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## A Cross Sectional Study of Prevalence and Correlates of Current and Past Risks in Schizophrenia

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### Abstract

**Background**—The growing burden of chronic often untreated mental illness has increased the importance of risk assessment in people suffering from major mental disorders.

**Aims**—The present study was undertaken to obtain prevalence of various risks and predictive factors for self-harm, violence and various other risks among randomly recruited Schizophrenia subjects (n=270) on the basis of past history of their disorder.

**Method**—Using a rigorous translation, back translation and acceptability process, a specially constructed semi-structured assessment interview, based on a prior NHS Trust risk assessment interview along with the Diagnostic Interview for Genetic Studies, detailed information was obtained for various risks.

**Results**—Risk of violence (historical) was reported among 65.55%, and risk of self-neglect among 53.33%, risk to others (47.41%), risk of coming to harm (24.07%), self-harm (22.59%), risk from others (11.85%), fire risk (2.96%)

Risk of violence (historical) and risk to others was related to ‘ever’ having emotions related to harm and self-harm, ‘current’ emotions related to violence and poor compliance to treatment.

**Conclusion**—Regular risk assessment is essential to assess emotions related to violence and non-adherence to treatment. Assessment of risk helps clinicians predict the risks involved in management and in timely intervention.

### Keywords

Schizophrenia; risk; harm; violence

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**Declaration of interest:** None

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## 1. INTRODUCTION

Major mental illnesses are commonly perceived to be associated with the risk of harmful behavior, with rising public concern about violence by mentally ill persons (Trenoweth, 2003). Reports estimate that 72%–96% of psychiatric residents have been verbally threatened, and 36%–56% have experienced physical assault (Schwartz and Park, 1999). Patients with Schizophrenia are four to six times more prone to commit violent crimes (Fazel et al., 2009). Therefore risk becomes a composite measure of probability and hazard (Undrill, 2005). The growing burden of chronic often untreated mental illness has increased the importance of risk assessment, not only to understand and manage the individual but also to generate better services and policies and to safeguard the community (Pompilli et al., 2007; Shrivastava et al., 2010).

There is scant Indian data regarding comprehensive risk assessment in patients of Schizophrenia. The present study was undertaken to obtain prevalence of various risks of violence, self-neglect, risk of self-harm, risk of coming to harm, risk to others, risk from others, fire risk by focusing on past history and predictive factors of various risks among randomly recruited, adequately powered sample of Schizophrenia subjects. For this purpose, we used a linguistically and culturally acceptable, translated and adapted version of a Risk Evaluation Questionnaire named the Ram Manohar Lohia Risk Assessment Interview (RML-RAI) (Jakhar et al., 2014).

## 2. METHODOLOGY

The study was conducted in the Department of Psychiatry and De-addiction of the Post Graduate Institute of Medical Education and Research –Dr Ram Manohar Lohia Hospital, New Delhi from November 2011 to January 2013.

Prevalence for all types of risk from available Western literature over the last year was broadly taken as 25%. After fixing confidence level of 95% and confidence interval of 6%, prevalence of the behavior at 25%, a sample size of 267 (rounded off to 270) was decided as adequate. (<http://www.surveysystem.com/sscalc.htm>).

### 2.1 Instruments Used

A) Diagnostic Interview for Genetic Studies- Hindi Version (DIGS) (Deshpande et al., 1998). All subjects were interviewed using the DIGS. Although named an interview for genetic study, DIGS is a comprehensive interview schedule used for obtaining clinical history comprehensively and to arrive at a consensus diagnosis.

B) Ram Manohar Lohia Risk Assessment Interview (RML-RAI): A semi-structured Performa was being used to assess various kinds of risks to and from the patients by the Camden & Islington Health and Social Services under National Health Services UK (NHS UK) as part of standard operating procedure for clinical assessment. After due permission from the Trust (the Performa was no longer in active use there), the Performa was translated into Hindi and assessed for cultural applicability by bilingual members of the Department of Psychiatry, PGIMER-RMLH. It was named “Ram Manohar Lohia Risk Assessment

Interview (RML- RAI)” (Jakhar et al., 2014). The RML-RAI was administered in one sitting and took about 30 minutes. This interview took into account both ever (since onset of symptoms) and current (within last one month) risks. If any subject scored positive for a particular risk, further details were obtained.

