

# Research Paper: A Partial Examination of the Emotion Dysregulation Model of Distress Symptoms in an Iranian Community Sample



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## ABSTRACT

**Background:** The comorbidity of generalized anxiety and major depressive disorders and the challenges of distress disorders create a model such as emotion dysregulation.

**Objectives:** The present study aimed at examining the emotion dysregulation model of distress symptoms in a community sample.

**Materials and Methods:** A total of 508 individuals were recruited from a community sample, using convenience sampling method. The participants filled in the questionnaires that assess their safety motivation and emotional intensity, emotion regulation strategies (attentional control, acceptance, decentering, and reappraisal), and distress symptoms (depression, generalized anxiety symptoms, worry, and rumination). The structural equation modeling was used to assess the fitness model.

**Results:** The model yielded a good fitness ( $\chi^2=64.51$ ,  $df=26$ ,  $\chi^2/df=2.48$ ,  $P<0.001$ ,  $CFI=0.97$ ,  $GFI=0.97$ ,  $PCFI=0.56$ , and  $RMSEA=0.05$ ). The emotion dysregulation model of distress symptoms has an acceptable fitness.

**Conclusion:** The mediating role of emotion regulation strategies in this model highlights the important effects of emotion regulation abilities in protecting individuals suffering from distress symptoms.

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## 1. Introduction

**T**here is a high comorbidity between Generalized Anxiety Disorder (GAD) and Major Depressive Disorder (MDD) in the clinical and non-clinical population [1-3]. Several researchers found a high genetic correlation between MDD and GAD [4, 5]. Other family members and twin studies indicate that MDD shares more genetic factors with GAD than other anxiety disorders [5, 6]. Also, because of genetic substrate similarities, some authors recommend that these two disorders should be classified into one category [5].

The co-occurrence of MDD and GAD can damage individuals' functions in daily life. However, comorbidity of MDD and GAD is associated with poorer prognosis, lower health-related quality of life and general quality of life, higher symptom severity, and lower rates of response to treatment [7-12].

Recently, more attention has been paid to the comorbidity of MDD and GAD, in which emotion regulation, as a mediator alone or in combination with other personality factors, predispose individuals to emotional disorders, especially distress disorders [13-18]. Concerning the common mechanism of depression and anxiety comorbidity, especially GAD and MDD, several models have been proposed [19, 20]. One of the distinguished integrative models is emotion dysregulation model. This model tries to explain the responsible mechanism of comorbidity between GAD and MDD and has emphasized distress disorders [15, 16].

In emotion dysregulation model, negative self-referential processing (worry and rumination) along with MDD and GAD symptoms are called distress symptoms [16]. Furthermore, one of the common characteristics of comorbid and refractory disorders like distress disorders is emotional intensity/neuroticism/emotionality [16, 21]. Neuroticism is an efficient marker of non-specific risk factor, and disorders with a substantial amount of this feature are categorized as emotional disorders [22, 23]. The heightened intensity of motivational impetus like the necessity to avoid the threat or heightened sensitivity to punishment is another factor of emotion dysregulation model [16]. The second mediating component is an emotion regulation strategy. Individuals with distress symptoms cannot often use emotion regulation strategies flexibly in the appropriate context and MDD [21, 24-26].

Emotion dysregulation model postulates that individuals with distress disorders possess imbalanced and heightened motivational system and emotional intensity. Thus, individuals with emotion regulation deficits fail to enhance or reduce emotions according to motivational and contextual information, thereby using strategies such as rumination and worry (in comparison with attention, acceptance, decentering, and reappraisal as elaborated emotion regulation strategies) in an attempt to escape from experiencing unwanted internal feelings. Therefore, they fail to implement valued and goal-directed behaviors [16].

This is the first study, which examined the emotion dysregulation model of distress disorders via structural equation modeling, and it may shed light on the extent, to which variables play a role in this comorbidity. Furthermore, the delineating component of emotion dysregulation models provides initial supports for looking deeper into motivational factors and strong evidence for assessing Emotion Regulation Therapy (ERT) in future studies. Consistent with that, in this study, our main hypothesis stated that emotion regulation strategies (attention, acceptance, decentering, and reappraisal) mediate the relationship between motivation (emotionality and safety) and distress symptoms (rumination, worry, MDD, and GAD).

