

The effectiveness of physical activity in adults diagnosed with schizophrenia.

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CLINICAL SCENARIO:

Schizophrenia is becoming a more common illness in our society with 1 in 100 people across all countries being diagnosed with schizophrenia (Royal Australian and New Zealand College of Psychiatrists, 2005). As it is becoming an increasing issue amongst the adult population it is important to be aware of activities that decrease the symptoms of schizophrenia allowing a person to live a functional life. According to Acil, Dogan & Dogan (2008) several studies have shown the effectiveness and benefits of physical activity on adults with severe mental illnesses. In my experience of placements in mental health settings, clients with schizophrenia were encouraged to participate in physical activity due to therapeutic benefits it provides.

FOCUSSED CLINICAL QUESTION:

In adults with schizophrenia is the use of physical activity effective in reducing positive and negative symptoms of schizophrenia?

SUMMARY of Search, 'Best' Evidence' appraised, and Key Findings:

There is limited amount of research available on this topic. There were many literature reviews available but there was a limited amount of quantitative, qualitative and systematic reviews. For the purposes of this assignment two types of studies needed to be analysed. A quantitative article (Acil, Dogan, & Dogan, 2008) and a qualitative article (Fogarty, & Happell, 2005) were chosen. The key findings from the appraisal are that physical activity is beneficial to clients with schizophrenia and that physical activity can help to reduce positive and negative symptoms of schizophrenia.

CLINICAL BOTTOM LINE:

There is some evidence to suggest that participation in physical activity is beneficial for adults with schizophrenia and that physical activity reduces positive and negative symptoms in adults with schizophrenia.

Limitation of this CAT:

This critical appraisal has been peer reviewed by one lecturer as part of an assignment for Otago Polytechnic, School of Occupational Therapy. The breadth of the review has also been limited by the assignment requirements (ie. 2 articles only were reviewed).

SEARCH STRATEGY

OTseeker, CINAHL, PubMed, & Google scholar databases were searched to find 2 articles for the purposes of this assignment. If an article was not available online it was located in the Robertson library.

The search terms used across the data bases were:

- Schizophrenia AND (Physical activity OR exercise) AND psychotic symptoms
- Schizophrenia AND (Physical activity OR exercise) AND wellbeing
- Schizophrenia AND (Physical activity OR exercise) AND quality of life
- Schizophrenia AND (Physical activity OR exercise) AND mental state

INCLUSION and EXCLUSION CRITERIA

- Inclusion:

Published after 2000

Participants 18yrs old +

Participants diagnosed with schizophrenia

Physical activity as intervention

- Exclusion:

Published before 2000

Participants younger than 18yrs old

Participants are not diagnosed with schizophrenia

Other interventions used instead of physical activity

RESULTS OF SEARCH

Key (adapted from Taylor, 2007, p. 15): 1= high level of evidence. 6= Low level of evidence.

Summary of Study Designs of Articles retrieved

<u>Study Design/ Methodology of Articles Retrieved</u>	<u>Level</u>	<u>Author (Year)</u>
<i>Quantitative</i> Nonrandomized experimental study: Quasi-experimental	3	Acil, Dogan, & Dogan (2008).
<i>Quantitative</i> Randomized experimental study: Pilot study	2	Beebe, Tian, Morris, Goodwin, Allen & Kuldau (2005).
<i>Qualitative</i>	5	Fogarty & Happell (2005).
<i>Qualitative</i> Phenomenological	5	Johnstone, Nicol, Donaghy & Lawrie (2009).
<i>Qualitative</i>	5	Soundy, Faulkner & Taylor (2007).
<i>Quantitative</i> Randomized experimental study: Pilot study	2	Fogarty, Happel, & Pinikahana (2004).

BEST EVIDENCE

The clinical articles identified as the 'best' evidence and selected for critical appraisal are Quantitative quasi-experimental study By Acil, Dogan & Dogan (2008) and the qualitative study by Fogarty & Happell (2005). These articles were selected due to being the most relevant articles to the clinical question. Although the quasi-experimental quantitative study has a lower level of evidence than the quantitative pilot studies it was more relevant to the clinical question.

