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Autism Parenting Stress Effects Behavioral Activation: Mediating Role of Emotional Contagion

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Abstract

To investigate the mediating role of emotional contagion between the association of autism parenting stress and behavioral activation, for the purpose of reducing depression in mothers of children with Autism Spectrum Disorder (ASD). Non-probability, Purposive sampling method was used to gather data from 200 mothers (mean age 35.5/ 6.31) of children with ASD. Data was collected from special education institutes of Lahore, Pakistan. Autism Parenting Stress Index (APSI), The Emotion Contagion Sale (EQS) and Behavioral Activation for Depression scale were used to collect data. Scales were translated in Urdu version for the better understanding of selected samples. Data was interpreted through IBM SPSS statistics 23

and PROCESS macros, from the sample, shows that increase in autism parenting stress leads to lack of behavioral activation in the presence of emotional contagion as mediator. The association between autism parenting stress and behavioral activation in the presence of emotional contagion found to be significant is scarcely explored in Pakistan. This research will fill the gap of previous research between given variables to ensure the emotional stability of caregivers of mothers so they could perform daily life challenges effectively while keeping their mental health intact.

Keywords: Autism Spectrum Disorder, Parenting stress, caregiving, depression, positive emotions.

Introduction

Most of the children with Autism Spectrum Disorder show externalizing and internalizing patterns of behaviors including limitation in verbal communication, lack of socialization, aggression toward oneself and others, which can affect the whole family including immediate and extended family along with other people in the community who are around them. Because of these internalizing and externalizing patterns of behaviors stress level of caretaker or parents increase, because of which they become unable to use coping skills which are used by parents of children with other disabilities or who are not facing any disabilities (Meaden et al., 2010). This research was carried out to see the relationship of autism parenting stress and behavioral activation for depression in caregivers of children with Autism Spectrum Disorder. This research also analyzed the mediating role of emotional contagion between autism parenting stress and behavioral activation for depression.

According to the literature of Autism Spectrum Disorder, there is a significant relationship between the severity of disorder, behaviors of the child and stress in parents. Many

researches show that severity of disorder indicates more behavioral issues in children which leads to more stress in parents (Clauser et al, 2021). Becoming a parent of a child who has Autistic features increases the responsibilities of parents, this can endure high rates of stress in them. There are many studies which show that mothers who take care of children with Autism Spectrum Disorder face high levels of stress (Wang el al., 2021). As compared to fathers, mothers of children with Autism spectrum disorder face more stress. Rate of the father's stress level is positively correlated with the severity level of Autistic features in his child, which means that the more severe level of disorder in the child reports a high rate of stress in the father. According to this finding along with other previous studies, researchers suggested working on emotional needs of parents while planning intervention for the child and family. Knowledge about parenting stress can help health professionals who work for the management of child's symptoms to give more support to the parents as well (Wang el al., 2021).

People use verbal and non-verbal information which include language, tone of voice, gestures and facial expressions respectively, to share their feeling and emotions. While communicating with each other, people tend to mimic each other subconsciously and this happens due to automatic response of mind. This phenomenon of exchanging emotions with each other in group or one-on-one interaction is called emotion contagion which can affect mood, behavior, decision making and dynamics of group level (Wax et al., 2019). According to previous studies there are two kinds of emotional contagion, one is primitive and other one is conscious. In primitive emotional contagion, emotions are transferred through autonomic and subconscious affective processes of the receiver's mind. During the state of emotional contagion, the receiver mimics nonverbal behaviors like facial expressions of the sender spontaneously and then through psychological link he/she experiences those emotions on him/herself. According to

the previous theories, primitive emotional contagion is affected by the sender's intensity of emotions expressions. According to literature, high rate of sender's emotional expression leads to high rate of emotional contagion in receiver (Wax et al., 2019).

On the other hand, in conscious emotional contagion, emotion's authenticity and originality matters more than the intensity of the sender's emotions; for example, a genuine smile of the sender makes the receiver happy. Social comparative process is involved in conscious emotional contagion. This process is also known as fundamental behavior while doing interaction in a social setting. In this process people tend to compare their own mood with other people and then adopt it spontaneously according to the situation. Through this process of emotional contagion, people link their mood with each other in dyad or group settings (Wax et al., 2019). Emotional contagion is the phenomenon in which a person experiences the emotions of another person. This phenomenon is having very important and real implications for the practitioners working in social settings but it is discussed rarely in previous literature. According to Hatsfield and his fellows this phenomenon refers to the process in which one person catches the mood of another person. People who can discriminate their own emotions from other people's emotions do not meet a few features of those people who have vulnerability of emotion contagion. According to Doherty, people who are more likely to suspect emotional contagion have the chances to depend on the external cues rather than internal cues. For instance, people whose emotional state is affected by the emotional expression of other people and develop their emotion by interrelating themselves with others (Qin et al., 2022).

