

# Rates and Risk Factors for Suicide Ideas among Schizophrenia Patients in Indonesia

Nurmiati Amir<sup>\*</sup>, Ronald Antoni, Asmarahadi Asmarahadi, Prianto Djatmiko, Siti Khalimah, Safyuni Naswati, Gerald M. Semen, Presetyawan Prasetyawan, Widayanti D. Wulandari

*Department of Psychiatry, Faculty of Medicine, University of Indonesia, Ciptomangunkusumo General Hospital, Jakarta, Indonesia*

## Abstract

**Citation:** Amir N, Antoni R, Asmarahadi A, Djatmiko P, Khalimah S, Naswati S, Semen GM, Prasetyawan P, Wulandari WD. Rates and Risk Factors for Suicide Ideas among Schizophrenia Patients in Indonesia. Open Access Maced J Med Sci. 2019 Aug 30; 7(16):2579-2582. <https://doi.org/10.3889/oamjms.2019.393>

**Keywords:** Schizophrenia; Suicide idea; Risk factors

**\*Correspondence:** Nurmiati Amir. Department of Psychiatry, Faculty of Medicine, University of Indonesia, Ciptomangunkusumo General Hospital, Jakarta, Indonesia. E-mail: [nurmiati.a@gmail.com](mailto:nurmiati.a@gmail.com)

**Received:** 11-Jun-2019; **Revised:** 12-Jul-2019; **Accepted:** 13-Jul-2019; **Online first:** 20-Aug-2019

**Copyright:** © 2019 Nurmiati Amir, Ronald Antoni, Asmarahadi Asmarahadi, Prianto Djatmiko, Siti Khalimah, Safyuni Naswati, Gerald M. Semen, Presetyawan Prasetyawan, Widayanti D. Wulandari. This is an open-access article distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (CC BY-NC 4.0)

**Funding:** This research did not receive any financial support

**Competing Interests:** The authors have declared that no competing interests exist

**BACKGROUND:** Schizophrenia is associated with a high rate of suicide.

**AIM:** Our study was aimed to identify the rates of suicide ideas in patients with schizophrenia as well as the risk factors associated with suicide ideas.

**METHODS:** As many as 1130 subjects were evaluated using the Indonesian version of Diagnosis Interview for Psychosis (DIP) to establish the diagnosis of schizophrenia. Subjects aged 18-65 years. The risk factors were socio-demographic data, mental disorder history in the family, clinical symptoms and clinical course of schizophrenia. Risk factors that have the strongest correlation with suicide ideas were analysed using multivariate logistic regression analysis.

**RESULTS:** About 6.1% of subjects reported suicide ideas in their life. The age of disease onset ( $p = 0.006$ ), family history of schizophrenia ( $p = 0.013$ ), poor concentration ( $p = 0.032$ ), loss of enjoyment ( $p = 0.000$ ), guilty feeling ( $p = 0.000$ ), family history of mental illness ( $p = 0.000$ ), nihilistic delusion ( $p = 0.001$ ) and alcohol abuse ( $p = 0.000$ ) were significantly associated with suicide ideas.

**CONCLUSION:** Suicide idea is quite common in people with schizophrenia. Evaluation and management of risk factors associated with suicide ideas should be performed to prevent suicide attempts or death. Suicide ideas and risk factors can become clinical parameters in the instrument of suicide prevention.

## Introduction

Schizophrenia is associated with a high mortality rate caused by various etiologies. Suicide is a major cause of early death in patients with schizophrenia. About 10% of patients with schizophrenia die due to suicide [1]. The prevalence of suicide attempt of a given period in the life of patients with schizophrenia ranges 20%-40% [2]. Suicides attempt is always preceded by suicide ideas. Suicide ideas can transition into suicide plans (34%), and suicide plan can also turn into suicide attempts (72%) [3], which then end as death because of suicide (10%) [4]. Nowadays, studies about suicide are more focused on suicide attempts and death due to suicide. Identification of suicide ideas of patients with schizophrenia is very important because immediate and appropriate interventions can be done, transition into suicide attempts and death due to suicide can be prevented.

In Indonesia, there is a lack of study about suicide idea in patients with schizophrenia. This study aimed to identify the rates of suicide ideas and risk factors related to suicide idea among schizophrenia patients.

## Methods

Our study was a cross-sectional study recruited 1130 schizophrenia patients, age between 18 and 65 years. Subjects were patients of outpatient clinics who visited several hospitals, i.e. Dr CiptoMangunkusumo National Central General Hospital, Soeharto Heerdjan Mental Hospital, Marzuki Mahdi and Duren Sawit Hospital.