## 2. Materials and Methods

The participants were recruited from a community sample in Tehran, Iran, through convenience sampling method. Of 550 individuals, who filled in the questionnaires, 42 participants were excluded because of missing data (more than 5%), and 508 individuals, including 233(45.9%) males and 275(54.1%) females underwent the analysis. Their Mean±SD age was 35.24±10.74. Regarding the marital status, 160(31.5%), 334(65.7%), 6(1.2%) were single, married, and divorced, respectively; 8(1.6%) of the participants did not identify their marital status. In terms of education, 76(15%), 213(41.9%), 147(29%), 58(11.4%), and 14(2.8%) were in the levels of junior high school, diploma, bachelor, master, and PhD, respectively.

Before gathering the data, all participants were informed of the study purpose and were assured about the confidentiality of the study; then, they signed written informed consent to participate in the study. The participants filled in 9 questionnaires for almost 2 hours. They were asked to fill in questionnaires of Affect Intensity Measure (AIM) and Sensitivity to Punishment and Sensitivity to Reward (SPORQ) to assess the

negative emotional intensity and safety/punishment, respectively. The Attentional Control Scale (ACS), Difficulties in Emotion Regulation Scale (DERS), Experiences Questionnaire (EQ), and Emotion Regulation Questionnaire (ERQ) were used to assess attention, acceptance, decentering, and reframing as emotion regulation strategies, respectively. The Beck Depression Questionnaire (BDI-II), Generalized Anxiety Disorder 7-item Scale (GAD-7), Penn State Worry Questionnaire (PSWQ), and the Ruminative Response Scale (RRS) were used to assess MDD/depression symptoms, GAD symptoms, worry, and rumination, respectively.

It is worth mentioning that all measures have agreeable validity and reliability in the Persian version, which will be explained below in more detail. The inclusion criteria included the age range of (20-59) years, being resident in Tehran, and having the minimum level of education (junior high school).

AIM is a self-report 40-item questionnaire with a 6-point Likert scale (never=1 to always=6) [27]. AIM assesses individual differences in affective reactions to typical life situations, as a strong dimension of personality. The 10-item subscale that assesses negative emotional intensity has been used in the present study based on the reliability analysis; the Cronbach's alpha of 0.80 was retained for AIM, and the internal consistency of negative emotional intensity was 0.70 [27-29].

SPORQ is a self-report 48-item questionnaire with yes and no response format and two subscales, including sensitivity to punishment and sensitivity to reward as a personality dimension [30]. Sensitivity to punishment is used to assess safety. The internal consistency of this subscale was 0.84 [31]. The internal consistency of punishment was 0.84.

ACS is a self-report 20-item questionnaire with a 4-point Likert scale (1=almost never to 4= always) that assesses attentional control and attentional shifting [32]. The internal consistency of the total score is 0.88, and the test-retest reliability for ACS items varies from 0.45 to 0.73 [32, 33]. Based on the reliability analysis among the Iranian population, the Cronbach's alpha of 0.77 was obtained [34].

DERS is a self-report 36-item scale based on a 5-Likert ranging from 1 (almost never) to 5 (almost always) and assesses individual's general inclinations for emotion regulation across 6 facets [35]. DERS demonstrates high internal consistency ( $\alpha=0.80$  for each subscale) and

good test-retest reliability of 0.88 [35]. The internal consistency of this subscale was 0.85.

EQ is a self-report 20-item questionnaire that is based on a 7-Likert scale ranging from 1 (never) to 7 (all the time). Eleven items decentering subscale was used in this study. The internal consistency and test-retest reliability of this subscale were  $\alpha=0.89$  and ( $r=0.87$ ), respectively [36].

ERQ is a 10-item self-report questionnaire with a 7-Likert point scale. ERQ consists of 2 subscales, namely reappraisal, and suppression. The internal consistency of reappraisal was 0.79, and the internal consistency of the Iranian version was 0.75 [37, 38]. The internal consistency of suppression was 0.80.

