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ORIGINAL ARTICLE

Mindfulness and Psychological Distress in Medical Students: Mediating Role of Emotion Regulation

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ABSTRACT
The research was conducted to assess the medating role of emotion regulation mediate between mindfulness and psychological distress (depression, anxiety, stress). In the current study, correlation research design and purposive sampling was used to collect data from both public and private medical colleges. Sample was comprised of 216 participants (men; n=96; women; n= 120). Mindful Attention Awareness Scale (Brown & Ryan, 2003), Emotion Regulation Questionnaire (Gross & John, 2003), DASS 21 (Lovibond & Lovibond, 1995) along with demographic information sheet were used to assess target study variables. Results were analyzed through SPSS 21. Result showed significant relationship among all variables. Emotion regulation found to play as a mediator role between mindfulness and psychological distress (anxiety). The results of this study help clinical psychologists to devise improved training programs and therapeutic interventions for medical students for minimizing the distress so that medical students become able to perform better in their academic activities.
Keywords: Mindfulness; Emotion Regulation; Psychological Distress

INTRODUCTION
Medical education required a permenenat responsibility and obligation of students to attain learning outcomes important to turn into a skilled professional healthworker. Students face huge stressors in light of huge responsibility and scholastic requirments that need during their long course of examining (Bohlmeijer et al., 2010). The consistent and testing learning encounters that came across many medical students may, sometimes, tend to cause psychological distress among students. Mental distress among medical students effect their personal, relational and academic life (Hill et al., 2018)

Event happening in the past or those which might happen in the future most mental worries are commonly related that. For instance, about the past and future, depressed people mostly feel embarrassed and regret and for future problems the persons shows higher anxiety, the ension of advanced level and fear.howevr, if individual stop being conscious about past and futrure but focus in their present while benig regualtiong their emotions can encounter ones feeling of pessimisim (Baer, 2003), According to reserches mindfulness helps depressed individuals their emotions and opinions perceived non-judgmentally consider their thoughts as occasions which are short-lived in mind relatively than intrinsic aspects of self or legal images of actuality which is essential (Kabat-Zinn, 2003; Robins, 2002). Present study aimed to examine regulation emotional as a mediator of mindfulness and find out impact of mindfulness on psychological distress among medical students.

Mindfulness is a consciousness state that integrates d and self-awareness of being exposed with main specification, non-reactive, and indulgent is to be considered as mindfulness (Brown & Ryan, 2003; Kabat-Zinn, 2003). The awareness that materializes complete easygoing, focused in the current moment" care is defined as mindfulness (Kabat-Zinn, 2003). What they are actually than it is a helpful skill in perceiving stressful events less unfavorable. They do not pay attention to the past or future any longer, when individuals become aware of the present time. Events happening in the past or those which might happened in the future generally most mental problems are related to that.

It is stated about the past and future, depressed people mostly feel embarrassed and regret and for future problems the persons shows higher anxiety, higher levels of stress and fear (Baer, 2003; Kabat-Zinn, 2003; Robins, 2002). Observe depressed individuals their emotions and thoughts emotions non-judgmentally and consider their thoughts in the mind as short-lived occasions somewhat than intrinsic parts of self or images which are legal of actuality essential that helps mindfulness. Depression prevents intensification of their negative thoughts and emotions in rumination with this approach help individuals (Teasdale et al., 2003).

Emotions are widely known to be the uncontrollable driving force for the behavior. But it is also believed that people have so much control over dealing with their emotions through flexibility. (Rothermund, Voss, & Wentura, 2008). And people are able to control almost all the aspects of processing emotional experiences as well as how they are translated into attention.(Porges, 2007 ; Gross, 1998).

As well as the cognitive and physiological activities associated with emotion. The process of having control over emotion and all the outcomes or antecedents of processing emotions is thus known as emotional regulation. (Gross & Mun ,1995; Diefendorff et al., 2000). Research suggested that emotion regulation could also happen as per the influence of the external environment of an individual just like a child who grows up among care givers would genuinely grow himself as a care giver or would know ways to cope with stressful situations (Southam- Gerow & Kandell, 2002). As well as urban settings usually slow down the recovery of a person from stressful situations as opposed to the natural settings which speed up the recovery from stress (Van den Berget al., 2007).