Our study had received approval from the Ethical Committee, Faculty of the Medicine University

of Indonesia. Subjects gave informed consent form before their participation in interviews. All subjects were evaluated by a psychiatrist using an instrument of diagnosis interview for psychosis or the Indonesian version of Diagnosis Interview for Psychosis (DIP). Suicide ideas were evaluated by asking a question: "Have you ever thought to hurt yourself or to commit suicide or have suicide attempt all this time?"

Risk factors data were socio-demographic data, genetic history in the family, personal history, clinical symptoms and history of clinical history. Data were analysed using the SPSS program.

## Results

The following Table 1 shows the correlation between risk factors and suicide ideas.

**Table 1: Correlation between Risk Factors and Suicide Idea**

	Suicide Idea				p	OR	95%CI	
	Yes		No				Min	Max
	n	%	n	%				
Onset Age								
≤ 20 years	33	8.7%	345	91.3%	0.005	0.721	0.302 0.813	
> 20 years	34	4.5%	718	95.5%				
Occupation								
Employed	30	5%	573	95%	0.146	1.442	0.878 2.369	
Unemployed	37	7%	490	93%				
Marital status								
Married	21	6.3%	314	93.7%	0.754	0.918	0.539 1.564	
Unmarried	46	5.8%	749	94.2%				
Family history of psychiatric disorder								
Yes	49	4.7%	995	95.3%	0.000	5.378	2.969 9.730	
No	18	21%	68	79.1%				
Family history of schizophrenic disorder								
Yes	48	5%	910	95%	0.002	2.354	1.347 14.114	
No	19	11%	153	89%				
Social adjustment								
Good	49	5.8%	793	94.2%	0.789	1.079	0.618 1.884	
Poor	18	6.2%	270	93.8%				
Stressor								
Yes	46	5.4%	808	94.6%	0.174	1.447	0.847 2.470	
No	21	7.6%	255	92.4%				
Loss of enjoyment								
No	23	2.4%	109	71.2%	0.000	16.774	9.739 28.8	
Yes	44	28.8%	954	97.6%				
Poor concentration								
Yes	32	3.2%	970	96.8%	0.000	11.408	6.752 19.274	
No	35	27.3%	93	72.7%				
Early insomnia								
Yes	36	3.6%	964	96.4%	0.000	8.350	4.971 14.145	
No	31	23.8%	99	76.2%				
Self-blaming								
Yes	46	4.2%	1047	95.8%	0.000	29.87	14.6 61.023	
No	21	45.8%	16	43.2%				
Guilty feeling								
Yes	46	4.3%	1047	95.8%	0.000	13.43	4.56 23.43	
No	21	37%	16	63%				
Guilty delusion								
Yes	60	5.4%	1053	94.6%	0.000	12.285	4.518 33.40	
No	7	41.2%	10	58.8%				
Nihilistic delusion								
Yes	56	5%	1060	95%	0.000	69.4	18.829 255.8	
No	11	78.6%	3	21.4%				
Accusing voices								
Yes	15	6.5%	217	93.5%	0.698	0.889	0.491 1.610	
No	52	5.8%	846	94.2%				
Commentary hallucination								
Yes	26	8.2%	292	91.8%	0.045	0.579	0.359 0.994	
No	41	5%	771	95%				
Persecutory delusion								
Yes	21	7.1%	273	92.9%	0.576	0.889	0.491 1.610	
No	46	5.5%	790	94.4%				
Delusion of influence								
Yes	31	5%	590	95%	0.141	1.449	0.883 2.377	
No	36	7%	473	92.9%				
Insight								
Present	17	6.1%	262	93.9%	0.894	0.962	0.545 1.697	
Absent	50	5.9%	801	94.1%				
Alcohol abuse								
Yes	47	4.6%	985	95.4%	0.000	5.374	2.521 32.84	
No	20	20.4%	78	79.6%				
Good response to treatment								
Yes	4	5.6%	67	94.4%	0.913	1.059	0.374 2.999	
No	63	5.9%	996	94.1%				
Duration of illness								
≤ 1 year	67	5.9%	986	94%	0.745	0.943	4.273 6.453	
> 1 years	47	3.4%	77	56%				

Among 1130 subjects, male subjects were 74.2%, and female was 25.8%. Male subjects with suicide idea were 4.16%, and female subjects were 1.94%. The total subjects with suicide idea were 6.1%. The mean age was 33.34 years. About 3.27% of subjects aged ≤ 30 years had suicide ideas and 2.65% subjects aged > 30 years had suicide ideas.

