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Ethics and Sport in Rehabilitation and Resocialization of Persons with Mental Illness

ABSTRACT

Context: Physical activity positively affects different symptoms of schizophrenia. Our goal is to establish its effect on emotional aspects on reduction of anxiety and depressive feelings in patients with schizophrenia. *Method and subjects*: The subjects were 38 female patients with schizophrenia, degree of anxiety and depression were measured before and after six-week-period of exercise. Exercise intensity was adjusted to individual age and physical fitness (recreational walking, stretching exercises and aerobic). *Results*: Depressive symptoms were considerably reduced in patients with established high degree of depression in all three groups of exercises and in patients with more pronounced anxiety in the stretching group. *Conclusion*: Physical activation positively affects mood by minimizing characteristics of depression and contributes to rehabilitation and resocialization of patients with schizophrenia.

Key words: sport, etika, duševno zdravlje, rehabilitacija, shizofrenija

Introduction

Indivisibility of body and mind are the foundations of integrated approach to promoting health of each person and treating different conditions. Body can be therapeutical to the ill psyche, but can also contain a dangerous, destructive potential. In its cruelest forms of destruction and self-destruction, aggression is aimed at the physical. Body language is at the same time the communication with the environment, non-verbal expression and a message. Clinical results have shown that once

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the communication between the body and soul is established and/or renewed and synchronized, body becomes capable of self-restoration. Terms mental disorder or mental illness are frequently mentioned in the context of increased corporal morbidity and mortality. Liaison psychiatry found a significant place and role in the treatment of physical conditions a long time ago.

A relationship with one's own body and with the physical is important and complementary in therapy planning. Recreational and sports activities for persons with mental disorders are important on the way toward the integrated rehabilitation. Communication with the external world is established through the physical. When serious disorders are present, such as endogenous disturbances, the relation between the internal and external realities changes, as well as between the "bodily boundaries and the external world". Thus, it is very important in therapy to approach recreational and sports activities ethically and with the knowledge of psychopathology and it implications on the total health to avoid the unwanted effect.

Ethical issues

In the process of rehabilitation and resocialization, each segment of professional care is significant so both cognitive rehabilitation and physical therapy are necessary and important parts of the process. The positive influence of the physical activity on mental health has been known since long time ago, and in modern times it has been scientifically founded. However, in the specific conditions of psychiatric institutions, a health care worker is faced with many professional and ethical challenges in the process of establishing and implementing that segment of the therapy.

The second article of the Declaration of Hawaii states: *"Every psychiatrist should offer to the patient the best available therapy to his knowledge and if accepted must treat him or her with the solitude and respect due to the dignity of all human beings. When the psychiatrist is responsible for treatment given by others he owes them competent supervision and education…"*. In search for the 'best treatment' many details should be considered. Mental illnesses often come in comorbidity with various different illnesses, which influences both psycho-pharmacotherapy and the choice of the physical activity. One should be particularly careful if the person has diabetes, hypertension, hear disease, atherosclerosis, etc. The choice of the physical activity will also depend on the type of pharmacotherapy for each individual patient but also on the personality or mental condition of each person. For example, for a person with weaker control of his or her aggressive behavior, team sport is a risky activity and such patient will be led towards individual aerobic sports, such as table tennis. However, the therapist is not the only one who defines the type of the activity for the recreation of the individual. Affinity of