## 2.2 Recruitment and Assessment Procedure

Approval from RML Hospital Institutional Ethics Committee (RMLH IEC) was obtained at outset. Patients diagnosed with Schizophrenia (ICD-10) by their treating clinicians, were informed about the study and consenting subjects were requested to contact investigator. Participants fulfilling inclusion (either sex, aged above 18 years, attending for either first consultation or follow up) and exclusion criteria (presence of co morbid substance dependence or severe medical illnesses, mental retardation or history of serious head injury) were explained the study, time required, advantages and disadvantages and that s/he would not receive any compensation. Written Informed Consent was obtained with the accompanying relative signing as witness.

Subjects were interviewed using Hindi version of DIGS. Diagnosis was confirmed in clinical meetings with a senior Board certified Psychiatrist. Subjects and their relatives were interviewed using the RML RAI.

“Risk of violence (historical)”, included any risk starting from the onset of illness, while “summary risk” included the interviewer’s summarization of all risks on the basis of all information provided from preceding questions in terms of seriousness, specificity and how long the risk would last (temporariness).

## 2.3 Statistical analysis

SPSS (version 2.0) was used for statistical analysis and descriptive analysis was carried out. The level of significance was fixed at 0.05. Thereafter all questions in RML-RAI (ever present or currently present) were taken as independent variables (excluding the variable of ‘summary risk’ as it took into account all other variables) and all the six categories of risk (excluding ‘other risk’ where frequency was found to be zero) were taken as dependent variables. Separate binary logistic regressions were performed for each risk category. Two risk categories- risk of ‘self-neglect’ and risk of ‘fire harm’ had very few positive replies, so frequency distribution was separately carried out as they were nevertheless serious risks.

For qualitative data analysis, the narrative of question 1.1 of the ‘History’ section and question 5.1 of the ‘Planning’ section was read individually for all 270 records. The narrative of the individual event was assessed in detail and then major, frequently repeated themes were summarized. Themes were overlapping as any one subject reported more than one theme in individual risk. Codes were extracted from each question and then themes were derived from those codes. Finally frequencies of the themes were calculated.

## 3. RESULTS

We assessed 270 subjects of which 190 were accompanied by care giving relatives. The majority of subjects were young adult ‘ever married’ males, nearly three-fourth suffered

from continuous mixture of positive and negative symptoms with continuous course. Almost half were judged to suffer moderate deterioration.

Risk of violence (historical) was reported in 65.55% which was highest while risk of fire setting was lowest. While self-neglect was present in a little over half the sample, self-harm and risk of coming to harm were reported in only one fourth. Nearly half were a risk to others while 10% had suffered harm from others. In the 'summary risk' decided by the researcher based on all findings among majority of subjects, risk was mild (54%) to moderately (30%) serious; 65% reported specific risk and in 95% of subjects risk was temporary.

There was no significant gender difference in the various types of risk involved.

A multivariate analysis was conducted excluding summary risk to look for associations with other risk factors.

For risk of violence (historical), 'ever' emotions related to violence and self-harm, 'current' emotions related to violence and current discontinuation of medication were significant. For risk of self-harm, 'ever' emotions of self-harm and 'ever' opportunities for risk taking behavior were significant. For risk of coming to harm, 'ever' accommodation opportunities for risk taking behavior (including type and location, level of support, amenities, utilities and neighbors) and 'ever' showing emotions of violence were significant. For risk to others, 'ever' emotions related to violence, 'current' emotions related to self-harm, and 'ever' expression of intention of harming self were significantly associated. No associations were found for risk from others.

