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EMOTION REGULATION AND ATTENTION DEFICIT HYPERACTIVITY SYMPTOMS IN UNIVERSITY STUDENTS: A MEDIATING ROLE OF INTERPERSONAL PROBLEMS

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ABSTRACT

Objective: This study aims to explore the mediating role of interpersonal problems between emotion regulation and attention deficit hyperactivity symptoms in young adults.

Methodology: This cross-sectional research was carried out from September 2020 to November 2020 in the city of Lahore. A sample of 1190 university students (545 men and 645 women) selected through a multi-stage sampling technique with age range 18-24 years ($M=20$, $SD=1.55$) were given a Demographic Profile Index, Difficulties in Emotion Regulation Scale (DERS), Interpersonal Difficulties Scale (IDS), and Attention Deficit and Hyperactive Symptoms Scale (ADHSS).

Results: The sample size consisted of 46% men and 54% women selected from BS1 (34%), BS2 (25%), BS3 (24%) and BS4 (17%). Pearson Product Moment correlation was used to investigate the relationship among study variables. Correlation analysis indicated that a significant moderate and high positive relationship between difficulties in emotion regulation and interpersonal problems ($r=.56$, $p<.001$), difficulties in emotion regulation and attention deficit hyperactivity symptoms ($r=.36$, $p<.001$), and interpersonal problems and attention deficit hyperactivity symptoms ($r=.51$, $p<.001$). Furthermore, mediation analysis revealed that interpersonal problems partially mediate the relationship between difficulties in emotion regulation and attention deficit hyperactivity symptoms in young adults.

Conclusion: This research provides empirical evidence that interpersonal relationship problems partially mediate the relationship between emotion regulation and attention deficit hyperactivity symptoms.

Keywords: Emotion Regulation; Attention Deficit Hyperactivity Symptoms; Young Adults; Interpersonal Problem; Mediation.

INTRODUCTION

University life is very challenging for any individual in which students face pressure from role changes, interpersonal relationships, study tasks, emotional dysregulation, and future job-related during university life.¹ If the university students cannot cope and reveal this pressure in the form of emotional suppression whereas negative relationships with family and peers and the need for interpersonal relationships fulfilled, an individual experience which leads to mental health problems including anxiety, depression, stress, symptoms of attention deficit hyperactivity in young adults²⁻⁶ eating problem, and substance abuse seems in psychopathological symptoms which affect individual's daily life.^{6,7} Students face challenges in academic performance, learning efficiency, and lifestyle due to this change regarding adjustment and learning a new capacity to establish interpersonal relationships.^{8,9}

As well as university life of students who are with attention deficit hyperactivity symptoms consists of many challenges and stressors for students. Poor attention and hyperactivity may be at risk of anxiety distress and depression because the combination of symptoms blocks their thinking process, memory, concentration inhibitory skills, organizational skills, and adaptive functioning.⁴ Due to the change in the educational institution, emotional problems and interpersonal difficulties in development in the social world and its results may be observed in university students.⁸

Furthermore, emotion regulation contributes to the functionality of individuals with attention-deficit hyperactivity symptoms and it unfolds with time and is linked with the emotions of the individual including expression of emotion, intensity, and experience of emotions.¹⁰ In emotion dysregulation individuals impaired or fail to modify emotions.¹¹ In children, adolescents, and adults,

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emotion dysregulation is explained as irritability, low frustration tolerance, emotional lability, and negative emotional experience.¹² When the intensity of negative emotions surpasses the tolerance level of an individual, the individual may occupy in dysregulated behaviors to entertain herself/himself from this feedback circle of negative emotions.¹³ Further, Moltrecht et al⁷ explained extrinsic and intrinsic processes consist of experiential, physiological, psychological, and behavioral mechanisms of emotion regulation. The main features of emotion dysregulation reactivity and temper were found more in adults having ADHD.¹⁴ Emotional lability enhances impairment in the daily life of an adult with ADHD.¹²

Moreover, individuals who are having ADHD had difficulty with socially suitable emotional responses, lack of awareness, inattentive emotional responses, experienced negative emotions, and lack of knowledge and clarity about experienced emotions.¹⁵ Inappropriate emotional connections and relations cause problematic interpersonal relationships and impaired social functioning.¹⁶ Young adults have social support in pursuing ability and more adaptive regulation. So young adults have more capable in their people and social emotion regulation, which is linked with the effective achievement of progressive responsibilities of founding established relationships.¹⁷

