Suicide in hospitalized early psychosis patients at the time of discharge from hospital: An exploratory study of attempters and nonattempters

Amresh Shrivastava, Coralee Berlemont¹, Robbie Campbell², Megan Johnston³, Avinash De Sousa⁴, Nilesh Shah⁴
Consultant Psychiatrist, Lawson Health Research Institute, ¹Medical Social Worker, Forensic Program, Regional Mental Health Care, St. Thomas, ²Department of Psychiatry, The Western University and Chief, Assessment and Mood and Anxiety Program, Regional Mental Health Care, London, Ontario, Canada, ³Department of Medicine, University of Otago, Christchurch, New Zealand, ⁴Department of Psychiatry, Lokmanya Tilak Municipal Medical College, Mumbai, Maharashtra, India

ABSTRACT

Background: Early intervention programs for psychosis are gateways for suicide prevention. These programs offer an excellent opportunity for prevention due to easy access, early identification, and provisions for continuity of care. These programs have been found effective in reducing rates of suicide after discharge to communities. The objective of this study was to examine suicide risk level among early psychosis patients admitted with and without previous suicide attempts. We hypothesized that all patients admitted with early psychosis would be at high risk of suicide, regardless of a previous suicide attempt.

Methodology: Suicide risk was compared between patients admitted with a suicide attempt (n = 30) and patients admitted without a suicide attempt (n = 30). The primary outcome measure of interest was suicide risk which was measured with the Scale for Impact of Suicidality–Management, Assessment and Planning of Care clinical interview. All patients met DSM-IV TR criteria for schizophrenia. Psychopathology was assessed using the Brief Psychiatric Rating Scale and level of depression was assessed using the Hamilton Depression Rating Scale. The data were statistically analyzed.

Results: Patients admitted with a previous attempt (mean = 29.5, standard deviation [SD] =12.0) did not differ significantly in suicide risk from those admitted without a previous attempt (mean = 27.5, SD = 12.5, t[58] =-0.63, P = 0.53). Patients admitted without a suicide attempt scored higher in depressive symptoms (t[58] =10.62, P < 0.001) than that of admitted with a suicide attempt. There were no significant differences between patients admitted with and without suicide attempts on any comorbidity, other than a trend toward a higher prevalence of personality disorder in patients with no suicide attempt. Attempters and nonattempters did not differ on any demographic variables either.

Conclusions: Of those admitted without a previous suicide attempt, our findings suggest that it is critical that all patients discharged from an acute psychiatric unit must receive comprehensive community care. The identification of risk, and subsequent intervention for suicidal and self-harm behaviors, should be a central part of treatment for all mental disorders.

Key words: Early psychosis, hospitalization, psychosis, schizophrenia, suicide

Address for correspondence: Dr. Amresh Shrivastava, 550 Wellington Road, London, ON N6C 0A7, Canada. E-mail: dr.amresh@gmail.com

This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

For reprints contact: reprints@medknow.com

How to cite this article: Shrivastava A, Berlemont C, Campbell R, Johnston M, De Sousa A, Shah N. Suicide in hospitalized early psychosis patients at the time of discharge from hospital: An exploratory study of attempters and nonattempters. Indian J Psychiatry 2016;58:142-6.
INTRODUCTION

