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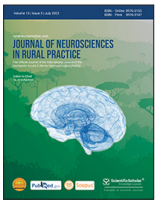

Original Article

Emotion regulation and social responsiveness in adults with autism spectrum disorder

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ABSTRACT

Objectives: This study aimed to find out the relationship between emotion regulation (ER) and its domains with social responsiveness (SR) to investigate ER and its domains as predictors of SR.

Materials and Methods: A sample of 60 male and female adults diagnosed by a professional with autism spectrum disorder (ASD) was studied with ER and its domains of RI or Cognitive Reappraisal, SI or Expressive Suppression and SR as variables. Tools used were Social Responsiveness Scale-2 (Adult, Relative/Other online form) and Emotion Regulation Questionnaire (ERQ).

Results: ERQ domain of Cognitive Reappraisal or RI was found to be negatively correlated with Social Responsiveness or SR but positively correlated with Expressive Suppression or SI domain with Pearson's r value of −0.662 for RI and of 0.275 for SI. Furthermore, RI and SI variables were found to be significantly negatively correlated with each other. Multiple regression analysis results showed R to be 0.666 and predictor variables explained 44.4% of the variance in the data since R square was found to be 0.444. The model was found to be a significant predictor of the variable SR, $F(2, 57) = 22.76$, $P = 0.000$.

Conclusion: The present study found that ASD adults with high or good SR engage in less cognitive reappraisal (RI) ER strategy and more in expressive suppression (SI) strategy of ER. Multiple regression analysis results suggest a good and strong relationship suggesting our model is a relatively good predictor of the outcome.

Keywords: Emotion regulation, Adults, Autism spectrum disorder, Social responsiveness

INTRODUCTION

Autism spectrum disorder (ASD) is a disorder that is neurodevelopmental in nature which highlights deficits in social skills, communication and includes repetitive patterns of behaviors. In the present study, adults diagnosed with ASD were chosen over children as a considerable amount of work has been done with children with ASD but there is still paucity of studies on adults with ASD especially with focus on the current variables of emotion regulation (ER) and social responsiveness (SR). ER has been defined as a process in which to accomplish one's goals, external and internal processes are involved for observing, evaluating, and altering emotional reactions, especially with regard to their in-depth and mundane features.[1] ASD comprises of difficulties in social relationships and ER. ER has importance in the realm of mental health, general well-being, social skills, decision-making, and financial success but there have been limited scientific investigations done on this variable in adults with ASDs. Social knowledge in which decisions related to social aspects are implied have been considered as a possible reason of changes in ER in autism.[2] Another important variable that is explored in the present study is SR. There is dire need of more studies exploring the relation of SR and autism. The previous studies have highlighted the role of SR in parents and risk of ASD in children showing that there is part of heredity influences in inherited ASD vulnerability in successive generations.[3] SR can be termed as an individual's duty to give to the welfare and advancement of others in society. A person's responsibility to serve their community or country in a manner that makes the quality of life and surroundings better for those around them. The present study is centered on the influence of these two variables on adults with ASD. The current paper focus on the two main objectives of:

- To find out the relationship between the domains of ER and SR
- To investigate the domains of ER as predictors of SR.

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MATERIALS AND METHODS

The study comprised a data of 60 males and females clinically diagnosed with ASD (n = 60). Participants who fulfilled the criteria of being a typical ASD subject according to the diagnostic criteria of the Diagnostic and Statistical Manual of Mental Disorders[4] were only taken. Their diagnosis was confirmed by reports from consultant psychologists who evaluated all these participants. Participants of both gender (male and female) with ASD were divided according to severity into the three sub categories of mild (21), moderate (21) and high functioning (18). The two variables, ER with SR were examined from October 2021 to February 2022 over a period of 7 months on the participants. Consent forms along with personal information form were first filled by the participant's caretakers followed by Social Responsiveness Scale-2 (SRS-2). Adult online forms and Emotion Regulation Questionnaire (ERQ).

Tools

SRS-2

SRS-2 Adult, Relative/Other report online form (SRS-2) developed by John Constantino and Gruber was utilized for the current study.[5,6] The SRS-2 scale is an established autism evaluation scale which offers ease for a screener as well as robustness of a diagnostic instrument. The SRS-2 Adult online form (Relative/Other) takes 15 min to 20 min for completion and assesses social deficits related with ASD as well as measures its severity.[7]

ERQ

Another tool used in the present study was the Emotion Regulation Questionnaire or ERQ[8] is a 10-item measure that evaluates two significant ER ways, that is, of cognitive reappraisal and expressive suppression. Participant's use of reappraisal was assessed by six items and four items measured the participant's use of suppression. Responses were given by participants to each item on a 7-point Likert scale ranging from 1 = strongly disagree and 7 = strongly agree. Statistical Package for the Social Sciences 22.0[9] was used to do the statistical analysis. A spread sheet was then used to tabulate the input data which was verified for errors.

