

Mental health and physical activity among adolescents

Findings from the CLAN study

Mental illness is a growing health concern among adolescents. Data from Australia suggest approximately 20% of young people suffer from a mental health problem or disorder within any six month period^{1,2}. Consistent with data from the United States, Australian adolescent girls are more likely than boys to exhibit depressive symptoms^{1,2}.

Physical activity has been shown to have substantial benefits among adults experiencing symptoms of depression^{3,4}, but there is less evidence for its effects amongst children and adolescents.

In order to inform efforts to promote mental health amongst our youth, this study sought to examine associations between physical activity, organised sport and television viewing, and symptoms of depression. It also sought to examine whether depression itself influences levels of physical activity.

Study design and methods

The study was a longitudinal design involving adolescents attending secondary schools in metropolitan Melbourne.

Seventy four boys and 115 girls participated in the study, which involved surveys examining symptoms of depression and participation in organised sport and TV viewing. Depression symptoms were measured using the Centre for Epidemiological Studies Depression Scale for Children (CES-CD).

Participants also wore an accelerometer for eight consecutive days to provide an objective measure of their physical activity. These measures were established in 2004, when the participants were in years 7-10, and again in 2006 when they were in years 9-12.

Patterns of depression in adolescents

In 2004, the prevalence of depression was found to be particularly high among the sample of adolescent girls, with over 40% displaying symptoms of depression, compared with 20% of adolescent boys. Previous studies have also shown that adolescent girls exhibit twice the prevalence rate of depressive symptoms of males in the same age group⁵.

The proportion of boys and girls reporting significant depressive symptoms did not, however, increase from 2004 to 2006.

Tracking individuals during the study period helped to identify persisting symptoms of depression as well as patterns of emerging symptoms over time. It was found that 11% of boys and 28% of girls showed depressive symptoms in both 2004 and in 2006. Further, 14% of boys and 13% of girls who did not display depressive symptoms in 2004 had developed depressive symptoms by 2006.

In this study, 20% of adolescent boys and 40% of adolescent girls displayed symptoms of depression.

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Adolescents' involvement in physical activity, organised sport and television viewing

The study found adolescent boys were significantly more active than girls at both time points in the study.

In 2004, boys performed on average 100 minutes of moderate-to vigorous-intensity physical activity (MVPA) per day compared to 69 minutes for girls. These levels declined significantly as the adolescents got older, with MVPA almost halving among boys (54 minutes/day) and girls (38 minutes/day) over the two-year period.

Adolescents performed approximately 373 minutes/week of organised sport in 2004, and there was little difference between boys and girls. Participation in organised sport declined as adolescents got older, with boys' participation declining by 130 minutes/week and girls declining by 79 minutes/week.

There was no significant difference in time spent watching TV between boys and girls, however, TV viewing time did significantly decline over the two years by approximately 1.5 hours/week among boys and 3 hours/week among girls.

Are there associations between depression and physical activity?

In analyzing the study data, the researchers sought answers to the following questions:

- Are adolescents who participate in physical activity and organised sport less likely to have depressive symptoms?
- Is TV viewing by adolescents linked to depressive symptoms?
- Do patterns of physical activity and TV viewing predict whether adolescents will have depressive symptoms as they get older?
- Does the presence of depressive symptoms lead to lower participation in physical activity and organised sport and higher levels of TV viewing later in adolescence?

Despite the differences in exercise patterns observed between adolescent boys and girls, and the differences in prevalence of depression, the study found no association between participation in physical activity and the presence of depressive symptoms. There was also no association between depressive symptoms and participation in organised sport or TV viewing.

In addition, participation in physical activity and organised sport or time spent watching TV in 2004 did not predict the likelihood of developing depressive symptoms two years later.

Similarly, adolescents who reported depressive symptoms in 2004 did not participate in significantly more or less physical activity or organised sport at follow-up.

Girls who reported depressive symptoms at baseline (2004) were found to watch approximately eight more minutes/week of TV at follow-up than children who did not report depressive symptoms at baseline. This was a small but statistically significant result.

Where to from here?

It would seem from this study that physical activity, organised sport and TV viewing have little association with the presence of depressive symptoms for adolescents between the ages of 14 and 16.

This suggests that a range of different factors may be more important in adolescence, including social and emotional factors which were not examined in this study. It also raises the possibility that participation in physical activity, organised sport and TV viewing may be associated with the onset of depression at a younger age.

What is evident is that the findings from adult studies cannot necessarily be extrapolated to adolescents, and that we need to direct future research efforts to understanding the complex influences on adolescent health so that appropriate action can be taken.

References

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