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EC PSYCHOLOGY AND PSYCHIATRY
Research Article

Individuals with Schizophrenia: Does Age Affect their Performance on Physical Activity?

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Received: September 29, 2017; **Published:** October 31, 2017

Abstract

The purpose of the study was to examine for the first time, the relationship between the age of the trainees and their performance on physical activity. In order for the examination to be realized, the sample completed: a) the "ALPHA-FIT test battery" questionnaire for adults aged 18 - 69 years [1] aiming to measure the physical possibilities, and b) to record the psychosomatic status, the completion of the scale of "Subjective Scale of Exercise Experiences" (S.S.E.E.) [2] was pivotal. The sample consisted of 57 subjects (N = 57). They were divided into three age groups. More specifically, the first group consisted of 21 individuals between the ages of 21 - 28 (n1 = 26,1%), the second group consisted of 28 individuals between the ages of 29 - 44 (n2 = 35,1%), and finally, the third group of 31 individuals between the ages of 50-> (n3 = 38,8%). The sample participated voluntarily in the research by signing the relevant affirmation. On the summary, the results have shown that wellness, psychological fatigue, somatic fatigue, health self-esteem, psychosocial age, encumbrance and physical activity are significantly related to the age group of the participants (n1: 21 - 28, n2: 29 - 44, n3: 50->). It is proved to be crucial, as it derived from the research, that the questionnaires being used are suitable for specific populations, such as those who have been identified as psychiatric patients.

Keywords: *Schizophrenia; Age Groups; Physical Activity; Exercise Experience*

Introduction

Since the beginning of the 20th century, the attitude adopted towards "schizophrenia" is the fragmentation of the old perception of madness into "illnesses" (psychoses) [3] and finally to get to the today's "spectrum of psychoses" (DSM-V). According to DSM-IV a closer definition to psychosis is referred to delusional ideas or predominant hallucinations without the sense of sensitivity to be present. A less restrictive definition includes also predominant hallucinations which the individual recognizes as illusory experiences, while a wider definition includes other schizophrenia symptoms as for instance, disorganized speech, heavily disorganized or catatonic behavior [4]. The most common type of psychosis is schizophrenia. It is pivotal to emphasize that the "mental symptoms" which are included in the concept of schizophrenia are existent, making people suffer, and there should always be understanding and healing.

In previous years, studies have proven repeatedly that physical activity is related to the improved psychological wellbeing, the physical health, the life satisfaction, and the cognitive function [5,6]. For people diagnosed with mental disorders, such as schizophrenia, improving their quality of life tends to enhance the person's ability to handle and manipulate the disorder. Therefore, physical activity provides the opportunity to improve the life quality of people with mental health disorders in both physical and psychological health [7]. On the

scope of physical health, individuals with mental disorders have the same somatic health needs as the general population considered as a whole. A common characteristic of people with severe mental illness is the maintenance of a chronic and more sedentary life than that of the rest of the population [8-10] subsequently, they are in high risk for chronic medical conditions associated with inactivity [11]. For instance, a major part of the increasing rate in chronic somatic illnesses on people having severe mental illness could be attributed to the increasing obesity percentage of these individuals [12]. Simultaneously, the absence of physical exercise probably contributes to this prevailing condition. In terms of mental health, positive psychological impacts have derived from physical activity as they have been reported in clinical populations, even from people who do not express any objective diagnostic improvement [11].

Paying more attention on the age background of schizophrenia, it is obvious that the disorder manifests itself generally in its first year, more specific at the end of adolescence or in the early adulthood and it is more common in men than in women. This happens because men have typically a lower adolescent starting age than women. Over the years researches have shown that this statistic has been a fixed pattern for several decades (Loranger, 1984). Furthermore, schizophrenia is one of the main causes of heart diseases among individuals from twenty to forty years old [13]. According to the literature reviews, despite the established pattern mentioned above, there are differences in the age and gender relating the occurring ratio of schizophrenia. The magnitude of these differences is greater in defined limits of schizophrenia in comparison to the body of schizophrenic disorders [14].

Recent research findings [15] have shown that in Greece, the differences between age groups are existent, especially when the reference centers on the somatic fatigue. However, in terms of Greek territory, the literature on this issue appears limited.