the patient also has to be taken into consideration. Enjoying a physical activity is in positive correlation with keeping the continuity of the exercise and it is the precondition of positive influence on mental health. Imposed type of physical activity might have a psychologically negative influence on a person and be contra-productive. Certain types of exercises lead into situations of physical contact between a patient and a therapist. Such contact should always be ethically appropriate. But even well considered contact can be misinterpreted, and that possibility increases with working with mental patients. For that reason a physical therapist must be well trained for work with this specific category of patients. Some patients are reluctant to start with the exercises. They should be additionally motivated to overcome the initial inertia. Intrinsic motivation appears once the patient begins feeling positive changes in his body and continues gladly and even acquires a habit of exercising. Some may develop an addiction to the therapist, his or her support and presence. A therapist should encourage a patient to become independent in continuing with the physical activity for the well-being of his or her own body and spirit. In the Psychiatric Hospital Rab a team of experts (psychiatrists, a neurologist, an internist, nurses, psychologists, social workers, occupational therapists, physiotherapists) cooperate in planning a therapy and implementing a complete care for each individual patient involved in treatment. Three senior physiotherapists organize and take care of the realization of sports and recreational activities, which include recreational walking, aerobics, football, table tennis and a gym. Sports and recreational activities are aimed at reducing stress in mentally ill persons, increasing their physical energy, promoting positive emotions, improving interpersonal skills and developing self-esteem and awareness of their own rights and possibilities.

There are numerous studies which have proved a positive correlation between exercise and reduction of negative affective sensations (Graddy and Neimeyer, 2002; Ströhle, 2009; Conn, 2010). The influence of physical activity on the mental status is a very complex phenomenon, which is explained by a theory of the effect of endorphins, endogenous opoids that are released by a pituitary gland, and which are believed to cause analgesia, stimulate euphoria and have a rewarding role (they affect the additional release of serotonin, norepinephrine, dopamine and acetilcolin) and reduce the level of depression, anxiety, confusion and other negative moods. The link between physical activity and mental well-being is more expressed in women (Brill and Cooper, 1993).

Most surveys have dealt with the effect of exercise on the mood of the healthy population, but Vancampfort et al.(2010) examined the influence of physical activity in patients with schizophrenia and established a significant improvement of cardiovascular and metabolitical parameters and the reduction of psychiatric symptomatolo-

gy. Physical activity also contributes to social integration and helps patients in dealing with stress and improves their quality of life.

Faulkner and Sparkes (1999) worked out a ten week long program of exercise as a therapy for patients with schizophrenia which resulted in reduction of auditive hallucinations, increase of self-respect, improving of sleep cycle and the general behavior. Unfortunately, after the end of the program, the symptoms returned which indicates the necessity of the continuity of physical activity.

Chamove (1986, according to Faulkner and Sparkes, 1999) established that the patients with schizophrenia in comparison with healthy population have significantly lower level of physical abilities and usually have excess weight. He has examined 40 patients with schizophrenia and has come to a conclusion through self-evaluation and observation of medical staff that exercise results in significantly lower number of psychotic symptoms and motor disorders, decreased irritability, depression, tension, increased speed, decreased stiffness and more social interest.

Research suggests that engagement in regular physical activities has useful effects on positive and negative symptoms in schizophrenia, feeling of psychological well-being and reduction of anxiety and tension (Crone, Tyson and Holley, 2010). However, in order for physical activities to have a desired effect against anxiety and depression, they should be aerobic, non-competitive, rhythmical and repetitive which helps the introspective thoughts during the exercise, which in turn leads to positive mental changes.

By revising existing research, Holley, Crone, Tyson and Lovell (2011) have established that most research has been done on male patients with schizophrenia so we have decided to investigate if the results are similar in female population and we have investigated the effect of physical activity on the emotional aspect of psychological functioning through the dimensions of anxiety and depression in female patients with schizophrenia. So, the aim was to establish the difference in feeling anxiety and depression before and after several weeks of physical activity with the presumption that the symptomatology will be reduced as an effect of endorphin and neurotransmitter transmission, which are additional released during physical activity. In addition, it is expected that the differences in pulse before and after exercise will reduce after some time due to developing condition, which suggests the sufficiency of the activation.

