

## Cognitive Emotion Regulation in Medical and Non-Medical Students- A Comparative Study

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### ABSTRACT

Cognitive regulation and response modulation of emotions refer to evaluating the situation one faces in order to alter the emotional response to it either by changing how the situation is perceived or by managing the emotional response the situation poses. But it's not certain whether emotional experience and response can be modified directly, although cognitive and behavioral strategies can be employed to modify the emotions indirectly. The present study was done to assess the level of cognitive emotion regulation among 50 medical and 50 non-medical college students and whether the medical sample was more efficient in their cognitive emotion regulation. The results showed that there was no significant difference in the emotion regulation among the two groups.

**Keywords:** *Cognitive Emotional Regulation, Cognitive and Behavioral Strategies, Medical Students and Non-Medical Students*

Emotion regulation involves alteration of emotional responses by using different strategies which can be cognitive or behavioral in nature and they direct the process of emotion generation in individuals. These strategies and skills are fundamental part of every day's life since emotion plays an imperative and pervasive role in all the situations that we face. Human nature is diverse and dynamic and therefore it's necessary to have a certain amount of regulation and control over the emotions because they influence all the cognitive and behavioral activities and decisions.

Emotion regulation is an ambiguous term because it refers to both how well our emotions regulate processes such as thoughts and behaviors and it also refers to how they themselves get regulated. An evolutionary viewpoint holds that emotions invoke situation-response dependencies, although that doesn't mean that emotional response to situations is always appropriate. The physical and social environments have changed over the time in terms of technological advances and societal advancement which have shaped our emotions and dramatically magnified their response to ourselves and others. Cognitive regulation and response modulation of emotions refer to evaluating the situation one faces in order to alter

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the emotional response to it either by changing how the situation is perceived or by managing the emotional response the situation poses. But it's not certain whether emotional experience and response can be modified directly, although cognitive and behavioral strategies can be employed to modify the emotions indirectly.

Many studies have been conducted in this area to assess the emotion regulation among adult population and to what extent are the cognitive emotion strategies are useful in everyday life. Garnefski et al, 2001, <sup>[2]</sup> suggested that emotion regulation strategies are useful for prevention and intervention when it comes to negative life events and emotional problems. They selected two samples, clinical population and non-clinical population. Data was obtained in both groups using Cognitive Emotion Regulation Questionnaire (CERQ) <sup>[3]</sup> which made use of nine cognitive emotion regulation strategies: self-blame, other-blame, rumination, catastrophizing, putting into perspective, positive refocusing, positive reappraisal, acceptance, and refocus on planning. Previous studies <sup>[4]</sup> which used CERQ as a tool have shown that effective cognitive strategies to regulate the emotions and especially, negative cognitive strategies to regulate the emotions is more efficient in explaining the psychological symptoms in the medical students than mindfulness. Similarly, Doulougeri et al in 2016 <sup>[5]</sup> shed light on the strategies medical students used to deal with intense negative emotions where the vast majority reported inaction in the face of a challenging situation and the use of more subtle strategies to deal with the emotional impact of any incident. The CERQ proved to have a good factorial validity and high reliability with Cronbach's  $\alpha$  ranging between .75 and .87. <sup>[6]</sup> It was also shown that the cognitive emotion regulation strategies accounted for considerable amounts of variance in emotional problems and strong relationships were found between the cognitive strategies self-blame, rumination, catastrophizing and positive reappraisal (inversely) and symptoms of depression and anxiety. Kraaij et al <sup>[7]</sup> in their research suggested that poor parental bonding and undeveloped cognitive coping strategies were linked to depressive symptoms in adolescents and therefore intervention programs aimed at developing good parental relationships and healthy cognitive coping mechanisms were advised. A common tool which all the aforementioned studies used was CERQ. Hence, this questionnaire can be seen as a reliable tool for assessing individual risk and protective factors linked with emotional issues.

