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Physical activity as a therapeutic strategy in mental health: an integrative review with implication for nursing care

Atividade física como uma estratégia terapêutica em saúde mental: revisão integrativa com implicação para o cuidado de enfermagem

La actividad física como estrategia terapéutica en salud mental: una revisión integrativa con implicaciones para la atención de enfermería

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ABSTRACT

This study is an integrative review with the aim to identify and describe the scientific evidence of the practical effect of physical activity in people with mental disorders. For the selection of articles, the databases CINAHL, MEDLINE, LILACS, SciELO, Cochrane and Scopus were used. The sample of this review consisted of eight articles. Their analysis resulted in the categories: obesity and metabolic syndrome, specialized nursing, sedentary and healthy lifestyles, support and social network, incentive to the practice of physical activity, and anxiety and physical activity. The benefits to physical health were partially elucidated by the sample. The implications for nursing care arise from the therapeutic efficacy of physical activity by people with mental disorders, adding individual and collective benefits that provide socialization and promotion of well-being.

Keywords: Motor activity; Mental health; Social support; Nursing care.

RESUMO

O presente estudo é uma revisão integrativa que teve como objetivo identificar e descrever as evidências científicas acerca do efeito da prática regular de atividade física por pessoas com transtorno mental. Para a seleção dos artigos utilizou-se as bases de dados, CINALH, MEDLINE, LILACS, SciELO, Cochrane e Scopus. A amostra desta revisão constituiu-se de oito artigos. A análise destes resultou nas categorias: obesidade e síndrome metabólica; enfermagem especializada; sedentarismo e estilo de vida saudável; apoio e rede social; incentivo à prática de atividade física; e ansiedade. Os benefícios para a saúde física foram parcialmente elucidados pela amostra. Concluiu-se que as implicações para o cuidado de enfermagem surgem da eficácia terapêutica da atividade física por pessoas com transtorno mental, acrescentando benefícios individuais e coletivos que proporcionam a socialização e a promoção de bem-estar.

Palavras-chave: Atividade física; Saúde mental; Apoio social; Cuidados de enfermagem.

RESUMEN

El presente estudio es una revisión integrativa que tuvo como objetivo identificar y describir las evidencias científicas acerca del efecto de la práctica regular de actividad física por personas con trastornos mentales. Para la selección de los artículos se utilizó las bases de datos CINAHL, MEDLINE, LILACS, SciELO, Cochrane y Scopus. La muestra de esta revisión consistió en ocho artículos. El análisis de estos resultó en las categorías: obesidad y síndrome metabólica, enfermería especializada, sedentarismo y estilo de vida saludable, apoyo y red social, estímulo a la práctica de actividad física, y ansiedad y actividad física. Los beneficios para la salud física fueron parcialmente determinados por la muestra. Se concluyó que las implicaciones para la atención de enfermería se derivan de la eficacia terapéutica de la actividad física para las personas con trastornos mentales, lo que trae beneficios individuales y colectivos que facilitan la socialización y la promoción del bienestar.

Palabras clave: Actividad motora; Salud mental; Apoyo social; Atención de enfermería.

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INTRODUCTION

Physical activity (PA) is a complex and multidimensional behavior that can be described as "any body movement produced by activation of skeletal muscles, resulting in a substantial increase in energy expenditure above resting metabolism".¹ Assuming this definition, PA can be split into different domains: 1) sports activity, focused on the individual's performance; 2) leisure activity, developed especially in spare time; 3) labor activity, carried out at work and at home; 4) activity during active transport, involving walking or bike riding and 5) rehabilitation activity, directed to people who are recovering from a physical condition.^{2,3} Physical exercise is a subset of PA, specialized and planned, executed and repeated with specific goals.