Method

Subjects: 38 female patients undergoing treatment in Psychiatric Hospital Rab participated in the research. The average age was 45, ranging from 25 to 62. Research

was carried out during March and April of 2010. The criteria for the selection of subjects was their diagnosis, sample consists of patients with the diagnosis, according to MKB-10, within the group of schizophrenic, schizotype and delusional disorder (F-20 – F29). They were divided into three groups of physical activities, ranging according to the level of activity from the lowest to the highest level – recreational walking (13 patients), stretching exercises (14 patients) and aerobics (11 patients), and with regards to age and physical abilities with avoiding the comorbidity. Oscilations in medicament therapy was reduced to the lowest possible level.

Instruments of measure: to measure the level of anxiety symptoms a State/Trait Anxiety Inventory was used (STAI; Spielberger et al., 1968, 1977; translated into Croatian in 1998) which consists of two scales. We have used the scale which measures a temporary state of anxiety. It consists of 20 items. 10 measure the presence of anxiety symptoms, and 10 measures the lack of the symptoms. In order to form the final result it is necessary to re-code the items. It has been formed after the scale of Likert type and consists of four degrees in which number 1 means not at all, and number 4 means very much. The final result is positioned in the range from 20 to 80 points.

To evaluate depression, Beck Depression Inventory was used (BDI-II, Beck, 1996; translated into Croatian in 2009). It consists of 21 items, each item is a list of for statements listed according to intensity of a particular depression symptom from 0 to 3. Instructions were modified in a way that the subjects evaluated their current condition. The maximum number of points was 63.

Procedure: the research consists of three parts, initial self-evaluation of anxiety and depression, six weeks of exercises adjusted to physical abilities, and final assessment of emotional changes. Psychodiagnostic tests were carried out in groups with additional necessary explanations by the examiner, in the average duration of 30 minutes. During the following six weeks, three mornings a week, patients underwent group training under the supervision of physiotherapist. Their pulse was measured before and after the physical activity. Recreational walking lasted approximately 30 minutes, the path was 2000m long. Stretching consisted of exercises done on mats in the gym, and aerobics consisted of dance steps done in fast rhythm, both groups exercised for approximately 45 minutes.

In the final phase, after the period of training, a group re-testing was carried out using the same psychodiagnostic materials.

Results

The subjects in each group of activities were subdivided into two groups with regards to the level of felt symptoms of anxiety and depression. As a STAI-S cutoff a gross result of 50 was taken, meaning that the patients with results higher than 50 expressed noticeable symptoms of anxiety, and with the BDI-II the value of 20 was taken meaning that the results higher than 20 indicate depressive symptoms.

Descriptive statistics was used to calculate the measures of central tendency for the dimension of the level of physical activity (recreational walking, stretching, aerobics) according to established level of symptoms of depression and anxiety before and after the period of exercising and they have been shown in tables 1 and 2.

Table 1: Arithmetic mean and standard deviation for the dimension of physical activity with regards to the level of symptoms of anxiety and depression before starting exercising

	Recreational walking			Stretching			Aerobics		
	N	M	SD	N	M	SD	N	M	SD
No anxiety symptoms	6	34,17	7,86	7	36,43	5,63	7	33,43	4,35
With anxiety symptoms	7	56,86	6,12	7	58,00	5,83	4	59,75	3,27
No depression symptoms	5	12,00	4,47	6	11,17	4,99	5	11,20	3,83
With depression symptoms	8	30,88	6,72	8	29,50	7,26	6	29,00	4,65

Table 2: Arithmetic mean and standard deviation for the dimension of physical activity with regards to the level of symptoms of anxiety and depression after exercising

	Recreational walking			Stretching			Aerobics		
	N	M	SD	N	M	SD	N	M	SD
No anxiety symptoms	6	37,00	6,45	7	35,43	4,79	7	31,00	4,50
With anxiety symptoms	7	49,86	5,87	7	50,57	7,74	4	57,75	4,18
No depression symptoms	5	12,40	5,37	6	7,70	5,46	5	9,40	4,77
With depression symptoms	8	27,13	5,98	8	20,63	9,80	6	19,00	6,23

With the purpose of controlling the arithmetic mean difference for each group of physical activities with regards to the level of symptoms before and after exercise, a

t-test was applied (paired–samples t-test). Statistically relevant differences were observed in patients with depressive symptoms in all three groups of physical activity, recreational walking (t=2,73; df=7; p<0,05), stretching (t=5,55; df=7; p<0,01) and aerobics (t=2,88; df=5; p<0,05).