RESULTS

The present study results showed that ERQ domain Cognitive Reappraisal (RI) was negatively correlated with SR but positively correlated with Expressive Suppression (SI). In the present study the descriptive statistics in [Table 1] show mean and SD scores of SR, RI and SI with SR scores being the highest, followed by RI and SI being the lowest. [Table 2] indicates that with the help of Pearson product moment correlation a Pearson's r value of −0.662 was generated which concludes that when SR increases, the participant's RI decreases. The Pearson's r value of 0.275 was found to be positive, thus it can be concluded that when the amount of SR increases the participant SI rating also increases. Statistically significant correlation was found between SR and RI with a significance value of 0.01 and SR and SI with a significance value of 0.05 level, respectively. [Table 2] shows that RI and SI variables were found to be negatively correlated with each other with r value of −0.303 and were found to be significant at 0.01 level. Thereby showing that as Cognitive Reappraisal increases Expressive suppression will decrease. Multiple regression model in [Table 3] depicts that all four predictors produced $R^2 = 0.666$, $F(2, 57) = 22.76$, $P < 0.000$. Multiple regressions allow us to derive the overall variance of the model and the relative contribution of each of the predictors to the total variance explained. It can be said that our model is a relatively good predictor of the outcome as R was found to be 0.666 thereby depicting a strong relationship. Regression results in [Table 3] shows that the model is a significant predictor of SR, $F(2, 57) = 22.76$, $P = 0.000$ and thus it can be said that the model explained 44.4% of the variance. Results show that while expressive suppression (SI) contributed notably to the model ($B = 0.480$, $P < 0.05$), cognitive reappraisal (RI) did not ($B = -1.944$, $P = 0.04$). Thus, it can be said that as SR scores increase the Cognitive Reappraisal (RI) scores will decrease.

Table 1: Descriptive analysis showing mean and SD scores of SR, SI and RI.

Variable	Mean	SD	*n*
SR	86.6167	20.00855	60
SI	12.4333	3.43149	60
RI	19.2833	6.55380	60

SR: Social responsiveness, RI: Cognitive Reappraisal, SI: Expressive Suppression

Table 2: Correlations.

Variable	SR	RI	SI
SR	1	−0.662**	0.275*
RI		1	−0.303*
SI			1

**Correlation is significant at 0.01level. *Correlation is significant at 0.05 level. SR: Social responsiveness

Table 3: Model regression.

Model	R	R Square	Adjusted R square	Std. error of the estimate
1	0.666[a]	0.444	0.425	15.17865

[a]Predictors: (Constant), SI, RI

DISCUSSION

In this study, the relationship between SR and various potential predictors of ER, that is, RI and SI was examined by conducting Correlation and Multiple Regression Analysis. Results showed SI or Expressive Suppression scores were positively and notably correlated with the criterion variable, that is, Social Responsiveness or SR, indicating that those with higher scores in SI tend to have higher SR. Cognitive reappraisal or RI was negatively correlated with SR, indicating that adults with ASD have poor RI if their SR scores are high as shown in Table 2 results. Thereby further stating that individuals with ASD often engage in poor Cognitive Reappraisal strategy as is also shown in another research by Samson A *et al.*[10] To see whether cognitive reappraisal (RI) and expressive suppression (SI) could significantly predict participant's SR, scores were evaluated by carrying out Multiple Regression Analysis. Table 3 shows results of regression analysis that the model explained 44.4% of the variance. Thus it can be said that the model was a significant predictor of SR, F (2, 57) = 22.76, P = 0.000. Expressive suppression (SI) contributed significantly to the model (B = 0.480, $P < 0.05$), whereas cognitive reappraisal (RI) did not (B = −1.944, P = 0.04). As shown in [Tables 2-4], the SI domain of ERQ had significant positive regression weights, indicating ASD adults with higher scores on this domain were expected to have higher SR, after controlling for the other variables in the model. The RI domain has a significant negative weight, indicating that after accounting for SI scores, those ASD adults with higher SR scores were expected to have lower RI (a suppressor effect).