Aims of the Study

The researchers have undertaken a randomized controlled trial to examine if there are differences between the age groups. The three groups are: (a) individuals between the ages of 21 - 28 (n1 = 26,1%), (b) individuals between the ages of 29 - 44 (n2 = 35,1%), and (c) individuals between the ages of 50 and above (n3 = 38,8%).

It should be mentioned that in Greece, it will be the first attempt to record age differences, focusing on this population. Therefore, the uniqueness of the study underlies in the relationship between age and physical activity (groups) of individuals classified as schizophrenics, specifically in Greece. At a global level, there are surveys that include the age factor [16-18], but the age group comparison is made at the minimum level [19,20]. In these researches, the separation is done in only two groups, that of the young and the older, and their results are focused on other factors. Hence, the researchers' attempt to compare individuals of three different ages becomes the first attempt at a global level. This separation stems from the differences that exist among these three categories activating in the Greek society. Researchers have conducted this research to examine whether age is a barometer in the psychology of people diagnosed with psychosis to such an extent as to influence their participation in the sports field.

Method

Participants: This study included 82 individuals, patients of private offices in the regional area of Thrace, Greece. The sample was divided into three age groups. More specifically, the first group consisted of 21 individuals between the ages of 21 - 28 (n1 = 26,1%), the second group consisted of 28 individuals between the ages of 29 - 44 (n2 = 35,1%), and finally, the third group of 31 individuals between the ages of 50-> (n3 = 38,8%). The individuals were diagnosed with schizophrenia, according to the Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-IV). It should be noted that an official authorization by the University Ethics Committee in cooperation with the University Hospital of Alexandroupolis was given to questionnaires administered in this special population. Having been informed of the benefits and risks arising from their participation, they were asked to complete a signed consent form. The sample participated in the research voluntarily, by signing the relevant affirmation.

Measures: All groups completed the "Alpha-Fit Battery test" for adult aged 18 - 69 years [1], and additionally they, also, completed the Greek version [21] of the "S.S.E.E." questionnaire [2]. More specifically, the survey included two different measures: the first one related to the recording of the level of fitness of the participants and the second with the self-report of the psychological state of the sample.

More specifically, for the physical measurements the "ALPHA-FIT Battery Test for Adult Aged 18 - 69" of Suni, Husu and Rine [1], was used. This test can be used to observe the level of fitness in different populations and identify those with increased risks to their health, because they are in a poor sport level. It includes fitness tests for the musculoskeletal system, training on cardiopulmonary function machine, body composition and metabolism. More specifically, the test consists of seven areas, based on test data representing the most important fitness factors for health and physical function as: two kilometers of walking and giving information on cardiopulmonary status, use of the handle showing muscle power, jump-and-reach showing power leg, modified bends indicated at the top of the body and the muscular strength of the shank, standing on a leg showing the balance and body mass index, waist circumference as an obesity indicator. Before administering the test, a health checklist was given provided and included in the general context of the Alpha-Fit Test.

For the psychological measurements of the individuals, the "Subjective Scale of Exercise Experiences" (S.S.E.E.) [2], was used. This specific questionnaire is a measurement of the overall psychological responses to stimulant characteristics of exercise. The scale consists of 12 questions, which form three factors (Positive Well-being, Psychological Distress and Fatigue). The questions accompanied by a 7-point Likert-type scale responses, from 1 = not at all, to 7 = very much. More specifically, two of three factors correspond to the negative and positive terminals associated with psychological health (Positive Well-being, Psychological Stress), while the third represents the subjective indicator of "Fatigue".

Data Analysis: Reliability, Pearson Correlation, and One-Way Anova analyses were performed, using the statistical package S.P.S.S. 21.

Results

Internal Consistency: The internal consistency for the variables of the SEES questionnaire was: (a) "Fatigue" .90, (b) "Psychological Distress" .83, and (c) "Psychological Well-being" .85.
The results indicate that all scales showed acceptable internal consistency.

Pearson Correlation Matrix: Table 1 shows the Pearson correlations among all variables. Significant correlations were observed.