Over the past decades, there was an inversion in the global morbimortality profile, with a decrease in the prevalence of infectious diseases and an increase in the prevalence of chronic illnesses, which raised interest in their associated factors. The little importance given to PA by the general public is a current public health challenge, taking into account that it is a modifiable factor related to a higher frequency of chronic and degenerative diseases.⁴

The practice of PA as a therapeutic modality inserted in the context of life of a person with a mental disorder can be seen as an outstanding way to create health benefits. The search for social reinsertion through the practice of PA in situations associated with mental health can therefore be seen as a possibility for reclaiming the therapeutic efficacy of social relationships. In this line of reasoning, PA is especially important when applied to institutionalized people, easing the feeling of isolation and making the person more engaged and cooperative in activities they take part, which improves their physical willingness, increases their self-esteem and reduces their idleness.⁵

A research issue arises before the evidence gathered in reviews about the practice of PA by people with mental disorders in several countries. New proposals for its use in Brazilian mental health services can be implemented, taking into consideration the benefits, treatment and recovery of the patients.

The Brazilian Psychiatric Reform proposal seeks inclusion and integration of people with mental disorders in different spaces of society. The practice of PA as a therapeutic activity is a strategy to favor social reinsertion of patients with mental disorder and corroborates the assumptions of this reform.⁶ Thus, the object of this study is the therapeutic efficacy of the practice of PA by people with mental disease. Its objective was to identify and describe the scientific evidence related to regular practice of PA by people with mental disorders.

This review can be justified by numerous innovations in the mental health area, which demand from nurses a care practice

grounded in scientific principles to select the most appropriate intervention for the specific care situation of each patient with mental disorder. Thus, it is considered that the development of this integrative review (IR) having the evidence-based practice (EBP) as a guide will contribute to integrate knowledge that will allow nurses to safely include PA in mental health care.

METHODS

Integrative review (IR)⁷ of scientific literature is a research method that enables the search, critical evaluation and synthesis of the available evidence about a certain subject, in the case of this study the therapeutic efficiency of PA in people with mental disorders. The six steps of this type of review were followed:

- 1) Setup of the review problem or research issue: what is the scientific evidence of the effects of regularly practicing PA by people with mental disease?
- 2) Sampling or search in scientific literature, with application of specific inclusion criteria (papers, theses and dissertations from 2001, when the Brazilian Psychiatric Reform Law came into force, to 2015, in Portuguese, English or Spanish, with the full text available, methodology exhibiting the data necessary to obtain the levels of evidence, addressing procedures, interventions or guidelines about PA practice and its use as a social reinsertion tool) and specific exclusion criteria (unavailable full texts, inaccessible link, other forms of publication). This featured a study limitation, because the sought knowledge might be in these other types of materials, such as monographies, editorials, manuals, books and book chapters. The consulted electronic databases were Latin America and Caribbean Center on Health Sciences Information (LILACS), Cumulative International Nursing and Allied Health Literature (CINAHL), MEDLINE, Scientific Eletronic Literature Online (SciELO), Cochrane and SciVerse Scopus, as well as the Health Sciences Descriptors (HSD) and Medical Subject Headings (MeSH). The following controlled descriptors were included: physical activity, social support, mental health, nursing, mental disorders, therapeutics and psychiatric nursing, with their corresponding descriptors in English and Spanish. To combine the descriptors in the different search approaches, five rounds of descriptor combinations were established, to reach a wider search coverage in the three languages.

According to Table 1, the search rounds were: 1st round - "Physical activity", "Social support", "Mental health" and "Nursing", with five selected studies; 2nd round - "Physical activity", "Social support" and "Psychiatric

nursing", with no selected studies; 3rd round - "Physical activity", "Social support", "Mental disorders" and "Nursing", with four selected publications; 4th round - "Physical activity", "Social support", "Therapeutics" and "Nursing", with one selected study; and 5th round - "Physical activity", "Mental disorders", "Therapeutics" and "Nursing", with four selected publications.

The study screening resulted in 14 selected publications after the five rounds of scientific literature search. The repetition of a few studies was identified in some rounds and databases and, after their exclusion, the sample of this review had eight publications.

