The impact of an exercise programme on young people with depression.
An embedded mixed methods evaluation

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Depression

- Depression affects an estimated 350 million people worldwide (1)

- Approximately 80,000 children and young people suffer from severe depression in the UK (2)

- The number of young people aged 15-16 with depression in the last decade is almost twice what it was in 1980s (3)

- Anti-depressant medication alone or in addition to psychological therapy most efficacious treatment approach (4,5)
Exercise and depression

• Two systematic reviews have been conducted and have reported small and moderate treatment effects for physical activity on depression \(^{(6,7)}\)

• Generally low quality studies with high risk of bias

• Majority of the target populations were non ‘clinical’

• No research on acceptability, experience or underlying mechanisms
Objectives

1. To determine the effectiveness of a group exercise intervention on the depressive symptoms of young people with depression.

2. To investigate the acceptability and underlying processes of a group exercise intervention for young people with depression.
• Embedded mixed methods design (7)

• Quantitative design – Randomised Controlled Trial (RCT)

• Qualitative process evaluation – Semi structured interviews

Overview

RCT

Intervention Arm
Treatment As Usual
6 week exercise programme

Control Arm
Treatment As Usual
Process evaluation

- Semi-structured interviews
- Intervention arm participants
- Acceptability, experience and underlying processes
The exercise intervention

- Circuit-training
- 6 weeks
- 12 sessions
- Preferred Intensity
Eligibility

Inclusion criteria

• Aged 14-17.

• Receiving treatment for depression from a healthcare professional

• Score of 14 on the CDI-2

Exclusion criteria

• Injury or physical health problem of substantial severity
Participant flow

G.Ps conduct search of databases and mail out information sheets to all eligible young people

CAMHS workers and school nurses give information sheets to eligible young people

Young people/parents contact the study team

Consent and baseline measures taken

Randomisation

Intervention arm
- 12 exercise sessions
- Outcome measures taken
- Qualitative Interviews conducted
- Outcome measures taken

Control arm
- Treatment as usual
- Outcome measures taken

6 weeks

6 months
Outcome Measures

• **Children’s Depression Inventory 2 (CDI-2)**
  - Depressive symptoms

• **EuroQol 5 Dimensions – 5 Levels (EQ5D-5L)**
  - Health related Quality of Life

• **Incidents of self harm**

• **Leisure Time Exercise Frequency Questionnaire (LTEQ)**
  - Weekly exercise frequency
TRIAL FINDINGS
Loss to follow up

Assessed for eligibility (n=128)

Excluded (n=41)

Randomised (n=87)

Allocated to intervention (n=44)
Discontinued intervention (n=3)

Allocated to control (n=43)

Lost to follow-up (n=8) 18%

Lost to follow-up (n=19) 43%

Post intervention

Lost to follow-up (n=14) 33%

Lost to follow up (n=25) 59%

Six months
Attendance

Number of exercise sessions attended vs Frequency
## Depressive symptoms

<table>
<thead>
<tr>
<th></th>
<th>Intervention arm mean (SD)</th>
<th>Control arm mean (SD)</th>
<th>Regression coefficient (95% CI)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CDI-2 Baseline</strong></td>
<td>29.1 (9.4)</td>
<td>28.2 (6.7)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>CDI-2 Post intervention</strong></td>
<td>23.8 (10.7)</td>
<td>25.7 (8.5)</td>
<td>-2.21 (-7.1 – 2.6)</td>
<td>0.36</td>
</tr>
<tr>
<td><strong>CDI-2 six months</strong></td>
<td>20.4 (10.8)</td>
<td>24.6 (10.2)</td>
<td>-4.97 (-9.43 – -0.52)</td>
<td>0.041</td>
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</tbody>
</table>
PROCESS EVALUATION FINDINGS
Demographics

- 27 Interviews conducted (72%)
- Duration of interviews (7 - 31 minutes)
- Mean age of respondents (15.3 years)
- Proportion of gender difference - Male (25%) Female (75%)
- Thematic analysis
Facilitators to participation

• The importance of choice

‘I liked that it wasn’t sort of pressured, it was more free to do what you want, like if it was do that exercise for 2 minutes, but it was more like choose one and then do it but if you get tired stop and I liked the freedom of it’.
(female, 15 years)

• A shared experience

‘it was nice to know that they were all really normal girls and it wasn’t like, I felt more normal and happy, and it made me more confident that other people were going through the same thing’. (female, 14 years)
Physical changes

• Increased energy
  ‘it kind of energized me a bit so I’d feel more like less wanting to sit and do nothing. I felt more awake as well, which is weird when you talk about exercise’.  
  (female, 17)

• Improved sleep
  ‘I was so awake ready to get up and get ready, whereas normally I just drag myself out of bed but because I'd done the exercise the night before my body was still awake, but I was still sleeping like decent amounts of sleep’.  
  (female, 15)
Psychological and behavioural changes

• **Improved mood**
  ‘I just felt a lot happier, like when I came home after I was just in a really good mood’. (female, 15)

• **Enhanced motivation**
  ‘I’d be different, I would just want to be more talkative with my family and maybe want to see my friends and just want to do more’ (female, 15)

• **Increased confidence**
  ‘It showed that if I sign up to do something then I can do it’. (female, 16)

• **Moderated social behaviour**
  ‘I think I was a lot nicer to my mum and sister, because I felt a bit like that I was thinking about it more, and also thinking about my actions, because I would normally lash out at people’ (female, 16)
Facilitators of change

• Feeling healthier

• Being distracted

• Feeling calm

• Having a routine

• Feeling a sense of achievement
‘Because I was less tired my school work went up a bit and I was concentrating more because it kind of made me a bit more worn out and then I got a good night’s sleep so I was ready for the morning and then I’m not as grumpy and that sets my day off well, and that makes my school work good and then I’m happy about that, and then when I get home I’m in a good mood because I have had a good day at school so it goes on like that, from just one good sleep’. (female, 15)
Conclusion

• The Intervention was acceptable to participants
• No significant treatment effects at post intervention
• Potentially a delayed effect on depressive symptoms
• May be underpinned by evolving changes
• More research required – multi-centre trial
EXERCISE FOR DEPRESSION IN YOUNG PEOPLE

A RESEARCH STUDY BY THE SCHOOL OF HEALTH SCIENCES AT THE UNIVERSITY OF NOTTINGHAM

WHAT WE DID

We wanted to test what impact a 6 week circuit-training exercise class would have on young people in Nottinghamshire who were experiencing difficulties with low mood or depression.

WHAT WE FOUND

The people in the exercise group reported less depression symptoms 6 months after the exercise class compared to the people who continued usual treatment. This can be seen in the graph: the lines show that those who took part in the exercise group experienced a quicker drop in depressive symptoms than those in the usual treatment group.

As well as a drop in depression scores, the young people who took part in the interview told us that they got a lot of things out of taking part in the exercise classes. These included:

- FEELING HEALTHIER
- BEING DISTRACTED FROM NEGATIVE THOUGHTS
- FEELING CALM AND RELAXED AFTER EACH SESSION
- HAVING A ROUTINE AND STRUCTURE TO THEIR WEEK
- HAVING SOMETHING TO DO AND SOMETHING TO LOOK FORWARD TO
- FEELING A SENSE OF ACHIEVEMENT

The young people also experienced a number of positive changes both during the time they were taking part and after it had finished. Some of these positive changes led on to further changes for some of the young people. One person said this about their experience...

"It just made me feel a lot happier. Probably from the third or fourth session, I just felt a lot happier. Like when I came home after I was just in a really good mood."
Thank you for listening

Any questions?
References