BDI-II is a self-report 21-item questionnaire that assesses the severity of the depressive disorder. Each item is scored from 0 to 3. The internal consistency values of BDI-II in psychiatric and non-psychiatric populations are 0.86 and 0.81, respectively [39]. The internal consistency of BDI-II in the present study was 0.86.

GAD-7 scale is a self-report 7-item scale that assesses the severity of generalized anxiety disorder and is answered on a Likert scale ranging from 0 (not at all) to 3 (nearly every day) [40]. The internal consistency and test-retest reliability of this scale were ( $\alpha=0.92$ ) and ( $r=0.83$ ), respectively. The internal consistency of GAD-7 in the present study was 0.89.

PSWQ is a 16-item self-report questionnaire assessing worry on a 5-point Likert scale. Its internal consistency is 0.93 and demonstrates the test-retest reliability of 0.74 to 0.93 [41]. The internal consistency of PSWQ in the present study was 0.86.

RRS is a 22-item self-report questionnaire that evaluates the tendency of an individual to contemplate in response to depressed mood and is answered on a 4-point Likert scale [42]. The internal consistency of RRS is 0.89, and it was 0.91 in the present study [43].

The confirmatory factor analysis of all measures was assessed before the data analysis. All measures had adequate fitness. Structural Equation Modeling (SEM) was done to analyze the data. Before analysis, the database was assessed to meet the presumptions of SEM as multicollinearity, normality, and linearity. After meeting all the assumptions, SEM was run. Correlation and descriptive statistics were used to assess the assumptions and descriptive findings. SPSS V. 23 and AMOS 23 were used to analyze the data. Safety and emotionality

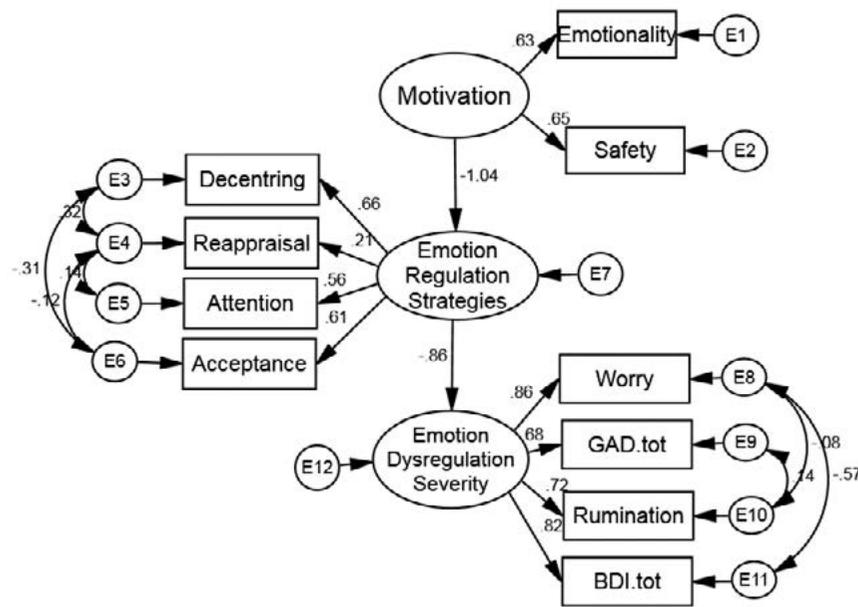


Figure 1. Emotion regulation model of distress symptom

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were loaded onto a latent motivation factor. Attention, acceptance, decentering, and reappraisal were loaded onto latent emotion regulation strategies factor, and rumination, worry, MDD, and GAD were loaded onto a distress symptoms factor.