In the present study, the purpose was to examine the level of cognitive emotion regulation in medical and non-medical students when faced with a stressful or challenging situation. A sample of 100 students was taken, 50 medical and 50 non-medical from various universities across the country. The data was collected using Cognitive Emotion Regulation Questionnaire. It was hypothesized that medical students would show higher efficiency in cognitive emotion regulation when compared to non-medical students.

## **METHODOLOGY**

### *Participants*

The sample size of 100 adults in which 50 medical (13 male and 37 female) and 50 non-medical (15 male and 35 female) college students from various universities across the country with age range of 19-29 years was taken. The mean age of the participants came out to be 21 years. All of them gave their informed consent. The data was collected via Google Forms and interpreted on Microsoft Excel.

### *Instrument*

Cognitive Emotional Regulation Questionnaire. CERQ was a 36-item self-report questionnaire which was used to assess how well people regulate their emotions through a

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range of conscious, self-regulatory and cognitive components when faced with stressful or life-threatening situations. The questionnaire assessed the emotion regulation on the basis of nine different dimensions.

- Self-Blame (A)
- Acceptance (B)
- Rumination (C)
- Positive Refocusing (D)
- Refocus (E)
- Positive Reappraisal (F)
- Perspective (G)
- Catastrophizing (H)
- Other-Blame (I)

### *Design and Procedure*

A Google Form was formulated using the questionnaire and circulated among the college students and it did not have a time limit. The responses under all dimensions were summed up for every participant. A combined score of each dimension was taken out for medical and non-medical participants which was then plotted on a double bar graph for comparison. Higher scores in any dimension indicated greater use of a specific cognitive component. Inefficient ways of cognitively reappraising a stressful or threatening situation included self-blame, rumination, catastrophizing and blaming others while acceptance, positive refocusing, positive reappraisal and putting into perspective were efficient ways towards cognitively reappraising one's emotions. Furthermore, the data was analyzed using independent sample t-test in Microsoft Excel.

