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Original Research

Risk Factors of Agitation Among Schizophrenia Patients in Dr. Amino Gondohutomo Semarang Regional Psychiatric Hospital: A Cross-Sectional Study

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Abstracts

Introduction: Schizophrenia is a severe mental disorder associated with deterioration in the functions of daily life and social functions because it can reduce a person's quality of life. In the acute phase, many schizophrenic patients have agitated behavior where this behavior will risk injuring themselves and others because of that treatment costs increase. to determine the risk factors for agitation in schizophrenic patients in terms of age, gender, marital status, occupation, genetic history, and presence or absence of stressors. **Methods:** This research is a descriptive analytic using a cross-sectional design. The population in this study were schizophrenic patients at Dr. Amino Gondohutomo Semarang Regional Psychiatric Hospital. Research subjects will be taken using consecutive sampling techniques that meet the inclusion and exclusion criteria. Data collection used medical record data and the PANNS EC score to determine whether there was agitation. Data analysis included descriptive analysis with frequency and percentage distributions as well as hypothesis testing using the Chi Square test and logistic regression. **Results:** From the results of the Chi Square test and logistic regression, it was found that the factors of young age, male sex, unmarried, and unemployed were significant for PANSS EC with a prevalence value of 3.40 (1.13 – 10.22), 2.01 (1.14 – 3.56), 2.39 (1.36 – 4.20), and 2.07 (1.12 – 3.83). **Conclusion:** Factors of young age <40 years, male sex, unmarried, and unemployed are risk factors for the occurrence of agitation in schizophrenic patients at Dr. Amino Gondohutomo Semarang Regional Psychiatric Hospital.

Keywords: Schizophrenia, Agitation, Aggression, Health Risk

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INTRODUCTION

Schizophrenia is a severe mental disorder associated with deterioration in the functions of daily life and social functions because it can reduce a person's quality of life [1, 2]. The prevalence of schizophrenia even reaches 1% of the entire population in the world. The course of schizophrenia is often chronic and recurrent [3]. The 2018 Basic Health Research (Riskesdas) prevalence rate has increased compared to the 2013 Riskesdas with results of 1.7 per mil. The figures generated from Riskesdas data are a strong enough foundation to increase awareness of mental health. This disease is experienced in young men and women, namely aged 15-35 years, with a prevalence of between 0.6% and 1.9% [4]. Schizophrenia has a major impact on the socio-economic community; this is due to the large costs incurred, including treatment costs and loss of patient productivity. Especially in the acute phase, many schizophrenic patients behave aggressively, where aggressive behavior will risk injuring themselves and others, so that treatment costs increase [5, 6].

Aggressive behavior is a prominent issue in psychiatric disorders. Aggressive behavior itself is a response to anger, disappointment, feelings of revenge, or a threat that triggers anger. This anger can then escalate into violent behavior, manifesting as acts of assault, destruction, and even murder [7, 8]. In the field of psychiatric nursing, researchers extensively study the aggressive behavior of inpatient patients, often focusing on the professional attitude of health workers and addressing this issue as a primary focus in research reports. Therefore, aggressive behavior is not only a global issue but also a type of negative behavior that can cause harm to the target.

The results of the research conducted by Nijman, Foster, and Bowers obtained the results of 254 events from recorded mental patients, nurses were the most frequently targeted object (57.1%). Leaving the ward is the most common cause of aggressive behavior (29.5%). The most frequent form of violence by patients is verbal aggression (60%) [10]. Aggressive behavior itself becomes a threat to the physical and psychological health of nurses. Conditions like this do not rule out the possibility of mental disorders in nurses that will affect their performance, such as loss of motivation, boredom, and inability to work effectively, resulting in a negative impact on health services [11].

In patients with schizophrenia, it was also found that there was severe agitation, namely agitation in the acute phase of worsening, so that agitation is one of the symptoms that requires intensive treatment in schizophrenia. The incidence of schizophrenia is influenced by several factors such as heredity, age, gender, and stressors [10]. While the factors that can exacerbate agitation are also found, there are several factors that are not known for sure. There is some literature that examines the appropriate administration of antipsychotics that can affect the length of stay in schizophrenic patients in intensive care rooms [11].