Early intervention programs for psychosis are gateways for suicide prevention and offer an excellent opportunity for prevention, early identification, intervention, and provisions for continuity of care. Studies suggest that such programs have been effective in reducing rates of suicide after discharge to communities. Early intervention programs though clinically and economically effective are available in very few centers. Early phase of schizophrenia is a high-risk period for suicide. In a sample of over 600 patients in 7.4 years follow-up, 61 (21.6%) made a suicide attempt over the follow-up period, including 12 successful suicides. Well-known risk factors are history of suicidal ideation, history of deliberate self-harm in the past, and past suicide attempts. Research suggests that the rates of repeated suicide in early psychosis are high irrespective of whether patients are treated with hospitalization or without hospitalization. In a large-scale study of the causes of death in a sample of first-admitted schizophrenia patients, suicide accounted for 50% of deaths in men and 35% in women and further demonstrated a heightened risk of suicide during the 1st year of follow-up with 56% increase in risk. Attempted suicide is well-recognized as a risk factor for later suicide attempts, considered by some to be the strongest predictor of further attempts. As a result, patients admitted with a suicide attempt as a key admitting feature are preferred for postdischarge aftercare programs. We believe that patients admitted both with and without previous suicide attempts are at high risk of posthospitalization suicide and suicide attempts leading to hospitalization. Studies of suicide attempters in the general population indicate that these individuals are at increased risk of further suicide attempts as compared to individuals who have not previously attempted. Suicide is a challenging and serious public health issue that, in most cases, is a result of mental illness. Patients with mental disorders are at increased risk of suicide, and retrospective and autopsy studies indicate that more than 90% of suicides meet the criteria for a psychiatric diagnosis. Risk of suicide is persistent and there is no clear evidence that it reduces during illness. In schizophrenia, risk of suicide continues to be a matter of clinical concern in early phase, during hospitalization, posthospitalization, after noncompliance to antipsychotics, relapse, and rehospitalization and also during residual phase, further period of onset life prodromal phase, remission, i.e., postdischarge, and transition to the community. It is, therefore, important that the effort of suicide prevention is well-structured providing maximum possible measures, early intervention programs offer reasonable opportunities for dealing with eminent crisis, early identification, and management of suicide; however, selection of patients for such programs remains unscientific.

In the specific context of the period immediately following discharge, however, previous attempts may be less relevant for assessing risk. In fact, a small body of research suggests that all patients are at high risk of suicide at the time of discharge and dividing risk into high versus low is of no value. In a study of 100 patients who made severe suicide attempts, prior attempts were not found to be a useful predictor.

The decision of selecting patients for aftercare programs, particularly from a perspective of preventing postdischarge suicide, is a critical one because the risk for posthospitalization suicide is high for almost all patients being discharged. There is limited evidence about the criteria to select these patients after discharge for specialized posthospitalization programs. In clinical practice, it is generally believed that certain patients being discharged have a higher risk, particularly those admitted after making an attempt; therefore, patients with suicide attempt as a key “admitting feature” are preferred for aftercare programs. The question then arises whether those admitted without any suicide attempt have low risk for future suicide. Attempted suicide is well-recognized as a risk factor for later suicide attempts, considered by some to be the strongest predictor of further attempts. As a result, patients admitted with a suicide attempt as a key admitting feature are preferred for postdischarge aftercare programs. The question then arises whether those admitted without any previous suicide attempt are at low risk of future suicide. We believe that patients admitted both with and without previous suicide attempts are at high risk of posthospitalization suicide and suicide attempts leading to hospitalization.

We propose that a number of patients without any previous attempts harbor serious suicidal ideas and remain at equally high risk of suicide, particularly during the postdischarge period. Therefore, decision for treatment after discharge is a specialized program that needs to be based on measured risk and contributing factors rather than perceived risk which may be based on the assumption that those admitted with an attempt remain at a high risk than those admitted without an attempt. The objective of this study was to examine the suicide risk level among early psychosis patients admitted with and without previous suicide attempts. We hypothesized that all patients admitted with early psychosis would be at high risk of suicide, regardless of whether a previous suicide attempt had been made.

METHODOLOGY

The present sample included 60 hospitalized inpatients of early psychoses: 30 admitted with a previous suicide attempt and 30 without an attempt. The sample was recruited from an acute psychiatric ward receiving referral from the emergency room of a general hospital.
patients who were diagnosed with schizophrenia according to the DSM-IV TR criteria[17] were included in the study.

The primary outcome measure of interest was suicide risk; however, additional measures of clinical features were included to examine in relation to high suicidality. Suicide risk was measured with the Scale for Impact of Suicidality–Management, Assessment and Planning of Care (SIS-MAP) clinical interview. The SIS-MAP assesses eight domains of suicide risk factors (demographics, psychological, comorbidities, family history, biological, protective factors, clinical ratings/observations, and psychosocial and environmental problems). The psychological domain includes suicidal ideation, management of ideation, current state of suicidality, and planning. After administering SIS-MAP, an overall score can be determined by summing the subtotals for each domain. A total score is calculated by summing all domain subtotals except the protective factors domain, and then subtracting the subtotal for protective factors from this initial sum. The final score indicates the level of suicide risk facing an individual across their key life domains after taking into account the protective factors which buffer their level of risk. SIS-MAP scores provide a dimensional indication of suicide risk, with total scores dividing level of risk into mild (0–17), moderate (17–29), and severe (30+).[19]

