

The Effect of Aerobics and Poco-poco Gymnastics to Physical Energy Distribution on Schizophrenia Patients: A Systematic Review

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Abstract - Schizophrenia is the main problem of mental disorder in the world. Most of patients that enter the psychiatric hospital suffer from schizophrenia (85% with schizophrenia). Violent act upon the schizophrenia patients is in line, the rate of nursing diagnose patients who suffer from violent act is the largest number on patient with mental disorder. There are various therapy activities of energy distribution group developed and researched; among them are with gymnastics medium. There are still few review studies on the effects of aerobics gymnastics and poco-poco gymnastics physical energy distribution on schizophrenia patients in reducing the rate of violent act. The objective of the systematic review is to evaluate the effects of aerobics gymnastics and poco-poco gymnastics physical energy distribution on schizophrenia patients in reducing the rate of violent act. Literature searching is conducted on Google Scholar. The study is published in Bahasa Indonesia. There are 578,000 articles found, however only 3 studies fulfill the search criteria. The result of this review shows that the therapy group activity of aerobics gymnastics and poco-poco gymnastics can reduce the rate of violent act. It improves the score of aggression self control. This intervention can be conducted easily and inexpensively on the institutions providing mental health services.

Keywords: *aerobics, gymnastics, poco-poco, schizophrenia, physical energy distribution.*

Abstrak - Skizofrenia merupakan masalah utama gangguan jiwa di dunia, sebagian besar pasien yang masuk rumah sakit jiwa mengalami skizofrenia (85% dengan skizofrenia). Perilaku kekerasan pada pasien dengan skizofrenia berbanding lurus, angka penderita diagnosa keperawatan perilaku kekerasan merupakan jumlah terbanyak pada pasien dengan gangguan kejiwaan. Ada berbagai terapi aktivitas kelompok penyaluran energi yang dikembangkan dan diteliti diantaranya dengan media senam. Masih sedikit tinjauan studi tentang pengaruh penyaluran energi fisik senam aerobik dan poco-poco pada pasien skizofrenia dalam menurunkan angka perilaku kekerasan. Tujuan dari tinjauan sistematik adalah untuk mengevaluasi pengaruh penyaluran energi fisik senam aerobik dan poco-poco pada pasien skizofrenia dalam menurunkan angka perilaku kekerasan. Pencarian literatur dilakukan di Google Scholar. Studi yang diterbitkan dalam Bahasa Indonesia. Terdapat 578.000 artikel yang diperoleh, akan tetapi hanya 3 yang memenuhi kriteria pencarian. Hasil dari tinjauan ini menunjukkan terapi aktivitas kelompok penyaluran energi senam aerobik dan poco-poco dapat menurunkan angka perilaku kekerasan. Meningkatkan skor *aggression self control*. Intervensi ini dapat dilakukan dengan mudah dan murah pada instansi pemberi layanan kejiwaan.

Kata Kunci: *aerobik, penyaluran energi fisik, poco-poco, skizofrenia, senam.*

1. Introduction

Rapid economic social change and uncertain political social change result in the increase of mental disorder in human life. People who suffer from various problems and life pressures can be heavily stressed and at the end of the day become mentally disordered. As a result, symptoms of schizophrenia appear in which individual soul is broken and disharmony between mind and

willingness occurs. People with schizophrenia will suffer from cognitive, emotional, perception disturbance as well as behavioral disturbance. Chronic schizophrenia patients are generally unable to do basic functions independently, e.g. personal hygiene, appearance and socialization. Schizophrenia is a group of psychotic reactions that influence various individual areas, including thinking and communicating, receiving and interpreting reality, feeling and showing emotion and acting with socially unacceptable behaviors (Isaac, 2005).

Many studies report that individuals diagnosed to suffer from schizophrenia have higher rate to receive violent acts (American Psychiatric Association, 2010). A survey conducted by Sulastrri (2008) on 18 clients of violent act finds that 80% (14 people) of them have schizophrenia paranoid diagnose (Wahyuningsih, 2009). The most forms of violent act done by the client within this past year is self-physical violence that results in minor injury (84%), then followed by physical threat (79%), insult (77%) and verbal harassment (70%). A small number of nurses (20%) suffer from physical violence causing serious injury (Elita et al., 2012). Besides that, clients with violent act can do dangerous actions to themselves, other people and their surroundings, e.g. attacking other people, breaking up furniture, burning the house, etc. (Stuart, 2007; Sudeen, 1998). Therefore, a proper intervention to the clients with violent act is necessary because they risk injuring themselves, other people and surroundings.