Majority of the problems relating to mental health are originated because the individual focuses on events that happened in the past as well as fear of what will happen in the future. Just like the people who are depressed usually relate to some past events and feel guilty as well as regretful whereas the people with anxiety are worried about the events to happen in the future and worry about the possible consequences of their actions. (Baer, 2003; Kabat-Zinn, 2003; Robins, 2002). Mindfulness helps the individuals to emphasize on what is happening right now and not get overwhelmed by the things happened in the past, by remembering them just as thoughts and emotions without being judgmental about them. (Teasdale et al., 2000).

Individuals higher on mindfulness are more aware of their individual capabilities to fight the battle with their depression or anxiety, or possible stressors from the environment. It enables a person to positively evaluate situations which he would otherwise judge negatively. (Bohlmeijer et al., 2010). As the suicide rate among the students are known for a fact that they transform into clinical depression (Khokher & Khan, 2005), the major aim of this study is to devise ways by which medical students can be mindful to avoid depression and anxiety.

METHODS
Participants: The research Design was based on correlation approach for this conducted study. Participants were recruited

through the purposive sampling technique The selection of sample size was based on the G-Power Analysis technique for which the effect size was taken at p=0.30 on medium level, the power was 95 whereas the alpha level probability was approximately 0.05 yielding a sample size of 115 participants. The directions from extant literature were also taken for implementing the sample selection criteria where about 216 participants were selected from various private and public sector medical colleges, and they were further scrutinized through some inclusion as well and exclusion criteria.

Demographics characteristics of participant showed most of participants were Muslim and mostly lived in hostel. Most of the participants were from private medical colleges and most of the participants were participated from Continental Medical College. Most of the participants were living in nuclear Family system and unmarried.

Measures

Demographic Information Sheet: In order to create the demographic information from the participants medical students, a separate sheet was created. It included various variable such as the age, gender, education, year of education and name of institute, current year of MBBS, family system (nuclear or joint), marital status and relationship with parents and siblings as well as some other relevant variables for this study. In addition to the demographics, a sheet for informed consent as well as information regarding the survey was also included.

Mindful Attention Awareness Scale (Brown & Ryan, 2003): In order to tap the variable of mindfulness, the popular Mindful Attention Awareness Scale was translated in an Urdu version after claiming permission from the original author for its usage and its translation.

The scale comprises of 15 statements which are relatively brief. One of the item included in that scale is as "I find it difficult to stay focused on what's happening in the present". The responses were recorded in a standard format of6-point Likert-type instrument depending on the degree of agreeing or disagreeing with the statement where 1 means almost always and 6 means almost never. The mean values were already recorded and the instances of higher scores in the responses meant higher level of mindfulness in the respondent. Mindfulness Validity scale developers have extracted uni-dimensional construct in MAAS structure and report MAAS reliability the selected sample of students enrolled in university as 0.82 (Brown & Ryan, 2003). The reliability of scale on the current study was (a=.82) which is quite in the acceptable range.

Emotion Regulation Scale (Gross & John, 2003): The selected scale for emotional regulation is particularly designed to tap the differences among persons as per the two basic emotion regulation strategies. The first one is cognitive reappraisal and the second is expressive suppression. The scale had a total of 10 items measuring how an individual is capable of naturally regulating their stream of emotional responses. The responses were to be collected in a standard 7-point Likert-type instrumentwhere 1 was (strongly disagree) and highest value 7 was (strongly agree). The permissions were duly collected both from the original authors as well as the person who translated it into the native language Urdu (Saeed & Rana, 2019).

The Emotional regulation questionnaire is solved on a paper with pencil, it is a self-report type questionnaire, and the Reappraisal Items are 1, 3, 5, 7, 8, and 10 whereas the Suppression Items numbered 2, 4, 6, and 9. On the special request of the author, it was advised not to change the recommended order of the items. As per this scale, individuals ranking higher scores on this scale are more able to regulate their emotions than others. The author gave the reliability about .76-.80. In this current study, the reliabiloity score was measured through the Cronbach's alpha which was 0.81.

