Winning essay by Elizabeth Binet

Evaluating the effect of exercise for reducing depressive symptomatology in children

2.6% of children globally suffer from depression (Polanczyk, Salum, Caye & Rohde, 2015). Childhood depression or depressive symptomatology in children has been shown to not only negatively affect school performance (Curry & Meyer, 2016). However, it may also be a predictor for depression in adulthood (England, N. H. S., 2015). In this essay, the term "children" will be used to refer to any individual under the age of 18 years. The current mental health service for children in the UK is the Child and Adolescent Mental Health Services (CAMHS). In 2018, a third of school pupils referred to CAMHS were turned away (Henshaw, 2018). Therefore, one may consider it essential to research effective and relatively low-cost interventions for reducing depressive symptoms in children. This essay will discuss the effectiveness of using exercise to treat depressive symptoms in children, particularly focusing on; cost-effectiveness, the biological effect of exercise and the link between childhood obesity, exercise and depressive symptoms.

One may argue that exercise should be used in the treatment of depressive symptoms in children should it be cost-effective. Only 6% of the budget, in the UK, for mental health is spent on children services (Kennedy, 2010). Lack of funding means that only two-thirds of children referred to CAMHS are seen for treatment, and a third are refused treatment (Henshaw, 2018). In Carek, Laibstain, & Carek, 's (2011) study which researched the use of exercise for the treatment of depression, exercise was found to be cost-effective.
Therefore, one may consider that a low-cost treatment like exercise (Carek et al., 2011) is essential for treating children with depressive symptoms as it may potentially be used to lower the time spent children have to wait for treatment (Henshaw, 2018). However, should it be ineffective at lowering symptoms of depression in children, the cost-effectiveness of treating depressive symptomatology in children using exercise may be considered redundant.

Nonetheless, exercise is argued to be effective in lowering symptoms of depression on a biological level (Field, T. 2012). Exercise has been shown to increase levels of serotonin (Caperuto, Dos Santos, Mello, & Costa Rosa, 2009) which is a chemical in the human body which is often referred to as the 'happy hormone' (Lopez, 2020). Principally due to serotonin's role in regulating circadian rhythms, lower than average levels of it are thought associated with an increase in depressive symptoms. Consequently, exercise may be thought effective for treating depressive symptomatology in children as it increases levels of serotonin.

A further argument for using exercise to treat depression in children is it suggested effectiveness at reducing rates of obesity (Hills, Andersen & Byrne, 2011). Obesity in children and adolescents may be defined as a BMI score over the 95th percentile for children and adolescents of the same age and sex and according to Hills et al. (2011) exercise is 'fundamental' in both the prevention of and reversing obesity. In Sjöberg,

Nilsson, & Leppert's (2005) self-report survey study sampling 15-17-year-olds, a positive correlation between obesity and depressive symptomatology was found. This argument may be thought further strengthened when considering the research of Ekeland, Heian, Hagen, Abbott and Nordheim (2005) which concluded that exercise is effective at improving self-esteem in children. This may be thought of particular relevance when considering the negative correlation between depressive symptoms and self-esteem in children (Sheslow, Hassink, Wallace & DeLancey, 1993). As such, one may postulate that this led Ekeland et al. (2005) to conclude that exercise may be used to treat depression in children due to its effectiveness of reducing obesity (Hills et al., 2011). However, there appears to be a gap in the literature researching the intensity to which the exercise should be performed at, to observe this reduction in obesity rates, and thus depressive symptoms. As such, it may be interesting in the future to study longitudinally depressive symptoms in an independent measures design in which children are prescribed exercise for depressive symptoms at varying levels of intensity.

However, treating depressive symptomatology in children with solely exercise does not take into consideration the thought processes which are suggested to underpin depression, such as rumination (Vele, 2008). Rumination is the repetition of negative thoughts (Broderick & Korteland, 2004). Broderick and Korteland (2004) noted that levels of depression in early adolescents could be predicted by rumination level. Therefore, exercise may be considered less effective at treating children with depressive symptoms as treatments such as Cognitive Behavioural Therapy (CBT) as it does not treat thought processes such as rumination. NICE guidelines recommend CBT to be the preferred treatment of depression in CAMHS (Murray & Cartwright-Hatton, 2006). One may thus consider that perhaps targeting thoughts is essential for treating depressive symptoms in children, or that other interventions, such as CBT perhaps have a stronger or more effective evidence base

In conclusion, exercise may be considered an effective way to treat children and adolescents with depressive symptomatology to some extent. Research shows exercise's effectiveness at treating depressive symptoms in children (Hills et al., 2011) also on a biological level (Field, T. 2012) and in terms of cost-effectiveness (Carek et al., 2011). However, exercise may further be considered a short term solution for treating depressive symptoms in children as it does not take into consideration negative thoughts often associated with depression. Nevertheless, due to high childhood depression rates (Polanczyk et al., 2015) perhaps prescribing exercise to children showing depressive symptomatology on the CAMHS waiting lists may provide more children with the help and support that they need, while also reducing the lengthy waiting lists. Exercise in conjunction with CBT or other such treatments could be the most effective way to treat children with depressive symptoms due to its cost-effectiveness and relative ease to do, however; further research would need to be conducted to test this.

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