

Original Research Article

Cognitive emotion regulation in unaffected offspring of schizophrenic patients

Sudhir Kumar, Anil Gaur, Sandhyarani Mohanty*

Department of Psychiatry, Institute of Mental Health and Hospital, Agra, Uttar Pradesh, India

Received: 01 August 2017

Accepted: 28 August 2017

*Correspondence:

Dr. Sandhyarani Mohanty,

E-mail: mohanty.imhh@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: Schizophrenic patients are reported to use 'suppression' strategy for emotion regulation. Milder levels of psychological issues are observed in first degree relatives of patients with schizophrenia. In this study, we examined usage of cognitive emotion regulation strategies associated with negative emotions in offspring of schizophrenic patients.

Method: 20 schizophrenic patients and 20 their offspring were sampled. Cognitive emotion regulation questionnaire and depression, stress, anxiety scales were administered on each participant.

Results: The results revealed greater usage of adaptive emotion regulation strategies by offspring and negative strategy by schizophrenic patients. However, under conditions of negative emotions, there is significant reduction in the usage of adaptive coping emotion regulation strategy in the offspring.

Conclusion: The results implicate need for strengthening adaptive coping mechanisms under vulnerable conditions of emotional turmoil.

Keywords: Emotion regulation, First degree relatives of schizophrenics, Negative emotions, Schizophrenia

INTRODUCTION

Conscious or unconscious processes that are used to manipulate emotional experience and expression of emotions are considered as emotion regulation strategies.¹ The strategies adopted for emotion regulation influence how emotions are experienced and even indicate well-being as well as interpersonal functioning.² Emotion regulation strategies can be grouped into two types: (a) antecedent-focused strategies (b) response-focused strategies.

In antecedent-focused strategies, attempts are made to modulate an emotion in an early stage of the emotion generation process prior to actual response. Response-focused strategies modulate an emotion when a response is generated.¹ Reappraisal is an antecedent focused strategy and suppression is a form of response focused

emotional regulation strategy.¹ In reappraisal, a person reinterprets the objects and situations that elicit an emotional experience. In suppression, a person attempts to inhibit expression of an emotion which has already been generated and being experienced.

Cognitive emotion regulation refers to "the conscious, cognitive way of handling the intake of emotionally arousing information" and forms a part of various strategies of emotion regulation which mean "all the extrinsic and intrinsic processes responsible for monitoring, evaluating, and modifying emotional reactions, especially their intensive and temporal features".³⁻⁶

Schizophrenic patients use more 'suppression' strategy to regulate their emotions.^{7,8} 'Suppression' inhibits ability to recognize experienced emotion which adds to

maladaptive appraisal.⁹ An accurate recognition of experienced emotion facilitate effective regulation of emotions.^{10,11}

Vulnerability to schizophrenia is heritable to some extent, hence, relatives specifically first-degree relatives are at higher risk of developing psychiatric disorders.¹² The chances of development of schizophrenia in siblings of affected persons are up to 10 times higher than the general population.¹³ Researches demonstrated that milder forms of brain abnormalities exist in healthy relatives of persons with schizophrenia.¹⁴ At psychological level, the unaffected relatives of persons with schizophrenia have some degree of deficits in emotional and cognitive processing.^{12,15-17} These researches suggest that unaffected relatives of persons with schizophrenia have some similar type of phenotypes of the disorder.

An examination of cognitive regulation strategies in unaffected offspring of persons with schizophrenia would provide an insight into the nature of emotion regulation strategies being employed by them for processing negative emotions. Maladaptive strategies would add to their stress level and a risk for developing psychiatric disorders.

METHODS

A total of 40 participants; 20 persons with schizophrenia and 20 their unaffected offspring were sampled from Institute of Mental Health and Hospital, Agra (IMHH).

IMHH is a tertiary care psychiatric hospital with an inpatient facility for 838 patients and daily OPD services. The sample was drawn from patients attending in OPD. Informed consent was sought from both the patients and the offspring. Persons with major comorbid physical and mental disorders including intellectual disability were not included.

Diagnosis of schizophrenia was determined by consultant psychiatrist using ICD-10 classification of mental and behavioural disorders. Offspring were screened through General health questionnaire-12 with a cutoff point of two.¹⁸ Mean age of the patients was 45.45 (s.d.= 6.39) years and mean age of offspring was 22.80 (s.d.= 2.01) years. Mean duration of illness in patients was 9.2 (s.d.= 6.57) years.

