

Otago Polytechnic
School of Occupational Therapy

Title of work:	The effectiveness of physical activity as an intervention for elderly people with depression.
Prepared by:	Rachel McFedries and Nicole McGill
Date:	Thursday 3rd June 2010

CLINICAL SCENARIO:

Establishing whether exercise is beneficial for the mental state of older people is important for New Zealand. The elderly population is expected to increase to 25% of the total population by the year 2030 (Dunstan & Thomson, 2006).

If exercise can be used to reduce depression symptoms, then the healthcare system will potentially benefit by decreasing mental health care services to this population.

Healthcare professionals will be able to offer an alternative to prescription of antidepressants, a more economical and healthier intervention (without side effects) to patients. Additionally, exercise has obvious physical benefits alongside the psychological benefits that it offers patients.

FOCUSSED CLINICAL QUESTION:

In older adults, is engagement in physical activity effective in reducing depressive symptoms?

SUMMARY OF SEARCH, 'BEST' EVIDENCE APPRAISED AND KEY FINDINGS:

There was a wide variety of articles when using the search terms 'depression', 'elderly' and 'occupation'. When the term 'occupation' was narrowed down to 'physical activity', relevant articles were limited.

Blake, Mo, Malik & Thomas (2008) and Leavy & Aberg (2010) were considered as 'best evidence' as they both addressed the focus question and both fitted the inclusion criteria. The key findings both indicate that physical exercise is beneficial to elderly with depression.

CLINICAL BOTTOM LINE:

On the basis of the systematic review and the qualitative study it can be concluded that there is adequate evidence that physical activity is effective as an intervention in reducing depressive symptoms in the short term for older adults, however further research is needed to establish its long term effectiveness and relevancy related to New Zealand culture.

LIMITATIONS OF THIS CAT:

This critical appraisal has been peer reviewed by the two students who authored it and one lecturer as part of an assignment.

SEARCH STRATEGY:

In order to find two articles for this topic the OTSeeker, PubMed, and CINAHL databases were searched. If full text of articles was not available online, they were located within the Bill Robertson Library.

Hand searching was undertaken within the reference list of one article.

Database:	Search terms:	Limits used:
OTSeeker	- depression, older people, occupation - "depression", "older people", "occupation" - "depression", "elderly", "occupation"	Nil
PubMed	- "depression", "elderly", "occupation" - (("depression") AND "older people") AND "activity"	Nil
CINAHL	- elderly, physical activity, depression - "older people's experience", physical activity - occupation, depression, older people	Full text, articles between 2000 – 2010

INCLUSION CRITERIA:

- client group over 60 years old
- male and female
- participants involved in some form of physical exercise
- published between 2000-2010

- available on database or at Bill Robertson Library

EXCLUSION CRITERIA:

- published prior to 2010
- clients under the age of 60 years

RESULTS OF THE SEARCH:

Study design/methodology:	Level:	Author (year):
Qualitative study	5	Vik, Nygard, Borell & Josephsson (2008)
Systematic review	1	Blake, Mo, Malik & Thomas (2009)
Randomised control trial	2	Mozley, et al. (2007)
Qualitative study - Descriptive study	5	Leavy & Aberg (2010)
Qualitative study	5	Borell, Lilja, Andersson-Sviden & Sadlo (2000)

BEST EVIDENCE:

The two articles considered as 'best' evidence are:

- Blake, H., Mo, P., Malik, S., & Thomas, S. (2009). How effective are physical activity interventions for alleviating depressive symptoms in older people? A systematic review. *Clinical Rehabilitation*, 23(10), 873-887.
- Leavy, B., & Aberg, A. C. (2010). Not ready to throw in the towel: Perceptions of physical activity held by older adults in Stockholm and Dublin. *Journal of Aging and Physical Activity*, 18(2), 219-236.

