RESEARCH

Personality traits and problem solving ability among mentally ill offenders

Prashant Srivastava, Shahid Eqbal[1], Manisha Kiran[2], Pradeep Kumar[3], Praful Kumar[4], Sujit Kumar Mishra[5], Amool Ranjan Singh[6]

Junior Research Fellow, Department of Psychiatry, Dr Ram Manohar Lohia Hospital, New Delhi, India

[1]PhD Scholar (Psychiatric Social Work [PSW]), Ranchi Institute of Neuro Psychiatry and Allied Sciences (RINPAS), Ranchi, Jharkhand, India

[2]Associate Professor (PSW), RINPAS, Ranchi, Jharkhand, India

[3]Psychiatric Social Worker, State Institute of Mental Health, Post Graduates Institutes of Medical Sciences, Rohtak, Haryana, India

[4]PhD Scholar (PSW), RINPAS, Ranchi, Jharkhand, India

[5]Psychiatric Social Worker, RINPAS, Ranchi, Jharkhand, India

[6]Professor and Head in Clinical Psychology, RINPAS, Ranchi, Jharkhand, India

Abstract

Background: Mental illness usually comes to notice because of the violation of social expectation and rules. Many mentally disordered offenders processed by the courts receive prison sentences. Mentally ill offenders have significant deficits in problem solving, emotional control, social skills, and behaviour regulation.

Aim: Present study aims to assess personality traits and problem solving abilities among mentally ill offenders.

Method: Thirty mentally ill offenders who have been referred from various prisons to a psychiatric institute have been included purposively as a sample of study. Semi-structured interview schedule along with 16 Personality Factor (16 PF) and Problem Solving Inventory were used for data collection.

Result: Findings suggest that mentally ill offenders have personality traits of emotional instability, assertiveness, impulsivity, restrained, expedient, and suspicious behaviour, and they are more apprehensive, experimenting followed by following self-image and tensed personality.

Srivastava P, Eqbal S, Kiran M, Kumar P, Kumar P, Mishra SK, Singh AR. Personality traits and problem solving ability among mentally ill offenders.Dysphrenia. 2014;5:98-105.

Keywords: Prisons. Criminals. Schizophrenia..

Correspondence: pradeep.meghu@gmail.com

Received on 19 December 2013. Accepted on 30 January 2014.

Introduction

At midyear 2005, more than half of all prison and jail inmates had a mental health problem.[1] Prevalence rate of current and life time major depression, mania, and schizophrenia, and any severe disorder are significantly higher in jail sample. The overall prevalence rates of schizophrenia and affective disorders are 1.24% to 4.52% higher among jail detainees.[2] Mentally ill offenders, when compared with non-mentally ill offenders, seem to be in poor physical health, have experienced high levels of unemployment, have been homeless, have long histories of both prior psychiatric hospitalisations and prior incarcerations, have significant histories of physical and sexual abuse, and the majority has a family member who has been incarcerated. Once incarcerated, they have minimal access to mental health treatment, and are subjected to isolation, confinement, and abuse, often at the hands of less than adequately trained correctional officers. Recent review related to treatment of persons with mental illness in the criminal justice system also highlights these facts.[3] Mentally ill offenders are more likely to attempt and commit suicide than their non-mentally ill counterparts, and are at significant risk of being sexually abused by other inmates. Literature review provides a portrait of the current status of mentally ill offenders. Undoubtedly, attention and resources from both the criminal justice and mental health systems must be devoted to improving the conditions of mentally ill offenders. Their living conditions are dire, and in some cases even barbaric. Mentally ill offenders are constitutionally guaranteed basic mental health treatment.

Studies indicate that this constitutional guarantee is not being adequately fulfilled. More must be done to protect this vulnerable population.[4]

Many factors come into play in determining why a person with mental illness is arrested, rather than taken to a hospital. Studies have reported high rates of violence in people with mental disorder,[5,6] specifically in those who had been treated as psychiatric inpatient previously.[7] Personality characteristic of mentally ill offenders includes impulsivity, schizoid, and disregard for social norms, frustration, dominance behaviour and strong super ego strength.[7] Evidence clearly indicates that individuals whose social cognitive processes are characteristically ineffective are more likely viewed as maladjusted, socially incompetent, or abnormal. Inability to cope effectively with the demands and challenges of daily social life not only impaired social goal attainment but result in untoward negative consequences for the individuals.[8-11]