The study analysis results show that adults with ASD encounter noteworthy difficulties in social realm of relationships and also ER. [Table 5] depicts that social responsiveness has a positive relation and influence on the expressive suppression or SI domain of ERQ variable. One more study on the results of an ER intervention group in young adults with ASD also reported results similar to our study pointing toward the need to have ER interventions can help adults with ASD so that they may have better social experiences in their lives.[10] The results of our study have also been further established by Samson A *et al*. in their study on ER in high functioning and Asperger adults which also indicated that these individuals used RI or cognitive reappraisal less frequently than typically developing individuals.[11] Their study also stated that these individuals used SI or suppression more frequently than typically developing individuals.

Table 4: ANOVAa.

Model		Sum of squares	Df	Mean Square	F	Sig.
1	Regression	10487.877	2	5243.938	22.761	0.000[b]
	Residual	13132.307	57	230.391		
	Total	23620.183	59			

[a]Dependent Variable: SR. [b]Predictors: (Constant), SI, RI

Table 5: Coefficients table.

Model		B	Std. error	Beta	t	Sig.
1	(Constant)	118.127	11.195		10.552	0.000
	RI	−1.944	0.316	−0.637	−6.143	0.000
	SI	0.480	0.604	0.082	0.795	0.430

Limitation and future directions

Although the results of the current study are very encouraging, it cannot be overlooked that only a small number of participants belonging only to high functioning, mild and moderate categories were taken and severe category ASD participants were excluded, which may restrict the generalizability of the results. Second, in this study, only domains of ERQ questionnaire[8] have been looked at pointing towards the need to have more studies on these variables using diverse tools. Although this study is an important effort focused at filling the current literature gap associated with the impact of the domains of ER and SR on adults with ASD, it may not be completely conclusive in nature. Future studies are required in which aim at studying the polarity of ASD adults on the basis of their diverse economic, social backgrounds using variables such as SR and ER can be done further and thus give directions to future research on these novel variables in the field of adults with ASD.

CONCLUSION

This study highlights the relation and effect of ER and SR in adults with ASD. It also further contributes to the understanding of basis why adults with ASD are likely to have poor SR in a difficult situation and it also gives us significant insight about the inability to use Cognitive Reappraisal strategy to regulate emotions efficiently causes more problems for these individuals. However, future research directions are proposed to understand the lives and problems of adults with ASD on these variables. Interventions focusing on improving SR and ER strategies especially with focus on improving these sub domains may prove to be useful to these individuals which, in turn, will make their day to day lives easier and healthier. Thus, this study helps fill in the gap in this area of study and also analyzes the impact of ER and SR among adults with ASD.

Declaration of patient consent

After the study was approved by the Institutional Ethics Committee, consent forms along with personal information form were first filled by the participant's caretakers followed by Social Responsiveness Scale-2 (SRS-2) and Emotion Regulation Questionnaire (ERQ).

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Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Thompson RA. Emotion regulation: A theme in search of definition. Monogr Soc Res Child Dev 1994;59:25-52.
2. Mazefsky C, Herrington J, Siegel M, Scarpa A, Maddox BB, Scahill L, *et al*. The role of emotion regulation in autism spectrum disorder. J Am Acad Child Adolescent Psychiatry 2013;52:679-88.
3. Lyall K, Constantino J, Weisskopf M, Roberts A, Ascherio A, Santangelo S. Parental social responsiveness and risk of autism spectrum disorder in offspring. JAMA Psychiatry 2014;71:936-42.
4. Vahia V. Diagnostic and statistical manual of mental disorders 5: A quick glance. Indian J Psychiatry 2013;55:220-3.
5. Constantino J. 2012. Available from: https://www.wpspublish.com/srs-2-social-responsiveness-scale-second-edition [Last accessed on 2022 Jan 5].
6. Constantino JN, Gruber CP. Social Responsiveness Scale (SRS). Los Angeles, CA: Western Psychological Services; 2005.
7. Payakachat N, Tilford J, Kovacs E, Kuhlthau K. Autism spectrum disorders: A review of measures for clinical, health services and cost-effectiveness applications. Expert Rev Pharmacoecon Outcomes Res 2012;12:485-503.
8. John G. Emotion Regulation Questionnaire (ERQ). Available from: https://www.ocf.berkley.edu [Last accessed on 2021 Dec 01].
9. Ibm.com. 2022 Available from: https://www.ibm.com/support/pages/how-cite-ibm-spss-statistics-or-earlier-versions-spss [Last accessed on 2021 Jan 09].
10. Samson A, Huber O, Gross J. Emotion regulation in Asperger's syndrome and high-functioning autism. Emotion 2012;12:659-65.
11. Hartmann K, Urbano M, Raffaele C, Kreiser NL, Williams TV, Qualls LR, *et al*. Outcomes of an emotion regulation intervention group in young adults with autism spectrum disorder. Bull Menninger Clin 2019;83:259-77.

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