

PHYSICAL ACTIVITY AND HEALTH: THEIR IMPORTANT ROLE ON PSYCHOTICS

CHRISTOS KONSTANTINIDIS¹, EVANGELOS BEBETSOS^{1*},
PANAGIOTIS ANTONIOU¹, ANTONIOS KAMPAS¹

¹*School of Physical Education & Sport Science, Democritus University of Thrace, Komotini, Hellas, GREECE.*

**Email: empempet@phyed.duth.gr*

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ABSTRACT

The purpose of this study was to examine the relationship between exercise and health, mental and physical, of those classified as schizophrenic. The questionnaire 'the ALPHA-FIT test battery for adult aged 18-69 years of Suni, Husu and Rine (2008) was used, for measuring the physical possibilities and recording of psychosomatic status of sample people. The sample consisted of 57 subjects ($N = 57$), which were divided into three groups. More specifically, the first group consisted of 20 individuals ($n_1=20$) who received a psychiatric diagnosis of schizophrenia and are physically active, the second group consisted of 17 individuals ($n_2=17$) who received a psychiatric diagnosis of schizophrenia without being physically active, and finally, the third group of 21 individuals ($n_3=21$) who did not receive any psychiatric diagnosis and are physically active. These people voluntarily participated in the research, signing the relevant affirmation. The results showed that the health self-esteem, physical condition and age significantly related to the physical activity level of the participants. From the research it is found that the Alpha-Fit test is suitable for psychotic people and the practices that have been used for general people well-being can be used for psychotics as well. Also it seems that the field of mentally sick people has to be investigated further more.

Keywords: Physical effects, schizophrenia, self-esteem, self-image/body-image, age.

1. INTRODUCTION

Schizophrenia has been known since ancient times (McNally, 2009). From the beginning of 20th century the attitude adopted towards the "schizophrenia" is the fragmentation of the old perception of madness in "diseases" (psychosis) (Hor, &

Correspondence: Evangelos Bebetos (Ph.D.), Associate Professor, School of Physical Education & Sport Science, Democritus University of Thrace, Komotini, Hellas, GREECE, Tel: +3025310-39712, Email: empempet@phyed.duth.gr

Taylor, 2010), to reach nowadays at the “spectrum of psychoses” (DSM-V). According to DSM-IV, a narrow definition of psychosis refers to delusions or prominent hallucinations without sensitivity. The best known form of psychosis is schizophrenia. Today we view schizophrenia as a syndrome characterized by intense alteration of the internal and external reality, in which the individual responds in ways that harm his life. This alteration or distortion of reality presented with symptoms-perception distortions in thought, feeling, speaking and psychomotricity (McNally, 2009).

Identifying prevention and intervention strategies to reduce mental disorders like depression and anxiety disorders, that can be applied to populations inexpensive and without side effects, it is necessary, as depression is expected to be the main mental disorders globally by 2020 (Murray & Lopez, 1996; Goodwin, 2003). The studies of previous years has repeatedly shown that physical activity is associated with improved psychological well-being, physical health, life satisfaction, and cognitive function (Meyer, Davis, Mcevoy, Davis, McEvoy, Goff, ..., & Lieberman, 2008; Goodwin, 2003). Specifically, studies have shown that the symptoms of anxiety and depression are reduced through physical activity (Rehor, Dunnagan, Stewart, & Cooley, 2001; Wyshak, 2001; Dimeo, Bauer, Varahram, Proest, & Halter, 2001; Dunn, Trivedi, & O’Neal, 2001). Although in these studies have been found and the negative connection of people with anxiety and depressed in relation to the positive relationship with the physical activity. The link between certain characteristics of depression and schizophrenia and the limited number of studies on the relationship of physical activity and schizophrenia could lead to the design and implementation of exercise programs for people suffering from depression and also people characterized as schizophrenics. In the broad spectrum of psychoses, the term schizophrenia refers to a syndrome with distinctive features the long duration, strange hallucinations, negative symptoms and some emotional symptoms (non-affective psychosis) (Van Os, 2010). In terms of physical activity, no mechanism has yet to be found to adequately explain the scale of the impact on the mental health possibly through participation in physical activity. Currently, possible mechanisms for changing the psychological state through physical activity and exercise fall into one of three broad perspectives: (1) biochemical changes, such as increasing the levels of neurotransmitters (eg. endorphins and serotonin), (2) changes in physiology, such as improving cardiovascular function, muscle function and thermo genesis, and (3) psychological changes, such as social support, a sense of autonomy, improved perceptions of the self-adequacy, enhanced body image, self-efficacy and distraction (Mutrie, & Faulkner, 2003).