- 3) Categorization of the studies, with data extraction through the application of the reading protocol in the study sample. The data were organized and summarized with the application of thematic content analysis consisting of the following categories: Obesity and metabolic syndrome, Specialized nursing, Sedentary and healthy lifestyles, Support and social network, Incentive to the practice of physical activity, and Anxiety and physical activity. Table 2 exhibits a synopsis to guide quantitative and qualitative analysis of the publications.
- 4) Evaluation of the studies included in the review, with their critical analysis.
- 5) Interpretation of results, with discussion and recommendation proposals classified in the categories: I. Obesity and metabolic syndrome; II. Specialized nursing; III. Sedentary and healthy lifestyles; IV. Support and social network; V. Incentive to the practice of physical activity; and VI. Anxiety and physical activity.
- 6) Synthesis of information or presentation of the review, with a summary of available evidence and the details of the review in a descriptive document (the present paper).

RESULTS AND DISCUSSION

Table 2 presents the distribution of publications by analysis variable. The elements for practice of PA, its benefits and the elements for social reinsertion of patients were addressed and discussed separately.

Among the countries where the selected papers originated, Australia stood out with three publications, followed by Sweden, with two papers, and United States of America, United Kingdom and Taiwan, with one publication each. It is important to emphasize the absence of papers produced by Brazilian researchers, which corroborates the need to investigate this area and stresses the relevance of the present integrative review.

Regarding the year of publication, it was observed that there is a higher concentration of papers in the last five years, with the years 2008 and 2013 presenting the highest number of publications about the subject in question, with three papers, followed by 2011 and 2012, with one paper each. There was also a gap in years 2014 and 2015, with no published studies on the topic under discussion.

The most cited journals in the review were *Issues in Mental Health Nursing* and *International Journal of Mental Health Nursing*, with three papers each. The other two articles were published in the *Research in Nursing & Health* and in the *Journal of Advanced Nursing*.

The hierarchical classification system for evidence quality was applied to evaluate the scientific evidence levels, with analysis of methodological data of each study presented in Table 2. The following stratification in levels of evidence was identified: five level 6 and three level 2 publications.

After the reading and data extraction from the papers included in this IR, assisted by a data collection instrument, six thematic categories emerged: obesity and metabolic syndrome, specialized nursing, sedentary and healthy lifestyles, support

Table 1. Selected publications after five rounds of bibliographic survey. Rio de Janeiro, January 2016.

	Selected publications according to inclusion and exclusion criteria					Total number in each database
	1 st round	2 nd round	3 rd round	4 th round	5 th round	
LILACS	0	0	0	0	0	0
MEDLINE/PubMed	4	0	3	1	4	12
SciELO	0	0	0	0	0	0
Cochrane	0	0	0	0	0	0
CINAHL	0	0	0	0	0	0
SciVerse Scopus	1	0	1	0	0	2
Total number per round	5	0	4	1	4	14
Records found						14
Records after exclusion of repeated publications in the five rounds						8

Table 2. Composition of the IR sample after five rounds of bibliographic survey. Rio de Janeiro, 2016.

Number/Author/ Country	Paper title	Journal/Year	Type/Evidence	Descriptors
1-Bergqvist A, Karlsson M, Wardig R, Hultsjo S, Foldemo A ⁸ /Sweden	Preventing the Development of Metabolic Syndrome in People with Psychotic Disorders - Difficult, but Possible: Experiences of Staff Working in Psychosis Outpatient Care in Sweden	Issues in Mental Health Nursing/2013	Qualitative study - 4	"Motor activity" and "Social support" and "Mental disorders" and "Nursing"
2-Wardig R E, Bachrach-Lindstrom M, Foldemo A, Lindstrom T, Hultsjo S ⁹ /Sweden	Prerequisites for A Healthy Lifestyle- Experiences of Persons with Psychosis	Issues in Mental Health Nursing/2013	Qualitative exploratory study - 6	"Motor activity" and "Social support" and "Mental disorders" and "Nursing"
3-Beebe LH, Harris RB ¹⁰ /USA	Description of Physical Activity in Outpatients with Schizophrenia Spectrum Disorders	International Journal of Mental Health Nursing/2013	Clinical study/quantitative - 2	"Motor activity" and "Mental disorders" and "Therapeutics" and "Nursing"
4-Usher K, Park T, Foster K, Buettner P ¹¹ /Australia	A Randomized Controlled Trial Undertaken to Test a Nurse-led Weight Management and Exercise Intervention Designed for People with Serious Mental Illness who Take Second Generation Antipsychotics	Journal of Advanced Nursing/2012	Randomized clinical trial/experimental - 2	"Motor activity" and "Social support" and "Therapeutics" and "Nursing"
5-Park T, Usher K, Foster K ¹² /Australia	Description of a Healthy Lifestyle Intervention for People with Serious Mental Illness Taking Second- generation Antipsychotics	International Journal of Mental Health Nursing/2011	Case study/review - 6	"Motor activity" and "Mental disorders" and "Therapeutics" and "Nursing"
6-Wand T, Murray L ¹³ /Australia	Let's Get Physical	International Journal of Mental Health Nursing/2008	Review - 6	"Motor activity" and "Mental disorders" and "Therapeutics" and "Nursing"
7-Carless D, Douglas K ¹⁴ /UK	Social Support for and Through Exercise and Sport in a Sample of Men with Serious Mental Illness	Issues in Mental Health Nursing/2008	Ethnographic study/qualitative - 6	"Motor activity" and "Social support" and "Mental disorders" and "Nursing"
8-Ma W-F, Lane H-Y, Laffrey SC ¹⁵ /Taiwan	A Model Testing Factors That Influence Physical Activity for Taiwanese Adults with Anxiety	Research in Nursing & Health/2008	Exploratory cross-sectional study - 2	"Motor activity" and "Social support" and "Mental health" and "Nursing"