Social problem solving is the process by which individuals attempt to discover and apply adaptive means of coping with the wide variety of stressful problems encountered in the course of everyday living.[12] There is abundant evidence of an association between social problem solving deficits and psychological distress, physical ill health, substance misuse, hostility and aggression, and mental health problems. Problem solving skills help people to cope better with everyday problems, and then to have better mental and physical health.[13] Problem solving therapy has a solid evidence base for alleviating distress and improving social functioning in people with a range of psychological and health problems. This approach has considerable appeal for both therapists and clients, in that its basic principles are easy to understand, it does not pathologise individuals, and it empowers people to solve those problems that they prioritise.[14] Problem solving deficits have also been associated with carrier criminal behaviour.[15] Offenders are reported to have difficulties with a variety of social problem solving skills such as the ability to take the perspectives of others,[16,17] impulse control,[18] and ability to generate multiple and effective solutions.[19,20]

The principal aim and objectives of the study were to assess the personality traits and problem solving skills of mentally ill offenders.

Method

Sample: The sample consisted of 30 mentally ill offenders (out of 48) referred for treatments between the age group of 20-60 years selected purposively. The diagnosis was made by senior residents/consultants in charge of the outpatient department (OPD). People with history suggesting organic pathology like head injury, seizure, mental retardation, and having psychopathology that interferes in eliciting reliable information such as irrelevant, incoherent speech, formal thought disorder were excluded (18 offenders).

Research design: The study was hospital based cross sectional study. The people fulfilling the aforementioned criteria were recruited after the written informed consent. This study has been approved by ethical committee of Ranchi Instititue of Neuro-Psychiatry and Allied Sciences (RINPAS), Kanke, Ranchi, Jharkhand, India.

Setting: The study was conducted at RINPAS.

Duration of the study: The study was conducted during May 2012 to December 2012.

Tools of the study: To measure the personality factors and problem solving ability, the following tools were used-

16 Personality Factors: 16 Personality Factors Questionnaire was developed by Cattell *et al.*[21] It is available in different forms- A, B, C, D, and E. For present study, form D was used. The test was designed to assess personality traits with individuals aged 16 years and above. The each form of this test measures 16 personality factors of the personality. They are fully independent to each other. The 16 personality factors are Reserved-Outgoing, Less intelligent-More intelligent, Affected by feeling-Emotionally stable, Humble-Assertive, Sober-Happy go lucky, Expedient-Conscientious, Shy-Venturesome, Tough minded-Tender minded, Trusting-Suspicious, Practical-Imaginative, Forthright-Shrewd, Placid-Apprehensive, Conservative-Experimenting, Group dependent-Self sufficient, Undisciplined self-conflict-Controlled, Relaxed-Tense.

Problem Solving Inventory (PSI): PSI was developed by Heppner and Petersen[22] to measure people's perceptions of their personal problem solving behaviours and attitudes. Higher scores indicate assessment of oneself as a relatively ineffective problem solver. An earlier factor analysis revealed that three distinct constructs: Problem solving confidence – 11 items (trust in one's ability to solve new problems), approach-avoidance style – 16 items (active searching for a variety of alternative solutions and reviewing of previous problem solving efforts for future reference), and personal control – five items (ability to maintain self-control in problem situations).

Statistical analysis: Data was analysed using the Statistical Package for the Social Sciences (SPSS) 20 version. Frequency, mean, standard deviation (SD), and Pearson correlation were used for statistical analysis.

Results

Table 1 shows the socio-demographic and clinical characteristics of the respondents. The mean age of the respondents was 31.37 years, and most of the respondents

belonged to age group of 20 to 40 years (93.40%) and 6.60% respondents were in age group of 41 years and above. Among the respondents, majority (60%) belonged to non-tribal ethnicity and rest (40%) hailed from tribal community; most (73.3%) of the respondents belonged to rural area, whereas 26.7% respondents were resident of urban areas. Table 1 shows that 56.7% of the study participants studied up to primary school only, followed by 33.10% high school, and ten per cent illiterates. Among the respondents, 90% were married and only ten per cent were unmarried. In present study, 60% of the respondents reported personal history of substance use. Table 1 shows that majority (53.3%) of the respondents were in prison for zero to two years, followed by 43.3% for two to five years, and 3.3% for more than five years. Among the respondents, majority (43.3%) were suffering from schizophrenia followed by 26.7% bipolar affective disorder , 6.6% acute and transient psychotic disorder, and 23.3% psychosis not otherwise specified (NOS).

