

Combination of Antipsychotic Medication and Crisis Intervention on Outcomes of Acute Mental Illness Patient Scale

Arum Pratiwi¹, Juli Muhammad Kartiko², Pupus Risnawati³, Suwito³,
A Muhlisin⁴ and Arif Widodo¹

¹Psychiatric Nursing Department, Faculty of Health Science Universitas Muhammadiyah Surakarta, Jl A Yani Tromol Pos I Solo, 62271 717417.

²Emergency Unit, Psychiatric Hospital of Surakarta, Jl Sutami Kentingan Jebres Solo, 622717890405.

³Acute room, Psychiatric Hospital of Surakarta, Jl Sutami Kentingan Jebres Solo, 62271648920.

⁴Community and family Nursing Department, Faculty of Health Science Universitas Muhammadiyah Surakarta, Jl A Yani Tromol Pos I Solo 62271 717417.

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The Crisis intervention program is very crucial to reduce the violence of emergency and acute mental illness. In the present research, an adjusted violence scale instrument through the implementation of a crisis intervention program that was combined with antipsychotic medicine was proposed for acute mental illness patients. The Brøset's violence risk scale instrument was utilized to measure the patients' behavior with intervention; after that, it was refined (mixed method with concurrent embedded strategy) to adapt the measuring scales. Each patient was given a crisis intervention program and received similar antipsychotic medication that comprised of Chlorpromazine 300 mg/day, Haloperidol 15 mg/day, and Trihexyphenidyl 6 mg/day; then, the response was recorded for 7 to 12 days in an acute inpatient psychiatric unit. The instrument was adjusted to satisfy the changes in patients' behaviors throughout an intervention. Then, a trial procedure, verification, and validation were performed on the content of the instrument. The results revealed that a paired-samples t-test comparison of the panic level of 72 patients' violence was $t = -7617$ and probability 0.000. The proportion of agreement Cohen's kappa ($\hat{\kappa}$) can range from -1 to +1. It means that the kappa ($\hat{\kappa}$) equal to 0.667 represents a moderate agreement. Furthermore, since Probability was very low ($P < 0.05$). It can be concluded that there was different levels of patients' violence before and after the crisis intervention. The interrater statistical results confirmed that the majority of nurses had similar perceptions towards items of modified Brøset's violence risk scales.

Keywords: Crisis intervention, Anti-psychotic medication, Acute psychiatric patient, Violence scale modification

The crisis intervention program is crucial for the reduction of the violence of emergency and acute mental illnesses, and also provides high-quality access to mental health services. Monitoring the patients' violence during the crisis

period is important to determine the patients possibility moved to the sub-acute unit^{1,2}. The Brøset instrument is one of the tools that can be utilized to monitor the patient crisis development³; however, it needs to improvement of the high-

quality measuring instruments in a different setting. Crisis intervention is one of the important nursing care in an emergency room where the symptom progress of a patient depends on the intervention^{4,5}. On the other hand, the Indonesian Health Department explained that teamwork collaboration is the most significant factor in patients' progress in an emergency room⁶. It is discussed that teamwork in an emergency room are usually comprised of many actions such as triage systems where the team will select the patient's classification, and then determine the level of the patient's exigency^{7,8}. Some problems that should generally be handled in a psychiatric emergency unit are the diagnosed acute psychomotor agitation and suicide⁹. In a previous study, many different approaches have been proposed to solve this issue, and crisis intervention, further applied on suicide cases¹⁰. So, the monitoring of patient's violence is important in the recovery.

It is argued that there was lack of professional-patient interactions in a clinical observation of the patient¹¹, and there was an association between length of violence treatment and reduced relapse after transferring to the sub-acute room¹². Handling critical conditions in acute psychiatric patients is essential. The success of the action during this crisis will affect the next treatment. The treatment usually begin in the emergency unit. Acute room is an area in a hospital that is usually available with a team of specialized skills, and facilities and also infrastructure. This unit provides a range of emergency response services to patients as needed. Acute room is an emergency medical practice provided by a qualified health team to save the patient's life¹². Emergency services such as an acute room are provided by a competent health team that should be able to classify patients (such as identification of violence risk), managing patients, and report patient. The NSW Health Department describes that the emergency health teams should be explicitly certified, and be able to identify the patients, collaborate, communicate, and take professional action according to patient demands and develop services by research¹³. Emergency or acute team should have personnel capable of performing the action with a rapid reaction to the health assistance according to patients' demands^{6,13}.