Symptoms of psychopathology were assessed with the Brief Psychiatric Rating Scale-Expanded.[19] Twenty-four psychiatric symptoms were rated on a scale from 1 (absence of symptoms) to 7 (extremely severe symptoms; potential range 7–168). Depressive symptoms were measured with the Hamilton Depression Rating Scale.[20] Twenty-one items assessing depression severity were rated on scales of 0 (absence of symptoms) through 2, 3, or 4 (severe symptoms; potential range 0–64).

Patients admitted to an acute psychiatry facility were screened clinically for psychotic disorders. Those meeting the DSM-IV TR criteria for schizophrenia were recruited for the study. A tentative date for discharge was determined in consultation with members of the multidisciplinary team and the assessment was done within the week before discharge. For data analysis, patients were divided into two groups: (1) Those admitted with an attempt of suicide and (2) those admitted without a suicide attempt. Suicidality and clinical features were compared between these two groups.

RESULTS

Sample characteristics

Of the sixty study patients (mean age = 26.5, standard deviation [SD] =4.6), 31 were male. The mean illness duration was 32.5 months (SD = 9.4) and average age of onset of 21.5 years (SD = 3.2). A family history of mental illness was present in 31.7% of patients and a family history of suicide attempts was present in 28.3% of patients; the prevalence did not differ significantly between the patient groups with and without suicide attempts.

Suicide risk in patients with and without previous attempts

SIS-MAP scores indicating level of suicide risk had a mean of 28.5 (SD = 10.2) indicating a high level of suicidality in the sample. Suicide risk was compared between patients admitted with a suicide attempt (n = 30) and patients admitted without a suicide attempt (n = 30) using an unpaired t-test. Those admitted with a previous attempt (mean = 29.5, SD = 12.0) did not differ significantly in suicide risk from those admitted without a previous attempt (mean = 27.5, SD = 12.5), (t(58) =0.63, P = 0.53). Of those admitted without a previous suicide attempt, 20.0% had mild risk, 26.7% had moderate risk, and 43.3% had severe risk of suicide. Of those admitted with a suicide attempt, 36.7% had mild, 23.3% had moderate, and 40.0% had severe risk of suicide. The Fisher’s exact and Chi-square test indicated no significant difference between patients with and without a suicide attempt ($\chi^2[2] =2.4, P = 0.30$).

Clinical features

The group of patients with and without a suicide attempt was also compared on clinical features and comorbidities using unpaired t-tests for continuous variables and Fisher’s exact tests for categorical variables. The results are presented in Table 1. Patients admitted without a suicide attempt scored higher in depressive symptoms ($t(58) =10.62, P < 0.001$) than patients admitted with a suicide attempt. There were no significant differences between patients admitted with and without suicide attempts on any comorbidity, other than a trend toward a higher prevalence of personality disorder in patients with no suicide attempt [Table 1].

Patients with severe suicide risk

To identify the correlates of high suicide risk in psychiatric inpatients, the sample was divided into two groups: High

| Table 1: Comparison of clinical features and comorbidities between patients with and without a previous suicide attempt |
|---------------------------------------------------------------|
| Parameter | Nonattempters (n=30) | Attempters (n=30) | t | P |
| Clinical features | Mean (SD) | Mean (SD) |  |  |
| HDRS | 21.6 (8.9) | 20.8 (7.9) | 0.37 | 0.71 |
| BPRS | 99.0 (13.9) | 67 (8.9) | 10.62 | <0.001 |
| Comorbidities | | | | |
| Personality disorder | N | n | $\chi^2$ | P |
| Adjustment disorder | 13 | 18 | 1.67 | 0.20 |
| Medical illness | 5 | 7 | 0.42 | 0.52 |
| PTSD | 9 | 7 | 0.34 | 0.56 |
| Alcoholism | 17 | 18 | 0.07 | 0.79 |
| Cannabis | 25 | 22 | 0.88 | 0.35 |