Qualitative analysis of history of risk of violence revealed major themes of nonverbal violence, irritability and verbal violence. Nonverbal violence was reported in 63.2 % which included physically hitting others, throwing articles without aim, hitting others with some objects etc. Irritability was reported among 42.9%. Verbal violence was present in 35.8% which included abusing, threatening to hit and verbal fights. Regarding self-neglect, almost half of subjects - did not take bath regularly, 30.7% did not change clothes, and 11.4 % had poor oral hygiene.

Themes of risk of getting harmed/ injured included wandering aimlessly, head banging, attempting suicide and jumping from heights while acting on their delusions. Nearly one third (31.42 %) had suffered from risk from non-mentally ill people around them while a few (n = 4; 1.48 %) suffered from other mentally ill people, mostly other ill close relatives. As for plans for self-harm, 31.42% had executed a plan of self-harm, whereas 2.59 % only threatened their family members with self-harm. Subjects told their family members that they would run out in front of traffic, jump from heights or take overdose of medication. Only 1.11% of subjects had recurring plans of harming themselves which were not executed.

#### 4. DISCUSSION

There is a widely held perception that Schizophrenia patients are violent and a serious danger to society (Volavka, 2013; Reague et al., 2013). Hence compulsory objective and

detailed risk assessment is required for all patients in many Western countries (Singh et al., 2011). India has neither such rules nor evaluation instruments; this work was an attempt to describe the use of one such instrument in a tertiary care General Hospital Psychiatry Unit (GHPU). Although not under copyright, we applied for and received due written permission.

#### 4.1 Socio demographic profile

The present study assessed a sample of 270 subjects, which was relatively young (in their 30s on an average), 60% were males reflecting the general attendance, and 61.48 % had been 'ever' married. Above 3/4<sup>th</sup> (77.78 %) reported a continuous mixture of positive and negative symptoms. Above 3/4<sup>th</sup> reported a continuous course of illness (77.78 %) with either moderate (42.59 %), or severe deterioration (33.33%). Compared to our sample, an average age of 35.8 years was reported in a meta-analysis of 45,533 subjects (Witt et al., 2013).

#### 4.2

**Quantitative assessment** revealed that the risk of violence (historical) was highest approximating to 65% – 69.71 % in males and 57.89% in females. A UK study using the Overt Aggression Scale (OAS) reported a very high level of aggression – both verbal aggression (M:F= 52%:46%) and aggression against objects (M:F=39%:34%) in a sample of 136 males and 44 females suffering from Schizophrenia (Reague et al., 2013). A similar study using OAS in 100 inpatients reported that violence was more common among males (odd ratio = 12.8) (Lejoyneux et al., 2013).

Second in order of prevalence was risk of self-neglect (53%) (M:F =52%: 54%) . Risk to others was 47% (M:F =49%: 43%) similar Hodgins in which 49% men and 39 % women were engaged in assaultative behavior while residing in community (Hodgins et al., 2007).

Risk of coming to harm was 24% (M:F =27%: 17%). Risk of self-harm was 22% (M:F =20%: 26%). A study of patients (N=251 subjects, 18–61 years old, 58% men) with schizophrenia reported suicide attempts in 88 patients (35%), suicide attempts in 52 (29%) while 36% reported both suicide attempts and non-suicidal self-harm ( 14%) (Mork et al., 2013).

Risk from others in our study was 11% ( M:F =11%: 12%) . A similar study from the West reported that 57% of men and 48% of women had been victims of assault (Hodgins et al., 2007).

In our study, fire risk was 3% (M:F =1%: 5%) . A Swedish National Register study reported very high risks for arson among those with schizophrenia: a 20-fold increase in men and a near 40-fold increase in women compared with non-arson offenders (Anwar et al., 2011). Psychosis (not including bipolar disorder) was present in 25% of males and 48% of females among Swedish arsonists referred for forensic psychiatric examination (Enayati et al., 2008) while schizophrenia was diagnosed in 37% (n= 36) of subjects (Puri et al., 1995) similarly referred. Our numbers may be lower as patients lived under supervision of family members.

In the present study, when prevalence of all the above risk factors was statistically compared between males and females, no significant difference was found, in contrast to others (Ochoa et al., 2012). Our study is an Indian predominantly outpatient sample staying at home with caregivers. We also excluded subjects with substance abuse which is significantly associated with violence in most studies including a meta- review (Witt et al., 2013).