Table 2 reveals number of respondents who scored in low, average, and high range on each factors, and compares the number and percentage of participants of this group; score of patients was categorised in low (one to four), average (five to six) and high (seven to ten). Mean ± standard deviation (SD) and mean profile were given to assess the personality traits of mentally ill offenders. This finding reveals that mean ± SD of "A" factor was 5.06 ± 0.94 which shows average personality traits among respondents. In factor "B", mean ± SD score was found 5.43 ± 1.38 which indicates average personality traits in B factor. In present study, factor "C" mean ± SD (4.40 ± 1.40) score indicates that respondents are not emotionally stable and they are affected by their feelings. Similarly, factor "E" mean ± SD (7.00 ± 1.41) score indicates that study population were having dominant personality traits. This finding reveals low score (4.03 ± 1.32) in "F" factor which indicates restrained personality traits. This table shows that the mean score (3.26 ± 1.52) of respondents in factor "G" indicates expedient personality traits. In factor "H", mean ± SD score was found to be 5.26 ± 1.28 which indicates average personality traits in H factor. Similarly in factor "I", mean ± SD score (5.10 ± 1.18) was in average range which indicates average personality traits in I factor. Finding reveals high score (6.50 ± 1.16) in factor "L", which indicates that study population was having suspicious behaviour in personality traits. In factor "M", mean ± SD score was found 5.76 ± 1.47 which indicates average personality traits in M factor. Similarly in factor "N", mean ± SD score (5.56 ± 0.89) was in average range which indicates average personality traits in N factor. In present study, factor "O" mean ± SD score (7.40 ± 1.10) indicates that respondents are apprehensive and they have strong sense of obligation and high expectation of themselves. In

Table 1: Socio-demographic and clinical characteristics of mentally ill offenders

Variables	Level	Frequency (%)
Age	20-40 years	28 (93.4)
	41-60 years	2 (6.6)
Category	Non-tribal	18 (60)
	Tribal	12 (40)
Domicile	Rural	22 (73.3)
	Urban	8 (26.7)
Education	Illiterate	3 (10)
	Primary school	17 (56.7)
	High school	10 (33.3)
Marital status	Unmarried	3 (10)
	Married	27 (90)
SES	Lower	10 (33.3)
	Middle	18 (60)
	High	2 (6.7)
Family type	Nuclear	7 (23.3)
	Joint	23 (76.7)
Occupation	Employed	17 (56.7)
	Unemployed	13 (43.3)
PHSU	Yes	18 (60)
	No	12 (40)
DOSJ	0-2 years	16 (53.3)
	2-5 years	13 (43.3)
	Above 5 years	1 (3.3)
Diagnosis	Schizophrenia	13 (43.3)
	BAD	8 (26.7)
	ATPD	2 (6.6)
	Psychosis NOS	7 (23.3)

SES=socioeconomic status, PHSU=personal history of substance use, DOSJ=duration of stay in jail, BAD=bipolar affective disorder, ATPD=acute and transient psychotic disorder, NOS=not otherwise specified

factor "Q1", low mean ± SD score (3.23 ± 1.10) indicates that study population was having conservative personality traits. They are cautious and compromising with regard to new ideas. In factor "Q2", mean ± SD score (5.20 ± 1.41) was in average range which indicates average personality traits in Q2 factor. But in factor "Q3", mean ± SD score (3.40 ± 1.65) was in low range; it suggests undisciplined self-conflict personality traits. Present study suggests that in factor "Q4", mean ± SD score (7.20 ± 1.88) was in high range. Individuals having these personality traits tend to be tense, restless, fretful, and hard driving.

Table 3 shows the problem solving ability of mentally ill offenders. It was found that problem solving ability of the respondents were poor in all of its domains. In approach-avoidance style, mean ± SD (62.74 + 8.68) score indicates poor ability of the respondents in this domain. This table shows personal control (23.14 + 2.62), problem solving