SUMMARY OF BEST EVIDENCE

Description and appraisal of:

The effects of physical activity to mental state and quality of life in patients with schizophrenia. Acil, Dogan & Dogan (2008).

Aim: "To examine the effects of 10 weeks of physical exercise on mental states and quality of life (QOL) of individuals with schizophrenia" (p. 808).

Study Design: Quantitative- Quasi-experimental.

Setting: Psychiatric clinic in a university hospital located in Central Anatolia region of Turkey.

Participants: The number of participants was 30 (15 subjects and 15 controls) who had been hospitalized with a schizophrenia diagnoses made according to the Diagnostic and Statistical Manual of Mental disorders - Fourth Edition. These participants were discharged from the hospital and followed as out patients between 1992 and 2005. The patients lived in Sivas province and had similar characteristics in age, gender, disorder symptoms, and all agreed to participate in the study. Individuals that matched the criteria were divided by means of randomization method into two groups- one the subject group and one the control group. All participants were on antipsychotic drugs at the time of the exercise programme. The demographics and health characteristics for the subject and control groups were similar.

Method:

The subject group took part in a 10 week exercise programme. The exercise programme consisted of aerobic exercise for duration of 40 minutes, 3 times a week. The control group did not take part in the exercise programme, their treatment carried on as normal.

The study included 4 assessments. The Scale for the assessment of Negative Symptoms (SANS) and the Scale for the Assessment of Positive Symptoms (SAPS) were used to assess negative and positive psychiatric symptoms. The Brief Symptom Inventory (BSI) was used to assess psychiatric symptoms of the participants before and after the exercise programme and the World Health Organisation Quality of Life Scale- Turkish version was

also used to measure quality of life amongst the participants before and after the exercise programme.

Results The results of the SAPS scale showed an overall improvement in positive psychiatric symptoms after the exercise programme in the subject group. The subject groups overall difference of the SAPS before/after mean values is statistically significant ($P < 0.05$). The subject group showed a statistically significant decrease in illusions, delirium and hallucination sub groups ($P < 0.05$) but not in the bizarre behaviour and positive formal thinking impairment sub groups ($P > 0.05$). The results of the SANS scale showed an overall improvement in negative psychiatric symptoms after the exercise programme in the subject group. The subject groups overall difference of the SANS before/after mean values is statistically significant ($P < 0.05$). The subject group showed a statistically significant decrease in emotional insensitivity, apathy, anhedonia and attention sub groups ($P < 0.05$) but not in the alogia sub group ($P > 0.05$). The subject groups overall mean points of the BSI showed a difference between the before/after values that is seen to be statically significant ($P < 0.05$). The subgroups of somatization, interpersonal sensitivity, anxiety disorder and hostility mean points showed a statistical significant decrease in the subject group ($P > 0.05$). The difference in means of obsessive compulsive disorder, depression, phobic anxiety, paranoid thoughts, psychosis and additional items sub groups was found to not be statistically significant in the subject group ($P > 0.05$). The results of the World Health Organisation Quality of Life Scale-Turkish version showed increases in the subject groups mean scores in the physical domain and mental domains after the exercise programme. The difference in scores was found to be statistically significant ($P < 0.05$). The sub group domains of social, environmental and cultural mean scores did increase in the subject group but the difference was not seen to be statistically significant ($P > 0.05$). The control groups mean scores across the 4 assessments showed no statistical significance ($P > 0.05$).

Original Authors' Conclusions "The results obtained in our study show that the application of regular physical exercise practiced by patients with schizophrenia is a useful non-pharmacological application to improve mental sates and quality of life" (p.814).

Critical Appraisal:

Taylor (2007) suggests when critically appraising a quantitative article to address three key questions:

1. Are the results valid?

Taylor (2007) states that it is important for a quantitative study to have a clearly focused issue. The study stated a clear aim (stated in the description of the study). There were 4 research questions included which were directed at the change in psychiatric symptoms and quality of life, relevant to the studies purpose. Quasi-experimental designs assign participants to groups out of convenience rather than through randomization (Allpsyc, 2003). Although the participants were said to be randomized into the control and subject groups of this study, it is not seen to be a true randomization as the researchers would have been the ones assigning the participants to groups. The introduction states the literature that there is already available on the topic and states that there is a need for more controlled experimental trials. This is a fair summary of the literature available on the topic and a fair reason as to why they are completing this study. There was no mention of the participants in the conclusion of the study, only at the beginning. As the authors have failed to do this it could mean the results are biased. The participant's volunteered to be a part of the study indicating that they were not blind to the treatment. This may have effected the results of the study as the clients were aware they were in a study, thus possible influencing their behaviour. The control and experimental groups were statistically similar at the baseline for this study as there was no true statistical differences between the groups ($P > 0.05$). Ethical issues were not stated in this research article only that the participants entered the study voluntarily (consented to be a part of the study). This article had some good points and some poor points. I think for a quasi-experimental study it is reasonably valid; however it is not strong evidence.

2. What are the results?

The assessments/scales used to collect data were described clearly to the reader. The methods of collecting data were clear as to when they were administered and what they were measuring- psychiatric symptoms and quality of life. This was justifiable as it was relevant to the research purpose and questions. The key findings suggest that physical exercise has a positive effect on mental state and quality of life amongst adults with schizophrenia. These results were seen to be statistically significant across all areas ($P < 0.05$). I found the result section easy to follow and the results matched the aim of the study.

3. How will these results help me work with my clients?

The results are difficult to generalize because of the small sample size ($n=30$) and a short treatment time. This means that the results cannot really be generalized into occupational therapy practice and that more studies with a larger sample size and a longer treatment time need to be completed to confirm the results of this study. The results do indicate that

physical activity is a cheap and effective intervention to use in practice which is beneficial to clients and to the health care systems expenses.

Summary/Conclusion:

In my opinion this is a reasonably valid quantitative quasi-experimental study. The results add to the growing body of information that physical activity is beneficial for adults with schizophrenia. The results show that negative and positive symptoms of schizophrenia can be decreased through the use of physical activity and the results are statistically significant. The authors listed that the sample size and duration of the treatment were limitations to this study restricting the validity of the study and generalisation to practice. The results also would have been more valid if the clients were randomized and blind to the treatment. But for the nature of a quasi-experimental study I felt the study was valid and supports the positive benefits of physical activity within the adult population of people with schizophrenia.

Description and appraisal of:

Exploring the benefits of an exercise programme for people with schizophrenia: A qualitative study. Fogarty & Happell (2005).

Aim: "To determine the impact of a structured exercise program on the physical and psychological well-being of people with long-term diagnoses of schizophrenia or related psychosis" (p. 343-344).

Study Design: Qualitative: exploratory

Setting: The setting is a community care unit located in metropolitan Melbourne, Australia.

Participants: The participants are six males all with a diagnosis of schizophrenia aged between 20-42. They all volunteered to participate in this study.

Method: The participants took part in individual exercise programmes developed by qualified exercise physiologists. The exercise programmes duration was 3 months. The method used to collect data was a focus group interview. The participants ($n=6$), exercise physiologists ($n=2$) and members of the nursing staff who were actively involved in the implementation of the programme ($n=4$) were involved in the focus group. The staff were involved due to the impact the programme had on them, not just the participants. The focus group was carried out by an experienced researcher who was not directly involved in developing or conducting the exercise programme. The focus group was informal in design and followed a semi-structured format. The participants were asked to share their

experiences of the exercise programme. The focus group was tape recorded and transcribed verbatim. Data was analysed by two researchers.

Findings: 4 main themes emerged through the data analysis:

-The individual nature of the program

Most of the participants commented positively about how the programme was designed to meet their individual needs. As the participants fitness levels varied. One of the participants commented on how the programme was achievable to her needs and gradually made harder. "We did some small things and then built up" (p.346).

-Physical improvement

All of the participants noticed a considerable improvement in their physical fitness. One of the participants commented "I started off in bad shape.....But with the help of the exercise physiologist and nursing staff I got fitter" (P. 346).

-Group dynamics

The participants all identified the importance of a team approach to exercise. Having the support and encouragement from the other participants and staff. The staff noticed other residents at the setting not directly involved in the programme wanting to be a part of it.

-Future plans

The participants all described their participation in the programme as a positive one, and are very keen to continue with some form of exercise ranging from walks to team sports.