In the psychiatric hospitals of Indonesia,

the acute psychiatric patients were managed with physical restrain and chemical injection. The psychosocial treatment is usually postponed until the maintenance room. Crisis intervention program is such an intervention that can be applied by nurses as modality therapy in the part of the nursing process¹⁴. It is a structured psychological therapy and was initiated by a psychiatry professor¹⁵; Currently, many experts apply this method to manage psychiatric emergency patients. Some studies found that the crisis intervention may decrease symptoms of anxiety and anger in patients^{15,16}. Therefore, the crisis intervention program is crucial to reduce the violence of emergency and acute mental illness, as well as provide the better-quality access to mental health services. The monitoring of patients' violence during the crisis period is important to determine the patients' possibility moved to the sub-acute unit. The violence risk instrument is one of the tools that can be applied to monitor the development of patient crisis; however, it needs to improvement of quality measuring instruments in a different setting.

In this study, a violence risk instrument was developed from Brøset. There were two main reasons why development of the Brøset risk violent scale. First, it is shown that there were differences in signs and symptoms of mental illness patient between western and developing countries^{17,18,19,20}. For example, some clinical vignette described that when schizophrenia patients anger, they expressed verbal treat as their experience of a western habit^{19,20}, on the other hand, a study said that schizophrenic patient from one of ethnic in developing country, express the verbal responses and behaviors as their culture. Furthermore, all acute patients in the emergency room showed behaviors as growth and development history¹⁸. Second, patients with mental illnesses in acute conditions should receive appropriate health services.

This research proposed adjusted violent scale instrument through implementation of a crisis intervention program that was combined with antipsychotic medicine for patients with acute mental illnesses. The antipsychotic medicine was included Chlorpromazine 300 mg/day, Haloperidol 15 mg/day, and Trihexyphenidyl 6 mg/day. Another purpose of this study was to compare individual violent before and after applied crisis intervention

program to reduce the symptoms of people with psychiatric emergency. The hypotheses were that a crisis intervention program can reduce symptoms, and evaluation of the violence risk tool can be modified and improved throughout the crisis intervention program.

Subjects and Methods

In this study, the mixed method design was applied with concurrent embedded strategy. It is argued that the design is an addition process of qualitative data during the period when the participants experience the intervention in an experimental trial²¹. In another word, it is an experimental trial to inform the development of procedures. This study compared the patients' violence before and after the intervention. During the intervention program, the study was also evaluating the Brøset's violence risk instrument using qualitative (trial, verification, validation) and quantitative (agreement test). One of the family members of the patient and one of the nurses were informed of the purposes, procedures, and potential risks of the study and provided verbal consent of their approval to participate in the investigation. The Ethics Committee approved all of the procedures of the mental hospital where the research was conducted. Data were gathered from 72 patients during three months in an acute psychiatric hospital within January and April 2018. Each patient was given a crisis intervention program for approximately 2 hours during staying in the acute unit per-day for 7 to 12 days. Previously, all patients with the characteristics of adult, Paranoia schizophrenia based on the International Statistical Classification of Diseases and Related Health Problems (ICD-10) codes, panic level, and receiving similar medicine (Chlorpromazine 300 mg/day, Haloperidol 15 mg/day, and Trihexyphenidyl 6 mg/day). The patients were measured using a violent risk tool. The implementation of crisis intervention program was conducted for the number of patients in the acute inpatient room by a psychiatric clinical instructor nurse, ten professional nurse students, and five attending nurses in the acute room; Part of the team were the researchers in this study. The psychiatric clinical instructor nurse led the program and trained the research procedure before the study be held. Each patient that presented in an acute room was applied of crisis intervention. During

applying the crisis intervention, the development of patients' violence was evaluated using a violent risk scale instrument. Modifications were made continuously following comments from mental health experts through group discussion. Two nurses applied the content of the violent instrument to 30 acute patients. Finally, the agreement toward the instrument (inter-rater reliability) was analyzed using the Kappa test.