Table 2: Personality traits of mentally ill offenders on 16 Personality Factors

Factor	Descriptions (Low/High)	Low	Average	High	Mean ± SD	Impression
A	Cool/Warm	6 (20%)	24 (80%)	0 (0%)	5.06 ± 0.94	Average
B	Concrete thinking/ Abstract thinking	5 (16.7%)	19 (63.3%)	6 (20%)	5.43 ± 1.38	Average
C	Affected by feeling/ Emotionally stable	16 (53.3%)	11 (36.7%)	3 (10%)	4.40 ± 1.40	Low
E	Submissive/ Dominant	2 (6.7%)	5 (16.7%)	23 (76.7%)	7.00 ± 1.41	High
F	Sober/Enthusiastic	22 (73.3%)	6 (20%)	2 (6.7%)	4.03 ± 1.32	Low
G	Expedient/ Conscientious	28 (93.3%)	1 (3.3%)	1 (3.3%)	3.26 ± 1.52	Low
H	Shy/Bold	9 (30%)	17 (56.7%)	4 (13.3%)	5.26 ± 1.28	Average
I	Tough minded/ Tender minded	7 (23.3%)	20 (67.7%)	3 (10%)	5.10 ± 1.18	Average
L	Trusting/Suspicious	2 (6.7%)	9 (30%)	19 (63.3%)	6.50 ± 1.16	High
M	Practical/Imaginative	5 (16.7%)	15 (50%)	10 (33.3%)	5.76 ± 1.47	Average
N	Forthright/Shrewd	3 (10%)	22 (73.3%)	5 (16.7%)	5.56 ± 0.89	Average
O	Self-assured/ Apprehensive	5 (16.7%)	25 (83.3%)	0 (0%)	7.40 ± 1.10	High
Q1	Conservative/ Experimenting	28 (93.3%)	1 (3.3%)	1 (3.3%)	3.23 ± 1.10	Low
Q2	Group-oriented/ Self-sufficient	8 (26.7%)	18 (60%)	4 (13.3%)	5.20 ± 1.41	Average
Q3	Undisciplined self-conflict/ Following self-image	26 (86.7%)	2 (6.7%)	2 (6.7%)	3.40 ± 1.65	Low
Q4	Relaxed/Tensed	3 (10%)	6 (20%)	21 (70%)	7.20 ± 1.88	High

SD=standard deviation

confidence (41.54 + 7.21), and total problem solving ability (127.40 + 12.45). These findings indicate poor problem solving ability of the studied population.

Table 4 shows the correlation between 16 Personality Factor and problem solving ability of mentally ill offenders. The positive correlation was found at $p \leq 0.01$ between factor "I" and approach-avoidance style, and factor "I" is also positively correlated with total problem solving ability of the respondents at $p \leq 0.05$ level. Present study also found positive correlation between factor "Q2" and approach-avoidance style. Table 4 also shows that in our study, negative correlation was found at $p \leq 0.05$ level between factor "Q4" and approach-avoidance style.

Table 3: Problem Solving Ability of mentally ill offenders

PSI descriptions	Average range	Obtained mean ± SD score	Impression	Problem solving ability
Approach-avoidance style	35.3 - 56.5	62.74±8.68	High	Poor
Personal control	12.2 - 21.2	23.14±2.62	High	Poor
Problem solving confidence	18.3 – 32.3	41.54 ±7.21	High	Poor
Total problem solving ability	65.8 – 110.0	127.40 ±12.45	High	Poor

PSI=Problem Solving Inventory, SD=standard deviation

Table 4: Correlation matrix of 16 Personality Factor and Problem Solving Inventory (PSI) among mentally ill offenders

16 PF	Approach-avoidance	Personal control	Problem solving confidence	Total PSI
A	0.04	-0.185	0.06	0.024
B	0.257	0.174	0.225	0.346
C	-0.183	-0.23	0.189	-0.067
E	-0.135	0.214	0.21	0.072
F	0.19	-0.021	-0.078	0.083
G	-0.239	0.034	-0.204	-0.277
H	-0.021	0.05	0.114	0.062
I	0.475**	-0.115	0.248	.451*
L	0.17	-0.192	0.348	0.28
M	0.178	0.186	0.035	0.183
N	-0.144	0.128	-0.187	-0.181
O	-0.053	-0.138	0.042	-0.042
Q1	-0.018	-0.094	-0.072	-0.075
Q2	.411*	0.046	-0.071	0.255
Q3	-0.081	0.21	-0.128	-0.087
Q4	-.402*	-0.082	0.071	-0.257

**Correlation is significant at the 0.05 level, **Correlation is significant at the 0.01 level*

PF=Personality Factor, PSI=Problem Solving Inventory

Discussion

Present study has been planned to study the personality traits and problem solving ability among mentally ill offenders. The mean age of respondents was 31.37 years. Rakesh and Masroor[23] reported that most of the prisoners with schizophrenia belonged to age group of 30-40 years and mean age was reported 34.36 years. Similar finding was reported in western studies.[24,25] Few studies also reported that mentally ill offenders were mostly from the age group of below 25 years.[26] Present study revealed 73.3% of the respondents belonged to rural area, where as 26.7% respondents were residing in urban areas. In the study of personality characteristics of criminal schizophrenia patients conducted by Rakesh and Masroor,[23] majority of the respondent hailed from the rural background; they also reported that majority of their sample were married and were self-employed. Present study found that majority of the offenders (56.7%) were educated up to primary school, and most of the respondents (60%) were having personal history of substance use/abuse; similar findings were reported in earlier study.[27-32] Alcohol dependents were found to be high on neuroticism and extraversion.[33] Nehra *et al*.[34] suggested an association among low emotional intelligence, high alexithymia, and cannabis dependence.