The interviewer summarized risk of violence (historical) reported in 177 subjects at the end of interview. For seriousness 54% were mildly serious and 30% were moderately serious while 10 % had extremely serious life threatening risk. 65% of subjects reported specific risk directed towards certain persons related to psychopathology such as delusion of persecution or delusion of infidelity. In the vast majority (95%), the risk of violence in subjects was temporary in nature (lasting 24 hours or less).

### 4.3 Associations

Emotions related to violence were associated with actual risk of violence in our sample.

In our sample, one of the important modifiable factors for risk was living in an environment conducive to violence to self or others. Poor compliance to treatment was also important and has been described by others (Martinez Martin et al., 2011). One meta- review (Witt et al., 2013) emphasized that violence was moderately associated with recent homelessness (OR=2.3), non-adherence with psychological therapies was strongly associated with violence risk (OR=6.7) and moderately associated with non-adherence with medication (OR=2.0). Several subjects in our sample reported wandering behavior, exposing them to increased risk.

### 4.4 Qualitative assessment

In the “History’ subsection of the interview, the risk of violence revealed three major themes- irritability, verbal and nonverbal violence. Being irritable cannot be specified as violence but was listed as such because it was considered a warning sign by the caregiver often followed by an actual act of violence.

Verbal violence included abusing, threatening to hit and verbal fights. Nonverbal violence included physically hitting others, throwing articles without aim, hitting others with some objects, banging head, breaking articles and glass pane, hitting self with articles and biting or slapping self. In a pooled estimate (Large and Nielssen, 2011) over one –third (34.5%) of first episode subjects committed ‘any violence’ while 16.6% committed serious violence and 0.6%-severe violence. In their subsequent overview, they reported that 49% of first episode subjects had violent suicide attempts, major self-mutilation (54%), homicide (39%), and assault resulting in serious injury (38%) and a substantial proportion committed an act of less serious violence or attempted suicide prior to initial treatment. But severe violence resulting in ‘severe or permanent injury to the victim’ was rare ( Nielssen et al., 2012).

In the subsection of self-neglect, decline in self-hygiene was reported in about half the subjects (did not take bath regularly, 7% did not comb their hair, nearly 5 % of female subjects did not take care of their menstrual hygiene). They used to smell very bad and their

hair was matted. They were asked- and forced- by their family members to take bath. About one-third of the subjects did not change clothes for several days at a time. About one-tenth of subjects had poor oral hygiene and did not brush teeth. They refused food or their food intake was erratic. About 4% had less or no interaction with their family members. This finding was comparable to the findings from a German sample where 90% of Schizophrenia patients reported social dysfunction (Lambert et al., 2006). Patients with schizophrenia suffer a variety of physical co-morbidities, attributable to their sedentary life-style (Lambert et al., 2006) and impairment in self-care (Pack, 2009) as well as the side effects from psychotropic medications (Montejo, 2010).

Detailed narrative regarding history of risk of getting harmed / injured showed that a little over one-fifth had wandered aimlessly (22.22 %). A few had wandered away from their homes to very distant places like from Bihar to Delhi, from Uttar Pradesh to Kashmir and were found and brought back by the police. These observations are consonant with Western studies who report high degrees of homelessness among schizophrenia patients (Foster et al., 2012; Henry et al., 2010). Luckily even when they wandered away they did not come to major harm from outsiders, perhaps because our sample mostly resided at home and the wandering episodes were shorter and less risky. Among other reported risks, 6% had head banging, 5 % had episodes of hitting themselves, 4 % of subjects attempted suicide and 2 % jumped from heights, acting on their delusions. Fire risk was reported in less than 3%. However studies from western literature remark regularly on fire risk as it is a greater hazard there.

From the subsection of history of risk from others, one -tenth of the subjects reported risk from others, mostly from their own relatives, due to the latter's efforts to control their violence or in anger due to their behaviour. Less than 2% also suffered from risk from other mentally ill people in family and neighbourhood.