Variable	Encumbrance	Physical Activity	Health Self-esteem	Psycho-Social Age	Psychological Well-being	Psychological Distress
Encumbrance	1					
Physical Activity	-.294*	1				
Health Self-esteem	-.390**	.416**	1			
Psycho-Social Age	-.485**	.560**	.550**	1		
Psychological Well-being	-.485**	.417**	.590**	.536**	1	
Psychological Distress	.508**	-.479**	-.492*	-.503*	-.514**	1
Fatigue	*n.s.*	-.404**	-.246*	-.316*	*n.s.*	.609**

Table 1: *Pearson Correlation Matrix among both measures.*

***p < .01, *p < .05.*

One-Way Anova analyses: One-Way Anova analyses were conducted to investigate any/or possible differences among the age groups. The analyses revealed the following statistical significant differences:

1) For the factor "Psychological Well-being" ($F_{8,60} = 12.86$; $p < .001$). More specifically, the post hoc multiple comparisons Scheffe test indicated the differences between the n2 group, with both the n1, and the n3 (Table 2).

2) For the factor "Psychological Distress" ($F_{15,54} = 20.71$; $p < .001$). More specifically, the post hoc multiple comparisons Scheffe test indicated the differences between the n2 group, with both the n1, and the n3 (Table 2).

3) For the factor "Fatigue" ($F_{5,23} = 12.24$; $p < .01$). More specifically, the post hoc multiple comparisons Scheffe test indicated the differences only between the n2 group, and the n3 (Table 2).

4) For the factor "Encumbrance" ($F_{5,73} = 9.24$; $p < .01$). More specifically, the post hoc multiple comparisons Scheffe test indicated the differences between the n3 group, with both the n1, and the n2 (Table 2).

5) For the factor "Physical Activity" ($F_{17,79} = 45.59$; $p < .001$). More specifically, the post hoc multiple comparisons Scheffe test indicated the differences between the n2 group, with both the n1, and the n3 (Table 2).

6) For the factor "Health Self-esteem" ($F_{8,52} = 11.04$; $p < .001$). More specifically, the post hoc multiple comparisons Scheffe test indicated the differences between the n3 group, with both the n1, and the n2 (Table 2).

7) For the factor "Psycho-Social Age" ($F_{11,16} = 14.21$; $p < .001$). More specifically, the post hoc multiple comparisons Scheffe test indicated the differences between the n2 group, with both the n1, and the n3 (Table 2).

Variable	n1		n2		n3	
	N	SD	N	SD	N	SD
Psychological Well-being	5,77	.656	4,63	1,28	4,30	1,53
Psychological Distress	1,90	.673	3,24	1,16	3,82	1,45
Fatigue	n.s.	n.s.	3,59	1,41	3,96	1,73
Encumbrance	1,91	1,18	2,82	1,33	3,17	1,30
Physical Activity	5,33	.970	3,47	1,77	2,47	1,90
Health Self-esteem	4,29	1,19	3,47	1,00	2,87	1,00
Psycho-Social Age	4,14	.727	2,88	1,17	2,61	1,37

Table 2: *Mean and standard deviation' results of One-Way Anova analyses.*

Discussion

The main reason that motivated the researchers to conduct this study was the fact that there is no similar survey worldwide. Indeed, there are studies that involve age groups of individuals diagnosed as schizophrenic having the potential of exercise. The pioneer part of this specific research is the comparison of the three age groups and not an individual focus on specific ages, e.g. on children [22] or middle-aged [8,16,17] or on the elderly [16,18,23]. The only surveys which compare age groups are done by Maurer and Riecher-R [19] and Scheewe, Takken, Kahn, Cahn, and Backx [20]. However, in these studies there is reference solely to the young and the over 45-year-old individuals [19] as well as age discrepancy between the two groups [19] while the researchers interfered individuals from three different

groups and also focused on the existence of middle-aged individuals as a separate category. The purpose of this study was to examine the relationship between physical activity, mental and physical health on different age groups. The individuals were categorized into three separate groups, young (21 - 28 years old), middle-aged (29 - 44 years old) and elderly (50+).

Particular attention should be paid on the existence of the second group, as the global focus centralizes on the early years of the disease [19,24-27] and the elderly [16,23], letting unclaimed the intermediate category of individuals who were characterized as schizophrenic. Researchers assume that this happens because the interest which is shifted to the first years of the disease is physical, supporting the sense that if we can combat the causes of psychosis, we could prevent its occurrence. Not only the use of an older age sample might be more facile, as nursing homes is a more accessible source, but also the poorer lifestyles they adopt, function contributory to this choice.