These two articles were selected as they represent different types of evidence, a systematic review and a qualitative study, and they were both published recently therefore the evidence is up to date and current. The article by Blake et al (2009) was selected as it is a systematic review which is considered the highest level of evidence (level 1) according to Taylor (2007). They both included an elderly age group that participated in varying levels of physical exercise.

SUMMARY OF BEST EVIDENCE:

Title of article: "How effective are physical activity interventions for alleviating depressive symptoms in older people? A systematic review"

Aim/Objective of the study:

The aim of this study is to explore exercise as an intervention in elderly over the age of 60 years in order to reduce depressive symptoms. This was achieved by reviewing literature from online databases.

Study design:

This study is a systematic review.

Search strategy:

The authors identified that a number of electronic databases were searched. Also incorporated were the types of articles that they were looking for, ranging from any language and any source, specific key search terms were also included.

Setting:

Participants were outpatients from a variety of different settings, for example; primary care, psychiatric services and local nursing or care homes.

Participants:

From the 11 studies selected, there were 641 participants total. All of the studies included recruited participants using randomised control trials. The inclusion criteria included participants being over 60 years of age, the participants had to be depressed at baseline. The age of participants ranged from 65 to 82.4 years. The male to female ratio ranged from 1:4.4 to 1:1.

Method:

This article was reviewed by the authors independently extracting, cross checking the data by following a rigorous standardised extraction data form recommended by the Scottish Intercollegiate Guidelines Network (SIGN). The Critical Appraisal Skills Programme (CASP) tool was used to assess the methodological quality of the studies. A QUORUM flowchart of the selection process is outlined on page 887.

Results:

The results from this article show that there is sufficient evidence that exercise has positive outcomes immediately for reducing depressive symptoms in the elderly.

However there was limited evidence to support the effectiveness in the mid to long term.

Original Author's Conclusions:

The author concluded that out of the 11 studies, most of them provided significant evidence that exercise does reduce depressive symptoms in elderly. However due to most of the articles having different characteristics including the length and intensity of exercise, it made it difficult to compare the articles. The author recommends further research is required to establish the cost effectiveness of exercise and the medium to long term effectiveness in treating depression.

Critical Appraisal:

Validity of the results:

When appraising the validity of systematic reviews Taylor (2007) suggests that certain criteria should be met.

To ensure the results were valid, the authors used the following:

The article has a clear focus; "To assess the efficacy of physical exercise for the treatment of depressive symptoms in older adults (Blake et al., 2009, p. 873). A variety of databases and key terms were utilized. However the authors stated in the limitations of the study that there was the possibility that some articles may have been overlooked. This was minimised by searching a variety of databases and all articles were screened This demonstrated rigour when articles were being selected.

The authors had a very clear inclusion and exclusion criteria, relevant to the aims of the study. All of the studies selected were collected from a range of electronic databases, there was a large sample size and the participants were of mixed gender to ensure it was randomised. Standardised data extraction forms were used to assess the methodological quality of the studies; this indicates that the authors were very comprehensive in ensuring the validity of the study. The authors of the studies were contacted to gain further details of the participants, demonstrating detail to ensure the participants were relevant for the criteria. The exclusion criteria contained a table of excluded articles and their justification. Also only English studies were included meaning that non English studies that may have been relevant were missed.

Taylor (2007) also suggests that when critically appraising a systematic review it

should be questioned what the results are. The results of this review are relevant to the research question. A meta analysis was not included in this study as it was stated it was not carried out due to time constraints and funding. The findings from the review were summarised into a table, this appeared to be the most appropriate way to summarise the data in a way that would be clear as the results from the studies were very different, making it inappropriate to make any statistical comparisons as none were actually made. The overall result of the review was that out of the 11 studies most of them had a significant positive effect in reducing depression in the elderly; however the results are not very precise as there were many variables within all of the studies. Only individual analysis was carried out and the results were divided into 3 categories. The conclusions suggest that even though there were differences in the patient characteristics and intervention, exercise is clinically relevant to reduce depression in elderly people.