Process of Data Analysis

Data analysis in this study included three stages. First, a dependent t-test was used to compare the patients' violent risk before and after the crisis intervention. Second, the amended version was utilized through the trial, verification, and validation to improve the content of the instrument. The review of an expert team enhanced the content validity included five senior nurses that were attending the emergency and acute department, and the researcher. Content analysis was held through group discussions throughout ongoing research to fix the instrument. The process of validation was initially described by the original 6 items of the Brøset's violent risk scale. The range of scales was as follows: low violence risk, moderate violence risk, and high violence risk. The present study was elaborated become sub-items to be 22 items, which were developed based on the patients' cognition, attitude, and behavior. After that, the range of scales was modified to be "Yes" (2) and "NO" (1). Third, to assess the interrater reliability of 22 items, Brøset's violence risk scale was applied to the nurses' agreements resulted from the Kappa test.

RESULTS

There was a total of 72 patients from the acute inpatient care that was involved at the end of the study. Medical record, observation, and therapeutic communication technique were applied to all selected patients. The demographic characteristics of the respondents are described in [Table 1].

It can be seen in the table 1, it shows that the majority of the respondents were male, aged more than 40 years old, junior high school, and suffering from mental illness more than ten years

Table 2 shows the part of the vary patients' depiction of behavior. The examples of the

description above are separated into behavior that consisting of confused, irritable, boisterous, verbal treats, physical threats, and attacking object. The description of the signs and symptoms assessed for each item of the Brøset violence checklist of several patients by the staff on the first-day assessment in the acute inpatient. The evaluation was conducted regarding the six components in the violence checklist scale. This description explain that why the nurse should check and re-check the patients' behavior by nurses to avoid check error on each item.

Table 3 describes that a paired-samples t-test was conducted to compare the panic level of 72 patients before and after a crisis intervention

program. The results of the paired-samples t-test show that the mean of panic level of patients differs before and after applying the crisis intervention program ($M = -.10600$; $SD = .76369$) at the 0.05 level of significance ($t = -7617$, $df = 4$, $n = 8$, $p < 0.05$, 95% CI with Probability .000). Furthermore, other items in each area that comprised of confused ($t = 11.420$ with Probability .000), irritable ($t = 38.513$ with Probability .000), boisterous ($t = 21.556$ with Probability 0.000), verbal treat ($t = 26.556$ with Probability .000), physical threat ($t = 19.315$ with Probability .000) and attacking objects ($t = 32.634$ with Probability .000) show that there were difference before and after intervention.

The value of Cronbach's alpha coefficient were low before the modification; there were just 12 number of reliable items with Cronbach's alpha reliability equal to .805 for violence checklist. Other items that reported to be unreliable encompass the items of verbal threats, physical threats, and attacking objects [Table 4].

Thereafter, the instrument then be applied between two observers. During the implementation of crisis intervention and in the last verification, the instrument was repaired, which indicated that the internal consistency was excellent for all number of items [Table 5].

Table 5 shows that there are two raters did assessment whether an acute patient was non-violent (1) and violent (2). The response data are paired observations of a number of same acute patients. There were 30 paired observations. The statistics analysis of cross-tabulation of the categories of the two variables from two routers and kappa reliability are given as follows on table 5. It can be seen that the table demonstrates the two non-violent and violent, which are related

Table 1. Demographic characteristic of the respondents

Variables	N	% Of Respondents
Age, years	9	12.3
20 – 29	16	22.4
30 - 39	47	65.3
40 - 50		
Gender		
Female	24	32.6
Male	48	67.4
Educational Level		
Primary school	8	12.2
Junior high school	26	36.7
Senior high school	24	32.6
Bachelor's degree	14	18.5
Length of psychotic diagnosis		
Less than 5 years	8	12.2
5-10 years	21	28.6
More than 10 years	43	59.4