Based on the background mentioned above, agitatedness is a symptom that needs to be taken into consideration during the acute phase, and the various factors that can influence agitatedness in schizophrenia remain unclear [12]. Therefore, the researchers sought to understand the factors that impact anxiety levels in patients with schizophrenia.

METHODS

This research pertains to the field of Psychiatry. The study was carried out at the inpatient ward of Dr. Amino Gondohutomo Semarang Regional Psychiatric, Central Java, from January 2022 to December 2023. This study is an observational analytic research using a cross-sectional design. The independent variables include age, gender, genetic history, marital status, occupation, and stresses. The dependent variable is an individual diagnosed with schizophrenia who exhibits agitation.

The study focused on the entire population

of patients diagnosed with schizophrenia. The eligible group for this study consisted of individuals diagnosed with schizophrenia who were receiving treatment at Dr. Amino Gondohutomo Semarang Mental Hospital from January 2022 to December 2023.The study utilized the Consecutive Sampling technique to collect samples from schizophrenic patients at Dr. Amino Gondohutomo Semarang Regional Psychiatric between January 2022 and December 2023. A total of 100 samples were included in the study based on their adherence to the inclusion and exclusion criteria. The inclusion criteria encompassed individuals who were admitted to the inpatient unit of Dr. Amino Gondohutomo Semarang Mental Hospital between January 2022 and December 2023, and had a confirmed diagnosis of schizophrenia. Additionally, these patients were required to have experienced impairment for a minimum duration of 2 years. Patients diagnosed with affective mood disorders who were not continuing their treatment were not included in the study.

The data collection method involved editing, coding, input, and cleaning procedures. The data analysis encompassed descriptive analysis, which involved examining the frequency and percentage distributions, as well as hypothesis testing. The Chi Square test was used to conduct bivariate analysis between the dependent variable and each risk factor variable, including age, sex, marriage, genetic history, occupation, and stressors. The multivariate logistic regression technique will be used to assess several risk factors collectively. Variables that yield a p-value of less than 0.05 from the bivariate analysis will be included in the test. The extent of the impact is quantified using the prevalence ratio (RP). Independent variables are classified as risk factors when their RP (relative prevalence) is greater than 1 and their 95% confidence interval does not include the value of 1. The data was analyzed using SPSS for Windows version 15.0.

RESULTS

This study used 100 patient data taken at the Medical Records Department of Dr. Amino Gondohutomo Semarang Regional Psychiatric in the period January 2022 – December 2023 using the consecutive sampling method. Data on the characteristics of the respondents are listed in Table1.

Table 1. Characteristics of Respondents

Sample Characteristics	Frequency n (%)	
	No Aggitation (n = 67)	Aggitation (n= 33)
Age		
<40 th	47 (70.1)	27 (81.8)
> 40 th	20 (29.9)	6 (18.1)
Gender		
Male	45 (67.1)	16 (48.5)
Female	22 (32.9)	17 (51.5)
Marital Status		
Married	49 (73.1)	16 (48.5)
Unmarried	18 (26.8)	17 (51.5)
Occupation		
Work	36 (53.7)	17 (51.5)
No Working	31 (46.3)	16 (48.5)
Genetic History		
Present	22 (32.9)	15 (45.5)
Absent	45 (67.1)	18 (54.5)
Stressor		
Present	37(55.2)	19 (57.5)
Absent	30(44.8)	14 (42.5)

According to Table 1, Most of the schizophrenic patients who were anxious were in the group of patients aged <40 years with as many as 27 people (81.8%), and there were 19 people with stressors (57.5%), while those who were not noisy were a group of patients who were mostly 45 men. (67.1%), had married status of 49 people (73.1%), had a job of 36 people (53.7%), and no genetic history of 45 people (67.1%).

After analyzing the characteristics of the respondents, we subjected the data to the Chi Square test to determine the PR and CI of each influencing variable, and to determine which variables were feasible to test with the multivariate test. The results of the chi square test can be seen in Table 2.