Onset age, family history of psychiatric disorder and family history of schizophrenic disorder were correlated to suicide idea in patients with schizophrenia. Clinical symptoms, such as loss of enjoyment, poor concentration, early insomnia, self-blaming, guilty feeling, guilty delusion, nihilistic delusion, commentary voices or hallucination were significantly correlated to suicide idea. Alcohol abuse was also significantly correlated to suicide idea. Risk factors with p ≤ 0.25 were analysed using logistic regression. The final results are shown in Table 2 below.

**Table 2: Results of Multivariate Regression Analysis**

	B	SE	Wald	df	Sig	Exp(B)	95%CI for Exp(B)	
							Lower	Upper
Psychiatric disorder in family	-2.092	0.547	14.62	1	0.000	0.123	0.042	0.361
Schizophrenic disorder in family	0.847	0.522	2.633	1	0.013	2.333	0.839	6.493
Loss of enjoyment capacity	-1.610	0.425	14.359	1	0.000	0.200	0.087	0.460
Poor concentration	-0.902	0.413	4.773	1	0.032	0.406	0.181	0.911
Guilty feeling	-1.859	0.454	16.743	1	0.000	0.156	0.064	0.380
Nihilistic delusion	-2.602	0.832	0.9779	1	0.001	0.074	0.015	0.379
Alcohol abuse	-3.637	0.961	14.332	1	0.000	0.026	0.004	0.173
Age of disease onset	0.914	0.315	8.407	1	0.006	2.495	1.345	4.630
Constant	7.393	1.361	29.434	1	0.000	1624.16		

From the regression analysis, onset age, family history of schizophrenic disorder, poor concentration, loss of enjoyment, guilty feeling, family history of mental illness, nihilistic delusion and alcohol abuse were significantly correlated with suicide idea.

## Discussion

This study showed that the prevalence of schizophrenia was higher in male than female subjects. A previous study also has reported that the prevalence of schizophrenia is higher in men when it is compared to women [5]. The prevalence of suicide idea found in our study was higher than in a study conducted by Kessler RC et al., (2005), and is caused by focused on schizophrenic patients clinical setting, while the Kessler RC et al. study in a general population [6].

The suicide idea in our study was in the outpatient facility. According to Kontaxakis V, et al., (2004), the suicide idea rate is higher in schizophrenic

patients with the acute condition and who are in inpatient treatment [7]. Different culture and homogeneity may cause the low rate of suicide idea in our study. Lower rate of suicide may be found in a more homogenous population, i.e. most of the population has a similar lifestyle, tradition control, religion and customs. Religion is a protector factor for suicide [8], [9]. The low rate of suicide idea found in our study can be caused by the almost homogenous subjects recruited in our study.

Our study showed that there was no correlation between marital status and suicide idea. Kontaxakis V et al., (2004) also has reported a similar issue.<sup>7</sup>In contrast, Kaprio J, et al., (1987) has reported that the rate of suicide idea is twice higher in unmarried subjects when compared to those who are married. Luoma JB (2002) suggests that the rate of suicide idea in divorced individuals and widows is four to five times higher than those who are married [10], [11]. Clark DC et al., (1994) suggests that the presence of other individuals at home can be a protector factor as it can reduce social isolation. The presence of children may also give additional protection effect because of feelings of responsibility for their children [12]. In Indonesian culture, it is a common thing to live with extended family. Although unmarried, one usually lives with his / her extended family, such as in a nuclear family along with their siblings and family of the father or mother side (grandfather, grandmother, cousins, etc.). Living among extended family and having family support can be a protection for suicide idea. It is assumed that it also becomes the cause of the absent correlation between marital status and suicide idea in patients with schizophrenia.

Our study reported that the onset age ( $\leq 20$  years) was correlated to suicide idea. In this case, teenagers often have specific problems associated with their young age. For example, conflicts frequently occur in teenagers who are dealing with the new phase of their life. Krausz M et al., (1996) has also reported that the risk of suicide three times more frequent in schizophrenic patients who are a teenager or young adult age compared to those at adult age. The first two years of schizophrenic onset is a very vulnerable period. Suicides in young age schizophrenic patients are often associated with substance abuse [13].

Our study showed that there was no correlation between occupational status and suicide idea. Kontaxakis V et al. (2004) has also reported that there is no correlation between occupational status and suicide idea [7]. Kposowa AJ (2001) has reported that death due to suicide is two to three-fold higher in unemployed men than those who are employed [14]. In Indonesia, the living cost and treatment cost of patients with schizophrenia were paid by their family. Therefore, occupational status, including unemployment, does not become a stressor for patients with schizophrenia.