and social network; incentive to the practice of physical activity, and anxiety and physical activity. This classification is shown in Table 3.

Obesity and metabolic syndrome

A study with 24 people with schizophrenia investigated the effects of the practice of physical activity and revealed that all the women and half the men in the sample were obese.¹⁰

Inspired by these results, Australian researchers¹² created the "Passport 4 Life" program based on the best scientific evidence available, to help antipsychotic users to adopt a healthy lifestyle and consequently maintain or lose weight (from 1 to 4 kg or 10% of their body mass). The program included a healthy diet and an increase in the practice of PA.

Another randomized study¹¹ with people with psychotic disorder who took second-generation antipsychotic medications and were enrolled in the "Passport 4 Life" program was also carried out. However, contrary to expectations, the research did not show statistically significant results regarding weight loss. The stipulated time interval for the experiment, 12 weeks, was insufficient to reach the research goals.

Other studies^{8,13,16,17} stressed the importance of preventing metabolic syndrome in patients with mental disorders and active psychotic symptoms who take antipsychotic medications, because they have an increased risk of cardiometabolic comorbidities, including metabolic conditions such as obesity, insulin resistance, hypertension and diabetes.¹⁶ These comorbid conditions can shorten life expectancy of people with a severe mental disorder 20% more than in people with no mental disease.¹⁰ Care to a person with mental disorder with a risk for the development of a metabolic syndrome demands a comprehensive view by the healthcare professional, which favors measures to create interventions related to physical health.

Studies point to a way that has not been clearly demonstrated, once its methodological pathways did not allow a full stratification of evidence. This path needs to be elucidated, because the practice of PA can help in this process. More and longer studies with a higher number of participants have to be carried out, aligned with what literature describes to be enough to lose weight effectively and improve metabolic rates in people with mental disorders who take second-generation antipsychotic medication.

It is important to emphasize that these papers linked the development of metabolic syndrome and the contribution of PA to prevent it or decrease its deleterious effects in patients using this type of drug. They did not address the resocialization process of these patients through PA; among other reasons, this benefit was not sought in the countries where this research was performed.

Sedentary and healthy lifestyles

Sedentary lifestyles afflict the modern world at increasing rates. The consequence is the emergence of health problems in the population, especially cardiovascular issues.¹⁶ The implementation of changes in the lifestyle of people with mental disorders is a difficult, but achievable, experiment. Even with most people with mental disorders knowing the importance of a healthy lifestyle, there were difficulties to change habits, because these patients had to implement these modifications and deal with and accept the psychotic symptoms.⁸ Thus, the study identified that negative symptoms and cognitive alterations were the main obstacles to implement lifestyle changes in this population.