Original Authors' Conclusions: "The findings from this qualitative study suggest that people experiencing a mental illness can participate in and benefit from a physical exercise programme" (p.348).

Critical Appraisal:

Taylor (2007) suggests when critically appraising a qualitative article to address three key questions:

1. Are the results trustworthy?

The aim of the study was clearly stated in the article (see previous section). They did not state a research question however. The researcher provided some insight into the reason a qualitative study was appropriate for the purposes of the study such as to more fully understand the impact and benefits of exercise for people diagnosed with schizophrenia. A qualitative study was an appropriate choice for this study as qualitative studies look at the participant's experiences and insights into an intervention, as this study has done. The setting was described clearly. The study was completed across one setting, this limits the transferability into other practice settings. All participants volunteered to be a part of this study, and were all male (another restriction of transferability). Although the sample size is

small I feel it is appropriate for this study as qualitative studies often have small sample sizes and similar themes emerged across the participants. The data collection process was clearly described and as was the focus group, this made it easy for the reader to understand and follow the process of the research (good dependability). The method of transcribing the focus groups material into themes was clearly described by the use of a thematic analysis by the 2 researchers. Themes were clearly described with relevant quotes from the focus group to support emerged themes. There is no mention of any bias that the researchers may have had, such as experience in these programmes limiting confirmability. The authors of the study mentioned that the success of the programme may have been due to the employment of qualified and experienced exercise physiologists. There was no mention of member checking, triangulation or data saturation in the study which limits the studies credibility. Ethics was addressed with consent being gained from participants and permission gained from ethics committee. Due to the qualitative approach the findings from this study as difficult to generalize, but do offer valuable information for the consideration of exercise as an intervention in schizophrenia and similar illnesses.

2. What are the findings?

The key findings were classified into 4 themes that emerged in the data analysis phase. The individual nature of the programme, physical improvement, group dynamics and future plan. Each theme is described in detail above. The results were presented in a way that the reader could easily read and understand them. Themes could have been explored further and more quotes from the focus group interview could have been used to support these themes. The conclusion that the author came to in this study that people experiencing mental illness can benefit from physical activity is legitimately concluded from the findings.

3. How will these findings help me work with my clients?

The findings of this qualitative study are unable to be generalized into occupational therapy practice. This is due to the nature of qualitative designs being small in client size and providing information on a selected group of individuals experience rather than statistical evidence. As the study was completed across one setting it is unable to be transferred in a wide variety of occupational therapy settings. This finding of this study suggest that physical exercise use as a component of any psychological rehabilitation program for patients with long term mental illnesses such as schizophrenia has merit. This further supports the growing evidence that physical activity is beneficial for adults with schizophrenia.

Summary/Conclusion: I believe that this study has some clinical value. It is not strong evidence, but it does provide interesting perspectives around the benefit of physical exercise for clients with schizophrenia. Having information around a client's perspective is important in evaluating the effectiveness of any interventions. This study was limited in transferability, credibility and confirmability which really impacts on any articles clinically significance. Due to these limitations this article does not provide strong evidence, but has does contribute clinical value to this topic.

IMPLICATIONS FOR PRACTICE, EDUCATION and FUTURE RESEARCH

Based on the 2 articles reviewed it is clear to see that physical activity is beneficial for clients who have a diagnosis of schizophrenia, and that it can help to reduce positive and negative symptoms. It has also shown that physical activity is a cheap and effective new way to support treatment of adults with schizophrenia.

The results are somewhat trustworthy and valid based on the critical appraisal but there is a need for further research that has strong evidence and so these findings can be generalized into practice. These studies are difficult to generalize into practice due to small sample size and duration of physical activity intervention. Further research should include larger participant size and longer duration so results can be generalized.

Further research should be focused specifically around deduction in psychiatric symptoms and effect of quality of life in adults with schizophrenia through the use of exercise. This will help to show how specific physical activity can provide clients with both therapeutically and medically orientated outcomes.

Physical activity is beneficial to all people and that it should be applied into mental health practices. With further research completed around this topic the evidence will become stronger, more valid and more reliable. Occupational therapist will be able to use physical activity in mental health practices with confidence.

References:

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