One of the various nursing intervention methods to control violent act is by distributing energy in which the technique to channel the energy constructively where it enables the development of energy patterns such as catharsis, anger out bursting and inner sense constructively with no disadvantage to themselves and surroundings. Objective: distributing energy, destructive toward constructive, expressing feelings, improving interpersonal relationship. In order to achieve them, it is necessary to create a guideline of group activity therapy such as activity therapy of energy distribution group (Keliat, 2010). The forms of energy distribution therapy have been largely developed by using various methods, one of which is by gymnastics or physical exercise. With energy gymnastics, the held energy can be channeled and improve the blood flow to the brain so O₂ can be much absorbed in the brain and create relaxed so that the patient can sleep comfortably and more relax (Yulistanti, 2003, Akhmad et al., 2011).

World Health Organization (WHO) states that the number of patients with mental disorder is high, reaching up to 450 million people in 2013. The result of Basic Health Research 2013 shows that Indonesia has prevalence of heavy mental disorder 1.7 per mile, improving compared to the result of Basic Health Research 2012, i.e. 1.4 per mile. Several areas with the most heavy mental are Yogyakarta Special Region, Aceh, South Sulawesi, Central Java and Bali, being in the third position with prevalence 2.3 per mile. Schizophrenia is the main problem of mental disorder in the world, most of the patients entering the psychiatric hospital suffer from schizophrenia (85% with schizophrenia) that needs inpatient and it goes for a long time. Many signs and symptoms that appear in schizophrenia patients such as disorganized behavior, mumbling and catatonic behavior such as anxiety, delusion, hallucination, cognitive chaos, have become the base of nursing profession in establishing nursing diagnose.

The case of schizophrenia with Violent Act at *Klinik Utama Jiwa Nur Ilahi* reached 60% of the number of all cases. Compared to hallucination 20%, social isolation 15%, and depression 5%. Visits to schizophrenia case and violent act case need a constructive energy distribution taught in group activity therapy.

2. Methods

This research is a systematic review on the existing literature to evaluate the effect of energy distribution therapy of aerobic gymnastics and poco-poco gymnastics in reducing the rate of violent act. Search strategy aims to search for published articles. The search is done through Google Scholar because it is the largest database center for research in the field of health. The keywords used are the combination of Schizophrenia and Aerobic gymnastics and poco-poco gymnastics. The search is focused on the Indonesian journals published up to February 2019. Inclusion criterion is a study done to Schizophrenia patients with violent act, intervention covering the methods of aerobic gymnastics and poco-poco gymnastics with the outcome focusing on the reduction of violent act rate.

The article whose intervention conducts comparison with other intervention will be taken out

from the study. The study on the quality of every article is done by using standard format from The Critical Appraisals Skills Program (CASP). At a minimum there are three criteria used to evaluate whether every study has good quality and bias risk, i.e. is the study result valid?, what is the study result?, will the research result help locally?. There are 11 items of checklist used to conduct assessment with answer choices yes, no or not reported. From the search result done through Google Scholar (Figure 1), 578,000 articles are obtained by using a combination of keywords *Schizophrenia*, *Aerobic Gymnastics* and *Poco-poco Gymnastics*. 532 articles are excluded because they are duplicates. Thus, in total, only 8 articles are studied comprehensively, and finally, 2 articles are obtained that comply all search criteria.