In patients with anxiety symptoms, the relevant difference was observed only in the stretching group ((t=3,63; df=6; p<0,05). Regular exercises, regardless of the activity level, has significantly reduced the symptoms of depression, while only stretching exercises have reduced the anxiety symptoms. In the control group, which did not experience serious symptoms of anxiety and depression, have not seen any difference in symptoms before and after exercising.

Difference in pulse in the beginning and the end of each training shows gradual fall through a six-week period of exercise. Measures of central tendencies have been shown in table 3. The result indicate the reduction in difference at the starting and finishing pulse, which suggests gradual building of conditions so it can be concluded that the intensity of exercise, proportional to a somatic status of patients, was sufficient and its efficiency was satisfactory.

Table 3: Arithmetic mean and standard deviation for each difference between the starting and finishing pulse during each training.

	Differences in pulse during each training								
	P1	P2	P3	P4	P5	P6	P7	P8	P9
M	-32, 57	-27,81	-25,55	-26,87	-23,18	-25,21	-27, 31	-27, 10	-24, 87
SD	15,52	14,97	17, 92	10,77	11,10	11, 75	12,10	12,02	8, 71
	P10	P11	P12	P13	P14	P15	P16	P17	P18
M	-21,50	-22, 37	-20, 39	-18, 18	-17, 82	-17, 76	-18, 76	-18, 21	-18, 45
SD	9, 78	9, 25	10, 22	7, 66	7, 88	5, 94	5, 40	5, 31	3, 91

Discussion

Results lead us to conclusion that in patients with schizophrenia, adequate, sufficient, intense physical exercise, regardless of age and physical fitness has good effects on emotional aspect within the domain of depressive sensations in a way that it significantly reduces them and contributes to the stabilization of the clinical picture. The results are consistent with the previous research by Pelham and Campagna ((1991, according to Daley, 2002) who examined physical, psychological and social effect of the exercise in patients with schizophrenia and determined the trend of de-

pression reduction (measured with BDI), increase in general well-being and improvement of physical capabilities

In the sphere of anxiety symptoms, the results are mixed and do not allow for general conclusions regarding the benefits of exercise for anxiety reduction, which is what Martinsen (1995 according to Daley 2005) already concluded while examining the effect of the exercise on different types of anxiety disorders. His results were various and incoherent which indicates that persons with anxiety disorders differently react to exercise. However, it is clear that exercise does not do any harm, even though its effects may be only physical so it is good to advise patient to participate in some type of recreation. Physical activity stimulates interest for external world which results in increase in motivation and meaningful activities. Activities enable transfer from symptoms and problems into a real world (Faulkner and Sparkes, 1999). Physical activity as a part of psychomotor therapy has a significant role within a multidisciplinary frame of schizophrenia treatment.

Results are stimulating and encouraging, but because of the heterogeneity of schizophrenic symptoms and frequently different pharmacological therapies and different types of psychotherapy, it is difficult to evaluate the base and changed condition and generalize the results.

Furthermore, it should be aware of the different previous physical condition and health condition. It is difficult to determine which results are due to the applied therapy (in this case exercise), and which are the results of medications which may not be, for ethical reasons, eliminated. There is also a question about the reliability of the self-evaluation of mental patient, regardless of the fact that their state was not acute and psychotic. In conclusion, due to complexity of the functioning of a person with schizophrenia, it is difficult to control all the aspect and come up with unambiguous conclusions.

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