The mean age of onset of schizophrenic illness was 36.35 (s.d.= 7.97) years. There were equal number of male (n=10) and female (n=10) in both groups. 6 patients and offsprings were from rural area and 14 were from urban area.

Measures

Following two measures were used on all the participants.

Negative emotions

Depression, Stress, Anxiety Scales (DASS) developed by Loviband and Loviband was used for assessing negative emotions.¹⁹ It is a 42 items self-report measure. Each of three areas consists of 14 items. Brown et al studied psychometric properties of DASS in clinical sample and it was found to be reliable and valid for the purpose.²⁰ Rowland et al used DASS in a sample of schizophrenia and bipolar disorder patients.²¹

Cognitive emotion regulation:

Cognitive Emotion Regulation Questionnaire (CERQ) is a 36 item self-report measure developed by Garnefski, Kraaij and Spinhoven which consists of following 09 conceptually distinct domains.

- Self-blame
- Other blame
- Rumination
- Catastrophizing
- Putting into perspective
- Positive refocusing
- Positive reappraisal
- Acceptance and
- Planning.²²

Each of these strategies consists of 04 items rated on a 5-point Likert scale ranging from 1 (almost never) to 5 (almost always). Higher score implies that the particular cognitive strategy is often being used by the subject. The authors reported satisfactory reliability and validity for the measure.

RESULTS

Table 1 reveals that offspring have following significantly greater adaptive cognitive emotion regulation strategies:

- Positive refocusing
- Refocus on planning
- Positive reappraisal
- Putting into perspective.

Acceptance strategies are equal in two groups. In maladaptive regulation strategies, Other Blame is significantly greater in schizophrenic patients than offspring. Remaining three maladaptive regulation strategies namely rumination, catastrophizing and self-blame are equal in two groups.

Table 2 indicates that three DASS dimensions are significantly greater in schizophrenic patients compared to their offspring.

Table 3 presents association of cognitive emotion regulation strategies with three types of negative

emotions depression, stress and anxiety. The patients group have positive association of maladaptive emotion regulation strategies with three emotional states and negative association with adaptive regulation strategies specifically positive association between rumination and

depression, negative association between putting into perspective and stress, negative association between positive reappraisal and anxiety and positive association between catastrophizing, other blame and anxiety.

Table 1: mean comparison of CERQ dimensions in schizophrenic patients and offspring.

CERQ dimensions	Groupings	N	Mean	SD	t-value
Acceptance	Schizophrenic patients	20	9.65	2.60	1.05
	Offspring	20	10.45	2.16	
Positive refocusing	Schizophrenic patients	20	6.65	2.60	4.70**
	Offspring	20	10.30	2.29	
Refocus on planning	Schizophrenic patients	20	5.10	1.48	10.34**
	Offspring	20	13.40	3.26	
Positive reappraisal	Schizophrenic patients	20	6.25	1.25	5.70**
	Offspring	20	11.05	3.54	
Putting into perspective	Schizophrenic patients	20	7.50	2.39	3.27**
	Offspring	20	10.05	2.52	
Rumination	Schizophrenic patients	20	8.20	3.75	2.00
	Offspring	20	10.30	2.81	
Catastrophizing	Schizophrenic patients	20	10.90	3.89	1.76
	Offspring	20	8.80	3.63	
Self-blame	Schizophrenic patients	20	6.40	3.18	.62
	Offspring	20	5.85	2.27	
Other blame	Schizophrenic patients	20	9.10	4.59	2.22*
	Offspring	20	6.35	3.08	

**significant at .01 level; *significant at .05 level

Table 2: Mean comparison of DASS dimensions in schizophrenic patients and offspring.

DASS dimensions	Groupings	N	Mean	SD	t-values
Depression	Schizophrenic patients	20	23.00	6.71	6.60**
	Offspring	20	6.90	8.58	
Stress	Schizophrenic patients	20	17.35	7.52	3.99**
	Offspring	20	8.60	6.25	
Anxiety	Schizophrenic patients	20	7.90	4.02	6.62**
	Offspring	20	1.50	1.57	

**significant at .01 level

Table 3: Correlation coefficients between CERQ and DASS dimensions.

