Kaunas, Lithuania)*, vol. 61, no. 7, Art. no. 1139, 2025. <https://doi.org/10.3390/medicina61071139>
- [5] F. W. Bond, et al., "Preliminary psychometric properties of the Acceptance and Action Questionnaire-II: A revised measure of psychological inflexibility and experiential avoidance," *Behavior Therapy*, vol. 42, no. 4, pp. 676–688, 2011. <https://doi.org/10.1016/j.beth.2011.03.007>
- [6] J. J. Gross and O. P. John, "Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being," *Journal of Personality and Social Psychology*, vol. 85, no. 2, pp. 348–362, 2003. <https://doi.org/10.1037/0022-3514.85.2.348>
- [7] A. C. Haag, R. Bagrodia, and G. A. Bonanno, "Emotion regulation flexibility in adolescents: A systematic review from conceptualization to methodology," *Clinical Child and Family Psychology Review*, vol. 27, no. 3, pp. 697–713, 2024. <https://doi.org/10.1007/s10567-024-00483-6>
- [8] E. F. Acoba, "Social support and mental health: The mediating role of perceived stress," *Frontiers in Psychology*, vol. 15, Art. no. 1330720, 2024. <https://doi.org/10.3389/fpsyg.2024.1330720>
- [9] M. Grol and R. De Raedt, "The relationship between affective flexibility, spontaneous emotion regulation and the response to induced stress," *Behaviour Research and Therapy*, vol. 143, Art. no. 103891, 2021. <https://doi.org/10.1016/j.brat.2021.103891>
- [10] C. Huang, et al., "Is psychological flexibility a mediator between perceived stress and general anxiety or depression among suspected patients of the 2019 coronavirus disease (COVID-19)?," *Personality and Individual Differences*, vol. 183, Art. no. 111132, 2021. <https://doi.org/10.1016/j.paid.2021.111132>
- [11] N. Dubey, P. Podder, and D. Pandey, "Knowledge of COVID-19 and its influence on mindfulness, cognitive emotion regulation and psychological flexibility in the Indian community," *Frontiers in Psychology*, vol. 11, Art. no. 589365, 2020. <https://doi.org/10.3389/fpsyg.2020.589365>
- [12] S. Cohen, T. Kamarck, and R. Mermelstein, "A global measure of perceived stress," *Journal of Health and Social Behavior*, vol. 24, no. 4, pp. 385–396, 1983. <https://doi.org/10.2307/2136404>
- [13] R. S. Reis, A. A. Hino, and C. R. Afêz, "Perceived stress scale: Reliability and validity study in Brazil," *Journal of Health Psychology*, vol. 15, no. 1, pp. 107–114, 2010. <https://doi.org/10.1177/1359105309346343>
- [14] S. A. Moore, L. A. Zoellner, and N. Mollenholt, "Are expressive suppression and cognitive reappraisal associated with stress-related symptoms?," *Behaviour Research and Therapy*, vol. 46, no. 9, pp. 993–1000, 2008. <https://doi.org/10.1016/j.brat.2008.05.001>
- [15] M. A. Marciniak, et al., "Positive cognitive reappraisal flexibility is associated with lower levels of perceived stress," *Behaviour Research and Therapy*, vol. 183, Art. no. 104653, 2024. <https://doi.org/10.1016/j.brat.2024.104653>
- [16] R. L. Brown, et al., "Emotion regulation, parasympathetic function, and psychological well-being," *Frontiers in Psychology*, vol. 13, Art. no. 879166, 2022. <https://doi.org/10.3389/fpsyg.2022.879166>
- [17] B. Paladines-Costa, V. López-Guerra, P. Ruisoto, S. Vaca-Gallegos, and R. Cacho, "Psychometric properties and factor structure of the Spanish version of the Acceptance and Action Questionnaire-II (AAQ-II) in Ecuador," *International Journal of Environmental Research and Public Health*, vol. 18, no. 6, Art. no. 2944, 2021. <https://doi.org/10.3390/ijerph18062944>
- [18] A. I. Pérez Alcalde, et al., "Psychological profile and heart rate variability in adults with self-perceived chronic stress: Secondary analysis from a clinical trial," *Frontiers in Physiology*, vol. 17, Art. no. 1753526, 2026. <https://doi.org/10.3389/fphys.2026.1753526>
- [19] Y. Sun and C. Nolan, "Emotion regulation strategies and stress in Irish college students and Chinese international college students in Ireland," *Journal of International Students*, vol. 11, no. 4, pp. 853–873, 2021. <https://doi.org/10.32674/jis.v11i4.2516>
- [20] Di Gesto, C., Policardo, G. R., Bocci Benucci, S., Cela, E., & Grano, C. (2025). Difficulties in Emotion Regulation and Stress in Intensive Care Unit Nurses During COVID-19: Exploring the Mediating Role of Psychological Inflexibility and the Moderating Effect of Work Experience. *Healthcare (Basel, Switzerland)*, 13(13), 1575. <https://doi.org/10.3390/healthcare13131575>