Studies^{8,9,18} with people with schizophrenia, an important psychotic disorder in the mental health field, confirm their low level of PA.¹⁸ Healthy adults took, on average, between 7,000 and 13,000 steps in the first day of study, whereas the participants with that mental disorder took, on average, between 2,384 to 4,399 steps in the same time interval. This result shows that a sedentary lifestyle prevails in people with this disease.¹⁸

Evidence suggests that the adoption of a healthy lifestyle can help reduce physical inactivity. Mental health professionals, mainly nurses, aligned with the initiative of an evidence-based practice, should surely invest in PA and the promotion of healthier habits.

Support and social network

Even with scientific evidence pointing to the importance of changing the mental health scenario with healthier practices, a study revealed that its participants had received psychiatric care for many years and only recently realized a change toward giving more importance to PA than just to mental health in the healthcare professionals' behavior.⁹

Social support is probably a prerequisite for successful introduction and maintenance of PA for most people. However,

Table 3. Distribution of the papers in the identified categories. Rio de Janeiro, January 2016.

CATEGORIES	PAPERS
I. Obesity and metabolic syndrome	1, 2, 3, 4, 5 and 6
II. Specialized nursing	1, 2, 3, 4, 5 and 6
III. Sedentary and healthy lifestyles	1, 2, 3, 4 and 5
IV. Support and social network	1, 2, 5, 7 and 8
V. Incentive to the practice of physical activity	1, 2, 4 and 6
VI. Anxiety and physical activity	8

there are currently few investigations about how social support can be more effectively offered to people with mental disorders who wish to develop a regular exercise routine.¹⁴

Inclusion of a nurse in the leadership of activities and exercises is an important component for the participants.^{12,14} A member of the healthcare staff taking part in exercise sessions with their clients motivates participation and increases social interaction.^{8,11,12,14}

Another possibility to achieve adherence to the practice of PA is the development of awareness actions on the activity's potential benefits. Information support helped raise interest and motivation in the participants of one of the studies to start practicing a certain exercise or sport activity.¹⁴ Health education, an element of information support, must play a coordinating¹ and enhancing role in any assistance action.

Tangible help, regarding the financial aspect of social support, had a simple but significant effect on the commitment to PA and sports practice. Its importance was clearer in the form of a financial aid and the satisfaction of basic needs, such as transportation, which minimized the barrier in the access to the facilities where the PA took place.¹⁴ However, not possessing financial resources cannot be the reason for not practicing PA, because walking is free and accessible to all.

Prescription of PA must take into account patients' financial situation.^{12,15,16} The study with the "Passport 4 Life" program developed an exercise series that included a variety of low-cost or free activities, such as walking, swimming and group sports. The paper suggests that tangible help in the form of financial support is probably an essential social support element, given the socioeconomic obstacles faced by many people with severe and permanent mental disorders.

Being inserted in a care network and receiving social support in different areas of life are important factors for people who receive community social support.¹⁴ In practice, it means that these community workers help the individual to exert, for instance, the option of walking instead of taking a bus or that these workers are involved in grocery shopping so that the individual purchases suitable products.^{9,13}

Social support in the context of mental health is not a one-way path; people with mental disorders benefit from social help, but sometimes they can also benefit from giving social assistance to others through sharing and association of PA or in a team sport. This sharing process can be an important way to restore a sense of community among people who are experiencing and recovering from severe mental diseases.¹⁴

The pathway to social reinsertion of a person with mental disorder is tortuous and full of obstacles. It is up to people involved in social insertion projects to find social care possibilities that meet individual needs of health promotion. The evidence shown in this study can help nurses to establish these care approaches in mental health.

Incentive to the practice of physical activity

A study with healthcare professionals, most of them mental health nurses, who deal with people with psychotic disorders, described that people with mental disorders should be encouraged to practice regular exercises or prescribed ones, for instance daily walking.⁸

Even if professionals consider it important to invest in a healthier lifestyle for people with mental disorders, they stuck to the planning phase of PA practice and did not implement it.⁹ The fact that mental disorders affect the patient's volition seems to be one of the reasons that lead them to this type of behavior. Without motivation for the practice of PA, people with mental disorders find it more and more difficult to change their habits.

