

YOU SNEEZE, YOU LOSE: New evidence that hay fever damages young people's educational careers

School students who suffer from hay fever do worse in their exams and may be less likely to go to a top university than their classmates who aren't allergic to pollen. That is the central finding of research by **Simon Søbstad Bensnes**, to be presented at the annual congress of the European Economic Association in Mannheim in August 2015.

It is well known that a combination of hay fever symptoms and side effects of anti-allergy medicines makes it hard to concentrate in exams. The new study shows that this can in turn harm a young person's education for years to come. Analysing data on all Norwegian school students who took exams during the years 2008 to 2011 combined with pollen data for the period, the research finds that:

- School students taking exams on days with a high pollen count score around 3% worse than similar students taking exams on other days.
- These students are also 10% less likely to enrol in prestigious universities and study the STEM subjects of science, technology, engineering and maths.
- Boys, who generally score worse than girls, suffer more when exposed to pollen.

The author comments:

'Holding high-stakes exams during pollen season has a large negative effect on allergic students who are subsequently unfairly barred from enrolling in the most prestigious universities. Implementing compensating measures could decrease these effects.'

More...

Exam scores matter. In nearly all education systems, students' further education opportunities hinge on their performance during a few crucial exam hours. At the same time, it is well known that individuals with allergic symptoms have a hard time concentrating and have a reduced cognitive functioning.

This paper has two main findings:

- First, students who take their exams on days with more pollen proliferation score around 3% lower on their exams.
- And second, they are almost 10% less likely to enrol in more prestigious university and college programmes like science and engineering.

These effects are comparable to expensive targeted programmes like reducing class size. The results suggest that education systems that put a lot of weight on exit exams will bar highly skilled students from attaining higher education based on random variations in pollen proliferation.

25% of all youth are allergic to pollen with symptoms including sneezing, irritation and sleep disturbance. In addition, many of the most commonly used medicines to combat symptoms are known to cause somnolence and problems with concentration.

Combined, the symptoms and the lack of medicines free of side effects put allergic students at a definite disadvantage when exams are taken during pollen season. Coincidentally, most education systems hold high-stake exit exams during the peak of the pollen season. Examples include the British GSCE, and the American SAT.

This study use administrative data on all Norwegian high school students taking exams during the years 2008-2011 combined with pollen data for the period. In Norway high school students have to pass between two and five exams in order to graduate. Because students take more than one exam, it is possible to compare the exam outcome for the same student when pollen levels vary. Results do not change when local weather or air pollution is controlled for.

Exploring the effect in more depth, the study also finds that boys, who generally score worse than girls, suffer more when being exposed to pollen. As opposed to many other systems, the ranking of students applying for higher education in Norway is based on both term grades and exam grades. This implies that college and university enrolment is likely to be even more affected in education systems where enrolment is only based on a handful of exams.

This paper shows that holding high-stakes exams during pollen season has a large negative effect on allergic students who are subsequently unfairly barred from enrolling in the most prestigious higher education programmes. Implementing compensating measures could decrease these effects.

ENDS

You sneeze, you lose: The impact of pollen exposure on cognitive performance during high-stakes high school exams.

Simon Søbstad Bensnes

Phone: (0047) 41 92 70 81

Email: simon.bensnes@ntnu.no