In present study, majority of the mentally ill offenders (43.3%) were diagnosed as schizophrenia followed by mood disorder, psychosis NOS, and acute and transient psychotic disorder. It was found that more than 70% of the respondents came under schizophrenia spectrum disorders; this finding is supported by earlier study.[35] Problems in social cognition of schizophrenia patients such as misperceptions and unexpected reactions to and from other people, can adversely affect functioning across different domains.[36] Specific traits potentiate the emergence of particular symptoms and vice versa.[37] In present study, factor "C" score indicated low frustration tolerance for unsatisfactory condition, neurotically fatigued, easily annoyed, and emotional. Previous study shows that in comparison to schizophrenia patients without criminal record, schizophrenia patients with criminal record were significantly emotionally unstable, poor frustration tolerance, and they were easily annoyed.[23,24,38] In present study, factor "E" score indicated that study population was having dominant, aggressive, stubborn, and bossy personality traits. With reference to last three to four decades' research findings from India as well as from western countries, it is well established that schizophrenia patients have higher rates of aggressive and dissocial behaviour.[39-41] There were high correlations of one form of aggression in presence of other forms.[42] Present study findings revealed low score in "F" factor which indicates restrained, pessimistic, and dependable personality traits of the respondents. These findings are well in conformity which earlier was reported by researchers.[43-45] In our study, score of the respondents in factor "G" indicated disregard towards rule, self-indulgent, and expedient personality traits. Persons with this type of personality traits tend to be unsteady in their purpose; could easily involve in antisocial activities. A study of characteristic and behaviour of patients involved in psychiatric ward incidence reported similar findings to present study.[46] Findings also suggested that schizophrenia patients had traits of schizoid personality and paranoia.[47] In both the phenomena of delusions and hallucinations in schizophrenia patients, sociocultural factors played the primary role.[48] In present study, factor "O" score indicated that respondents were apprehensive, and they had strong sense of obligation and high expectation of themselves. In factor "Q1", score indicated that study populations were having conservative personality traits. They were cautious and compromising with regard to new ideas; these findings are similar to previous studies.[49,50] But in factor "Q3", score suggested undisciplined self-conflict personality traits. Previous study shows that schizophrenia patients with criminal record are much unconcern for feeling of others. They disregard social norms, rules, and obligations. They have incapacity to maintain relationships.[23,51,52]

Deficits in social problem solving skills are

associated with a number of emotional and behavioural problems in people of all ages, for example depression and anxiety in adults,[53] hostility in adult,[54] and aggression in children.[55] Poor social problem solving is evident in forensic psychiatric patients. In a study of social problem solving, it has been found that forensic psychiatric patients show dysfunctional scores similar to those of non-forensic psychiatric patients.[56,57] Poor social problem solving ability may lead to criminal behaviours, such as violence, sexual offending, and arson; an offence being a maladaptive attempt to solve personal or interpersonal problems. Social problem solving skills training with offenders shows promise as one of the components of successful rehabilitation programmes for prisoners[58] and personality disordered offenders.[57,59] In present study, it has been found that problem solving ability of the respondents was poor in all of its domains. In approach-avoidance style, score indicated poor ability of the respondents in this domain. Present study findings show that personal control, problem solving confidence, and total problem solving ability; these findings indicate poor ability of the studied population.