Out of the confines of psychiatric diagnoses, physical activity appears to prevent people from weight gain and recommends for weight loss and weight maintenance programs (Donnelly, Blair, Jakicic, Manore, Rankin, & Smith,

2009). As schizophrenia is associated with significant physical attendance problems, such as hypertension, diabetes, cardiovascular diseases and obesity, unhealthy lifestyle, and increased morbidity and mortality, physical activity can be a way of reducing the risk occurrence of these health problems in adults with schizophrenia and improve health and quality of life of these individuals (Janney, 2012). Since the degree of obesity and overweight in adults with schizophrenia equals or exceeds epidemic levels observed in the general US population (Allison, Fontaine, Heo, Mentore, Cappelleri, Chandler, Weiden, & Cheskin, 1999), physical activity may be especially beneficial to adults with schizophrenia who are overweight or obese, reducing the risk of cardiovascular disease, diabetes and premature mortality (Janney, 2012). Concerning to physical health, multiple studies suggest that individuals with schizophrenia exhibit a high rate of cardiovascular diseases, diabetes, obesity and premature mortality (Faulkner, 2005a). The most important is that these physical conditions are closely related to lack of physical activity.

Therefore, the purpose of this study was to examine the relationship between exercise and physical health of individuals classified as schizophrenics and make a record of the relationship between physical activity (exercise) and health of mentally sick people. It should be mentioned that similar study is very limited in Greece.

2. METHODS AND MATERIALS

2.1 Sample

The sample consisted of 58 individuals, who were divided into 3 groups according to their mental and physical stage. More specifically, the first group consisted of 20 individuals ($n_1=20$) who received a psychiatric diagnosis of schizophrenia and are physically active, the second group consisted of 17 individuals ($n_2=17$) who received a psychiatric diagnosis of schizophrenia but they are not physically active, and finally, the third group of 21 individuals ($n_3=21$) who did not received any psychiatric diagnosis and are physically active. They are considered of “general public”. Additionally, the sample was divided into 3 age groups, 1st from 21-28 yrs. of age ($N=21$), 2nd group from 29-44 yrs. of age ($N=21$), and 3rd group from 45-> ($N=16$).

2.2 Instruments

The modified version of the ALPHA-FIT Test Battery for Adult Aged 18-69 developed by Suni, Husu, and Rine, (2009) was used. The test consisted of 4 questions of the following 2 factors:

- 1) “Somatic Activity” was estimated by the mean score of the responses to 2 questions, for example: “In which during your free-time physical activity group do you belong to?”. Responses were given in 6-point Likert-type scale, were 1=No physical activity at all, to 6=At least 4 times per week.
- 2) “Health” was estimated by the mean score of the responses to 2 questions, for example: “How do you consider your physical condition in comparison with that of other people of the same age?” Responses were given in a 5-point Likert-type scale, were 1= Definitely much worse, to 5=Definitely much better.

Researchers informed all subjects that their participation was completely voluntary and the individual responses would be held in strict confidence.

2.3 Data Analysis

In order to investigate differences between sexes, and physical activity groups for the factors of “somatic activity”, and “health”, univariate analyses (Two-Way ANOVA) were conducted. The post hoc multiple comparisons Scheffe test was used to define the statistically significant differences between groups. Finally, One-Way ANOVA analyses were introduced in order to find any “somatic activity”, and “health” differences regarding to age.

3. RESULTS

3.1 Psychometric characteristics

Using the Cronbach coefficient α , internal consistency ranged for Somatic Activity 0.72 and for Health 0.71. It must be mentioned that relatively low consistency might occur due to few number of items in the factors (Kim & Mueller, 1978).

3.2 Univariate ANOVA Analyses

- a) The analyses revealed statistically significant differences for the factor of “somatic activity”, only between physical activity groups $F_{2,64}=12.396$, $p<0.001$. More specifically, post hoc Scheffe test showed that the differences were detected between 2nd group ($M=2.5$, $SD=0.91$) with both 1st ($M=3.8$, $SD=0.99$) and 3rd ($M=3.4$, $SD=0.79$).
- b) The analyses revealed statistically significant differences for the factor of “health” only between physical activity groups $F_{2,64}=26.364$, $p<0.001$. The post hoc Scheffe test showed that the differences were detected between 3rd group ($M=4.3$, $SD=0.67$) with both 1st ($M=3.3$, $SD=0.92$) and 3rd ($M=2.5$, $SD=0.91$).