CERQ dimensions	DASS: depression		DASS: stress		DASS: anxiety	
	Schiz	Offspring	Schiz	Offspring	Schiz	Offspring
Acceptance	0.202	0.221	-0.176	0.057	-0.200	0.333
Positive refocusing	0.078	-0.641**	-0.198	-0.754**	-0.014	-0.627**
Refocus on planning	-0.016	-0.409	-0.362	-0.675**	-0.377	-0.420
Positive reappraisal	-0.094	-0.515*	-0.418	-0.564**	-0.611**	-0.278
Putting into perspective	-0.141	-0.534*	-0.448*	-0.392	-0.218	-0.298
Rumination	0.481*	0.171	-0.114	0.043	0.364	-0.012
Catastrophizing	0.429	0.680**	0.127	0.702**	446*	0.764**
Self-blame	0.071	-0.090	-0.270	0.044	-0.411	0.007
Other blame	0.285	0.105	0.292	0.223	0.569**	0.005

**significant at .01 level; *significant at .05 level

A similar pattern of negative association of adaptive emotion regulation strategies and positive association of maladaptive emotion regulation strategies with negative emotions were observed in offspring. Specifically, (a) negative association between positive refocusing, positive reappraisal, Putting into Perspective and depression; (b) positive association between catastrophizing and depression; (c) negative association between positive refocusing, refocus on planning, positive reappraisal and stress; (d) positive association between catastrophizing and stress (e) negative association between positive refocusing and anxiety; and (f) positive association between catastrophizing and anxiety.

DISCUSSION

Offspring of schizophrenic patients do have better adaptive cognitive strategies for regulation of emotions. However, the salient finding is that offspring are similar to schizophrenic patients in adopting maladaptive cognitive strategies for emotion regulation. Given the presence of psychopathology in schizophrenic patients they could have been expected to have significantly greater use of maladaptive emotion regulation strategies. But the patient group was found to have only 'other blame' strategy than the offspring.

A similar pattern of maladaptive emotion regulation strategies in two groups might point out to the cognitive and emotional vulnerability of offspring of schizophrenic patients. This vulnerability may surface under negative emotional states. That is, under stressful conditions, the offspring may tend to adopt maladaptive emotion regulation strategies. This was substantiated by the significant association of 'catastrophizing' strategy and three negative emotional states: depression, anxiety and stress in offspring of the patients. In 'catastrophizing' a person contemplates a negative experience as awful and feel that it exceeds the resources available for coping. This is a form of cognitive distortion which is usually associated with anxiousness and worry.

In addition to a shift to maladaptive coping strategies, the offspring are also observed to show an inverse relationship between adaptive coping strategies and negative emotional states. Their ability to deal with stressful conditions with adaptive coping showed a decline as reflected in negative correlation between negative emotional states and adaptive coping. This pattern of coping strategies reflects that offspring tend to remain more or less stable by using adaptive emotion regulation strategies under non-stressful conditions but drift to maladaptive modes when faced with negative emotional states. This observation points out to the vulnerability of offspring. The findings are supported by the observations of Wout V et al, Phillips and Seidman, Keshavan et al, Sitskoorn et al who also reported deficits in emotional and cognitive processing in relatives of the patients with schizophrenia.¹⁵⁻¹⁷ van der Meer et al, observed that schizophrenic patients and their siblings

were having greater negative affect ratings compared to control group.²³ Both schizophrenic patients and their siblings were observed to have decreased activation in the left Ventrolateral prefrontal cortex (VLPFC) during usage of reappraisal strategy for negative emotional stimuli when compared to healthy control group. They implied that difficulties in recruiting the prefrontal cortex (PFC) for affect regulation might be a vulnerability marker for the development of pathological symptoms.

The observations in the present study indicate a need for support for strengthening their usage of coping strategies which can be attained through appropriate cognitive intervention. They should be trained to invoke adaptive emotion regulation strategies when faced with stressful and negative emotional experiences. The adaptive resources are already available with them. A specific cognitive training will equip them to minimize 'catastrophizing' and use of other adaptive cognitive emotion regulation strategies. A solution focused approach; and acceptance and commitment approach could prove to be quite effective in such scenario.

CONCLUSION

The results of the present study suggest that offspring of schizophrenic patients do have positive resources available to them for cognitive regulation of emotions. But at the same time, they are vulnerable to drift not only to maladaptive modes of cognitive emotion regulation when exposed to negative emotional states; but also tend to have a collapse of adaptive resources. This pattern of regulation might indicate an emotional vulnerability in offspring which suggest need for cognitive training of offspring in dealing with negative emotional states. The cognitive-affective aspects of the offspring of schizophrenic patients received less attention by the researchers. The results of the present study further point out to the need for more researches in this population given the observations that offspring are 'at risk' of developing psychiatric problems more than the general population. Future studies will give more insight into cognitive and affective vulnerability of the offspring of schizophrenic patients.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Gross JJ. Antecedent and response focused emotion regulation: Divergent consequences for experience, expression, and physiology. *J Pers Soc Psychol.* 1998;74:224-37.
2. Gross JJ, John OP. Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *J Pers Soc Psychol.* 2003;85:348-62.