Present study result shows significant correlation between 16 Personality Factor and problem solving ability of the respondents. Positive correlation between Factor "I" and approach-avoidance style shows that when personality traits are going towards impatient, demanding of attention, fastidious, etc., there problem solving ability in approach-avoidance style tends to be more worse; similarly factor "I" is also positively correlated with total problem solving ability of the respondents. Present study also found positive correlation between factor "Q2" and approach-avoidance style, which can be explained as personality traits such as open to change, self-oriented, inclined to self-sufficient in life leading to poor performance in approach-avoidance style. In our study, negative correlation was found between factor "Q4" and approach-avoidance style; this can be explained as relaxed, composed, satisfied personality traits leading to poor performance in approach-avoidance style of the respondents. Previous findings[60] also indicate the relationship between personality characteristics and social problem solving skills among mentally ill offenders, and they conclude that various personality characteristics such as negativity, pessimism, impulsivity, and avoidance are significantly associated with offender's social problem solving skills. Similar finding was reported in another study related to problem solving ability and its relationship with the individual's personality traits.[61]

Limitation

Present study assessed and described the personality characteristics and problem solving ability of mentally ill offenders, hence study findings cannot be generalised due to limited sample size. Along with small sample size, only mentally ill offenders' group was studied; the result would have been much broader if study would have included more groups such as general psychiatric patients or criminals without psychiatric morbidity.

Future direction

With present study findings, it can be suggested that similar studies can be carried out with large sample and with comparative group. In future, researchers should try to recruit sample using probability sampling technique for better generalisation. It would be better to conduct intervention study to find out the efficacy of problem solving skills programme in terms of reduction in violent behaviour among mentally ill offenders.

Implication

This study will help the policy makers and professionals, mainly working in psychiatric settings and correctional settings, to deal effectively with people with negative personality traits and poor problem solving ability. Present study will also help the professionals working at school, industrial, or any other field by identifying and assessing people at risk of committing violent behaviour, personality traits, and problem solving ability. Such exercise not only enhances the quality of life and psychosocial functioning of individual, but also helps to achieve the goal of positive mental health.

Conclusion

Mentally ill patient who commits offences have certain personality traits such as emotional instability, dominant and impulsive personality, restrained, expedient, and suspicious behaviour. These offenders easily disregard social norms, rules, and obligations, as well as they have decreased capacity to tolerate frustration; as a result, they tend to be more tensed, anxious. They have poor problem solving ability. Personality traits and problem solving ability are associated with criminal behaviour in mentally ill offenders; identification of relevant personality traits and ability to solve the problems will be helpful in predicting risk of criminal act in mentally ill.

Source of support: Nil. **Declaration of interest**: None.

References

1. James DJ, Glaze LE. Mental health problems of prison and jail inmates. Bureau of Justice Statistics, Special Report, NCJ 213600; 2006.

2. Teplin LA. The prevalence of severe mental disorder among male urban jail detainees: comparison with the Epidemiologic Catchment Area Program. Am J Public Health. 1990;80:663-9.

3. Brandt ALS. Treatment of persons with mental illness in the criminal justice system: a literature review. J Offender Rehabil. 2012;51:541-58.

4. Sarteschi CM. Mentally ill offenders involved with the U.S. Criminal Justice System. SAGE Open [serial online]. Jul 2013;3(3) [cited 2014 Jan 26]. Available from: http://sgo.sagepub.com/content/3/3/2158244013497029

5. Swanson JW, Holzer CE 3rd, Ganju VK, Jono RT. Violence and psychiatric disorder in the community: evidence from the Epidemiologic Catchment Area surveys. Hosp Community Psychiatry. 1990;41:761-70.

6. Stueve A, Link BG. Violence and psychiatric disorders: results from an epidemiological study of young adults in Israel. Psychiatr Q. 1997;68:327-42.

7. Kjelsberg E, Dahl AA. High delinquency, disability and mortality--a register study of former adolescent psychiatric in-patients. Acta Psychiatr Scand. 1998;98:34-40.

8. D'Zurilla TJ, Goldfried MR. Problem solving and behavior modification. J Abnorm Psychol. 1971;78:107-26.

9. Larson KA, Gerber MM. Effects of social metacognitive training for enhancing overt behavior in learning disabled and low achieving delinquents. Except Child. 1987;54:201-11.

10. Larson KA. A research review and alternative hypothesis explaining the link between learning disability and delinquency. J Learn Disabil. 1988;21:357-63, 369.

11. Meijers JJ. Problem-solving therapy with socially anxious children. Amsterdam: Swets & Zeitlinger; 1978.

12. D'Zurilla TJ, Nezu AM. Problem-solving therapy: a positive approach to clinical intervention. 3rd ed. New York: Springer Publishing; 2007.

13. Malouff JM, Thorsteinsson EB, Schutte NS. The efficacy of problem solving therapy in reducing mental and physical health problems: a meta-analysis. Clin Psychol Rev. 2007;27:46-57.