3.3 One-Way ANOVA Analyses

(a) For the factor of “Somatic activity” a significant main effect was shown: $F_{2,58}=3.43$, $p<0.05$. More specifically, differences were indicated between 1st group ($M=3.62$, $SD=0.89$), and 3rd ($M=2.83$, $SD=1.09$).

(b) For the factor of “Health” a significant main effect was shown: $F_{2,58}=13.63$, $p<0.001$. More specifically, differences were detected between 1st group ($M=4.21$, $SD=0.78$) with both 2nd ($M=3.18$, $SD=0.90$) and 3rd ($M=2.74$, $SD=1.21$).

4. DISCUSSION

Schizophrenia is a severe and chronic mental illness that affects approximately one to four percent of the population. From surveys seem that the statistical data maintains its timelessness. From the literature it seems that knowledge about schizophrenia moving into regional levels, without being able to determine with absolute precision the origin and treatment of (Naqvi, Murtaza, Nazir, & Naqvi, 2010). Because of this, any data resulting from research on this give a new thrust in the desired direction.

The purpose of this study was to examine the relationship between exercise and physical health of individuals classified as schizophrenics and make a record of the relationship between physical activity (exercise) and health of mentally sick people. The recording of this relationship was made by the same people who have received the diagnosis of psychosis. In parallel performed a comparison among individuals suffering from mental health problems, with a group of people without diagnosed with mental problem.

The questions that were answered by the sample came from the ALPHA-fit test battery of Suni, Husu and Rine (2009). The selection was based on previous modern surveys (Jokela, & Mäenpää, 2012). It has been suggested that physical activity can improve the quality of life of adults with schizophrenia, providing physical and psychological benefits (Faulkner, 2005). The involvement of exercise in the healing process of people with schizophrenia seems to work positively. Looking at the present results, it is easily understood that people who have received the diagnosis of schizophrenia and not exercise, are in worse physical condition than those with the same diagnosis who workout. Several lifestyle factors adversely affect the physical health, as patients with schizophrenia are likely to smoke (McCreddie, 2003), being physically inactive (Lindamer, McKibbin, Norman, Jordan, Harrison, Abeyesinhe, & Patrick, 2008; Vancampfort, Probst, Sweers, Maurissen, Knäpen & De Hert, 2011), suffer from malnutrition due to unhealthy diet (McCreddie, 2003) and be minimally involved in aerobic exercise (Strassnig, Brar, & Ganguli, 2011; Heggelund, *et al.*, 2011). Therefore the need for greater involvement of people with mental disorder in

exercise is direct, as the benefits of exercise have positive results in special populations too, as in the general population. People with mental disorders have the same physical health needs, as general population. A habit of people with serious mental illness is to maintain for years a more sedentary lifestyle than those of the rest of the population (Brown, Birtwistle, Roe, Thompson, 1999; Chamove 1986; Davidson, Judd, Jolley, Hocking, Thompson, Hyland, 2001) and is therefore more susceptible to high risk for chronic medical problem situations associated with inertia (Gorczynski, & Faulkner, 2010). At the same time, lack of physical exercise may contribute to this situation (Gorczynski, & Faulkner, 2010). Therefore psychotics living in a situation where the exercise seems like something distant and foreign, and often they refuse on their own to be involved, showing their feelings of self reduction. The research showed also the improvement of self-image of people with mental illness because of the exercise. As a self-assessment questionnaire was used, people with schizophrenia who do not exercise had a worse image of themselves than those who exercise, and those who have designated as schizophrenic or not. These results confirmed an earlier research supporting that exercise improves mental health and wellbeing, reduces depression and anxiety and enhances cognitive function (Taylor, Sallis, & Needle, 1985; Callaghan, 2004). These three factors play an important role in schizophrenia. Additionally, results showed that younger the individuals, the more engaged were in physical activity. Once again the psychopathology indicator does not affect the peoples' interest in exercising. Therefore, a logical conclusion which is derived is associated with the strengthening of the trend towards participation in physical activity for people with schizophrenia from an early age. At the same time, similar results were indicated on studies with sick individuals (Chiang, Huang, & Fu, 2006; Dimitrakaki, Porpodis, Bebetos, Zarogoulidis, Papaiwannou, Tsiouda, Tsioulis, & Zarogoulidis, 2013), where age seems not to affect, at least puberty and afterwards. Moreover, the issue of age played an important role in the image that a person had for him. For those who exercise the evaluation of their physical condition is at better levels than those who do not exercise, even if they have received mental illness diagnosis or not. These results serve to confirm the results of earlier research (Barton, & Pretty, 2010).