Table 2. Patients' behaviours description

Brøset Items	Example of a description of the patients' behaviour
Confused	I do not know what time is it; I am at the palace now; there are angels whispered to me. I am in the city.
Irritable	Do you know it is privacy? Do not talk too much to me; The patient cried and said she wanted to go home.
Boisterous	The patient hit the bed while being restrained; shouting let me go, let go ...; paced back the road and screamed very hot, ash hot
Verbal threats	I am bored, return me to home (glaring); do not tie me, you base (shouting)
Physical threats	I want to hit you, go away (spat on the nurse).
Attacking objects	The patient hit another patient (kicked the bed).

to nurses' agreement on their judgment of acute patients' behavior. The table shows that among the 30 patients evaluated by the nurses, four patients displayed non-violent as agreed by both observers. In addition, both officers agreed that there were 16 patients who displayed violent behavior. Therefore, there were 14 patients (i.e., 6 + 4 + 4= 14) for whom the two nurses observer could not agree on their patients' behavior. Cohen's $\hat{\kappa}$ was run to determine if there was agreement between two nurses' judgments on whether 30 individuals in a psychiatric acute room were showed violent or non-violent behaviors. There was moderate agreement between the two officers' judgements,

$\hat{\kappa} = .667$ (95% CI, 0.300 to 0.886), and $p < 0.05$. It can be seen that Cohen's kappa ($\hat{\kappa}$) is .667. This is the proportion of agreement over and above chance agreement. Cohen's kappa ($\hat{\kappa}$) can range from -1 to +1. It means a kappa ($\hat{\kappa}$) of .667 represents a moderate strength of agreement. Furthermore, since Probability was very low (which actually means $p < 0.05$), the kappa ($\hat{\kappa}$) coefficient is statistically and significantly different from zero.

DISCUSSION

Majority the patients were 40 years old. The respondents in this study are schizophrenic

Table 3. Differences in the patients' panic level before and after the crisis intervention

Pair Before- After	Mean	Paired t-test differences				t	df	Sig. (2-tailed)
		Std Deviation	Std. Error Mean	95% confidence interval of the difference				
				Lower	Upper			
Panic level	-.10600	.76369	.14582	3.9944	4.5845	-7617	4	.000
Confused	2.8889	2.14644	.25296	2.38450	3.3928	11.420	71	.000
Irritable	4.43056	.97614	.11504	4.20117	4.65994	38.513	71	.000
Boisterous	2.63889	1.03876	.12242	2.39479	2.88299	21.556	71	.000
Verbal threats	2.13889	.67773	.07987	1.97963	2.29815	26.779	71	.000
Physical threats	1.41667	.62235	.07335	1.27042	1.56291	19.315	71	.000
Attacking objects	2.50000	0.65	.07661	2.34725	2.65275	32.634	71	.000

Table 4. Validity and reliability tests of modification of Brøset's violence checklist

Cronbach's Alpha	Validity and Reliability Statistics before Revision		Cronbach's Alpha	Validity and Reliability Statistics after Revision	
	Cronbach's Alpha Based on Standardized Items	N of Items		Cronbach's Alpha Based on Standardized Items	N of Items
0.805	0.789	12	0.862	0.886	22

Table 5. Cross-tabulation and symmetric measure of the modification of Brøset's scale

Observer 2		Total		Value	Asymp. Std. Error ^a	Approx-T ^b	Approx. Sig.
Non-violent	violent	30					
Observer 1	Non-violent	4	4	0.667	0.153	3.771	0.000
	violent	6	16				
	Total	10	20				

The measure of kappa agreement
N of Valid cases 30

patients when the respondents were identified using ICD-10. It is argued that Schizophrenia is a severe mental illness that disturbs an individual's ability to think rationally, manage emotions, make decisions, and interact^{1,22}. It was found in a previous study about the risk of schizophrenia that this illness commonly occurs in the early 20s for men and the late 20s to early 30s for women. It is unusual for schizophrenia to be diagnosed in a person younger than 12 or older than 40²³. Next, a number of the schizophrenic patients then were conducted crisis intervention. Crisis intervention is a strategy to reduce symptoms of the risk of patients' violence¹⁶. The Roberts' seven-stage crisis intervention model is comprised of (1) Psychosocial and Lethality Assessment, (2) Rapidly Establish Rapport, (3) Identify the Major Problems or Crisis Precipitants, (4) Deal With Feelings and Emotions, (5) Generate and Explore Alternatives, (6) Implement an Action Plan, and (7) Follow-Up¹⁵. The Brøset violence checklist (BVC) is an instrument for a relatively short period of time to predict the patient's violence²⁴.