3. Garnefski N, Kraaij V, Spinhoven P. Negative life events, cognitive emotion regulation and depression. *Pers Individ Dif.* 2001;30:1311-27.
4. Thompson RA. Emotional regulation and emotional development. *Educ Psychol Rev.* 1991;3:269-307.
5. Gross JJ. Emotion regulation: past, present, future. *Cogn Emot.* 1999;13:551-73.
6. Thompson RA. Emotional regulation: a theme in search for definition. *Monographs of the Society for Research in Child Development.* 1994;59:25-52.
7. Ellgring H, Smith M, Flack WF, Laird JD. Affect regulation during psychosis. *Emotions in psychopathology: theory and research.* New York: Oxford University Press; 1998;323-35.
8. Henry JD, Green MJ, De Lucia A, Restuccia C, McDonald S, O'Donnell M. Emotion dysregulation in schizophrenia: Reduced amplification of emotional expression is associated with emotional blunting. *Schizophr Res.* 2007;95:197-204.
9. van der Meer L, van't Wout M, Aleman A. Emotion regulation strategies in patients with schizophrenia. *Psychiatry Res.* 2009;170:108-13.
10. Philippot P, Baeyens C, Douilliez C. Specifying emotional information: regulation of emotional intensity via executive processes. *Emotion.* 2006;6:560-71.
11. van Rijn S, Schothorst P, Wout MVT, Sprong M., Ziermans T, van Engeland H, et al. Affective dysfunctions in adolescents at risk for psychosis: Emotion awareness and social functioning. *Psychiatry Res.* 2011;187:100-5.
12. Phillips LK, Seidman LJ. Emotion processing in persons at risk for schizophrenia. *Schizophr Bull.* 2008;34:888-9003.
13. Gottesman II. Psychopathology through a life span-genetic prism. *Am Psychol.* 2001;56:867-78.
14. Boos HB, Aleman A, Cahn W, Hulshoff PH, Kahn RS. Brain volumes in relatives of patients with schizophrenia: a meta-analysis. *Arch Gen Psych.* 2007;64:297-304.
15. van't Wout M, Aleman A, Bermond B, Kahn RS. No words for feelings: Alexithymia in schizophrenia patients and first-degree relatives. *Compr Psych.* 2007;48:27-33.
16. Keshavan MS, Kulkarni S, Bhojraj T, Francis A, Diwadkar V. Premorbid cognitive deficits in young relatives of schizophrenia patients. *Front Hum Neurosci.* 2010;3:62.
17. Sitskoorn MM, Aleman A, Ebisch SJ, Appels MC, Kahn RS. Cognitive deficits in relatives of patients with schizophrenia: A meta-analysis. *Schizophr Res.* 2004;71:285-95.
18. Goldberg DP, Williams P. A user's guide to the General Health Questionnaire. Windsor, Berks: NFER-Nelson; 1988.
19. Lovibond PF, Lovibond SH. The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck depression and anxiety inventories. *Behav Res Ther.* 1995;33:335-42.
20. Brown TA, Chorpita BF, Korotitsch W, Barlow DH. Psychometric properties of the Depression Anxiety Stress Scales (DASS) in clinical samples. *Behav Res Ther.* 1997;35:7989.
21. Rowland JE, Hamilton MK, Lino BJ, Ly P, Denny K, Hwang EJ, et al. Cognitive regulation of negative affect in schizophrenia and bipolar disorder. *Psychiatry Res.* 2013;30:218.
22. Garnefski N, Kraaij V, Spinhoven P. Manual for the use of the cognitive emotion regulation questionnaire. Leiderdorp, The Netherlands: DATEC; 2002.
23. van der Meer L, Swart M, van der Velde J, Pijnenborg G, Wiersma D, et al. Neural correlates of emotion regulation in patients with schizophrenia and non-affected siblings. *PLoS One.* 2014;9(6):e99667.

Cite this article as: Kumar S, Gaur A, Mohanty S. Cognitive emotion regulation in unaffected offspring of schizophrenic patients. *Int J Res Med Sci* 2017;5:4497-501.