5. CONCLUSIONS

Guided by these findings, we can reasonably lead to the conclusion that physical activity is an asset for a good physical health in people in the general population, and people with mental problems. Mental illness is not a hindrance in the effort of people to improve their physical condition. This conclusion could be a springboard for future research on improving the mental health of people who have been diagnosed with a mental disorder.

6. REFERENCES

- Allison, D.B., Fontaine, K.R., Heo, M., Mentore, J.L., Cappelleri, J.C., Chandler, L.P., Weiden, P.J. & Cheskin, L.J. (1999). The distribution of body mass index among individuals with and without schizophrenia. *Journal of Clinical Psychiatry*, 60(4), 215-220.
- Barton, J., & Pretty, J. (2010). What is the best dose of nature and green exercise for improving mental health? A multi-study analysis. *Environmental Science & Technology*, 44(10), 3947-3955.
- Brown, S., Birtwistle, J., Roe, L. & Thompson, C. (1999). The unhealthy lifestyle of people with schizophrenia. *Psychological Medicine*, 29(3), 697-701.
- Callaghan, P. (2004). Exercise is neglected in mental health care. *Journal of Psychiatric and Mental Health Nursing*, 11, 476-483.
- Chamove, A.S. (1986). Positive short-effects of activity on behavior in chronic-schizophrenic patients. *British Journal of Clinical Psychology*, 25(2), 125-133.
- Chiang, L.C., Huang, J.L., & Fu, L.S. (2006). Physical activity and physical self-concept: comparison between children with and without asthma. *Journal of Advance Nursing*, 54, 653-662.
- Davidson, S., Judd, F., Jolley, D., Hocking, B., Thompson, S., & Hyland, B. (2001). Cardiovascular risk factors for people with mental illness. *The Australian and New Zealand Journal of Psychiatry*, 35, 196-202.
- Dimeo, F., Bauer, M., Varahram, I., Proest, G., & Halter, U. (2001). Benefits from aerobic exercise in patients with major depression: a pilot study. *British Journal of sports Medicine*, 35(2), 114-117.
- Dimitrakaki, V., Porpodis, K., Bebetos, E., Zarogoulidis, P., Papaiwannou, A., Tsiouda, Th., Tsioulis, H., & Zarogoulidis, K. (2013). Attitudes of asthmatic and nonasthmatic children to physical exercise. *Patient Preference and Adherence*, 7, 81-88.
- Donnelly, J.E., Blair, S.N., Jakicic, J.M., Manore, M.M., Rankin, J.W., & Smith, B.K. (2009). Appropriate physical activity intervention strategies for weight loss and prevention of weight regain for adults. *Medicine & Science in Sports and Exercise*, 41(2), 459-471.
- Dunn, A.L., Trivedi, M.H., & O'Neal, H.A. (2001). Physical activity dose-response effects on outcomes of depression and anxiety. *Medicine & Science in Sports & Exercise*, 33(S5), 87-97.
- Faulkner, G. (2005a). Exercise as an adjunct treatment for schizophrenia. In: G. Faulkner, & A. Taylor (Eds.). *Exercise, Health, and Mental Health: Emerging Relationships*, (pp.27-47), London: Routledge.
- Faulkner, G. (2005b). Exercise, health and mental health: Emerging relationships. In G.E.J. Faulkner, & A.H. Taylor (Eds). New York: Routledge.