In daily life, people contagion and exchange emotions in many ways. People can assume the emotional condition of another person through their facial expressions, tone of voice or

gestures during conversation but evaluating this transference quantitatively and knowing who leads this transference of emotions is quite difficult (Wax et al., 2019). In cognitive science, emotion contagion is gaining attention and interest of people because of its role in constructing human bonding and empathy. Researchers identified harmful effects of emotional contagions experienced by people in social life which include unhealthy eating habits as a result of negative family emotions. These results were concluded even after controlling many related factors like alexithymia and neuroticism (Weisbuch et al., 2011). Depression is a common mental health issue in countries with low and middle socioeconomic status. Rate of depression in Pakistan is high among females and this is because of relationship problems, lack of economic resources and lack of support from society (Husain et al., 2007). History of behavioral activation for depression is very long with many variations. Lewissohn was the first person who described the term depression in 1974 in which he said that depression is lack of or reduction of response toward positively reinforced activities. He developed few easy to do behavioral activation techniques, which could help the person to develop response towards positive reinforcement (Kanter & Puspitasari, 2012). Behavioral activation for depression is an intervention to reduce lack of interest and increase the engagement of a person in activities to develop the feelings of accomplishment and pleasure. It majorly focuses to settle down the goals, to identify the values and to plan different activities to which can help to align those values (Stein et al., 2021).

According to the results of previous research, people who tend to spend time with peers who have depression are more prone to develop depressive symptoms. On the other hand, those who already have depressive symptoms when spending their time with non-depressive friends or peers decrease the depressive symptoms. Environment and society have a significant effect on behavior and mood of the person. According to the theory of emotion contagion, emotions work

as infectious diseases which spread through intimation and interaction in social settings. This intimation or interaction leads to the clusters of population with mood symptoms in high rates (Hill et al., 2010).

In social settings both negative and positive states act like infections which gradually spread through interactions. The effects of positive and negative states are cumulative and the risk factor is associated with the number of people with low mood or positive mood who are in contact with that person. Mood contagion is likely to relate with the combination of spreading of behaviors, ideas and affects. In this process both conscious and unconscious components can relate. In an unconscious state a person does automatic mimicry and the neuron system involved in it Receiver feels the expressions of senders through afferent feedback which leads to the convergence of emotions from one person to the other person. In conscious component convergence of emotions especially in young females can be because of sharing of communication styles like co-rumination (Zalk et al., 2010).

Despite emotions, there are also many neuropsychiatric conditions like anxiety and depression which are contagious in nature. Clinical features of these neuropsychiatric conditions for instance loneliness are thought to be spread in the same way. A study supports this theory in which researchers did an experiment. In this experiment college students spent three weeks with depressed roommates and as a result college students who were not depressed initially developed the features of depression (Joiner, 1994). To enhance the social scaffolding of patients, researchers mainly focus on the social networking, support of peers and personal relationships, as it helps to develop positive mental health and resilience (Bastiampillai et al, 2013)

There are two important aspects in the phenomenon of emotional contagion, which play a role in the transfer of emotions and development of contagious depression. One of them is automatic mimicry and the second one is the mirror neuron system. Moreover empathic concern and direction of contagion can also be involved in it (Paz et al., 2022). Due to significant consequences of negative emotions, studies mainly focused on the negative impact of emotional contagion. Among all neuropsychiatric disorders, researchers mainly paid attention to the contagion of depression because depression in friends or family has a high risk factor to exhibit depressive symptoms in other people. It can have measurable and long term effects on the mood of another person (Boyko et al., 2015).

Contagious depression is a very interesting phenomenon but everyone has a very poor understanding about it. A study conducted on animal models to understand the phenomenon of contagious depression in which researchers focused on the mechanism, preventing strategies and intervention of contagious depression. The researchers proposed that after exposing depressive rats with healthy rats, behavioral symptoms of depression can be induced in healthy rats as well. The goal of this study was to see the existence of contagion depression, specifying if it is only related to symptoms of depression or it be linked to other mood disorders like anxiety, and to document all the findings. A better understanding of contagious depression is necessary to develop intervention and new strategies of therapy to deal with it (Boyko et al., 2015). Bhutto and Ramzan (2021) have expressed that a collusive stance is a behavioral activity. Ramzan et al. (2023) have claimed that social media is a behavior entity that supports ESL learning. Ramzan et al. (2023) have given views that social media is a behavioral trigger for motivation. Ramzan et al. (2023) have also suggested the role of sustainable development goals. Chen and Ramzan

(2024) expressed the motivation in social media and Ramzan and Alahmadi (2024) explained the syntax role in behavior.