In plans of harming themselves, one- third of subjects had executed plans of self-harm, less than 3 % threatened their family members that they would harm themselves. Subjects told their family members that they would step in front of running traffic, jump from heights or take overdose of medication. Only 1% of subjects had recurring plans of harming themselves but did not execute them. Life time suicide risk is said to be 4.9% for people with schizophrenia (Palmer et al., 2005). In a 10 year follow up study, 61 of 200 first episode patients reported significant suicidality (suicidal attempts, suicidal crisis or suicidal ideation) at the end of 10 year follow up whereas only 83% had reported previous significant suicidality at baseline (Shrivastava et al., 2010)

#### 4.5 STRENGTHS AND LIMITATIONS

Our sample was adequately powered and randomly recruited as the power of the study was adequately calculated. Although these are findings from one free, government center with patient population consulting all over North India. However since this is a General Hospital Psychiatry (GHPU) it may not address the more refractory or inpatient cases. Also people from relatively lower socioeconomic classes were recruited. But still it might not be sufficient so RML-RAI is freely available on website :<http://www.indouspgp.info>. This study is just an initial step in assessing the all the risks associated with Schizophrenia.

We attempted to assess all the risks associated with Schizophrenia. Recall bias was addressed by including two columns in the RMLRAI- 'ever' and 'current' (last one month). The details of history provided was assessed and reconfirmed by the care giver so as to reduce recall bias. Although some recall bias might still be present. The interview used in the study is easy to administer, can be an addition to regular psychiatric history and is less time consuming. The scale is available with authors for free use.

However the study did have some limitations- we cannot comment on 'why' these risky behaviors occurred at specific time points although our results do provide some pointers. This was a hospital based study and only consenting treatment seeking patients with relatives were included. The 'ever' item concerned a retrospective recall of reporting the events so recall bias may have resulted in only the most serious issues being mentioned. Since some subjects were ill for long periods, only their risky and serious incidents were reported which may have led to a higher prevalence rate. Substance dependence was the exclusion criteria in our study while it was a significant factor in others. There were no controls. The predictive validity of the scale needs to be ascertained.

#### 4.6 CONCLUSION

We conclude that the risk of violence (historical), risk of self-neglect, and risk to others are high in schizophrenia. Risk of coming to harm, risk of self harm, risk from others are moderate and fire risk was very low in this Indian seriously ill population. Regarding seriousness of risk, in majority of subjects risk was mild to moderately serious and violence was specific and goal directed. Majority of the risks of violence in subjects were moderate and temporary in nature. Though the risks were moderate in nature, but most of the risks were due to the psychopathology.

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#### References

1. Anwar S, Langstrom N, Grann M. Is arson the crime most strongly associated with psychosis? A national case-control study of arson risk in schizophrenia and other psychoses. *Schizophr Bull.* 2011; 37:580–586. [PubMed: 19850668]
2. Deshpande SN, Bhatia T, Wood J, et al. A Hindi version of the diagnostic Interview for Genetic Studies. *Schizophr Bull.* 1998; 24(3):489–493. [PubMed: 9718640]
3. Enayati J, Grann M, Lubbe S, Fazel S. Psychiatric morbidity in arsonists referred for forensic psychiatric assessment in Sweden. *Journal of Forensic Psychiatry and Psychology.* 2008; 19(2): 139–147.
4. Fazel S, Gulati G, Linsell L, Geddes JR, Grann M. Schizophrenia and Violence: Systematic Review and Meta-Analysis. *PLoS Med.* 2009; 6(8):e1000120. [PubMed: 19668362]