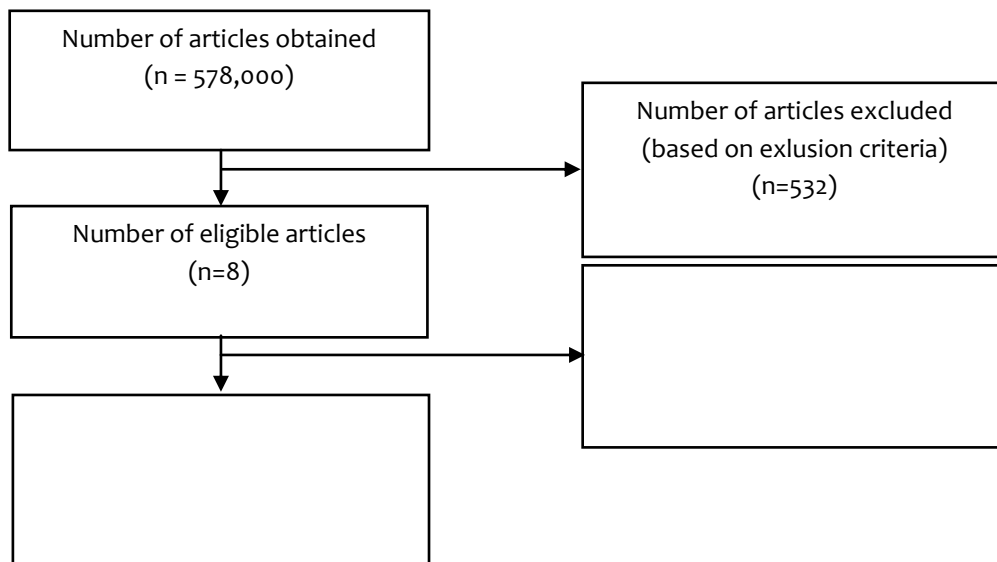


Figure 1. Flow diagram of a systematic review

3. Results and Discussion

The first journal is a quasy experiment with research design pre-test-post-test with control group. It was conducted on 31 July to 14 August 2009. There were total respondents of 60 patients, divided into 30 patients in experiment group and 30 patients in control group. The treatment was by giving aerobic gymnastics therapy twice a week, i.e. Aerobic – Low Impact gymnastics in one week, while the control group was the patient of violent act that were not given Aerobic – Low Impact gymnastics. The first step was to conduct measurement, then treatment, and measurement for the second time. The pretest and post-test was conducted simultaneously between two sample groups. Aerobic Low Impact gymnastics was conducted on the green zone (Yulistanti, 2003, Akhmad et al., 2011).

Five-point rating scale Aggression Self-Control Observatio n Sheet is one of psychosocial health outcome scales available in Nursing Outcomes Classification. Aggression Self-Control Score was used to measure the self-control ability on the possibility of actions to do attack, fight, and vandalism physically. Aggression Self-Control Score was measure with 22 assessment points, total score of 22-110. The result was that there was an increase of Aggression Self-Control Score. Aerobic Sport could successfully handle emotional stresses of anxiety, depression, fatigue and confuseness which were risk factors of violent acts toward the patients with mental disorder. Aerobic gymnastics by increasing the utilization of energy distribution and oxygen absorbance in a balance way resulted in endorphin that had relaxant effect so it can reduce the violence risk effectively. The second journal research used quasi experimental design with pretest-posttest design with control group. The research was conducted at Psychiatric Hospital (RSJ) Tampan, Riau Province, with a sample of 34 patients with violent act risk, divided into 17 people as experiment group and 17 people as control group taken by using sampling technique in a purposive sampling way.

The measurement tool used on the two groups was aggression self-control questionnaire in

which its validity and reliability had been validated. On the experiment group, intervention was given in a form of giving aerobic low impact gymnastics three times a week continuously within 2 weeks, while the control group was not given intervention. The research result showed that there was an increase of self-control aggression score significantly on the experiment respondents in which there was an improvement of patient ability in self-control towards violent acts covering actions to do attack, fight and vandalism physically. In the third journal on Poco-poco gymnastics, the method used was using pre-experiment with one-group pre-post test design. The sampling technique was using purposive sampling with a number of sample 22 people. The measurement tool was in a form of observation sheet on violent act symptoms. The research result showed a decrease of violent behavior risk rate. It showed that poco-poco gymnastics reduced the violent act symptoms. Violent act management through group approach was group activity therapy on energy distribution. The activities used were in the form of dance and movement, where the objective of doing the dance and movement was to distribute the patient's energy.

Physical activity in a form of poco-poco gymnastics gave positive activity to the patients, so they are able to focus on the problems faced currently, creating relax, safe and fun environment so it triggers the release of chemical substance Gamma Amino Butyric Acid (GABA), enkephallin, or beta endorphin that could eliminate neurotransmitter of depressed, anxious and stressed feelings so it created calmness and repair mood so the patient did not show the symptoms of violent act risk (Gani, 2013; Jayanti & Antari, 2019). There were many research on the effect of sport therapy and physical activity on mental disorder, but most of them were conducted toward patients with depression problem (Lawlor & Hopker, 2001). Faulkner and Sparkes (1999) did an examination on the effect of gymnastics as a therapy for patients with schizophrenia, and the obtained result was with 10 weeks time range, the gymnastics could help reduce hearing hallucination disturbance and increased a better sleep pattern (Daley, 2002).

A number of other research on physical activity and sport therapy on mental disorder suggested that the physical activity could improve patient's trust on other people (Campbell & Foxcroft, 2008) and also helped control patient's anger (Hassmén et al., 2000). Anger is a feeling that occurs as a response to anxious feeling that is felt as a threat (Stuart, 2007; Sudeen, 1998). Anger is one of violent act symptoms; violent act is individual behavior where patient risks him/herself to show psychologically, emotionally and sexually hurt other people and him/herself (Nanda, 2005).

