Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.
Covid-19

Pandemic linked to early puberty

The global coronavirus outbreak may be more than doubling the number of girls going through premature sexual development, finds Elizabeth Hlavinka

THE covid-19 pandemic may be triggering early puberty in some girls.

Several studies suggest the outbreak is increasing the number of girls going through premature sexual development – and experts are unsure why.

In the latest of a string of studies, researchers at the University of Bonn, Germany, reported how the number of girls diagnosed with early puberty at a single medical centre remained constant between 2015 and 2019, at fewer than 10 cases a year.

This more than doubled to 23 in 2020, when the covid-19 outbreak took hold worldwide, rising further still to 30 in 2021, according to results presented at the 2022 meeting of the European Society for Paediatric Endocrinology last week.

These researchers aren’t the only ones to see cases double. “In the pre-covid year, we had 28 children start treatment and in the covid year, we had 64 children start treatment,” says Karen Klein at Rady Children’s Hospital in San Diego.

Similar results have also been reported in Turkey and Italy.

Unclear cause

Early puberty is rare, affecting 1 in 5000 to 10,000 children in pre-pandemic times. For every one boy, it affects 10 girls. The reasons behind this disparity are unclear.

Regardless of a person’s sex, early puberty is linked to short stature in adulthood, as well as a greater risk of serious health conditions, such as heart disease, type 2 diabetes and some cancers.

Early puberty has also been associated with certain mental health problems, such as anxiety in boys and depression in girls.

The covid-19 pandemic may be triggering early puberty in some girls

Sezer Acar at Dr. Behçet Uz Children’s Education and Research Hospital in Izmir, an author of the Turkish study linking increased rates of early puberty to the pandemic, says: “Previously, I [treated] one or two patients a month due to precocious puberty, but during this period [the early stages of the pandemic before his study was published], I had to treat two or three patients a week.”

In addition to an increased number of girls starting puberty early, the age of onset may have also declined.

In the German study, pre-pandemic puberty onset occurred at age 6.8, on average, compared with 7.6 among those diagnosed during the covid-19 outbreak. A statistical analysis suggests this wasn’t a chance finding.

“We know stress can cause earlier puberty, so that’s certainly high on the list of what’s going on,” says Klein.

“The other thing people immediately started to think about was, well, everyone is at home not exercising as much and maybe it’s weight gain, because we know rapid weight gain can cause earlier puberty,” she says. “But in our study and in a couple of other studies, we didn’t see that the children were heavier.”

Increased screen time and changes in sleep cycles due to remote learning could also be at play, says Paul Kaplowitz at the Children’s National Hospital in Washington DC. These factors weren’t assessed in all the studies.

However, in a follow-up study to the Italian paper on increased rates of early puberty, researchers found that girls who were diagnosed with early puberty during lockdown had more disturbed sleep and later bedtimes than those diagnosed pre-pandemic.

Some have questioned whether the SARS-CoV-2 coronavirus itself is to blame. Inflammation of the nasal cavity has been documented in covid-19 cases and in people going through early puberty.

Although this hypothesis can’t be ruled out, especially because many childhood covid-19 cases are mild and may be missed, it seems unlikely, says Kaplowitz.

“I don’t think the effect of covid on female puberty is restricted to girls who actually had the infection,” says Kaplowitz. “Especially since, in the earlier stages of the pandemic, children were much less likely to become infected than adults.”

The pandemic aside, the age of puberty onset has been declining by about three months per decade since 1977, although there is little data on the effect of other traumatic events like wars or recessions.

Medication can reduce hormone levels and stunt sexual development for several years. However, this is generally only recommended if early puberty is expected to cause emotional or physical problems.

Some doctors hope that the return of in-person schooling and children adapting to pandemic-related challenges will slow the rate of early puberty.

“When the data is looked at for the past year, particularly in places where kids almost all went back to school and life returned to more normal, I would predict that the rate of precocious puberty will return to what it had been previously,” says Kaplowitz.

“But we obviously don’t know.”