HDRS – Hamilton Depression Rating Scale; BPRS – Brief Psychiatric Rating Scale; PTSD – Posttraumatic stress disorder; SD – Standard deviation
suicide risk, SIS-MAP scores of 30 and above (n = 25) and low suicide risk, SIS-MAP scores <30 (n = 35). These two groups were compared on clinical features and comorbidities [Table 2]. As compared to patients with mild to moderate suicide risk, patients with severe risk were significantly younger in age, had a shorter duration of illness, and an older age of onset of their mental illness. There were also a higher proportion of males in the high suicide risk group. High suicide risk was also significantly associated with depressive symptoms and psychiatric symptoms. Patients with severe suicide risk were significantly more likely to have problems with alcohol and cannabis use than that of patients with mild to moderate suicide risk. Patients with mild or moderate suicide risk were proportionately higher in comorbid adjustment disorder than patients with severe suicide risk [Table 2].

**Comparison of nonattempters and attempters with severe suicidality**

Of the 25 patients scoring 30 or above on the SIS-MAP, indicating severe suicide risk, 13 patients had not previously attempted suicide. These patients were compared to 12 patients admitted with a suicide attempt who also scored as severe in risk [Table 3]. Attempters and nonattempters did not differ on any demographic variables or comorbidities. However, significant differences were found for clinical symptoms. Nonattempters scored higher than attempters on depressive symptoms and psychiatric symptoms.

**DISCUSSION**

The present study examined suicide risk level among early psychosis patients admitted with and without previous suicide attempts with the hypothesis that all patients admitted with early psychosis would be at high risk of suicide, regardless of whether a previous suicide attempt had been made. Consistent with our hypothesis, the results showed no significant difference in SIS-MAP risk scores between patients admitted with a suicide attempt versus those without, suggesting that previous suicide attempts are not a good indicator of level of risk in psychiatric inpatients at the time of discharge. It seems that a number of patients without any previous attempts harbor serious suicidal ideas and remain at equally high risk of suicide, particularly during the postdischarge period.

However, we found significant differences between attempters and nonattempters in clinical symptoms; nonattempters scored higher in psychiatric symptoms. This finding may reflect that while a suicide attempt is a clear indicator of the need for psychiatric admission, for individuals to be admitted to psychiatric crisis services without a suicide attempt, the level of psychopathology must be quite high which is in keeping with previous studies.[21-23]

| Table 2: Comparison of clinical features and comorbidities between patients with high and low suicide risk |
|---------------------------------------------------------------|
| Parameter | Low suicide risk (<30) (n=35) | High suicide risk (≥30) (n=25) | t | P |
| Demographics | Mean (SD) | Mean (SD) |
| Age | 28.3 (5.8) | 24.7 (4.3) | 2.63 | 0.01 |
| Illness duration | 35 (5.0) | 30 (10.4) | 2.48 | 0.02 |
| Age of onset | 18.5 (2.1) | 24.5 (2.3) | 10.49 | <0.001 |
| Gender (male) | 12 | 19 | 10.16 | 0.002 |
| Family history of suicide attempts | 8 | 9 | 1.24 | 0.38 |
| Clinical features | Mean (SD) | Mean (SD) |
| HDRS | 17.8 (7.9) | 24.6 (3.7) | 4.00 | <0.001 |
| BPRS | 70 (6.7) | 95 (8.5) | 12.73 | <0.001 |
| Comorbidities | N | n | χ² | P |
| Personality disorder | 8 | 6 | 0.17 | 0.68 |
| Adjustment disorder | 16 | 5 | 9.07 | 0.003 |
| Medical illness | 5 | 7 | 0.96 | 0.33 |
| PTSD | 8 | 6 | 0.04 | 0.84 |
| Alcoholism | 10 | 25 | 27.74 | <0.001 |
| Cannabis use | 23 | 24 | 6.20 | 0.01 |