DASS-21(Lovibond & Lovibond, 1995): This scale is a combination of three different scales measuring emotional states of an individual on the more negative side including depression, anxiety and stress using the self-reporting technique of data collection. Each scale has 7 items which are further divided into more subscales with somehow similar content type in it. The authors were approached to take formal permissions from them for usage (Lovibond & Lovibond, 1995).However the DASS-21 is considered publically available so there is not much need of this formality as mentioned on its website.

The first scale of depression is assessment of various factors including "dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest / involvement, anhedonia and inertia." Whereas another scale of anxiety is known to calculate the autonomic arousal, skeletal muscle effects, situational anxiety, and subjective experience of anxious affect. The third scale of stress measures other negative affective states and experiences like "difficulty to relax, nervous arousal, and being easily upset / agitated, irritable / over-reactive and impatient" etc. the scores are measured by adding up the sums of all subscales already multiplied by 2. The Cronbach's alpha reliability for this study was 0.89 for DASS-21 scale.

Procedure: The First step was to get the institutional approval from research committee Riphah Institute of Clinical & Professional Psychology (RICPP), Lahore, for conducting research for the given variables. In addition to that, a formal permission from the authors for using their tools and respective data collection sites in the current study was also sought.

Initially a pilot study with 10 participants only was conducted which successfully showed no major changes to be done so the complete study took place right after the execution. The individuals who participated in the study were approached and informed regarding the purpose of the research by giving information sheet. Individuals who fulfill inclusion criteria were included in the study. Written consents of individuals prior to their participation in the study was made sure and they were duly informed regarding the right to withdraw from the study if they are not willing to continue and if they are not comfortable. Each participant was provided with the all assessment measures and was administered in one seating. Data collected from 216 participants in approximately two months (Oct-Dec 2019). Each individual took 15-20 minutes to complete the assessment measures. Some of the difficulties were faced during data collection because of the getting late permission from the institutes and it was time taking to screen the participant because of their annual exams and viva and students were in hurry. The response rate was good so no form was discarded.

RESULT

Table1: Series of Regression Analyses showing ER-REAP as a Mediator between MAAS (Predictor) and DASS-A (Outcome) in Medical Students (N=216)

Predictors	Constant	R	R^2	ΔR^2	B	T
Linear Regression (Enter Method) Analysis with Anxiety as an outcome						
Mindfulness	30.09	.490	.240	.240	-.49***	-8.23
Linear Regression (Enter Method) Analysis with Emotion Regulation (REAP) as an outcome						
Mindfulness	22.26	.151	.023	.023	.15*	2.23
Linear Regression (Enter Method) Analysis with Anxiety as an outcome						
Emotion Regulation-REAP	18.12	.222	.049	.049	-.22***	-3.32
Hierarchical Regression Analysis (Stepwise Method) with Anxiety as an outcome						

Model 1	18.12	.222	.049	.049		
Emotion Regulation-REAP					-.22***	-3.32
Model 2	33.76	.512	.263	.214		
Emotion Regulation-REAP					-.15**	-2.53
Mindfulness					-.46***	-7.85

Note. *p<.05, **p <.01, ***p<.001", β=standardized coefficient, R= strength of association, ΔR^2=variation.

Table 1 shows the mediation output, at first mindfulness was taken as predictor and anxiety as outcome in step one. The analysis showed that mindfulness significant negatively predict the anxiety.

For the step 2, mindfulness was taken as predictor for the emotion regulation (reappraisal) as outcome. The analysis showed that mindfulness significant positively predict emotion regulation (reappraisal).

According to the model proposed by Baron and Kenny (1986), for the emotion regulation (reappraisal) play a mediating role between mindfulness and anxiety, mindfulness must not have a significant effect or must have a much reduced effect (i.e., still significant but significant reduced) when the mediator emotion regulation (reappraisal) is controlled. In order to assess the role of emotion regulation (reappraisal) as a mediator, hierarchal regression analysis was done.

In the model 1, the anxiety was considered the dependent variable and emotion regulation (reappraisal) being mediating mechanism was inserted as the independent variable. In the model 2, anxiety remained as an outcome variable and mindfulness was taken as predictor variable while controlling for the emotion regulation reappraisal.

The interpretation of values emerging from the Model 2 of the analysis suggested how significant is mindfulness as independent variable for the anxiety as outcome reduced partially when emotional regulation's dimension reappraisal as the underlying mechanism was controlled.