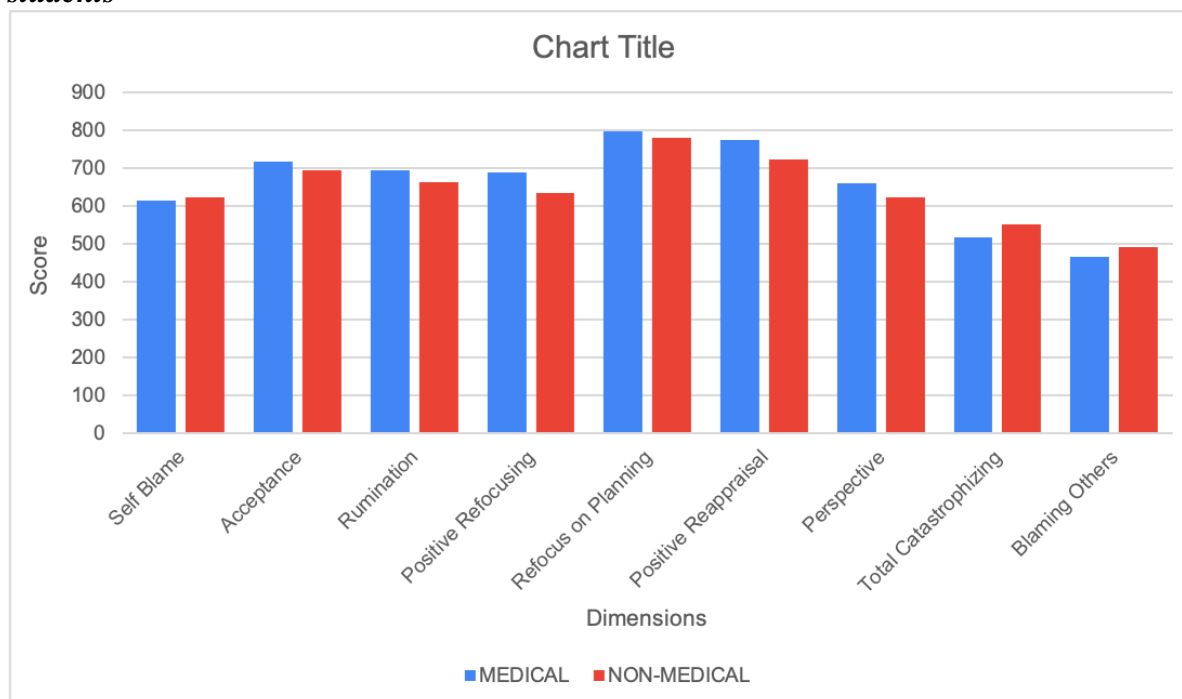
## **RESULT**

An independent t-test was calculated to assess the difference in the level of cognitive emotion regulation between medical and non-medical students. The results (table 1) depicted that there was no significant difference in the level of cognitive emotional regulation between medical and non-medical students. They cognitively regulated their emotions in the similar ways when faced with a life-threatening/challenging situation. Similarly, the combined raw scores of both the groups in the nine dimensions were analyzed and plotted on a double bar graph, which showed that there was no significant difference in the level of emotional regulation among the two groups (graph 1).

*Table-1 Independent t-test for medical and non-medical students*

	Groups	M	SD	P(T<=t) two tail	df	Sig
CERQ	Medical Students	13.20	2.21	0.14	16.00	0.37
	Non-Medical Students	12.87	1.74			

**Graph-1 Double bar graph showing combined raw scores of medical and non-medical students**



## DISCUSSION

Emotion regulation refers to the methods by which we have an impact on which feelings we've got, while we've got them, and the way we enjoy and express them. Because emotions are multi-componential methods that spread over time, emotion regulation includes adjustments in “emotion dynamics”, rise time, magnitude, duration, and offset of responses in behavioral, experiential, or physiological domains. Emotion regulation additionally includes adjustments in how reaction components are interrelated because the emotion unfolds, such as when will increase in physiological responding arise within the absence of overt behavior[8] In the present study, the purpose was to examine the level of cognitive emotion regulation in medical and non-medical students when faced with a stressful or challenging situation. After collecting the data from the sample size, an independent t-test was done and the raw scores of the participants was plotted on a double graph. It was hypothesized that the medical group would have had a higher level of cognitive emotion regulation when compared to the non-medical students. But the study revealed that there was no significant difference in the level of emotion regulation between the medical and non-medical students. This meant that both the groups cognitively regulated their emotions on more or less the same manner. These findings contradict the research done in the past which proposed that medical population showed a higher regulation of emotions.

The level of cognitive emotion regulation of medical students ( $M=13.20$ ,  $SD=2.21$ ) was hypothesized to be greater than non-medical students ( $M=12.87$ ,  $SD=1.74$ ). However, after conducting independent t-test, it was found that the difference between the two groups was not significant,  $t=0.14$ .

### Limitations and Implications

The study contradicts the earlier findings that medical students are more efficient in regulating their emotions in stressful/challenging situations. This contradiction could be due to a number of reasons including limited sample size of the students and online mode of data

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collection which could have interfered with the authenticity of the responses. The study also didn't present the participants with a standardized stressful/challenging situation on the basis of which cognitive emotion regulation could have been measured for everyone.

The on-going pandemic, COVID-19 has taken the world in its flames and is now a public health emergency. It has created mass panic among people and have also compelled them to adapt better coping strategies to effectively deal with new challenging situations they are being presented with every day. Perhaps, this could be the reason why all the students in the sample size scored more or less on the questionnaire. However, further research is required on this to document the evidence.

### CONCLUSION

The study assessed the level of cognitive emotion regulation among medical and non-medical students. Although it was hypothesized that medical sample would have been more efficient toward emotion regulation, it was shown in the findings that there was no significant difference in the level of emotion regulation between the two groups.

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### Conflict of Interest

The author(s) declared no conflict of interest.