During observation of the acute patients, the nurses and other observers confuse when they should choose each component in the Brøset items. For example, it can be seen on the table 2, on the item of "confused", a theme came from the patient expression showed "tangential speech". It is argued that one type of communication disorder on schizophrenic patients is loss of concentration, where usually show the verbal expression related to their experience^{17,1,22}. This one of proved why Brøse check list should be adjusted. Another illustration is the psychical treat item, it was hard to identify in the first adjusted because the patients were applying extremity of restraint. In the case of physical violence, commonly the patients had a history of break glasses, and hit a person, were the acts most reported threat or actual use of weapons of the family or relative frequently. When application the assessing of the patient's violent behavior, the nurses and other observers in the acute inpatient psychiatric unit appeared attention of their own psychological comfort. Seeing the patient in a number of panic signs and symptoms, these likely increase the nurses stress in acute unit and affect their action during a crisis intervention therapy program.

Change of the patients' violent that were

analysed by using a dependent t-test is concluded that there was statistical significance before, and after the intervention. These attitude and behavior responses to crisis intervention of the patients was different each other, resulting in improvement health outcomes. This result may prove that a study of relaxation therapy which show the positive relationships between the music therapy with the frequency of hallucination²⁵. Another study concluded that this finding is also in accordance with the concept of relaxation therapy that human's physiological response could be reduced with the stimulation of Alpha wave in the brain through relaxation therapy, like music therapy. The music therapy is one of the stage of crisis intervention in the escalation stage; therefore, relaxation therapy easily facilitates the psychological relaxation^{26,27}. Furthermore, a study proved that in their study of relaxation therapy on mental illness patient, where may release the patients stress level²⁸. Another study found that relaxation therapy may be reduce anxiety and depression²⁹.

Among the 81 participants accidental sampling, 9 fail in the de-escalation stage. There were differences between the 72 patients before and after the crisis intervention. However, they may influenced by medical treatment. It is suggested that on de-escalation stage (one on stage in crisis intervention) should involve environmental modification techniques and pharmacological treatment together during the intervention process³⁰. After crisis intervention, the participants reported better scores for the patients' violence responses. On the other hand, it could be found that during the crisis intervention, in the initial phase, 9 patients showed aggressive behavior, like shouted and screaming (I am feeling hot, go way, I am bored). Study by Bryan and team concluded that patients began to subside their negative symptoms after several times were given crisis interventions³¹. Secondary outcomes of improving Brøset were comprised of elaboration of the sentences and providing example actions at each stage; there were suggested that the items have relatively high internal consistency.

The kappa ($\hat{\epsilon}$) coefficient is statistically and significantly different from zero. The observation was conducted among 30 acute patients identified by the two nurses, they were judged for a detailed assessment of Brøset modification.

Interrater reliability with the Kappa is moderate, that means the Brøset modification can be applied. The validity test differs between before and after interventions, this may support that culture, grow, and development factors of the patients should be considered in accurately applying and interpreting the modification of Brøset's violence checklist. For instance, it is described in some clinical vignette that when schizophrenia patients got anger, they expressed verbal treat as their experience of a western habit¹⁸. On the other hand, the studies carried out by Pratiwi, McEldowney, Richardson, and He concluded that schizophrenic patients from one of ethnics in the developing countries express the verbal responses and behaviors as their cultures¹⁷. It is argued that the patients and families across these cities may involve their culture when it comes to help seeking for problem solving related mental illness³².

CONCLUSION

The interrater (kappa) testing for the Brøset's instrument revealed that the strength of the agreement is good. Crisis intervention of mental illness and emergency reduces violent responses. The level of the patient's violence variable is an important outcome, so using a valid and reliable instrument may enhance the research quality. According to validity, reliability, and verification results, it was found that the violence risk scale instrument was applicable to the acute patient. Combination of anti-psychotic medication and crisis intervention for the acute patients lead to the reduction of violence responses.

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Conflict of interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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