14. McMurran M, Coupe S. Problem solving for personality disorder. The Psychologist [serial online]. Apr 2012;25(4):276-9 [cited 2014 Jan 26]. Available from: http://www.thepsychologist.org.uk/archive/archive_home.cfm?volumeID=25&editionID=212&ArticleID=2043

15. Ross RR, Fabiano E. A time to think: a cognitive model of delinquency prevention and offender rehabilitation. Johnson City, TN: Institute of Social Sciences and Arts; 1985.

16. Chandler MJ. Egocentrism and antisocial behavior: the assessment and training of social perspective-taking skills. Dev Psychol. 1973;9:326-32.

17. Little VL. The relationship of role-taking ability to self control in institutionalized juvenile offenders. Diss Abstr Int. 1979;39:2292B.

18. White SH. Evidence for hierarchical arrangement of learning processes. In: Lisett L, Spiber C, editors. Advances in child development and behaviour 2. New York: Academic Press; 1965.

19. Freedman BJ, Rosenthal L, Donahoe CP Jr, Schlundt DG, McFall RM. A social-behavioral analysis of skill deficits in delinquent and nondelinquent adolescent boys. J Consult Clin Psychol. 1978;46:1448-62.

20. Larson KA. The effect of cognitive training for social competence in learning disabled and non- learning disabled delinquents. Diss Abstr Int. 1985;46:948A.

21. Cattell RB, Eber HW, Tatsuoka MM. Handbook for the sixteen personality factor questionnaire (16 PF). Champaign, IL: Institute for Personality and Ability Testing; 1970.

22. Heppner PP, Petersen CH. The development and implications of a personal problem-solving inventory. J Couns Psychol. 1982;29:66-75.

23. Rakesh KM, Masroor J. Personality characteristics of schizophrenic patients with criminal record. Indian J Clin Psychol. 2004;31:106-11.

24. Eysenck SB, McGurk BJ. Impulsiveness and venturesomeness in a detention center population. Psychol Rep. 1980;47:1299-306.

25. Lindberg N, Laajasalo T, Holi M, Putkonen H, Weizmann-Henelius G, Häkkänen-Nyholm H. Psychopathic traits and offender characteristics - a nationwide consecutive sample of homicidal male adolescents. BMC Psychiatry. 2009;9:18.

26. Lambert EG, Baker DN, Ventura L. A preliminary study of views toward the mentally ill and the criminal justice system: a survey of college students. Journal of Criminology and Criminal Justice Research & Education [serial online]. 2008;2(1):1-9 [cited 2014 Jan 29]. Available from: http://www.scientificjournals.org/journals2008/articles/1407.pdf

27. Skålevåg SA. The matter of forensic psychiatry: a historical enquiry. Med Hist. 2006;50:49-68.

28. Assadi SM, Noroozian M, Pakravannejad M, Yahyazadeh O, Aghayan S, Shariat SV, et al. Psychiatric morbidity among sentenced prisoners: prevalence study in Iran. Br J Psychiatry. 2006;188:159-64.

29. Looman J, Abracen J, DiFazio R, Maillet G. Alcohol and drug abuse among sexual and nonsexual offenders: relationship to intimacy deficits and coping strategy. Sex Abuse. 2004;16:177-89.

30. Palermo GB, Gumz EJ, Liskaq FJ. Mental illness and criminal behavior revisited. Int J Offend Ther Comp Criminol. 1992;36:53-61.

31. Skeem JL, Mulvey EP, Appelbaum P, Banks S, Grisso T, Silver E, et al. Identifying subtypes of civil psychiatric patients at high risk for violence. Crim Justice Behav. 2004;31:392-437.

32. Kuno E, Koizumi N, Rothbard AB, Greenwald J. A service system planning model for individuals with serious mental illness. Ment Health Serv Res. 2005;7:135-44.

33. Hazarika M, Bhagabati D. The role of personality correlates in the pathogenesis of alcoholism: an intergenerational study among alcohol dependent and nondependent population. Dysphrenia. 2014;5:32-48.

34. Nehra DK, Kumar P, Sharma V, Nehra S. Alexithymia and emotional intelligence among people with cannabis dependence and healthy control: a comparative study. Dysphrenia. 2014;5:49-55.

35. Matejkowski JC, Cullen SW, Solomon PL. Characteristics of persons with severe mental illness who have been incarcerated for murder. J Am Acad Psychiatry Law. 2008;36:74-86.

36. Bhandari SS, Aier A, Kumar P. Neurocognitive and social cognitive deficits in schizophrenia. Dysphrenia. 2013;4:106-12.