Table 1. Result of Methodological Assessment

Authors	Location/ Country	Methods	Population and sample	Instrument used	Result
Akhmad et al., 2011	Banyumas, Indonesia	Quasy experiment	60 patients of violent act. 30 in experiment group and 30 in control group	Aerobic low Impact gymnastics	Obtained result showed that there was an effect of self control aggression improvement, in which aerobic gymnastics is effective to distribute energy held in the patient's mental.
Kirana et al., 2014	Riau, Indonesia	Quasy experiment	34 patients of violent act. 17 in experiment group, 17 in control group	Aerobic low Impact Gymnastics	Obtained result showed that there was an increase of Aggression Self Control Score
Jayanti & Antari, 2019	Bali, Indonesia	Pre-experiment	22 patients of violent act	Poco-poco gymnastics	Obtained result showed that there was a decrease of violent act on schizophrenia patients

Research on the effect of energy distribution therapy of aerobic gymnastics and poco-poco gymnastics on the decrease of violent act rate were very effective. From two research, the score of aggression self control increased and in the second journal, the observation result during the research time was that there was no violent act occurred. Methods of aerobic gymnastics and poco-poco gymnastics can be applied easily in institutions providing mental health services because there is no need of difficult technique and there are cost effective. Therefore there is no need of training or burdens on the budget. They are also safe for patients because their movements are very easy and do not make the patients injured.

The review result on the effect of energy distribution therapy on aerobic gymnastics and poco-poco gymnastics was that they are proven very effective in reducing the violent act rate on shizophrenia patients, in which gymnastics is a sport that can increas the blood flow to the brain so that the relaxant effect can reduce anxiety rate. Patients can sleep because the activity of distributing the held energy can be channelled. A number of other research on physical activity and sport therapy on mental disorder suggested that the physical activity could improve patient's trust on other people (Campbell & Foxcroft, 2008) and also helped control patient's anger (Hassmén et al., 2000). Anger is a feeling that occurs as a response to anxious feeling that is felt as a threat (Stuart, 2007; Sudeen, 1998).

Both aerobic and poco-poco gymnastics are able to increase aggression self control as well as negative energy distribution. Reduced physical activity can have impacts, one of which is on the blood circulation that is not maximum throughout the body. This is caused by blood vessels that are not elastic. As a result, oxygen and nutrition taken to the whole body are reducing, which result in the decrease of energy metabolism that will affect body organ functions (Yuli et al., 2015). Aerobic gymnastics utilizing energy distribution and balanced oxygen absorbance can increase endorphin that has relaxant effect so it can reduce the violence risk effectively (Yulistanti, 2003).

On the cilents with violent act risk diagnose, this research result is to be applied by the respondents to help increase aggression self control effectively and efficiently so they are able to improve their ability to control themselves on the actions to injure themselves, other people or their surroundings (Kirana et al., 2014). The regularity of the movements become one of the important factors in improving Aggression Self Control score. Besides that, providing effective gymnastics therapy is 2-3 times a week, and ideally it is done not less than 4 weeks with a duration of 20-30 minutes of aerobic gymnastics therapy (Akhmad et al., 2011). The provision of poco-poco gymnastics therapy gives beneficial activity to the patients and it is fun so it is beneficial to change patients' mindset, feeling and behavior in their adaptive ability toward the stressor. Patients that have good adaptive ability on unpleasant event will be able to show constructive behavior. Patients can also interact with other patients so it can imprvpe their socialization ability, self confidence, self expression ability and emphatetic feelings (Jayanti & Antari, 2019).

4. Conclusions

Fun and regular physical activities done can give maximum oxygen input for the brain and body so it triggers ralaxant and calm feeling so energy can be distributed well, and self control on the prevention of violent act upon themselves, other people and surroundings can be prevented. Aerobic low impact gymnastics and poco-poco gymnastics are proven effective in energy distribution and increasing aggression self control score. The research result proves the increase in the result of prior to and after the research, in which respondents of each research show calm attituded and there is no attack.

Both physical activities can be applied because there is no difficulty in conducting them. Their movements are also more simple than yoga, in which we have to concentrate, and zumba, which is too hard and fast. Thus, they can be applied in the institutions that put concenrs taking care of patients with mental disorder for nursing intervention variation, so the patient development level can be more significant.

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