between all variables except for reframing, emotionality, and attention. The model fitness was acceptable ( $\chi^2=64.51$ ,  $df=26$ ,  $\chi^2/df=2.48$ ,  $P<0.001$ ,  $CFI=0.97$ ,  $GFI=0.97$ ,  $PCFI=0.56$ ,  $RMSEA=0.05$ ). CFI, GFI is  $>0.95$ , PCFI is  $>0.50$ , and RMSEA is  $<0.08$ ). The parameters indicate the good and acceptable fitness of the model. Thus, the results of the present study demonstrate the direct mediating role of emotion regulation strategies (attention, acceptance, decentering, and reframing) and the indirect role of motivation measures (negative emotional intensity/emotionality and safety/pun-

### 3. Results

Table 1 presents the descriptive statistics of the measured variables. Table 2 presents the correlation matrix of variables. There are significant relationships

Table 1. Descriptive statistics of the measured variables

Variables	Mean±SD	Skewness	Kurtosis
Emotionality	38.06±7.25	0.24	0.36
Safety	10.15±5.43	0.22	-0.77
Attention	44.36±6.72	0.01	0.10
Acceptance	22.08±5.31	-0.46	-0.47
Decentering	35.24±7.17	-0.16	-0.02
Reframing	25.29±6.08	-0.17	-0.03
MDD	13.36±10.44	0.90	0.31
GAD	7.97±4.99	0.51	-0.02
Worry	46.20±10.47	0.25	0.08
Rumination	36.45±9.22	0.43	0.10

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**Table 2.** Correlation matrix of the measured variables

Variables	1	2	3	4	5	6	7	8	9	10
1. AIM	1	-	-	-	-	-	-	-	-	-
2. PS	0.40*	1	-	-	-	-	-	-	-	-
3. ACS	-0.35*	-0.43*	1	-	-	-	-	-	-	-
4. ACT	-0.37*	-0.41*	0.35*	1	-	-	-	-	-	-
5. EQ	-0.46*	-0.39*	0.34*	0.21*	1	-	-	-	-	-
6. ERQ	0.07	-0.17*	0.22*	0.03	0.37*	1	-	-	-	-
7. BDI	0.43*	0.47*	-0.31*	-0.42*	-0.52*	-0.20*	1	-	-	-
8. GAD	0.41*	0.35*	-0.31*	-0.39*	-0.38*	-0.09*	0.56*	1	-	-
9. PSWQ	0.49*	0.51*	-0.43*	-0.44*	-0.46*	-0.16	0.53*	0.57*	1	-
10. RRS	0.38*	0.42*	-0.33*	-0.45*	-0.34*	-0.08*	0.59*	0.56*	0.58*	1

\* P<0.05; \*\* P<0.01

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AIM: Negative emotional intensity; PS: Safety; ACS: Attention; EQ: Decentering; ERQ: Reframing; BDI: Depression; PSWQ: Worry; RRS: Rumination

ishment sensitivity) in predicting distress symptoms (MDD, GAD, worry, and rumination).

Figure 1 represents the model with standard estimates of each measure with its latent component. Reappraisal and decentering had the least and most path weight on the emotion regulation strategies factor, respectively. Other variables path weight on motivation and distress symptoms factors were almost the same.

#### 4. Discussion

The results of SEM analyses showed that the hypothesized model had an adequate fitness and the motivation factors (emotionality and safety) predicted distress symptoms (MDD, GAD, worry, and rumination) via emotion regulation strategies (attention, acceptance, decentering, and reframing). Furthermore, the mediating role of emotion regulation deficits in psychopathology and treatment of emotional disorders have been implicated in previous studies [25, 44, 45]; these findings show that the emotion dysregulation model can work beyond cultural limitations and biological mechanisms that may take part in its function.

Some researchers suggest that the heightened negative reactivity and punishment sensitivity in combination with emotion regulation deficits predispose individuals to anxiety and depression disorders [46, 47]. However, in some studies, the heightened negative emotion and

sensitivity to punishment/safety motivation have been proposed as non-specific vulnerabilities, indicating the crucial role of personality factors in predisposing individuals to psychiatric disorders [48, 49].

In our study, the non-significant relationships of reappraisal/reframing with emotionality and attention and low standard estimates of this measure with its latent component need more explanations. Firstly, typically-maladaptive emotion regulation strategies are more strongly associated with psychopathology than adaptive emotion regulation strategies as reappraisal [50]. Secondly, reappraisal may be a multidimensional construct; each of dimensions may differently operate and have a distinct relationship with psychopathology [51].