5. Foster A, Gable J, Buckley J. Homelessness in schizophrenia. *Psychiatr Clin North Am.* 2012; 35(3):717–34. [PubMed: 22929875]
6. Henry JM, Boyer L, Belzeaux R, BaumstrackBarrau K, Samuelian JC. Mental disorders among homeless people admitted to a French psychiatric emergency service. *Psychiatr Serv.* 2010; 61(3): 264–267. [PubMed: 20194403]
7. Hodgins S, Alderton J, Cree A, Aboud A, Mak T. Aggressive behavior, victimization and crime among severely mentally ill patients requiring hospitalization. *Br J Psychiatry.* 2007; 191:343–50. [PubMed: 17906245]
8. Jakhar K, Chandra M, Deshpande SN. Translation and acceptability of a comprehensive risk assessment interview in Hind. *Indian J Soc Psychiatr.* 2014; 30(1–2):49–53.
9. Lambert M, Schimmelmann BG, Naber D, Schacht A, Karow A, Wagner T, et al. Prediction of remission as a combination of symptomatic and functional remission and adequate subjective well-being in 2960 patients with schizophrenia. *J Clin Psychiatry.* 2006; 67(11):1690–1697. [PubMed: 17196047]
10. Large MM, Nielssen O. Violence in first-episode psychosis: a systematic review and meta-analysis. *Schizophr Res.* 2011; 125(2–3):209–220. [PubMed: 21208783]
11. Lejoyneux M, Nivoli F, Basquin A, Chalvin F. An Investigation of Factors Increasing the Risk of Aggressive Behavior among Schizophrenic Inpatients. *Front Psychiatry.* 2013; 4:97. [PubMed: 24027539]
12. Martinez Martin N, Fraguas D, Garcia-Portilla MP, Saiz PA, Bascaran MT, Arango C, et al. Self-perceived needs are related to violent behavior among schizophrenia outpatients. *J Nerv Ment Dis.* 2011; 199(9):666–671. [PubMed: 21878780]
13. Montejo AL. The need for routine physical health care in schizophrenia. *Eur Psychiatry.* 2010; 25:3–5.
14. Mork E, Walby F, Harkavy Friedman JM, Barrett EA, Steen NE, Lorentzen S, et al. Clinical characteristics in schizophrenia patients with or without suicide attempts and non-suicidal self harm- a cross sectional study. *BMC Psychiatry.* 2013; 13:255. [PubMed: 24106884]
15. Nielssen OB, Malhi GS, McGorry PD, Large MM. Overview of Violence to Self and Others during the First Episode of Psychosis. *J Clin Psychiatry.* 2012; 73(5):580–587.
16. Ochoa S, Usall J, Cobo J, Labad X, Kulkarni J. Gender differences in schizophrenia and first episode psychosis: A comprehensive literature review. *Schizophrenia research and treatment.* 2012 doi:10.1155:916198.
17. Pack S. Poor physical health and mortality in patients with schizophrenia. *Nurs Stand.* 2009; 23(21):41–45. [PubMed: 19248449]
18. Palmer BA, Pankratz VS, Bostwick JM. The lifetime risk of suicide in schizophrenia: a reexamination. *Arch Gen Psychiatry.* 2005; 62(3):247–253. [PubMed: 15753237]
19. Pompilli M, Amador XF, Girardi P, Harkavy-Friedman J, Harrow M, Kaplan K, et al. Suicide risk in schizophrenia: learning from the past to change the future. *Ann Gen Psychiatry.* 2007; 6:10. [PubMed: 17367524]
20. Puri BK, Baxter R, Cordess CC. Characteristics of fire-setters. A study and proposed multiaxial psychiatric classification. *Br J Psychiatry.* 1995; 166(3):393–396. [PubMed: 7788135]
21. Reague S, Jones R, Kumari V, Taylor PJ. Angry affect and violence in the context of a psychotic illness: a systemic review and meta analysis of the literature. *Schizophr Res.* 2013; 146(1–3):46–52. [PubMed: 23452505]
22. Schwartz TL, Park TL. Assault by patient on psychiatric resident: a survey and training recommendation. *Psychiatr serv.* 1999; 50(3):381–383. [PubMed: 10096643]
23. Shrivastava A, Johnston ME, Shah N, Innamorati M, Stitt L, Thakar M, et al. Schizophrenia patients: challenge of the suicidal dimension. *Neuropsychiatr Dis Treat.* 2010; 6:633–638. [PubMed: 20957123]
24. Singh JP, Serper M, Reinharth J, Fazel S. Structured assessment of violence risk in schizophrenia and other psychiatric disorders: A systematic review of the validity, reliability and item content of 10 available instruments. *Schizophr Bull.* 2011; 37(5):899–912. [PubMed: 21860036]
25. Trenoweth S. Percieving risk in dangerous situations: risks of violence among mental health inpatients. *J Adv Nurs.* 2003; 42(3):278–287. [PubMed: 12680972]

