

# Risk of self-harm increases for boys and girls who experience earlier puberty

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Boys and girls who experience puberty earlier than their peers have an increased risk of self-harm in adolescence, a study funded by the National Institute for Health Research Bristol Biomedical Research

Centre (NIHR Bristol BRC) and published in the journal *Epidemiology & Psychiatric Sciences* today has found.

This is the first study to use the teenage growth spurt—an objective measure for the onset of [puberty](#) because it is based on height measurements taken in research clinics—to look at the relationship between the timing of puberty and [self-harm](#). The findings could be used to help identify boys, as well as girls, who are at increased risk of self-harm and develop [early interventions](#) to help reduce this risk.

Examining data from more than 5,000 individuals, researchers found that earlier onset of puberty in both boys and girls, as measured by the age at peak height velocity (the teenage 'growth spurt'), is associated with a higher risk of self-harm at age 16 years. They also found some evidence that, for girls, this increase in risk persists into early adulthood.

It is known that [young people](#) who experience earlier puberty are at higher risk of mental health problems such as depression. Previous research has also shown that girls who experience earlier puberty are at higher risk of self-harm. However, until now, the evidence for whether the timing of puberty is associated with self-harm in boys was less clear. This is because most previous studies have focused only on girls, or not looked at boys and girls separately. Many studies have also used subjective measures of when puberty starts—for example asking young people when they believe their pubertal development started compared to their peers—which might not be accurate.

As young people move through adolescence, their height increases sharply over a relatively short period of time. The timing of the maximum period of change is known as their peak height velocity: the point in time when their height is increasing at the fastest rate. Researchers calculated age at peak height velocity from height measurements taken from 5,339 participants in the Children of the 90s

(ALSPAC) study when they attended research clinics during childhood and adolescence. They calculated that the average age at peak height velocity was 13.5 years in boys and 11.8 years in girls.

The study also looked at the [self-report questionnaires](#) completed by participants at ages 16 and 21 years to assess whether there were reports of self-harm. One in ten boys and a quarter of girls reported having self-harmed at age 16 years. By the age of 21 years, the proportion of males reporting having ever self-harmed was 28 percent, and the proportion of females was 35 percent.

The research found that for both males and females, the proportion of participants reporting self-harm was highest among those with early peak height velocity and lowest among those with late peak height velocity. For females, experiencing peak [height](#) velocity one year earlier was associated with a 15 percent increase in the odds of self-harm at age 16 years; for males it was associated with a 28 percent increase. While these changes may not be causal, they reflect large differences in risk of an event which is now known to be relatively common.

Elystan Roberts, researcher at the University of Bristol and NIHR Bristol BRC, and the paper's lead author, said: "Our study is the first to investigate the relationship between the timing of puberty and self-harm using an objective measure of pubertal timing in boys.

"There's evidence that self-harm is becoming more common in young people, so it's important to identify the factors associated with self-harm so we can provide help earlier to those people who may be most at risk. We still don't know a lot about the psychological effects of early puberty in boys because male pubertal timing is so hard to measure, so our results will be important for helping to reduce self-harm risk in boys as well as [girls](#)."

Dr. Becky Mars, Research Fellow in Epidemiology in Population Health Sciences at the University of Bristol's Medical School, added: "The next steps will be to identify the mechanisms that explain the association. This might be [biological factors](#) like neurological development or hormone changes, or it might be psychosocial factors like bullying, substance use or depression. Once we have a better understanding of the reasons why early developers are more likely to self-harm, interventions can be designed and delivered to help reduce self-harm risk."

**More information:** Elystan Roberts et al. Pubertal timing and self-harm: a prospective cohort analysis of males and females, *Epidemiology and Psychiatric Sciences* (2020). [DOI: 10.1017/S2045796020000839](https://doi.org/10.1017/S2045796020000839)

Provided by University of Bristol

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