Thirdly, the time (initially or at the end) of presenting the emotion regulation strategy like reappraisal in the process of emotion regulation has divergent functional or dysfunctional effects [52]. Fourthly, according to the compensatory hypothesis, adaptive strategies have a negative association with psychopathology symptoms only at the high levels of maladaptive strategies [53]. Finally, the role of context in the functional and dysfunctional use of each emotion regulation strategy should be considered entirely important [54]. Explanations, as mentioned above, should be considered in interpreting the results of the present study.

To explain the mechanism of the emotion dysregulation model of distress symptoms in this study, we can say that the heightened sensitivity to punishment or safety and emotionality makes individuals with distress symptoms more prone to use more maladaptive or less adaptive emotion regulation strategies; this would lead to more worry and rumination, thereby creating depression and GAD symptoms. Thus, a vicious cycle, which creates more distress symptoms, make the individuals susceptible to more motivation impairment. Our results provide initial support for the emotional dysregulation model of distress symptoms.

Some limitations should be considered in the interpretation of our study findings. Firstly, contextual learning is one of the most important components of this model that we did not assess in the present study, because of the lack of instrument for evaluating this component. Secondly, we examined emotion dysregulation model with self-report questionnaires, and the results may have defaced with answer biases and overlooking emotional concepts well.

Thirdly, although the study sample was from a community and better than student samples, it could not be generalized to clinical settings. Finally, given the notable role of context in the adjustment and maladjustment action of each emotion regulation strategy, the present study failed to examine that. The context may determine the adaptability and mal-adaptability of the range of emotion regulation strategies and even the intensity of emotion and examining context may provide somehow different results in relation to the present findings. For example, the relation of emotion regulation strategies may change according to the context. Moreover, the future area of affective science may benefit more from multidimensional assessments, using biological and genetic indices that emphasize contextual learning and individual differences in implementing emotion regulation strategies according to different contexts. Finally, future studies should investigate the emotion dysregulation model in clinical samples.

## 5. Conclusions

The findings of this study support the mediating role of emotion regulation strategies in the psychopathology of distress symptoms and a good fitness of emotion dysregulation model of distress symptoms and possibly its parallel psychological treatment (ERT). It seems that personality dimensions like safety motivation and emotional intensity could affect distress symptoms indirectly via emotion regulation strategies. Furthermore, instead

of focusing on categorizing emotion regulation strategies in two distinct adaptive and maladaptive classes, it is better to highlight the contextual utility of them and developing some experiments to assess them, especially for confusing and inconsistent functionality of some emotion regulation strategies such as reappraisal.

## Ethical Considerations

### Compliance with ethical guidelines

All ethical principles were observed in accordance with the principles of working with human subjects. The study was approved by the Ethics Committee of the University of Social Welfare and Rehabilitation Sciences (IR.USWR.REC.1394.291).

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### Authors' contributions

Conceptualization: Imaneh Abasi, Latif Moradveisi, Mohammad Ebrahim Sarichloo, Maryam Aslzaker, Sadegh Nasri; Methodology: Imaneh Abasi, Latif Moradveisi; Investigation: Imaneh Abasi, Latif Moradveisi, Mohammad Ebrahim Sarichloo, Maryam Aslzaker, Sadegh Nasri; Writing-original draft: : Imaneh Abasi, Latif Moradveisi; Writing-review & editing: Imaneh Abasi, Latif Moradveisi, Mohammad Ebrahim Sarichloo, Maryam Aslzaker, Sadegh Nasri; Funding acquisition: Imaneh Abasi, Latif Moradveisi, Mohammad Ebrahim Sarichloo, Maryam Aslzaker, Sadegh Nasri; Resources: Imaneh Abasi, Latif Moradveisi, Mohammad Ebrahim Sarichloo, Maryam Aslzaker, Sadegh Nasri; Supervision: Imaneh Abasi, Latif Moradveisi.

### Conflict of interest

The authors declare no conflict of interest.

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