Table 2. Chi Square Test Results

Variable	PANSS EC		Total	p value	PR (95% CI)
	Aggresive	Non Assgresive			
Age					
≤ 40 tahun	29	45	74	0,018	3,40 (1,13 – 10,22)
> 40 tahun	3	23	26		
Gender					
Female	18	21	39	0,027	2,01 (1,14 – 3,56)
Male	14	47	61		
Marital Status					
Unmarried	18	17	35	0,005	2,39 (1,36 – 4,20)
Married	14	51	65		
Genetic					
Present	15	22	37	0,219	1,41 (0,81 – 2.64)
Absent	18	45	63		
Occupation					
Not Working	21	27	48	0,027	2,07 (1,12 – 3,83)
Work	11	41	52		
Stressor					
Present	19	37	56	0,224	1,54 (1,43 – 3,65)
Absent	14	30	44		

From the results of the Chi Square test using the continuity correction test, it was found that age was significant for PANSS EC with a prevalence value of 3.40 (1.13 – 10.22), gender was significant for PANSS EC with a prevalence value of 2.01 (1.14 – 3.56), marriage is significant to PANSS EC with a prevalence value of 2.39 (1.36 – 4.20), and employment is significant to PANSS EC with a prevalence value of 2.07 (1.12 – 3.83) so that the four variables are feasible to do multivariate test with logistic regression.

Table 3.Chi Square Test Results

Variavle	p value	OR	95% CI
Age	0,038	4,348	1,085 – 17,421
Gender	0,027	3,027	1,135 – 8,073
Marital Status	0,042	2,712	1,035 – 7,106
Occupation	0,044	2,713	1,026 – 7,174

The results of the logistic regression test on PANSS EC found that age, gender, marriage and occupation had a significant relationship to PANSS EC. The results show that all four variables have OR > 1 and IC does not include the number 1, namely age (4,348), gender (3,027), marriage (2,712), and occupation (2,713). Because OR > 1 and IC does not include the number 1, then the factors of age, gender, marriage and age can be referred to as factors that can influence the incidence of anxiety disorder in schizophrenic patients at Amino Gondohutomo Hospital Semarang as measured using the PANSS EC score.

DISCUSSION

Schizophrenic patients are said to be agitated if the symptoms of agitation, namely poor impulse control, tension, hostility, inoperability, and the presence or absence of agitatedness, are measured using a validated sub-scale of the PANSS score, namely the PANSS-EC. Each symptom is assessed by the doctor on a scale of 1–7, and if the total score is > 20 clinically, then it can be called acute anxiety disorder [13].

Based on the test results of the characteristics of respondents in schizophrenic patients who were hospitalized at Dr. Amino Gondohutomo Semarang Regional Psychiatric

in January 2022-December 2023, it showed that out of 100 patients consisting of 67 schizophrenic patients without agitated and 33 patients with agitated noises, 45 patients (67.1%) were male and the rest were female in schizophrenic patients without anxiety, while of the 33 patients with anxiety, there were 16 male patients (48.5%) and 17 female patients (51.5%).

From the results of the bivariate test with chi-square, it was obtained p = 0.027 (p < 0.05), and the results of the descriptive test showed that male sex had a PR value of 2.01 with a CI of 1.14 – 3.56, which means that schizophrenic patients with male gender are 2.01 times more likely to experience anxiety. The same thing was found in a study conducted on schizophrenic patients in England, where there was a significant relationship between male sex and the presence of physical aggression (49.2%), acts of assault (41.7%), and acts of violence against others (21.7%), whereas women have lower scores, namely physical aggression (38.8%), acts of assault (21.2%), and acts of violence against others (11.8%) [14].

This is different from the results of a study conducted by Krakowski (2004), where there was no difference between the sexes in the incidence of aggression. In that study, the percentages of women and men were similar. In women, there was higher verbal violence and acts of physical violence that appeared earlier. Positive psychotic symptoms in both women and men are associated with incidents of violence. Physical violence was found to be more common in males, where this was related to substance dependence, crime, and a history of skipping school [10].

Based on the test results of the characteristics of schizophrenic patient respondents who were hospitalized at Amino Gondohutomo Hospital Semarang in January 2022 - December 2023, it showed that out of 100 patients consisting of 67 schizophrenic patients without agitation and 33 patients with agitated noise, 47 patients (70.1%) had an age of 40 years and the rest > 40 years in schizophrenic patients without agitation, while of 33 patients with agitation, as many as 27 patients under 40 years (81.8%) and 6 patients over 40 years (18.1%).