People who exercise regularly often report an effect of well-being.¹¹ Corroborating this, PA is not just an efficient option to lose weight but also to alleviate symptoms observed in depression and hallucinations, and should therefore be encouraged.⁹ Physical activity increases people's self-esteem, for instance, by helping in weight loss and physical force strengthening, leading patients to like their body image.

Considering that most successful interventions related to weight loss include a combination of approaches rather than just one measure, the described intervention was developed through the association of educational practices, exercises, lifestyle changes and dieting.^{8,11}

Contrary to the expected, the motivational approach, which values the practice of PA and adoption of healthy habits, seemed not to work, considering that the application of the "Passport 4 Life" program did not show statistically important results.¹¹ Possibly this technique did not have a significant impact on the global result or the motivational techniques have to be used more than once a week (more often than in the study) so that behavioral changes occur.

Incentive to the practice of PA must be incorporated to the care routine of mental health professionals. Motivational approaches can be a strategy so that people with mental disorders understand the importance of the regular practice of PA. It is worth reminding that it cannot be an isolated strategy neither can be applied once or a few times throughout an activity program. It is necessary to offer the practice regularly, so that patients keep motivated to practice PA and adopt a healthy lifestyle.

Anxiety and physical activity

Even though the trace of anxiety does not have a direct influence on PA, it caused an indirect effect on other variables, resulting in lower levels of PA. The outcomes suggest that for people with anxiety, the trace of anxiety is a crucial factor that influences emotional states and cognitive processes.¹⁵ Therefore, anxiety itself can hinder the practice of PA.

The results of the studies indicate that stress had a strong influence on the anxiety state for these individuals. This suggests that healthcare educators must emphasize PA as a beneficial strategy to manage stress in intervention programs for people with anxiety.¹⁵

Benefits of practicing PA were observed throughout the study carried out in Taiwan. The authors suggest that therapies for patients with anxiety must include regular programs of PA and incorporation of short programs about health education, focused on group discussion about exchange of experiences, which will benefit patients.¹⁵

Regular PA is beneficial for individuals with depression and anxiety symptoms, with emphasis on the effects of aerobic exercises on depression symptoms. Furthermore, PA improves the quality of life of people with nonpsychiatric diseases, such as peripheral arterial occlusive disease and fibromyalgia, and helps relieve adverse conditions such as nicotine withdrawal.¹⁹⁻²²

Anxiety is present in society in a general context. Daily stress and obstacles may trigger anxiety states, hampering a person's performance. Again, the evidence revealed in these papers indicate the benefits of the practice of PA.^{19,20}

Although this category has a publication with strong evidence, new studies are necessary in different regions of the world for PA to have its importance recognized for application in distinct contexts of mental health care. Nevertheless, the present study can be used as a basis for the development of PA programs specific for people with anxiety.

CONCLUSION

This IR revealed the therapeutic efficacy of the practice of PA by people with mental disorders, mainly by social reinsercion, holding important individual and collective benefits related to health promotion. The change in lifestyle promoted by PA reduced anxiety and incited the integration of people with mental disorders in society. It is important to emphasize the need to broaden studies on scientific evidence of the effects of PA on health regarding weight gain and prevention of metabolic syndrome.

The sample of this IR did not include studies originating in Brazil, which inspires new studies in the field of mental health related to PA as a therapeutic strategy and, particularly, as regards the role of nursing care.

This study provides an analysis on the effects of PA practiced by people with mental disorders and its importance in the context of social rehabilitation. Nursing care actions in mental health must be broadened, including new therapeutic strategies to improve patients' lifestyle considering not just PA but also other educational practices that can impact the quality of life of people and groups.