HDRS – Hamilton Depression Rating Scale; BPRS – Brief Psychiatric Rating Scale; PTSD – Posttraumatic stress disorder; SD – Standard deviation

| Table 3: Comparison of nonattempters and attempters with severe suicidality |
|---------------------------------------------------------------|
| Parameter | Nonattempters (SIS-MAP ≥30) (n=13) | Attempters (SIS-MAP ≥30) (n=12) | t | P |
| SIS-MAP | 51.3 (10.1) | 48.3 (11.0) | 0.71 | 0.48 |
| Age | 26.4 (4.3) | 28.6 (4.1) | 1.31 | 0.20 |
| Illness duration | 15.8 (10.4) | 10.2 (5.0) | 1.69 | 0.10 |
| Age of onset | 25.1 (2.3) | 25.9 (2.1) | 0.91 | 0.37 |
| Gender (male) | 7 | 4 | 1.07 | 0.43 |
| Family history of suicide attempt | 5 | 4 | † | 1.00 |
| Family history of mental illness | 8 | 4 | 1.99 | 0.24 |
| Clinical features | Mean (SD) | Mean (SD) |
| HDRS | 32.4 (8.9) | 23.0 (7.9) | 2.78 | 0.01 |
| BPRS | 127 (8.5) | 77 (6.7) | 16.24 | <0.001 |
| Comorbidities | N | n | χ² | P |
| Personality disorder | 4 | 2 | † | 0.64 |
| Adjustment disorder | 4 | 2 | † | 0.64 |
| Medical illness | 2 | 3 | † | 0.64 |
| PTSD | 4 | 3 | † | 1.00 |
| Alcoholism | 7 | 7 | 0.05 | 1.00 |
| Cannabis use | 11 | 9 | † | 0.64 |

†Chi-square cannot be calculated due to expected cell frequencies <5.
As previous suicide attempts were not a significant predictor of SIS-MAP scores, we compared patients who scored low versus high in suicidality according to the SIS-MAP to determine those factors that were predictive of risk. We found that male gender, older age of onset, alcoholism, cannabis use, and clinical symptoms were all associated with more severe suicide risk. Thus, our results suggest that these factors should be taken into consideration at the time of discharge for determining those patients most in need of postdischarge aftercare. Studies in India have reflected similar trends.\textsuperscript{24,25} We further examined the sample according to our two dimensions, suicide risk and previous suicide attempts, by comparing attempters and nonattempters who scored in the severe range of suicide risk on the SIS-MAP. We found no differences in demographic variables or comorbidities between attempters and nonattempters, further demonstrating the lack of association between previous suicide attempts and suicide risk factors. The only significant differences found for clinical features were nonattempters scoring as severe on the SIS-MAP had significantly greater clinical symptoms (psychiatric and depressive) than attempters scoring as severe in suicide risk on the SIS-MAP. Early intervention programs offer a number of innovative treatments which integrates hospitalized and community care for preventive community intervention.\textsuperscript{26} Authors suggest that increased suicide risk postdischarge may indicate the adverse effects of deinstitutionalization.\textsuperscript{4} Vulnerability is increased due to the abrupt removal of inpatient care and reexposure to the environmental stressors that led to admission.\textsuperscript{27}

CONCLUSIONS

Thus, our findings suggest that it is critical that all patients discharged from an acute psychiatric unit receive comprehensive community care. The identification of risk, and subsequent intervention for suicidal and self-harm behaviors, should be a central part of treatment for all mental disorders. Many patients who are admitted to psychiatric inpatient care without a previous suicide attempt remain at high suicide risk following discharge. Our results indicate that male gender, older age of onset, alcoholism, cannabis use, and psychiatric and depressive symptoms were all associated with more severe suicide risk at the time of discharge.

Financial support and sponsorship
Nil.

Conflicts of interest
There are no conflicts of interest.