From the results of the bivariate test with chi-square, the value of p = 0.018 (p <0.05) was obtained, and the results of the descriptive test showed that age <40 years had a PR value of 3.40 with a CI of 1.13 – 10.22, which means that schizophrenic patients with age 40 years are at risk of 3.40x greater for anxiety. This is similar to a study conducted by Anderson (2011), in which 115 psychiatrists found around 68% of violent acts of patients against medical personnel were committed by patients aged 30 years or younger [14]. This is presumably because the age group associated with important factors in schizophrenia, such as personality disorders and drug dependence on acute symptoms, is usually experienced by the younger age group [15]. The risk of future aggression is increased in patients with male gender, young age, diagnosed with a major mental illness, substance use, perpetrator's delusions, hallucinations, and irregularity in drug consumption [16, 17].

Based on the test results of the characteristics of schizophrenic patient respondents who were hospitalized at Amino Gondohutomo Hospital Semarang in January 2022-December 2023, it showed that out of 100 patients consisting of 67 schizophrenic patients without anxiety and 33 patients with anxiety, 49 patients (73.1%) were married and 18 unmarried patients (26.8%) were schizophrenic patients without anxiety disorder, while of the 33 patients with anxiety disorder, 16 patients were married (48.5%) and 17 patients were not married (51.5%).

From the results of the bivariate test with chi-square, it was obtained p = 0.005 (p <0x7E> 0.05), and the results of the descriptive test showed that unmarried status had a PR value of 2.39 with a CI of 1.14-3.40, which means that schizophrenic patients who are not married are at risk of 2.39x orders of magnitude larger; there is restless agitation. A similar

thing was found in a study conducted on schizophrenic patients in Ethiopia in 2019, where the prevalence of anxiety was significantly found in male sex, not working, a history of aggression, psychotic symptoms, alcohol dependence, and low social support, where this is associated with whether there is support from the family [14]. Research at Columbia also found that the risk of anxiety was increased by irregular drug consumption, alcohol use, and a history of previous aggression. This study is also significantly associated with young age, namely under 40 years and single, low social support, and the presence of paranoid symptoms [18].

In several studies, it is known that schizophrenic patients in developed countries are usually dominated by patients who are not married. Meanwhile, in developing countries, it is usually dominated by married patients [19]. However, it is known that marital status is significantly associated with clinical symptoms of schizophrenia. Married patients have a correlation with psychological adjustment and better physical condition, as well as social dysfunction and lower aggressiveness than those who are single or have been divorced. The existence of family and partner support is thought to play a very big role for patients [20].

Based on the test results of the characteristics of schizophrenic patient respondents who were hospitalized at Dr. Amino Gondohutomo Semarang Regional Psychiatric in January 2022-December 2023, it showed that out of 100 patients consisting of 67 schizophrenic patients without agitated and 33 patients with agitated noises, 36 patients (53.7%) worked and 31 patients did not work (46.3%) in schizophrenic patients without anxiety, while of the 33 patients with anxiety, 17 patients worked (51.5%) and 16 did not work (48.5%).

From the results of the bivariate test with chi-square, it was obtained $p = 0.027$ ($p < 0.05$), and the results of the descriptive test showed that non-working results had a PR value of 2.07 with a CI of 1.12 – 3.83, which means that schizophrenic patients who do not work are at risk of a 2.07x greater occurrence of restless noise. The same thing was found in a study conducted in Nigeria, where aggressive behavior was associated with young age (13-66 years), male, not married, and not working [17]. This is also reinforced by research conducted in Japan, where aggressive habits are also associated with substance abuse, interpersonal conflict, not working, and crime [14].

The limitations of this study are the small number of research samples and the multicenter-based research that has not been implemented. This research is also limited to knowing whether or not aggression occurs, not yet knowing the types of aggression such as verbal aggression, aggression towards objects, physical aggression, and aggression towards oneself, so further research is needed.

CONCLUSION

The risk factors for agitation in schizophrenic patients are young age, namely <40 years, male gender, marital status is unmarried, and unemployed. Genetic history has no significant effect on the incidence of agitation in schizophrenic patients. The presence or absence of a stressor has no significant effect on the incidence of agitation in schizophrenic patients. Further research regarding the factors that influence agitation in schizophrenic patients with a larger sample size and applying multicenter-based research is needed. Further research is needed regarding the relationship between risk factors and types of aggression, such as verbal aggression, aggression towards objects, physical aggression, and aggression towards oneself.

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CONFLICT OF INTEREST

All authors declare no conflict of interests.

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