26. Undrill G. The risks of risk assessment. *Advances in Psychiatric Treatment*. 2007; 13:291–297.
27. Volavka J. Violence in schizophrenia and bipolar disorder. *Psychiatr Danub*. 2013; 25(1):24–33. [PubMed: 23470603]
28. Witt K, Richard Dorn, Fazel S. Risk factors for violence in Psychosis: systematic review and meta regression analysis of 110 studies. *PLoS ONE*. 2013;10.1371/0055942

### Highlights

- Risk of violence (historical), risk of self-neglect, and risk to others are high in schizophrenia.
- Majority of the risks of violence in subjects were moderate and temporary in nature.
- Risk of coming to harm, risk of self harm are moderate in schizophrenia in Indian population.

**Table 1**

Socio demographic composition, clinical and risk parameters from the RML-RAI

Variables	Frequency(n/%) / Mean
Age (Years) (Mean ± SD)	34.01 ± 9.883
Gender (Male/ Female) N (%)	175/95 (64.81/35.18)
Marital status (Ever married/ Never) N (%)	166/104 (61.48/ 38.51)
'Pattern of symptoms' (DIGS) * [1/2/3/4/5 (%)]	35:10:15:0: <b>210</b> (12.96/3.70/5.56/0/ <b>77.78</b> )
'Longitudinal course of illness' (DIGS) ** [1/2/3/4/5 (%)]	15/15/ <b>210</b> /18/12 (5.56/5.56/ <b>77.78</b> /6.67/4.44)
'Pattern of severity' (DIGS) *** [1/2/3/4/5(%)]	15/40/ <b>115</b> /90/10 (5.56/14.81/ <b>42.59</b> /33.33/3.70)
Accompanied by relatives/ not	190/80
Distribution of interviewer's summary rating of risk of violence	<b>Number of subjects(n= 177, in whom overall risk of violence was positively reported) (question 6.1, RML-RAI)</b>
Seriousness ****:Not at all/Mildly serious/Moderately serious/Markedly serious/Extremely serious	3/ <b>96</b> /54/10/14
Specificity *****:Nonspecific/Specific/Not known	59/ <b>115</b> /3
Temporary *****:Yes/No	<b>169</b> /8
Prevalence of risk of violence (historical) (M%: F%/Total/ P Value)	122(69.71):55(57.89)/177 (65.55) /0.061
Prevalence of risk of self-neglect (M %:F%/ Total/P Value)	92(52.57):52(54.73)/ 144(53.33)/ 0.799
Prevalence of risk to others (M %:F%/ Total/P Value)	87(49.71):41(43.15)/ 128(47.41)/ 0.311
Prevalence of risk of coming to harm (M %:F%/ Total/P Value)	48(27.42):17(17.89)/ 65(24.07)/ 0.101
Prevalence of risk of self-harm (M %:F%/ Total/P Value)	36(20.57):25(26.37)/ 61(22.59)/ 0.290
Prevalence of risk from others (M %:F%/ Total/P Value)	20(11.42):12(12.46)/ 32(11.85)/ 0.844
Prevalence of fire risk (M %:F%/ Total/P Value)	3(1.71):5(5.26)/ 8(2.96)/ 0.134

\* Pattern of symptoms (qs. 99 of the DIGS) - 1= continuously positive, 2= predominantly negative, 3= predominantly positive converting to predominantly negative, 4= negative converting to positive, **5= continuous mixture of positive and negative symptoms**

\*\* Longitudinal course of illness (qs. 100 of the DIGS) - 1= episodic with inter episodic residual symptoms, 2= episodic with no inter episodic residual symptoms, **3= continuous**, 4= single episode in partial remission, 5= single episode in partial remission

\*\*\* Pattern of severity (qs. 101 of the DIGS) - 1= episodic shift, 2= mild deterioration, **3= moderate deterioration**, 4= severe deterioration, 5= relatively stable.