There is a negative impact of social functioning on ADHD in adulthood as well as childhood.¹⁸ Sjowall¹⁹ explored those young adults with ADHD, who show consistent behavior with Emotion dysregulation. Emotion dysregulation is related to social problems in young adults having ADHD like peer rejection and social skills deficit.²⁰ Interpersonal relationship teaches people about themselves and how to function effectively in a particular environment. Through high-worth relationships, individuals acquire particular beliefs which are beneficial for functioning in the

specific relational environment and adopt the beliefs appreciated by significant others, and are positively related to the motivation of self-processes.²¹ Changes occur in the social relationship during the changeover from adolescence to adulthood.²² Social Problems in individuals who have ADHD continued during adolescence and into adulthood.²³ Social support seeking and trust are noticeable in peer and family relationships in young adults.¹⁷

In the previous research, it was reported that the diagnosis of ADHD rather than exploring attention deficit hyperactivity symptoms and its correlates.^{24,25} Difficulties in emotional regulation and interpersonal relationships are found core features of attention deficit hyperactivity symptoms. Therefore, the current study aimed at exploring the connection between emotion regulation, interpersonal problems, and attention deficit hyperactivity symptoms in young adults and investigate the mediating role of difficulties in interpersonal problems between difficulties in emotion regulation and attention deficit hyperactivity symptoms in the young population.

METHODOLOGY

A cross-sectional design was used and data was taken from the government and private settings in the city of Lahore. This research was carried out from September to November 2020. The sample size was determined by using criteria given by Green (1991) and Harris (1985). A sample of 1190 university students of BS Hons (men 46% and women 54%) were taken through multi-stage sampling from the 3 Government and 3 private universities with age range 18-24 years ($M=20$, $SD=1.55$). The sample consisted of class 414(34%) BS1, 292(25%) BS2, 284(24%) BS3 and 200 (17%) BS4. Only university students of BS Hons were taken for this research to keep data homogenous.

Difficulties in Emotion Regulation Scale 26,27 consists of 36 items ranging from 1 to 5 (1 for rarely, 2 for sometimes, 3 about half time, 4 for most of the time, and 5 for almost always). It is a self-report measure developed to assess the difficulties in emotion regulation. The score of the scale lies between 1-180. The Cronbach alpha of the scale is between .80 to .89. A higher score pointed out emotion dysregulation²⁷. The internal consistency of this scale is $\alpha=.81$ in this study indicating good internal consistency of the scale.

Interpersonal Difficulties Scale²⁸ was used to assess the interpersonal difficulties in the students. It consists of 6 factors including lack of assertiveness, low self-confidence, lack of boundaries, unstable relationships, dominated by others, and mistrust on a five-point Likert scale (not at all 0, rarely 1, sometimes 2, often 3, and always 4) by respondents. The score of the scale lies between 0-232. The internal consistency of this scale is $\alpha=.96$ in the current study.

The indigenously developed Attention Deficit and Hyperactive Symptoms Scale (ADHSS)²⁹ is used to measure the symptoms of Attention Deficit Hyperactive Disorder in young adults. Attention Deficit Hyperactive Symptoms Scale is a self-report measure consists 40 items in which the young adults rated their symptoms of Attention Deficit Hyperactive Disorder, scoring 0-112 on the Likert scale in the current study where a higher score represents more symptoms of ADHD. The cut score of this scale was 61. The internal consistency of the symptoms of ADHSS is $\alpha=.90$ in the current study.

This study was approved by Institution Review Board (IRB). At first permission for data collection was taken from the university authorities. After taking verbal consent, confidentiality and privacy, Performa of the scales was given to the participants in the group and debrief at the end. Participants were

asked to rate each statement that relates to them. It takes 25-30 minutes for completing the Performa. Data were analyzed through SPSS for descriptive, Cronbach Alpha, and a correlation test process was used for mediation analysis.

RESULTS

The sample consisted of 46% men and 54% women and 34% BS1, 25% BS2, 24%

BS3 and 17% BS4. The mean age was 20 ± 1.55 . The internal consistency of DERS is $\alpha=.81$, the IDS scale is $\alpha=.96$ and ADHSS is $\alpha=.90$ indicating good internal consistency of the scales. The relationship among variables was explored through Pearson Product Moment correlation. The results indicated a significant positive relationship between difficulties in emotion regulation and difficulties in interpersonal problems ($r=.56, p<.001$), difficulties in emotion regulation and atten-

tion deficit hyperactivity symptoms ($r=.36, p<.001$), and difficulties in interpersonal problems and attention deficit hyperactivity symptoms ($r=.51, p<.001$) with moderate and high correlation.