Our study showed that there was a correlation between a family history of psychiatric disorder and suicide idea. Jacobs DG et al., (2010) has also reported that suicide idea in patients with schizophrenia is also correlated with the history of the family with a psychiatric disorder, had been hospitalised in Psychiatric Ward or had other mental illness, such as substance abuse disorders. Some aspects of family dysfunction area such as family conflict, parting, parents with legal issues, domestic violence, sexual or physical violence are associated with suicide idea in the family members [15]. Results of our study showed that there was a correlation between family history of schizophrenia disorder and suicide idea in patients with schizophrenia. Individuals with direct exposure to suicide committed by adults in the previous 12 months more common have suicide idea, suicide plan and suicide attempt than those who are not exposed. Risk of suicide is higher in those who have siblings committing suicide or died due to suicide compared to the general population [16].

Our study reported that there was a correlation between various depression symptoms and suicide ideas such as loss of interest, poor concentration, early insomnia, self-blaming, guilty feeling, guilty delusion and nihilistic delusion. Kontaxakis V et al., (2004) have also reported that there is a strong correlation between suicide idea and various symptoms of depression such as guilty feeling, pathological guilty feeling, self-blaming and motoric retardation [7].

Our study also reported that poor concentration was correlated to suicide idea. Cognitive dysfunction is a core symptom of schizophrenia. The correlation between cognitive function and suicide idea is still controversial. Barret EA et al. (2011) reported that cognitive function correlated to the high risk of suicide [17].

Our study also showed that guilty feeling was related to suicide idea. Hawton K et al. (2005) suggests that about 50% of schizophrenic patients have at least one episode of depression in their life. Guilty feeling, which is one of the depression symptoms, has the strongest correlation to suicide idea [18]. Results of our study showed that acoustic hallucination in the form of commentaries was correlated to suicide idea. Junginger J (1995) also suggests that suicide idea is more common in schizophrenic patients who have hallucination compared to those without hallucination [19].

Our study reported that alcohol abuse was correlated to suicide idea. A similar result has also been reported by Drake RE et al., (1989), who suggests that alcohol abuse is a predisposing factor of increased suicide attempts in a patient with schizophrenia. Alcohol abuse is associated with the poor capacity of evaluation, treatment outcome, such as delusion, hallucination, depressive symptoms, disruptive behaviours, assaults and poor self-care

[20], [21].

**Limitations:** Some data was collected based on history, more likely to cause recall bias. Further study with a prospective design will be addressing this issue.

In conclusion, results of our study show that 6.1% of patients with schizophrenia have suicide idea. Eight factors have a very strong correlation with suicide idea, i.e. onset age (sociodemographic factor), family history of schizophrenia in the family (genetic factors), poor concentration, and loss of enjoyment, guilty feeling, nihilistic delusion (depressive symptoms) and alcohol abuse. These eight risk factors can be clinical parameters in the instrument of suicide prevention. Early detection and suicide intervention program are essential for schizophrenic patients, particularly patients with young age.

## Acknowledgements

Ronald Antoni, Asmarahadi Asmarahadi, Prianto Djatmiko, Safyuni Naswati, Gerald M Semen (Psychiatrists at Soeharto Heerjan Mental Hospital, Jakarta), Siti Khalimah, Presetyawan Prasetyawan, and Widayanti D Wulandari (Psychiatrists at Marzuki Mahdi Mental Hospital, Bogor, Indonesia).