Firstly, according to the inter correlated results the study identified positive relationships between the factor Psychological Well-being of S.S.E.E. [2] and the factors Physical Activity, Health Self-esteem and Psycho-Social Age of the "ALPHA-FIT Battery Test for Adult Aged 18 - 69" of [1] but a negative relationship is noticed between the factor Psychological Well-being and the factor Encumbrance. Secondly, the study identified positive relationships between Psychological Distress and Fatigue of S.S.E.E. [2] and the factor Encumbrance of the "ALPHA-FIT Battery Test for Adult Aged 18 - 69" of [1] and negative between the factors Psychological Distress and Fatigue and Physical Activity, Health Self-esteem and Psycho-Social Age. The correlations recorded above were a desirable outcome from the researchers' angle. In addition, there is a superabundance of researches confirming the correlations of the above mentioned factors [28-34].

More specifically, the factor Psychological Well-being appears a tangible proof of the researchers' above-mentioned interest in the middle-aged individuals, as there are differences between young, middle-aged and elderly people. The researchers assume that this is justified by the psychological situation and the economic uncertainty prevailing in the country. Although everyone suffers from their common illness, the young people start their lives, full of optimism and dreams, the oldest feel (economically) secure as pensions, while middle-aged people are addressed to face the consequences of the financial crisis and the requirements (at the state of feasibility) of their surrounding, at the same time.

The natural consequence of the elements above is to appear common effects additionally on the psychological distress factor. It is widely known and also a common sense that instability in the everyday life may affect the individual's psyche and it may cause intense discomfort. Being in the most productive phase individuals, between the age of 30 and 50, the continuous discharges are considered an unbearable burden. In addition, the stigma of psychosis is intensively pronounced in Greece [35], which makes it even more difficult for psychotic people to participate in the production process. Young people do not have all the signs of this stigma appeared yet and the elderly have then been compromised or feel tired of the years passed. What about those who wish integration and do not have the allowance?

The answer to this question sources from the examination of the Fatigue Factor. The results concerning this factor have shown several differences between the second and third group. Taking the literature under consideration, we know that first onset of mental disorders usually occurs in childhood or adolescence, although treatment typically does not occur until a certain number of years later [36]. Therefore, the complete "delimitation" of an individual as schizophrenic occurs in the early adulthood, when he struggles to state his life. The individual while being in this high productive phase of his life, however, he constantly encounters obstacles due to the stigma of schizophrenia [35]. The researchers assume that it is reasonable estimating that this effort makes fatigue prone to changes over the years.

Highly considering the factor "Encumbrance", differences are observed between the third group in relation to the first and the second. The researchers assume the normality of this fact based on the characteristics of the sample they had under examination. In Greece, the occupation of schizophrenics with exercise is poor. If the latter is combined with the sedentary lifestyle and the lack of a positive attitude attuned to sport, the above results are fully justified. As far as the Physical Activity factor, differences are observed among all the age groups. This fact is a natural consequence of the adopted lifestyle of schizophrenic people as they are minimally involved in aerobic

exercise [37,38]. Several lifestyle factors are a brake on their exercise, as patients with schizophrenia are likely to smoke [39], being physically inactive [16,40] and suffer from malnutrition due to unhealthy diet [39]. Commenting on the factor "Health Self-esteem", differences are only observed between the group of the younger and the elderly participants. The researchers state this notion arises because of the difference in people's mental reserves. They appear in favor of the view, that health related to the quality of life is a way to measure the impact of chronic disease on individual's life and functioning [41].

Centering on the "Psycho-Social Age" factor, a difference exists in the groups in their total. Remarkably, psychosocial function improves by age among people with chronic schizophrenia [41]. The research has shown that older patients who suffer from schizophrenia have had a better mental health, as it was related to their quality of life (HRQOL), than of their younger counterparts [42]. This phenomenon may be explained by the apparent improvement of schizophrenia in later life. Eventually, this is due to the effect of the individuals' survival, as the years pass and as the elders with schizophrenia avoided suicide and other factors of mortality [41].

Conclusion

It is proved to be crucial, as it derived from the research, that research addressed directly on physical activity and age difference is suitable for a population such as this and also that the questionnaires being used are suitable for psychiatric patients.

Acknowledgements

Authors would like to thank Mrs. Kyriaki Anthopoulou, English Language Teacher, for her support regarding the syntactic and textual appropriateness.

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Volume 6 Issue 1 October 2017
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