The findings of Pearson Product Moment Correlation show a significant relationship between emotion regulation, interpersonal problems, and attention deficit hyperactive symptoms. The mediating role of interper-

Table 1: Summary of inter-factor correlation of difficulties in emotion regulation, difficulties in interpersonal relationships and attention deficit hyperactivity symptoms (n=1190)

Variables	M (SD)	α	DIR	ADHDS
DER	99.58 ± 15.08	.81	.56***	.36***
DIR	82.55 ± 38.30	.96	-	.51***
ADHDS	36.93 ± 17.57	.90	-	-

p<.001.

Table 2: Regression coefficients, standard error, and model summary information for difficulties in emotion regulation, difficulties in interpersonal relationships, and attention deficit hyperactivity symptoms

Antecedents	Consequences							
	M (DIR)				Y (ADHS)			
		β	SE	p		β	SE	P
X (DER)	a	1.43	.06	.001***	c'	.11	.03	.001***
M (DIR)					b	.21	.01	.001***
Constants	i	-59.45	6.14	.001***	i	8.00	3.02	.001***
	R2=.32				R2=.27			
	F (1,1188)=546.35 , p=.001***				F (2,1187)=224.04 , p=.001***			

p<.001.

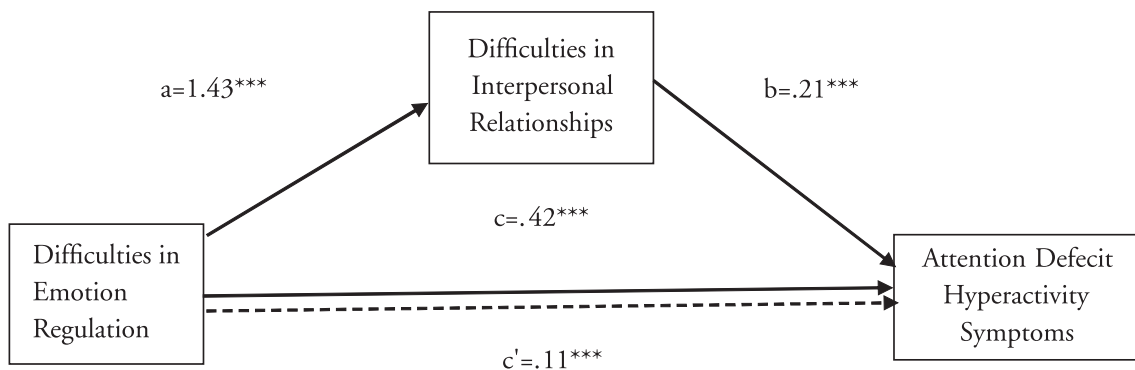


Figure 1: Mediation path framework of difficulties in emotion regulation, difficulties in interpersonal relationships, and attention deficit hyperactivity symptoms

sonal problems between emotion regulation and attention deficit and hyperactive symptoms in young adults was investigated through mediation analysis by Hayes³⁰ bootstrapping approach using PROCESS.

Figure 1 shows the mediating role of interpersonal problems in the relationship between difficulties in emotion regulation and attention deficit hyperactivity symptoms. The total effect of difficulties in interpersonal relationships on attention deficit hyperactivity symptoms ($\beta=.42$, $SE=.03$, $p<.001$, $R^2=.36$) was significant. Furthermore, the direct effect of difficulties in emotion regulation on difficulties in interpersonal relationships ($\beta=1.43$, $SE=.06$, $p<.001$, $R^2=.32$) was also significant, it depicts the addition of difficulties in emotion regulation explained 32% of the variation in interpersonal relationships. In contrast, an examination of the direct effect of difficulties in interpersonal relationships on attention deficit and hyperactivity symptoms ($\beta=.21$, $SE=.01$, $p<.001$, $R^2=.27$) was also significant. The result indicates that difficulties in interpersonal relationships partially mediate the relationship between difficulties in emotion regulation and attention deficit hyperactivity symptoms as after controlling the interpersonal problems the direct effect of difficulties in emotion regulation on attention deficit hyperactivity symptoms is reduced ($\beta=.11$, $SE=.03$, $p<.001$, $R^2=.27$) but c' is still significant. It depicts the addition of difficulties in emotion regulation and interpersonal relationships explained 27% of the variation in attention deficit hyperactivity symptoms.

Thus, it may be concluded that interpersonal issues play a significant role in mediating the link between symptoms of attention deficit hyperactivity disorder and problems with emotion regulation.