Taylor (2007) recommends considering if the results are beneficial to practice. The authors do state that exercise is clinically relevant, however they do not specify which profession it would be relevant to. It may be useful to occupational therapy practice but only to a specific group of therapists working with elderly with depression. The cost effectiveness was not discussed in this review, however the authors suggest that evidence regarding the cost effectiveness would be beneficial for service use and delivery of exercise to reduce depression.

Summary:

This review is trustworthy as it has used a very thorough data collection process and cross checking to eliminate bias. However it was difficult to determine the overall significance of exercise in reducing depression as there was no statistical evidence summarising all of the studies. This review has limited relevance to occupational therapy as it is only specific to a particular area of practice.

Title of article: "Not ready to throw in the towel": Perceptions of physical activity held by older adults in Stockholm and Dublin'.

Aim of the study:

This study aimed to explore and describe what perceptions older people living in two different cultures (Swedish and Irish) had about physical activity.

Study Design:

This study is of a qualitative descriptive design.

Setting:

The study took place in two large cities - Dublin and Stockholm.

Participants:

30 participants were interviewed, who were recruited through contact with voluntary organisations (retirement groups, day centres). Suggestions were also taken from participants as to other possible participants who were not involved in organisations, in order to include people who were not so active.

Participants were selected by using purposive sampling by one of the study authors and contact people at the organizations. They were required to be living in the community in their own homes, over the age of 65 years, functionally independent, and have no cognitive impairment.

The mean age of participants was 74.5 years for the Irish participants and 75.6 years for the Swedish. 18 of the participants lived at home with family, 12 lived alone.

Method:

One of the authors collected information such as age, educational background, and family status then conducted a 30-75 minute interview with participants. All interviews were conducted in the participants' homes, in the native language of the participants (e.g. English/Swedish).

The interviews all started with the question "What are your thoughts on physical activity" (Leavy & Aberg, 2010, p. 222). Participants were encouraged to speak about themes such as motivators and barriers to exercise, whether relevant information about exercise was available to them, and their beliefs about physical activity in relation to health. The interviewer had a guide with themes that were to be covered.

The interviewer summarised the information back to the participant at the conclusion, and asked if the information was correct. All of the interviews except one were recorded.

Findings:

Findings were presented by the authors in three themes:

- **Perceived physical activity levels:** three activity levels of participants emerged through the findings:
 - a) Active: activity of a non-functional nature (e.g. dancing) at least three times a week.
 - b) Moderately active: unscheduled functional activity (e.g. walking to shops).
 - c) Inactive: no involvement in physical activity of any kind.

- **Perceptions of physical activity:** three themes emerged in this section:
 - a) Self expression - self-perceptions about activity:
 - 'The Self', 'Lifestyle Changes Over Time', & 'Identification Through Work'.
 - b) Interaction - participants having contact with others/the environment through physical activity:
 - 'Social Contact', & 'Out in Nature.
 - c) Health Promotion - perceptions of the effects of exercise:
 - 'Awareness of Health Recommendations', 'Dealing With Chronic Disease', & 'Beliefs about Health Effects of Exercise'.

- **Life-span perspectives on physical activity:** how participants dealt with their lessening ability to cope with physical activity as they got older.

Active participants didn't see their aches and pains as a barrier to exercise, establishing new goals at a suitable level.

Moderately active participants would be grateful for what they could do, attaching dignity to being able to accept their limitations.

Inactive participants justified their inactivity through their aches and pains and being 'old'.

Original Author's Conclusions:

The authors concluded that "there are wide variations on how older adults perceive physical activity" (Leavy & Aberg, 2010, p. 230). They found that the active older adults saw physical activity as a part on their self identity and that for most participants, the opportunity for social interaction was a strong motivator for exercise.

Critical Appraisal:

Trustworthiness of the results:

To critically appraise qualitative research, Taylor (2007) suggests that four criteria of trustworthiness should be examined.