Material/Subjects and Methods

The sample is comprised of 200 caregivers/parents of children with autism spectrum disorder, taken from different government and private Rehab Centers of special education located in city of Pakistan, Lahore. Purposive sampling technique is used in the study to collect data from the participants between ages of 25 to 45 with qualification level from metric to masters. All participants were females who spent at least 8 hours with a diagnosed child. Mean age of the participants was 35.5(6.31). Education of mostly participants was intermediate (88 participants) because of which assessment tools were translated in Urdu language for the better understanding of participants.

Three assessment measures were used in this study including Autism Parenting Stress Index, The Emotional Contagion Scale and The Behavioral Activation for Depression Scale (BADS). Autism parenting stress index consists of 12 items, developed by two researchers named Silva and Shalick was used to indicate the factors and level of stress in parents of children with ASD. The overall reliability of the Autism Parenting Scale Index was a= .50. Internal consistency of this test is also acceptable for the parents of children with Autism Spectrums Disorder and many other neurodevelopmental disorders (Silva, 2011). Revised version of The Emotional Contagion Scale Doherty based on 15 items was used to measure tendency to catch and experience emotions from others. It consists of items that assess the extent to which individuals are influenced by emotions of other people and intensity of their emotional

responses. Through these 15 items, self-reported researchers measure the differences of emotions in a wide range of people. Reliability of this scale is a= .85 (Doherty., 1997).

The Behavioural Activation for Depression Scale (BADS) developed by Kanter et al., in (2007) was used to see changes in behavior because of depression. This scale examined the changes in areas of activation, impairment in social life, impairment in work or school and avoidance or rumination. This scale has both short and long versions. The short version of BADS consists of 9 items used in current research. According to current research the alpha coefficient of this scale was a=.94 (Manos et al.,, 2011).

An authority letter was obtained from the university to begin the research. The letter authenticated the researcher's identity and topic of the research which was later presented to the institute/ organization to collect data. The researcher identified the inclusion and exclusion criteria, and ensured the confidentiality of all the information obtained. The purpose of the research was explained by researchers and data was collected after taking formal consent from the institute and participants of this study. Participants were provided Demographic Form, Autism Parenting Scale, The Emotion Contagion Scale and The Behavioural Activation for Depression Scale.

Results

Table 1

Pearson Product Correlation among variables of Autism Parenting Stress, Emotion Contagion and Behavioral Activation of Depression (N=200)

Variables	M	SD	1	2	3
1. Autism Parenting Stress	27.27	3.8	-		
2. Emotion Contagion	30.26	8.3	.41**	-	
3. Behavioural Activation of Depression	23.52	12.9	-.14*	-.49**	-

Note. **=p<0.01, *=p<0.05, N = total no. of participants, M = mean, SD = standard deviation

Table 1 indicated that the emotional contagion has a positive relationship with the autism parenting stress. Whereas behavioral activation for depression has a negative relationship with autism parenting Stress as well as behavioral activation has a negative relationship with emotional contagion. The results indicated that if autism parenting stress increases, emotional contagion also increases and if autism parenting stress decreases, emotional contagion also decreases. It also showed that if emotional contagion increased behavioral activation for depression decreased and vice versa. It also suggested that if behavioral activation for depression increased autism parenting stress decreased and vice versa.

Table 2

Predictors of Behavioral Activation of Depression (N=200)

	Behavioral Activation of Depression			
	Model			
Variables	B	β	SE	95% C.I
Constant	41.15***		5.71	29.84-52.38
Autism Parenting Stress	.29.	.07**	.22	.25-.22
Emotion Contagion	.-.81	-.52**	.10	-.81-.10
R^2	.24			

ΔR^2

Note. *p**<.05, *p***<.01, *p****<.001, N= total no. of participants, B= Unstandardized Regression Coefficient, β= Standard Regression Coefficient, ΔR^2=Change in R^2, CI= Confidence Interval.

Table 2 shows the effects of autism parenting stress and emotional contagion on behavioral activation for depression. The R^2 value revealed that the predictors explained 20% variance in the outcome variable. The findings revealed that autism parenting stress non-significantly predicted behavior activation for depression whereas emotion contagion has significant effect on behavior activation for depression.