To confirm the mediation link, Sobel Test by Sobel (1982) was performed. The results from Sobel test also reinforced the existence of mediation role between the independent and dependent study variables where the values were recorded to be z = 2.57 at significance recorded p = .01.

The modified model after analysis from mediation mechanisms is as follows:

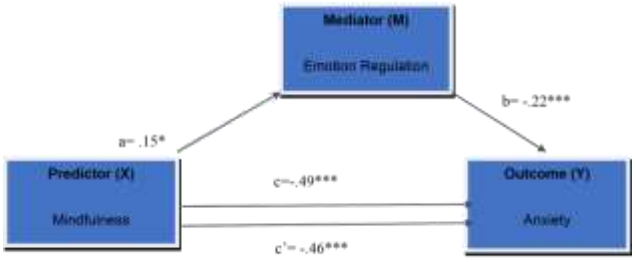

Figure 1: Emerged mediation model showing Emotion Regulation (Reappraisal) as mediator between Predictor (Mindfulness) and outcome in Anxiety.

DISCUSSION

Young students are the most vulnerable to stressful life events, especially those who are pursuing a higher professional education in a competitive setting. Mental distress has been well identified in medical students and is a matter of concern in both developed and developing countries (Saravanan & Wilks, 2014). Previous researches have revealed, students faced depression, anxiety and stress and its negative consequences on their personal activities and physical health. Around 65% of the medical students experienced psychological distress during their study duration (Shams-Eldin, et al., 2017). The aim of the current research study was to examine the relationship between Mindfulness and Emotion Regulation with medical student's depression, anxiety and stress. Study was conducted on male and female medical students studying in MBBS,the demographics was age, gender, living status, changes in personal activities and effected physical health due to study burden.

Current study hypothesized emotion regulation as an underlying mechanism between mindfulness as well as psychological distress. Results showed partial mediation effect of emotion regulation between mindfulness as well as psychological distress (anxiety). Previous literature evident that the mindfulness increased the psychological symptoms of depression, anxiety and stress would be decreased and as the individual experience positive emotions, the level of psychological distress lower (Christopher & Gilbert, 2010). This is because, the link of mindfulness with awareness and clarity regarding the felt emotions, cause an increase in ability to regulate emotions. Individual's ability to be non-judgmental about situations lessen the problems associated with the regulatory mechanisms for emotion processing (Jimenez et al., 2010; Vujanovic et al.,2010). In order to become better at adapting emotional regulation mechanisms, a person's tendency to become mindfulness helps in turn reduces the overall distress outcomes in individuals (Arch & Craske, 2006).

Furthermore, Gross (2014) suggested that mindfulness promot the cognative reappraisals and it help in acceptance of events in contrast to suppressing them. People with increased mindfulness are bound to apply strategies of cognative reappraisal since they may have greater capacity of metacognition, including observing of the awareness and control of the intellectual cycles (Bishop et al., 2004) i.e. with more significant level of mindfulness, people easily stop before they directly respond to negative feelings. Moreover, they disengage theirself from negative automati thghts and focus on prersent events that allow people to have more insight into their own emotional reaction and to see their programmed responses that are constantly set off by specific cercumstances (Bishop et al., 2004), so that they may effectively regulate their own emotions and select a rational reappraisal to deal with the cercumstances.

The study has some limitation as well such as the data was only collected from less government or public sector medical colleges of Lahore due to lengthy permission taking process. Furthermore, collecting data of 216 medical student participants was a challenge as most of the colleges conducting exams and viva and students were remained busy in their studies, so this may effect their responses. So it s suggested for future to condut quaiative research to gain ndepth knowledhe of the variables and collect data from government insttutes as well. Medical students face very important stressors throughout their training tenure as medical professionals, and the nature of these stressors is academic, psychological, social as well as existential. The MBSR or Mindfulness based stress reduction is a mode of psychological intervening in educational psychology which could be beneficial for them to decrease psychological distress. The results of this study will be beneficial for medical students to make them understand about mindful-based strategies and apply those strategies in daily life to overcome the stress. Finding of present study should be implemented on student population to resolve their problematic behaviors.

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