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Promoting physical activity and reducing sedentary behaviour can minimise the risk of suicidal behaviours among adolescents

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Suicide is a leading cause of premature mortality and a major public health concern (1). It is more common in low- and middle-income countries like Bangladesh, where the rate is 39.6 per 100,000 population, compared to the estimated global average of 11.4 (2). Adolescents represent more than one-fifth of the Bangladeshi population (3), but there is limited information on how health behaviours like physical activity (PA) affect suicidal thoughts and behaviours in this vulnerable group. Identifying potentially modifiable risk behaviours is essential to reduce the country's adolescent suicide rate.

Emerging evidence, mostly from high-income countries, suggests that insufficient PA and prolonged sedentary behaviour (SB) are associated with increased adolescent suicidal thoughts and behaviours (1,4). This study examined the relationships between PA and SB with suicidal thoughts and behaviours in Bangladeshi adolescents.

We used population-based data from the 2014 Bangladesh Global School-based Student Health Survey, which covered students aged 13-17 years. Students were asked whether they had considered, planned or actually attempted suicide, how many days per week they were physically active, and how many hours they spent on SB on an average day. PA was defined as achieving 60 minutes plus per day and high SB was defined as three hours or more per day.

Most of the 2,989 survey participants were male (65%) and the mean age was 14.20 ± 0.99 years. We found that 52% did not meet the daily PA recommendations and 15% had high SB. The weighted prevalence was 4.9% (5.9% females versus 4.8% males) for suicidal ideation, 7.4% (7.2% versus 7.9%) for planning, and 6.7% (5.9% vs 7.3%) for suicide attempts.

Logistic regression analysis produced odds ratios (OR) and 95% confidence intervals (95% CI). Adolescents with insufficient PA were twice as likely to report suicidal ideation (OR 1.91, 95% CI 1.27-2.90) and suicide attempts (OR 2.01, 95% CI 1.36-2.96) and had 59% higher odds of suicide planning (OR 1.59, 95% CI 1.12-2.25), after adjusting for age, sex, weight status and SB (Figure 1A). The odds of suicide attempts doubled with low SB (OR 2.14, 95% CI 1.40-3.26), after adjusting for covariates and PA. The evidence was marginal for suicidal ideation (OR 1.68, 95% CI 1.03-2.71) (Figure 1B), with no significant association between SB and suicide planning.

We believe this was the first South-East Asian study to examine the relationships between PA and SB with suicidal thoughts and behaviours in a nationally representative sample of adolescents. PA and SB were adjusted for each other to minimise any confounding effects.

Overall, our findings suggested that insufficient PA and high SB made adolescents more vulnerable to suicidal behaviours. Studies with Chinese and South Korean adolescents also found an association (1), but a study of six Asian countries did not (5). We also found that adolescents with insufficient PA had higher odds of suicide attempts, but the Asian study did not (5). Such differences may be partially due to socio-cultural variations between countries. Although the positive association between PA and psychosocial wellbeing among adolescents is well recognised, it is still unclear how PA is related to suicidal thoughts and behaviours (1).

Finding that high SB was associated with higher odds of suicidal thoughts and behaviours was consistent with studies from South Korea and the USA (4) that showed that spending prolonged time on video games and the Internet was associated with increased risks of adolescents demonstrating depression, suicidal ideation and suicide planning. Screen-time was the key contributor to adolescents' SB and may increase psychological distress and depressive symptoms and lower self-

esteem among adolescents (4), which are known to be associated with suicidal behaviours. However, the effect of SB on psychological health is still emerging. It is also possible that adolescents with poor mental health lack the motivation for PA and use screen-based entertainment to cope.

Our study adds to the limited evidence on links between health behaviours and suicidality from a low and middle-income country. Promoting PA and reducing SB can potentially minimise the risk of suicidal behaviours among adolescents in Bangladesh. However, the results should be interpreted with caution, as this was a cross-sectional study based on self-reported data, which were potentially vulnerable to recall and social desirability bias. Furthermore, the analyses were not controlled for depressive symptoms. More research is needed to understand the causal pathway of these relationships, using objective measures of activity behaviours and sophisticated measures of suicidal behaviours.

ABBREVIATIONS

PA, physical activity.

SB, sedentary behaviour

CONFLICTS OF INTEREST

The authors have no conflicts of interest to declare.

FINANCE

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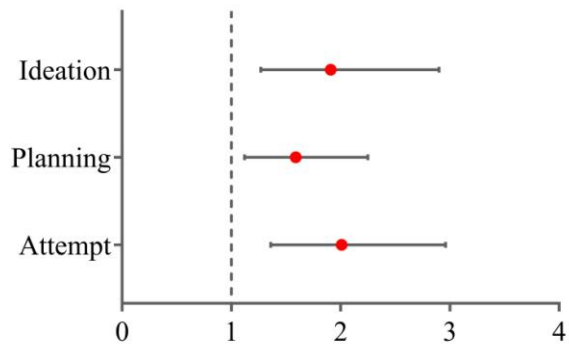
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Ethical approval

Bangladesh GSHS received ethics approval from the Ministry of Education. Only adolescents and their parents who provided written/verbal consent participated. As the current study used retrospective publicly available data, we did not require ethics approval from any Institutional Ethics Review Committee.

(A) Insufficient physical activity¹



(B) High sedentary behaviour²