REFERENCES

1. Barrett EA, Sundet K, Faerden A, Nesvåg R, Agartz I, Fosse R, et al. Suicidality before and in the early phases of first episode psychosis. Schizophr Res 2010;119:11-7.
2. Keshavan MS, Shrivastava A, Gangadhar BN. Early intervention in psychotic disorders: Challenges and relevance in the Indian context. Indian J Psychiatry 2010;52 Suppl 1:S153-8.
3. Robinson J, Harris MG, Harrigan SM, Henry LP, Farrally S, Prosser A, et al. Suicide attempt in first-episode psychosis: A 7.4 year follow-up study. Schizophr Res 2010;116:1-8.
4. Pompill M, Serafini G, Innamorati M, Lester D, Shrivastava A, Girardi P, et al. Suicide risk in first episode psychosis: A selective review of the current literature. Schizophr Res 2011;129:1-11.
5. Mortensen PB, Juel K. Mortality and causes of death in first admitted schizophrenic patients. Br J Psychiatry 1993;163:183-9.
6. Goldacre M, Seagroatt V, Hawton K. Suicide after discharge from psychiatric inpatient care. Lancet 1993;342:283-6.
7. Jones RM, Hales H, Butwell M, Ferriter M, Taylor PJ. Suicide in high security hospital patients. Soc Psychiatry Psychiatr Epidemiol 2011;46:723-31.
8. Harris EC, Barracough B. Suicide as an outcome for mental disorders. A meta-analysis. Br J Psychiatry 1997;170:205-26.
9. Conwell Y, Duberstein PR, Cox C, Hermann JH, Forbes NT, Caine ED. Relationships of age and axis I diagnoses in victims of completed suicide: A psychological autopsy study. Am J Psychiatry 1996;153:1001-8.
10. Isometsä E, Hennikson M, Marttunen M, Heikkinen M, Aro H, Kuoppasalmi K, et al. Mental disorders in young and middle aged men who commit suicide. BMJ 1995;310:1366-7.
11. Challis S, Nielsissen O, Harris A, Large M. Systematic meta-analysis of the risk factors for deliberate self-harm before and after treatment for first-episode psychosis. Acta Psychiatr Scand 2013;127:442-54.
12. Marshall M, Rathbone J. Early intervention for psychosis. Schizophr Bull 2011;37:1111-4.
13. Qin P, Nordentoft M. Suicide risk in relation to psychiatric hospitalization: Evidence based on longitudinal registers. Arch Gen Psychiatry 2006;62:427-32.
14. Hall RC, Platt DE, Hall RC. Suicide risk assessment: A review of risk factors for suicide in 100 patients who made severe suicide attempts. Evaluation of suicide risk in a time of managed care. Psychosomatics 1999;40:18-27.
15. Ajdacic-Gross V, Lauber C, Baumgartner M, Malt T, Rössler W. In-patient suicide – A 13-year assessment. Acta Psychiatr Scand 2009;120:71-5.
16. Haukka J, Suominen K, Partonen T, Lönnqvist J. Determinants and outcomes of serious attempted suicide: A nationwide study in Finland, 1996-2003. Am J Epidemiol 2008;167:1155-63.
17. American Psychiatric Association. Diagnostic and Statistical Manual for the Classification of Psychiatric Disorders, 4th edition Text Revised. New York: American Psychiatric Publishing; 2000.
18. Nelson C, Johnston M, Shrivastava A. Improving risk assessment with suicidal patients: A preliminary evaluation of the clinical utility of the scale for impact of suicidality – Management, assessment and planning of care (SIS-MAP). Crisis 2010;31:231-7.
19. Overall JE, Gorham DR. The brief psychiatric rating scale. Psychol Rep 1962;10:799-812.
20. Hamilton M. A rating scale for depression. J Neurol Neurosurg Psychiatry 1960;23:56-62.
21. ChavanBS, Singh GP, Kaur J, Kochar R. Psychological autopsy of 101 suicide cases from northwest region of India. Indian J Psychiatry 2008;50:34-8.
22. Das PP, Grover S, Avasthi A, Chakrabarti S, Malhotra S, Kumar S. Intentional self-harm seen in psychiatric referrals in a tertiary care hospital. Indian J Psychiatry 2008;50:187-91.
23. Shrivastava A, Johnston M, Nelson C, Lester D. Predicting suicidality among psychiatric patients. Psychol Rep 2011;109:367-8.
24. Vijayakumar L, Umamaheswari C, Shujaath Ali ZS, Devaraj P, Kesavan K. Interventions for suicide attempters: A randomized controlled study. Indian J Psychiatry 2011;53:244-8.
25. Sarkar P, Sattar FA, Gode N, Basannar DR. Failed suicide and deliberate self-harm: A need for specific nomenclature. Indian J Psychiatry 2006;48:78-83.
26. Large MM, Nielsissen OB. Risk factors for inpatient suicide do not translate into meaningful risk categories – All psychiatric inpatients are high-risk. J Clin Psychiatry 2012;73:1034.
27. Melle I, Johannesen JO, Friis S, Haahr U, Jøa I, Larsen T, et al. Early detection of the first episode of schizophrenia and suicidal behavior. Am J Psychiatry 2006;163:800-4.