REFERENCES

1. Caspersen CJ, Powell KE, Christenson GM. Physical activity, exercise, and physical fitness: definitions and distinctions for health-related research. *Public Health Rep* [internet]. 1985; [cited 2016 Nov 03]; 100(2):126-31. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1424733/>
2. United States of American. Department of Health and Human Services. The Surgeon General's Vision for a Healthy and Fit Nation. Rockville. DHHS; 2010 [cited 2016 Nov 03]. Available from: <https://www.surgeongeneral.gov/priorities/healthy-fit-nation/obesityvision2010.pdf>
3. World Health Organization. Global recommendations on physical activity for health. Geneva: WHO: 2010 [cited 2016 Nov 03]. Available from: http://apps.who.int/iris/bitstream/10665/44399/1/9789241599979_eng.pdf
4. Hallal PC, Andersen LB, Bull FC, Guthold R, Haskell W, Ekelund U. Global physical activity levels: surveillance progress, pitfalls, and prospects. *The Lancet* [internet]. 2012; [cited 2016 Nov 03]; 380(9838):247-57. Available from: [http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(12\)60646-1/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(12)60646-1/fulltext). [http://dx.doi.org/10.1016/S0140-6736\(12\)60646-1](http://dx.doi.org/10.1016/S0140-6736(12)60646-1)
5. Melo LGSC, Oliveira KRSG, Vasconcelos-Raposo J. A educação física no âmbito do tratamento em saúde mental: um esforço coletivo e integrado. *Rev Latino-am Psicopatol Fundam* [internet]. 2014; [cited 2016 Nov 03]; 17(3):501-14. Available from: <http://www.scielo.br/pdf/rfp/v17n3/1415-4714-rfp-17-03-00501.pdf>. <http://dx.doi.org/10.1590/1415-4714.2014v17n3p501-8>
6. Roble OJ, Moreira MIB, Scagliusi FB. A educação física na saúde mental: construindo uma formação na perspectiva interdisciplinar. *Interface (Botucatu)* [Internet]. Abr/Jun 2012; [cited 2016 Nov 22]; 16(41):567-78. Available from: <http://www.scielo.br/pdf/icse/v16n41/aop3112.pdf>. <http://dx.doi.org/10.1590/S1414-32832012005000033>
7. Soares CB, Hoga LAK, Peduzzi M, Sangaleti C, Yonekura TS, Silva DRAD. Integrative review: concepts and methods used in nursing. *Rev Esc Enferm USP* [internet]. 2014; [cited 2016 Nov 03]; 48(2):335-45. Available from: <http://www.scielo.br/pdf/reeusp/v48n2/0080-6234-reeusp-48-02-335.pdf>. <http://dx.doi.org/10.1590/S0080-6234201400002000020>
8. Bergqvist A, Karlsson A, Foldemo A, Wärdig R, Hultsjö S. Preventing the Development of Metabolic Syndrome in People with Psychotic Disorders - Difficult, but Possible: Experiences of Staff Working in Psychosis Outpatient Care in Sweden. *Issues Mental Health Nurs* [internet]. 2013; [cited 2016 Nov 22]; 34(5):350-8. Available from: <http://www.tandfonline.com/doi/full/10.3109/01612840.2013.771234>. <http://dx.doi.org/10.3109/01612840.2013.771234>
9. Wärdig RE, Bachrach-Lindström M, Foldemo A, Lindström T, Hultsjö S. Prerequisites for a Healthy Lifestyle Experience of Persons with Psychosis. *Issues Mental Health Nurs* [internet]. 2013; [cited 2016 Nov 22]; 34(8):602-10. Available from: <http://www.tandfonline.com/doi/full/10.3109/01612840.2013.790525>. <http://dx.doi.org/10.3109/01612840.2013.790525>
10. Beebe LH, Harris RF. Description of physical activity in outpatients with schizophrenia spectrum disorders. *Int J Ment Health Nurs* [internet]. 2013; [cited 2016 Nov 22]; 22(5):430-6. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/23279453>. <http://dx.doi.org/10.1111/inm.12008>
11. Usher K, Park T, Foster K, Buettner P. A randomized controlled trial undertaken to test a nurse-led weight management and exercise intervention designed for people with serious mental illness who take second generation antipsychotics. *J Adv Nurs* [Internet]. 2013; [cited 2016 Nov 02]; 69(7):1539-48. Available from: <http://onlinelibrary.wiley.com/doi/10.1111/jan.12012/full>. <http://dx.doi.org/10.1111/jan.12012>
12. Park T, Usher K, Foster K. Description of a healthy lifestyle intervention for people with serious mental illness taking second-generation antipsychotics. *Int J Ment Health Nurs* [Internet]. 2011; [cited 2016 Nov 02]; 20(6):428-37. Available from: <http://onlinelibrary.wiley.com/doi/10.1111/j.1447-0349.2011.00747.x/full>. <http://dx.doi.org/10.1111/j.1447-0349.2011.00747.x>