Table 3

Mediating effect of Emotional Contagion (N=200)

Variables	*β*	*SE*	*T*	*p*	*95% CI*	
					LL	*UL*
TAPSI→TEQS	.17	.13	6.46	<.001***	.62	1.17
TEQS→TBADS	-.24	.10	-7.72	<.001***	-1.02	-.60
TAPSI→TBADS	-.02	.23	-2.01	<.05**	-.93	-.00
Effect						
Direct	.25	.22	1.14	>.05	-.18	.70
Indirect	-.73	.18			-1.13	-.43
Total	-.47	.23	-2.01	<.05**	-.93	-.00

Note. *p**<.05, *p***<.01, *p****<.001, TAPSI= total of autism parenting stress index, TEQS=total of emotional contagion scale, TBADS=total of behavioral activation for depression.

Emerged Model of Study

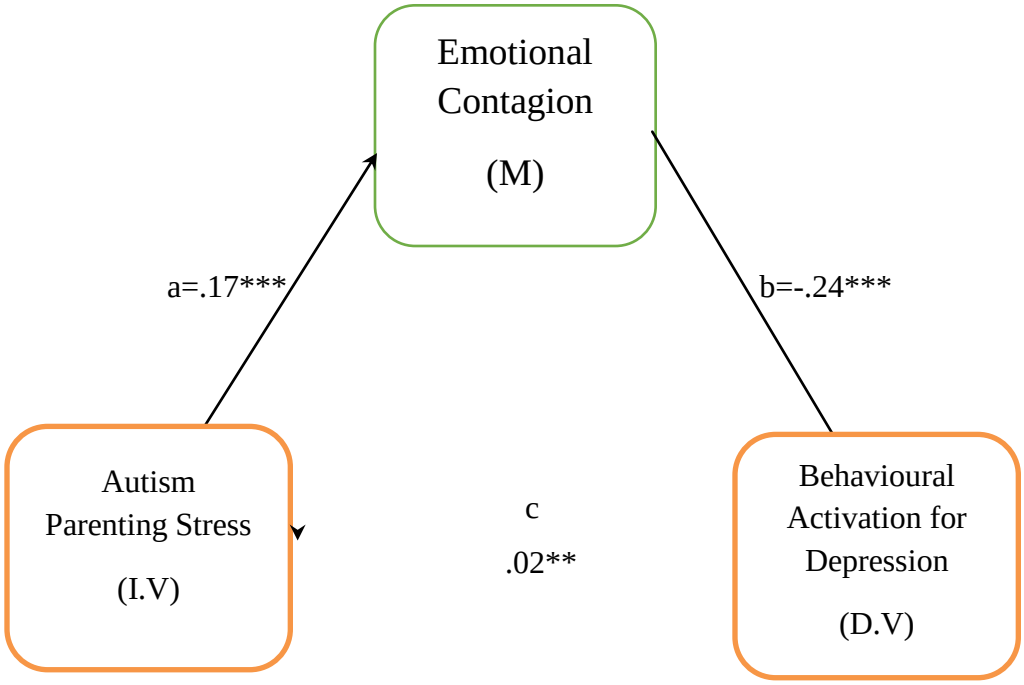

Figure 1: showing results of PROCESS when hypothesis model was tested, with rejection sensitivity as mediator between appearance anxiety and loneliness.

Note. a=path a, b=path b and c=path c.

Table 3 showed that autism parenting Stress was a significant predictor of behavioral activation for depression, which means if stress increases, behavioral activation in caregivers reduces. Next, while controlling the emotional contagion, the result showed that autism parenting stress was a significant predictor of behavioral activation for depression. The result of the indirect effect based on 200 bootstrap samples shows a significant indirect negative relationship between autism parenting stress and behavioral activation for depression mediated by emotional contagion. The mediator emotional contagion accounted for approximately 50% of

the total effect on behavioral activation for depression. On the other hand, there was no statistically significant direct effect between autism parenting stress and behavioral activation on depression.

Discussion

The study discussed the relationship between the variables: Autism Parenting Stress, Emotional Contagion and Behavioral Activation for Depression in caregivers of Autism Spectrum Disorder. This study also intended to examine how Autism Parenting Stress and Emotional Contagion predict Behavioral Activation of Depression in caregivers of Autism Spectrum Disorder. This chapter wraps up the entire study by evaluating the most recent research results.