- Goodwin, R.D. (2003). Association between physical activity and mental disorders among adults in the United States. *Preventive Medicine*, 36(6), 698-703.
- Gorczynski, P., & Faulkner, G. (2010). Exercise therapy for schizophrenia. *Cochrane Database Syst Rev*, 5. Available Online at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4164954/> (Accessed date 17 March, 2015).
- Heggelund, J., Hoff, J., Helgerud, J., Nilsberg, G.E., & Morken, G. (2011). Reduced peak oxygen uptake and implications for cardiovascular health and quality of life in patients with schizophrenia. *BMC Psychiatry*, 11(1), 188.
- Hor, K., & Taylor, M. (2010). Review: Suicide and schizophrenia: A systematic review of rates and risk factors. *Journal of psychopharmacology*, 24(4), 81-90.
- Janney, C.A. (2012). *Physical activity in overweight and obese adults with schizophrenia and schizoaffective disorders*. (Unpublished Doctoral dissertation, University of Pittsburgh) Ph.D. Thesis, University of Pittsburgh, United States.
- Jokela, M., & Mäenpää, S. (2012). The effect of an eight-week group-based balance training program on the balance and fear of falling of independently living elderly people. Thesis Degree Programme in Physiotherapy, School of Health Care and Social Work, Seinäjoki University of Applied Sciences, Seinäjoki, Finland.
- Kim, J.D., & Mueller, C.W. (1978). *Factor analysis: Statistical methods and principal issues*. London: Sage.
- Lindamer, L.A., McKibbin, C., Norman, G.J., Jordan, L., Harrison, K., Abeyesinhe, S., & Patrick, K. (2008). Assessment of physical activity in middle-aged and older adults with schizophrenia. *Schizophrenia Research*, 104, 294-301.
- McCreadie, R.G. (2003). Diet, smoking and cardiovascular risk in people with schizophrenia: Descriptive study. *British Journal Psychiatric*, 183, 534-539.
- McNally, K. (2009). Eugen Bleuler's Four A's. *History of Psychology*, 12 (2), 43-59.
- McNamee, L., Mead, G., MacGillivray, S., & Lawrie, S.M. (2013). Schizophrenia, poor physical health and physical activity: evidence-based interventions are required to reduce major health inequalities. *The British Journal of Psychiatry*, 203(4), 239-241.
- Meyer, J.M., Davis, V.G., Mcevoy, J.P., Davis, V.G., McEvoy, J.P., Goff, D.C., ..., & Lieberman J.A. (2008). Impact of antipsychotic treatment on non fasting triglycerides in the CATIE Schizophrenia Trial phase 1.

- Schizophrenia Research*, 103, 104-109.
- Murray, C.J.L., & Lopez, A.D. (1996). Summary: The global burden of disease: A comprehensive assessment of mortality and disability from diseases, injuries, and risk factors in 1990 and projected to 2020. *Geneva and Boston: World Health Organization and Harvard School of Public Health*.
- Mutrie, N., & Faulkner, G. (2003). Physical activity and mental health. In: T. Everett, M. Donaghy, & S. Fever (eds). *Physiotherapy and Occupational Therapy in Mental Health: An evidence based approach* (pp. 82-97). London: Routledge.
- Naqvi, I., Murtaza, M., Nazir, M.R., & Naqvi, H.A. (2010). Gender difference in age at onset of schizophrenia: A cross sectional study from Pakistan. *Journal of Pakistan Medical Association*, 60(10), 886-889.
- Rehor, P.R., Dunnagan, T., Stewart, C., & Cooley, D. (2001). Alteration of mood state after a single bout of noncompetitive and competitive exercise programs. *Perceptual and Motor Skills*, 93, 249-256.
- Strassnig, M., Brar, J.S., & Ganguli, R. (2011). Low cardiorespiratory fitness and physical functional capacity in obese patients with schizophrenia. *Schizophrenia Research*, 126, 103-109.
- Suni, J., Husu, P., & Rinne, M. (2009). *Fitness for health: The ALPHA-FIT test battery for adults aged 18-69. Tester's Manual*. Tampare, Finland: Published by European Union DS, and the UKK Institute for Health Promotion Research.
- Taylor, C. B., Sallis, J.F., & Needle, R. (1985). The relation of physical activity and exercise to mental health. *Public Health Reports*, 100(2), 195.
- Van Os, J. (2010). Are psychiatric diagnoses of psychosis scientific and useful? The case of schizophrenia. *Journal of Mental Health*, 19(4), 305-317.
- Vancampfort, D., Probst, M., Sweers, K., Maurissen, K., Knapen, J., & De Hert, M. (2011). Relationships between obesity, functional exercise capacity, physical activity participation and physical self-perception in people with schizophrenia. *Acta Psychiatrica Scandinavica*, 123(6), 423-430.
- Wyshak, G. (2001). Women's college physical activity and self-reports of physician-diagnosed depression and of current symptoms of psychological distress. *Journal of Women's Health Gender Based Medicine*, 10, 363-370.