13. Wand T, Murray L. Let's get physical. *Int J Ment Health Nurs* [internet]. 2008; [cited 2016 Nov 02]; 17(5):363-9. Available from: <http://onlinelibrary.wiley.com/doi/10.1111/j.1447-0349.2008.00559.x/full>. <http://dx.doi.org/10.1111/j.1447-0349.2008.00559.x>
14. Carless D, Douglas K. Social Support for and Through Exercise and Sport in a Sample of Men with Serious Mental Illness. *Issues Mental Health Nurs* [internet]. 2008; [cited 2016 Nov 02]; 29(11):1179-99. Available from: <http://www.tandfonline.com/doi/abs/10.1080/01612840802370640>. <http://dx.doi.org/10.1080/01612840802370640>
15. Ma WF, Lane HY, Laffrey SC. A model testing factors that influence physical activity for Taiwanese adults with anxiety. *Res Nurs Health* [internet]. 2008; [cited 2016 Nov 02]; 31(5):476-89. Available from: <http://onlinelibrary.wiley.com/doi/10.1002/nur.20279/pdf>. <http://dx.doi.org/10.1002/nur.20279>
16. Millar HL. Development of a health screening clinic. *Eur Psychiatry* [internet]. 2010; [cited 2016 Nov 02]; 25Suppl 2:29-33. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/20620883>. [http://dx.doi.org/10.1016/S0924-9338\(10\)71703-X](http://dx.doi.org/10.1016/S0924-9338(10)71703-X)
17. Strassnig M, Brar JS, Ganguli R. Low cardiorespiratory fitness and physical functional capacity in obese patients with schizophrenia. *Schizophr Res* [internet]. 2011; [cited 2016 Nov 02]; 126(1-3):103-9. Available from: [http://www.schres-journal.com/article/S0920-9964\(10\)01600-2/fulltext](http://www.schres-journal.com/article/S0920-9964(10)01600-2/fulltext). <http://dx.doi.org/10.1016/j.schres.2010.10.025>
18. Tudor-Locke CE, Myers AM. Methodological considerations for researchers and practitioners using pedometers to measure physical (ambulatory) activity. *Res Q Exerc Sport* [internet]. 2001; [cited 2016 Nov 02]; 72(1):1-12. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/11253314>. <http://dx.doi.org/10.1080/02701367.2001.10608926>
19. Morgan WP. Affective beneficence of vigorous physical activity. *Med Sci Sports Exerc* [internet]. 1985; [cited 2016 Nov 20]; 17(1):94-100. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/3157040>
20. Leppämäki SJ, Partonen TT, Hurme J, Lonnqvist JK. Randomized Trial of the Efficacy of Bright-Light Exposure and Aerobic Exercise on Depressive Symptoms and Serum Lipids. *J Clin Psychiatry* [Internet]. 2002; [cited 2016 Nov 20] 63(4):316-21. Available from: <http://www.psychiatrist.com/jcp/article/Pages/2002/v63n04/v63n0408.aspx>
21. Gartenmann CH, Kirchberger I, Herzig M, Baumgartner I, Saner H, Mahler F, Meyer K. Effects of exercise training program on functional capacity and quality of life in patients with peripheral arterial occlusive disease: evaluation of a pilot project. *Vasa* [internet]. 2002; [cited 2016 Nov 10]; 31(1):29-34. Available from: <http://econtent.hogrefe.com/doi/pdf/10.1024/0301-1526.31.1.29><http://dx.doi.org/10.1024/0301-1526.31.1.29>
22. Gowans SE, deHueck A, Voss S, Silaj A, Abbey SE, Reynolds WJ. Effect of a randomized, controlled trial of exercise on mood and physical function in individuals with fibromyalgia. *Arthritis Rheum* [internet]. 2001; [cited 2016 Nov 10]; 45(6):519-29. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/11762686>