37. Kumar K, Kumar R, Kaur G, Sindhu B, Sachin. Personality characteristics in the patients of obsessive compulsive disorder. Dysphrenia. 2012;3:144-8.

38. Sethi BB, Gupta SC, Raj AS, Nathawat SS. Rorschach as a measure of psychopathology in murder. Indian J Psychiatry. 1971;13:243.

39. Monahan J. Mental disorder and violence: another look. In: Hodgins S, editor. Mental disorder and crime. Newbury Park, CA: Sage; 1993. p. 287-302.

40. Torrey EE, Taylor E, Bowler A, Gottesman II. Schizophrenia and manic depressive disorder: the biological roots of mental illness as revealed by the landmark study of identical twins. New York: Basic Books; 1994.

41. Wessely SC, Castle D, Douglas AJ, Taylor PJ. The criminal careers of incident cases of schizophrenia. Psychol Med. 1994;24:483-502.

42. Tripathi MN, Phookun HR, Talukdar U, Srivastava AS, Yadav JS. Aggression in psychiatry: impact of family history, substance use, psychiatric history, and dual diagnosis. Dysphrenia. 2014;5:6-11.

43. Rahman A. Psychological factors in criminality. Pers Individ Dif. 1992;13:483-5.

44. Taylor PJ, Gunn J. Violence and psychosis. I. Risk of violence among psychotic men. Br Med J (Clin Res Ed). 1984;288:1945-9.

45. Noble P, Rodger S. Violence by psychiatric in-patients. Br J Psychiatry. 1989;155:384-90.

46. Lee HK, Villar O, Juthani N, Bluestone H. Characteristics and behavior of patients involved in psychiatric ward incidents. Hosp Community Psychiatry. 1989;40:1295-7.

47. Gottesman II, Shields J. Schizophrenia and genetics: a twin study vantage points. New York: Academic Press; 1972.

48. Baruah A, Chaudhury PK. Phenomenological study of thinking and perceptual disorders in schizophrenia. Dysphrenia. 2012;3:158-67.

49. Way BB, Sawyer DA, Lilly SN, Moffitt C, Stapholz BJ. Characteristics of inmates who received a diagnosis of serious mental illness upon entry to New York State prison. Psychiatr Serv. 2008;59:1335-7.

50. Black DW, Gunter T, Loveless P, Allen J, Sieleni B. Antisocial personality disorder in incarcerated offenders: psychiatric comorbidity and quality of life. Ann Clin Psychiatry. 2010;22:113-20.

51. Fountoulakis KN, Leucht S, Kaprinis GS. Personality disorders and violence. Curr Opin Psychiatry. 2008;21:84-92.

52. Megargee EI. Psychological determinants and correlates of criminal violence. In: Wolfgang ME, Weiner NA, editors. Criminal violence. Thousand Oaks, CA: Sage Publications; 1982. p. 81-170.

53. Kant GL, D'Zurilla TJ, Maydeu-Olivares A. Social problem solving as a mediator of stress-related depression and anxiety in middle-aged and elderly community residents. Cognit Ther Res. 1997;21:73-96.

54. Cassidy T, Long C. Problem-solving style, stress and psychological illness: development of a multifactorial measure. Br J Clin Psychol. 1996;35:265-77.

55. Akhtar N, Bradley EJ. Social information processing deficits of aggressive children: present findings and implications for social skills training. Clin Psychol Rev. 1991;11:621-44.

56. D'Zurilla TJ, Nezu AM, Maydeu-Olivares A. Social problem-solving inventory revised. North Tonawanda, NY: Multi-Health Systems; 2002.

57. McMurran M, Egan V, Richardson C, Ahmadi S. Social problem solving in mentally disordered offenders: a brief report. Crim Behav Ment Health. 1999;9:315-22.

58. Ross RR, Fabiano EA, Ross RD. Reasoning and rehabilitation: a handbook for teaching cognitive skills. Ottawa: University of Ottawa; 1986.

59. Hughes G, Hogue T, Hollin C, Champion H. First-stage evaluation of a treatment programme for personality disordered offenders. J Forens Psychiatry Psychol. 1997;8:515-27.

60. McMurran M, Egan V, Blair M, Richardson C. The relationship between social problem-solving and personality in mentally disordered offenders. Pers Individ Dif. 2001;30:517-24.

61. Holland DC, Dollinger SJ, Holland CJ, MacDonald DA. The relationship between psychometric intelligence and the five-factor model of personality in a rehabilitation sample. J Clin Psychol. 1995;51:79-88.