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**Appendix**

**The Cognitive Emotion Regulation Questionnaire (CERQ)** is a multidimensional questionnaire constructed in order to identify the cognitive emotion regulation strategies (or cognitive coping strategies) someone uses after having experienced negative events or situations.

The questionnaire has been constructed both on a theoretical and empirical basis and measures nine different cognitive coping strategies. The scoring of nine cognitive emotion regulation dimensions were measured on a 5-point Likert Scale ranging from 1-5 where 1=Almost Never and 5=Almost Always. The items for each dimension were mentioned in the manual.

- Total self-blame = Items 1 – 4
- Total acceptance = Items 5 – 8
- Total rumination = Items 9 – 12
- Total positive refocusing = Items 13 – 16
- Total refocus on planning = Items 17 – 20
- Total positive reappraisal =Items 21 – 24
- Total putting into perspective =Items 25 – 28
- Total catastrophizing = Items 29 – 32
- Total blaming others = Items 33 – 36

**How do You Cognitively Regulate Emotions? (The Cognitive Emotion Regulation Questionnaire, CERQ)**

**Instructions**

Emotion regulation is the ability to modulate – that is, change and alter one’s emotional experiences. Emotion regulation is differentiated from suppression, i.e. ‘bottling up’ one’s emotions, and is also different from catharsis, where one expresses or vents their emotions. This questionnaire assesses how well you regulate emotions through a range of cognitive processes such as positive reappraisal (rethinking the emotion-causing event more positively), acceptance, rumination and self-blame. State how often you think in the following manner when experiencing strong threatening or stressful life events.

	Almost never	Rarely	Occasionally	Frequently	Almost always
1. I feel that I am the one to blame for it.					
2. I feel that I am the one who is responsible for what has happened.					
3. I think about the mistakes I have made in this matter.					
4. I think that basically the cause my lie within myself.					
5. I think that I have to accept that this has happened.					
6. I think that I have to accept the situation.					
7. I think that I cannot change anything about it.					
8. I think I must learn to live with it.					
9. I often think about how I feel about what I have experienced.					
10. I am preoccupied with what I think and feel about what I have experienced.					
11. I want to understand why I feel the way I do about what I have experienced.					
12. I dwell upon the feelings the situation has evoked in me.					
13. I think of nicer things that what I have experienced.					
14. I think of pleasant things that have nothing to do with it.					
15. I think of something nice instead of what has happened.					
16. I think about pleasant experiences.					
17. I think about what I can do best.					

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18. I think about how I can best cope with the situation.					
19. I think about how to change the situation.					
20. I think about a plan of what I can do best.					
21. I think I can learn something from the situation.					
22. I think that I can become a stronger person as a result of what has happened.					
23. I think that the situation also has its positive sides.					
24. I look for the positive sides to the matter.					
25. I think that it could have all been much worse.					
26. I think that other people go through much worse experiences.					
27. I think that it hasn't been too bad compared to other things.					
28. I tell myself that there are worse things in life.					
29. I often think that what I have experienced is much worse than what others have experienced.					
30. I keep thinking about how terrible it is what I have experienced.					
31. I often think that what I have experienced is the worst that can happen to a person.					
32. I continually think how horrible the situation has been.					
33. I feel that others are to blame for it.					
34. I feel that others are responsible for what has happened.					
35. I think about the mistakes others have made in this matter.					
36. I feel that basically the cause lies with others.					

### Scoring

Almost never = 1, Rarely = 2, Occasionally = 3, Frequently = 4, Almost always = 5

Total self-blame = Average items 1 – 4

Total acceptance = Average items 5 – 8

Total rumination = Average items 9 – 12

Total positive refocusing = Average items 13 – 16

Total refocus on planning = Average items 17 – 20

Total positive reappraisal = Average items 21 – 24

Total putting into perspective = Average items 25 – 28

Total catastrophizing = Average items 29 – 32

Total blaming others = Average items 33 – 36