It was hypothesized that there will be a negative relationship between autism parenting stress and behavioral Activation in caregivers of children with Autism Spectrum Disorder. According to this hypothesis caregivers who face extreme stress over the period of time due to the parenting of a child with Autism Spectrum Disorder are likely to develop depression which leads to reduction in behavioral activation. Findings of this study show that there is a significant negative relationship between Autism Parenting Stress and Behavioral activation for Depression. Participants who face high rates of stress are less behaviorally active due to depressive symptoms. They do not enjoy those activities which at some time were pleasurable for them. They are not able to accomplish their set goals and spend most of their time on thinking over and over about the problems they are facing. They do not engage in activities that are enjoyable. Previous research also supports these findings.

According to the previous research, the high rate of parental stress associated with symptoms of autism leads to poor quality of life, while high quality of treatment leads to comparatively better quality of life. This study suggests the implication of psych education and supportive programs for parents of children with autism spectrum disorder to enhance their quality of life (Papadopoulos et al., 2023). Another previous research conducted in Pakistan supports the connection between stress and depressive symptoms. This research mainly focused on the development of Depressive symptoms orphans face due to psychological and emotional disturbance. This research also explored the impact of depression, stress and anxiety on the decision making power of the orphan. Results show a significant relationship between stress, anxiety, depression and decision making. This study suggests therapeutic programs for the orphans in governmental and non- governmental institutes.

Secondly, it is also suggested to screen depression and provide psychological and metal care to them. This research suggests training programs to manage stress, problem solving skills, coping skills and decision making skills (Shafiq et al., 2020). By keeping the findings and suggestions of this previous research, the current study also suggests screening of depressive symptoms in caregivers of children with Autism Spectrum Disorder and recommend the special education schools to provide them training programs to manage their stress and develop effective parenting styles.

It was also hypothesized that emotional contagion will mediate the relationship between autism parenting stress and behavioral activation for depression. The result of the indirect effect based on 200 bootstrap samples shows a significant indirect negative relationship between autism parenting stress and behavioral activation for depression mediated by emotional

contagion. The mediator emotional contagion accounted for approximately 50% of the total effect on behavioral activation for depression. On the other hand, there was no statistically significant direct effect between autism parenting stress and behavioral activation on depression. These results indicate that caregivers who are more emotionally contagious and absorb negative emotions from their surroundings are more likely to have depressive symptoms which reduce their behavioral activation.

These findings are also supported by previous research; one of which is conducted by Parkison (2011) which says that there are two processes which can lead us to feel the same emotions as another person around us is feeling. One is interpersonal emotion transfer and the other one is emotional contagion. Results of the research shows that people do mimic other people's moments which also includes their emotional expressions. This research highlighted that interpersonal emotional transfer is not directly linked with mimicry, in fact emotional contagion plays the role as mediator to develop link between interpersonal emotion transfer and mimicry. This research suggests more focus on research related to emotional expression and its effect.

Theory of the mirror neuron system proposed by Giacomo Rizzolatti and his colleagues also support these findings. As it suggests that this mirroring mechanism in our brain develops the ability to understand and empathize with the emotions of other people. When we witness other people displaying expressions of emotions, mirror neurons in our brain stimulate those expressions which allow us to understand those emotional states of another person and share it. It highlights that role of mirror neurons to facilitate the unconscious and automatic synchronization of emotions among people, which contribute to spread emotions within social interactions positively and negatively (Rizzolatti & Sinigaglia, 2008) By considering this theory current

research suggests that emotional contagion is a fundamental mechanism which can be used to promote social bandings in positive way and facilitates emotional communication to help the caregiver to cope up from daily life stressors they face while dealing child with Autism Spectrum Disorder.

People in Pakistan have strong expressions of emotions which can affect the mental state of another person but sadly there is not any specific research conducted in Pakistan on the phenomenon of Emotions Contagion. This research on emotion contagion will have several potential benefits for the Pakistani community, as well as for any community in general. It will help to get insights into how emotions spread within social networks and communities. This understanding can help identify patterns of emotional influence and how they impact group dynamics in various settings, such as families, schools, workplaces, and online platforms. This knowledge can be used to foster positive emotional climates and reduce negative emotions in the life of caregivers as well as the overall community.

Conclusion

After summarizing the whole research it is concluded that there is a negative relationship between Autism Parenting Stress and Behavioral Activation, mediated by Emotion contagion. It highlights that caregivers have exposure to negative emotions from their surroundings which develop depressive symptoms in them and reduce their behavioral activation. Researchers suggest the mental health professional do screening of depressive symptoms in caregivers and recommend them to arrange a supportive program for them where they can get exposure to

positive emotions as it will elevate their mood, they will become able to manage their stressors and ultimately their behavioral activation will improve.

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