## References

- Mann JJ. A current perspective of suicide and attempted suicide. *Annals of internal medicine*. 2002; 136(4):302-11. <https://doi.org/10.7326/0003-4819-136-4-200202190-00010> PMID:11848728
- Suokas JT, Perälä J, Suominen K, Saarni S, Lönnqvist J, Suvisaari JM. Epidemiology of suicide attempts among persons with psychotic disorder in the general population. *Schizophrenia research*. 2010; 124(1-3):22-8. <https://doi.org/10.1016/j.schres.2010.09.009> PMID:20934306
- May AM, Klonsky ED, Klein DN. Predicting future suicide attempts among depressed suicide ideators: a 10-year longitudinal study. *Journal of Psychiatric Research*. 2012; 46(7):946-52. <https://doi.org/10.1016/j.jpsychires.2012.04.009> PMID:22575331 PMCid:PMC3372684
- Hawley CJ, James DV, Birkett PL, Baldwin DS, De Ruiter MJ, Priest RG. Suicidal ideation as a presenting complaint: associated diagnoses and characteristics in a casualty population. *The British Journal of Psychiatry*. 1991; 159(2):232-8. <https://doi.org/10.1192/bjp.159.2.232> PMID:1773239
- Picchioni M, Murray R. Schizophrenia. *BMJ*. 2007; 335:91-95. <https://doi.org/10.1136/bmj.39227.616447.BE> PMID:17626963 PMCid:PMC1914490
- Kessler RC, Berglund P, Borges G, Nock M, Wang PS. Trends in suicide ideation, plans, gestures, and attempts in the United States, 1990-1992 to 2001-2003. *Jama*. 2005; 293(20):2487-95. <https://doi.org/10.1001/jama.293.20.2487> PMID:15914749
- Kontaxakis V, Havaki-Kontaxaki B, Margariti M, S, Kollias C, Christodoulou G. Suicidal ideation in patients with acute schizophrenia. *Can J Psychiatry*. 2004; 49(7):476-9. <https://doi.org/10.1177/070674370404900709> PMID:15362252
- Fenton WS, McGlashan TH, Victor BJ, Blyler CR. Symptoms, subtype, and suicidality in patients with schizophrenia spectrum disorders. *Am J Psychiatry*. 1997; 154(2):199-204. <https://doi.org/10.1176/ajp.154.2.199> PMID:9016268
- Bertolote J, Fleischmann A. A global perspective in the epidemiology of suicide. *Suicidology*. 2002; (7)2. <https://doi.org/10.5617/suicidologi.2330>
- Kaprio J, Koskenvuo M, Rita H. Mortality after bereavement: a prospective study of 95,647 widowed persons. *Am J Public Health*. 1987; 77(3):283-7. <https://doi.org/10.2105/AJPH.77.3.283> PMID:3812831 PMCid:PMC1646890
- Luoma JB, Pearson JL. Suicide and marital status in the United States, 1991-1996: is widowhood a risk factor?. *Am J Public Health*. 2002; 92(9):1518-22. <https://doi.org/10.2105/AJPH.92.9.1518> PMID:12197986
- Clark DC, Fawcett J. The relation of parenthood to suicide. *Arch Gen Psychiatry*. 1994; 51(2):160. <https://doi.org/10.1001/archpsyc.1994.03950020084009> PMID:8297215
- Krausz M, Mass R, Haasen C, Gross J. Psychopathology in patients with schizophrenia and substance abuse. *Psychopathology*. 1996; 29:95-103. <https://doi.org/10.1159/000284977> PMID:8861513
- Kposowa AJ. Unemployment and suicide: a cohort analysis of social factors predicting suicide in the US National Longitudinal Mortality Study. *Psychological medicine*. 2001; 31(1):127-38. <https://doi.org/10.1017/S0033291799002925> PMID:11200951
- Jacobs G, Ross J, Baldessarini J, Conwell Y. Practice Guideline for The Assessment and Treatment of Patients with Suicidal Behaviors. *APA Practice Guidelines*. 2010:32-35.
- Crosby AE, Sacks JJ. Exposure to suicide: Incidence and association with suicidal ideation and behavior: United States, 1994. *Suicide and Life-Threatening Behavior*. 2002; 32(3):321-8. <https://doi.org/10.1521/suli.32.3.321.22170>
- Barrett A, Sundet K, Simonsen C. Neurocognitive functioning and suicidality in schizophrenia spectrum disorders. *Comprehensive Psychiatry*. 2011; 52(2):210-216. <https://doi.org/10.1016/j.comppsy.2010.06.001> PMID:21295222
- Hawton K, Sutton L, Haw C, Sinclair J, Deeks JJ. Schizophrenia and suicide: systematic review of risk factors. *The British Journal of Psychiatry*. 2005; 187(1):9-20. <https://doi.org/10.1192/bjp.187.1.9> PMID:15994566
- Junginger J. Command hallucinations and the prediction of dangerousness. *Psychiatr Serv*. 1995; 46:911-914. <https://doi.org/10.1176/ps.46.9.911> PMID:7583501
- Drake RE, Osher FC, Wallach MA. Alcohol use and abuse in schizophrenia: a prospective community study. *Journal of nervous and mental Disease*. 1989; 177:408-414. <https://doi.org/10.1097/00005053-198907000-00004> PMID:2746194
- Barbee JG, Clark PD, Crapanzano MS, Heintz GC, Kehoe CE. Alcohol and substance abuse among schizophrenic patients presenting to an emergency psychiatric service. *Journal of Nervous and Mental Disease*. 1989; 177:400-407. <https://doi.org/10.1097/00005053-198907000-00003> PMID:2746193