\*\*\*\* Seriousness: 1. Not at all, 2. Mild- Scratches, superficial injury, mild physical symptoms, 3. Moderate- Non grievous, non-fatal but requires treatment or intervention which may be optional e.g. ejecting from unwanted place/ calling for help/ law enforcement, 4. Marked- Grievous necessitating treatment- outdoor/ indoor or MLC made and 5. Extremely serious- Potentially life threatening.

\*\*\*\*\* Specificity represented whether violence was goal directed.

\*\*\*\*\* Temporary represented whether the risk was pervasive or not.

M – Male, F- Female, T-Total

**Table 2**

Associations of significant variables when summary risk was excluded

<b>Associations of risk of violence (historical)</b>			
<b>Variables</b>	<b>Wald</b>	<b>P value</b>	<b>Confidence interval</b>
3.3 Emotions related to violence ('ever')	81.477	<0.001	81.906, 943.355
3.4 Emotions related to self-harm ('ever')	7.263	0.007	0.050, 0.624
3.3 Emotions related to violence (current)	5.429	0.020	0.161, 0.701
1.3 Poor compliance (current)	4.153	0.042	1.087, 72.567
<b>Associations of self-harm</b>			
3.4 Emotions related to self-harm ('ever')	73.504	<0.001	77.234, 1015.661
2.3 Opportunities for risk taking behavior('ever')	6.117	0.013	1.648, 74.770
<b>Associations of risk of coming to harm</b>			
2.3 Opportunities for risk taking behavior('ever')	6.062	0.014	1.391, 18.261
3.3 Emotions related to violence ('ever')	4.557	0.033	1.061, 4.045
<b>Associations of risk to others</b>			
3.3 Emotions related to violence ('ever')	26.681	<0.001	26.676, 1479.500
4.2 Any intention of harming self ('ever')	5.734	0.017	1.294, 13.261
3.4 Emotions related to self-harm (current)	5.419	0.020	1.863, 1414.209
<b>Associations of risk from others: No significant variables</b>			

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**Table 3**

Qualitative analysis of various risk factors

Major themes	Number (%)
<b>HISTORY OF RISK OF VIOLENCE(EVER)</b>	
1. Irritability	116 (42.96)
2. Verbal violence	
A) Abusing	69 (25.5)
B) Threatening to hit	21 (7.77)
C) Verbal fights	7 (2.59)
3. Nonverbal violence	
Physically hitting others/ Throwing articles unaimed	101 (34.4)/ 48 (17.7)
Hitting others with some objects/ Banging head	22 (8.14)/ 3 (1.11)
Breaking articles or glass pane/ Hitting self with articles/ Bite/slap self	2 (0.74)/ 2 (0.74)/ 1 (0.37)
<b>HISTORY OF RISK OF SELF NEGLECT (EVER)</b>	
Did not take bath /change clothes/ brush teeth	132(48.88)/ 83(30.74)/ 31(11.48)
Did not eat food/comb hair/no interaction/not maintaining menstrual hygiene	28(10.37)/ 19(7.03)/ 12(4.44)/ 12(4.44)
<b>HISTORY OF RISK OF GETTING HARMED/INJURED(EVER)</b>	
Wandering aimlessly/ head banging/hitting self	60(22.22)/ 18(6.66)/ 13(4.81)
Attempt suicide/jumping from height(acting out)/setting fire	11(4.07)/ 6(2.22)/ 6(2.22)
<b>HISTORY OF RISK FROM OTHERS(EVER)</b>	
From normal population/ mentally ill people in family, neighborhood	22(31.42)/ 4(1.48)
<b>PLANS OF HARMING THEMSELVES</b>	
Execution of act of self-harm/threaten/ recurring plan with expression but not execution	22(31.42)/ 7(2.59)/ 3(1.11)