Credibility:

- In order to gather a thorough picture of data, Taylor (2007) recommends that data should be gathered over a prolonged period of time. The timeframe in which the interviews took place was 6 months, which the authors of this critical appraisal believe is an adequate timeframe in which to gather data in this scenario.

- Leavy & Aberg do not state if they used another form of data collection therefore we assume that data was gathered only from the semi-structured interviews.

- Leavy & Aberg do not state whether participants received a copy of the transcription and study results. Allowing participants to comment on findings can lead to increased credibility of results.

Transferability:

- Leavy & Aberg (2010) explain clearly the process of recruiting and choosing participants, and provide a comprehensive overview of demographics in Table 1 (p. 223). The in depth analysis of participant's physical activity levels also gives a thorough picture of the individuals. This study has enough information to be transferable to other settings.

Dependability:

- The authors of the study describe in detail on p. 223 the process of using a "thematic framework approach" to analyze content of the interviews. Codes in the data were identified, reanalyzed, checked against preliminary findings, and then sorted into subthemes using "comparative analysis". The authors have given sufficient details about their analysis process for it to be credible.

- It seems that the main author of this study did the initial analysis, labelling and coding of the interview themes. The second author cross checked some interviews to ensure that interpretations of the first author were valid. This is a form of validity checking, ensuring dependability of the findings.

Confirmability:

- Leavy and Aberg ensured confirmability by collaborating together when identifying

the main themes and subthemes. Incorporating the second author at this stage ensured that they eliminated bias, as the main author was the one who conducted the initial interviews and analysis, and could have been biased by her own impressions on participants.

Summary:

This study gives a comprehensive and relatively reliable insight into older people's perceptions on exercise. It is easily transferable for occupational therapists (OT's) to use in everyday practice due to the thorough outline of participants' details. The study has dependability and confirmability in that two authors completed the analysis, however, including member checking would have ensured greater credibility of the results. An OT working in New Zealand should be careful to eliminate cultural considerations of this article, and ensure comments are transferable from a Swedish/Irish context to New Zealand.

IMPLICATIONS FOR PRACTICE, EDUCATION, and FUTURE RESEARCH:

Both of the articles reviewed for this critical appraisal give relevant and reliable evidence that validates using exercise as an intervention to reduce depression for older adults.

The evidence from Blake et al (2009) systematic review concluded that physical activity is effective in reducing depressive symptoms in elderly people. This article is considered trustworthy due to the high standard of rigour when searching relevant articles for the research question and the use of cross checking and standardised extraction forms to eliminate bias. There is some clinical relevance of using exercise as an intervention to reduce depression in the short term, however more research into the cost effectiveness and the effects of exercise in the mid to long term is required.

In relation to occupational therapy practice, this intervention would be more beneficial for OT's working in the area of mental health as it is more specific to that client group, due to the precise nature of the research topic.

Leavy & Aberg's (2010) qualitative study explains the viewpoints of older people's perception of activity. It is relatively reliable, however Leavy & Aberg (2010) point out that a standardized physical activity questionnaire could have been used to gain more reliable information about participant's activity levels.

This study does not specifically link involvement in exercise with reducing depression, which means that occupational therapists using this article as evidence that exercise reduces depression will have to draw on their clinical knowledge of risk factors of depression and relate it to their clients as needed. For example, social interaction was a significant theme in the study as to why participants participated in physical activity, and social support has been proven as a protective factor that can act as a buffer against mental illness (Treatment Protocol Project, 2000). Occupational therapists working with older people can use the Leavy & Aberg article to gain insight into older people's perceptions and use examples from it to motivate clients into participating in the occupation of physical activity. Leavy & Aberg (2010) also give useful recommendations (in the discussion section) that can be used in practice about tailoring educational advice to the differing activity levels of participants.

To summarise, both articles give reliable evidence to support that exercise is effective in reducing depression in the elderly age group. Given the difference in design of the two articles, they both have very different strengths to offer to an OT looking to use them as a foundation for evidence based practice.

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