■ DISCUSSION

University life is considered the most

critical as students have difficulty in completing assignments on time, going to lectures, meeting commitments, planning their studies, taking longer to complete tasks, and difficulties with planning their daily functional life including academic, social, and emotional tasks.³¹ In ADHD common symptoms with emotion, and dysregulation is rapidly changing moods, reactive aggression, irritability, poor controlled behavior, temper outbursts, etc.¹⁰ Young adults who have ADHD show more problems regulating behavioral reactions to negative emotions than to emotional insight problems.³² The ability for emotion regulation is developmental³³ and changes across development.³⁴ Emotion regulation is the main component of proper psychological functioning and disorder occurs in absence of emotion control.³⁵

Moreover, individual needs emotion regulation skills to control their situation regarding the need of social circle like academic, family, and work conditions³⁵, and dysregulation in emotion may influence the severity level of ADHD symptoms.¹ University life consists of many challenges and stressors for students who are with ADHD symptoms. Poor attention and hyperactivity may be at risk of anxiety distress and depression because the combination of symptoms blocks their thinking process, memory, concentration inhibitory skills, organizational skills, and adaptive functioning.⁴ University students with ADHD experience difficulties in adapting to social academic, career planning, and financial aspects due to behavioral and emotional regulation. This may lead to short and long-term consequences like interpersonal difficulties.¹ Sjowall et al¹⁹ explored that young adults with ADHD show behavior consistent with emotion dysregulation and emotion dysregulation are related to social problems among young adults with ADHD like peer rejection and social skills deficit.²¹ Difficulties in emotion regulation are linked with poor prognosis, interpersonal difficulties, professional difficulties, and the severity

of ADHD symptoms in adulthood.³⁶

However, the current research aimed to explore the relationship between emotion regulation, interpersonal problems, and ADHD symptoms in university students. The finding revealed a significant positive relationship between emotion regulation, interpersonal problems, and attention deficit hyperactivity symptoms in university students, and findings are consistent with the empirical evidence.^{37,19-22} In adults who have attention deficit hyperactivity symptoms, emotion dysregulation predicts functional impairment.³⁷ Two approaches were found for emotional processing and regulation in ADHD children as well as adults. Emotional dysregulation is the primary or secondary deficit in attention deficit hyperactivity symptoms. The link was found between feelings, emotions, and the ability to interact properly in social situations. Individuals who could not maintain a relationship due to a lack of appropriate social skills which affects social interaction, and social relationships, and this inability to adjust and interpersonal difficulties lead to the greatest threat of developing different mental health problems like inattention, hyperactivity, anxiety, stress, isolation, social withdrawal.^{1,28,38}

Furthermore, this study aimed to investigate the mediation role of interpersonal problems between emotion regulation and attention deficit hyperactivity symptoms. The results revealed that interpersonal problems partially mediate the relationship between emotion regulation and ADHD symptoms. The results are similar to the previous literature.^{1,20,33,35,36} ED mediates the relationship between Symptoms of ADHD and social problems. First ED had a significant relationship with ADHD among young with ADHD and then ED had a significant relationship with social problems.³⁶ Social Problems in individuals who have attention deficit hyperactivity symptoms continued during adolescence and into adulthood.²³ Bunford et al²⁰

described the aspects that take part in social problems in young having ADHD, emotion regulation has been a current goal of theoretical and practical concentration.

ED mediates the negative relationship between attention deficit hyperactivity symptoms and social Skills after controlling the defiant disorder. The indirect effect was appropriate for youth adults with different depression levels but not for those with severe depression levels. The finding indicated the association between attention deficit hyperactivity symptoms and social functioning in youth adults.²¹ Emotional impulsiveness was a predictor of impairment in all domains especially social interactions, home life, engagement in community activities, driving marriage, finances, etc.³³ A healthy relationship would be developed by the people who want to maintain relationships with the feelings and desires and attention paid to others.³⁹ Furthermore, Li explains that adults with attention deficit hyperactivity symptoms experience additional adverse life events and are increased chances of failure in academic and stressed interpersonal relationships.³⁹

CONCLUSION

This study concludes that the interpersonal relationship issues influence the relationship between emotion regulation and attention deficit hyperactivity disorder symptoms, that emotional regulation issues exacerbate relationship issues, and that both of these factors together exacerbate ADHD symptoms. Emotion regulation abilities should be improved in young adults for improved interpersonal relationships and fewer symptoms of ADHD.

The research's implications relate to risk and protective variables for emotional regulation issues as well as the counseling services needed to lessen the symptoms of attention deficit hyperactivity disorder and emotion regulation issues in university

students.

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Author's Contribution

RM conceived the idea, designed the study, and contributed to the literature search. SS and STZ contributed to the collection of data, statistical analysis and reviewed the overall manuscript, and gave their final approval. Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Conflict of Interest

Authors declared no conflict of interest

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None

Data Sharing Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.