



4

Schoolwork-related anxiety

For many students, assignments and tests present less a motivation to learn useful skills than a source of deep anxiety. This chapter examines the prevalence of schoolwork-related anxiety among students and how that anxiety can affect not only performance but students' overall well-being. The chapter concludes with a discussion of how teachers and parents can help reduce students' anxiety at school.



Although some students regard academic challenges and assessments as a way to improve themselves, many others develop serious anxiety when they cannot solve tasks at school, when they have problems with homework or when they know they are to be tested. This is especially true for students who have low confidence in their skills and for those who believe that their worth depends on doing better than others (Zeidner, 2007).

What the data tell us

- Feelings of anxiety related to schoolwork are common among 15-year-old students. On average across OECD countries, more than one in two students often worry about the difficulty of exams and feel very anxious, even if they are well prepared for a test.
- Anxiety is more frequent among girls than among boys. Around 64% of girls but 47% of boys reported that they agree or strongly agree that they feel very anxious even if they are well prepared for a test. In all countries and economies with the exception of Japan, girls were also more likely than boys to report that they get very tense when they study and that they get nervous when they don't know how to solve a task at school.
- Schoolwork-related anxiety is negatively related to performance at school and to life satisfaction.
- Students who reported that their science teachers adapt the lesson to the class's needs or provide individual help are less likely to feel anxious about their schoolwork.
- Girls whose parents encourage them to be confident were less likely to report feeling tense when they study.

The anxiety related to school tasks and tests, along with the pressure to get higher marks and the concern about receiving poor grades, is one of the sources of stress most often cited by school-age children and adolescents. Students who suffer from anxiety are more likely to perform poorly, be frequently absent from school, and drop out of school altogether (Cortina, 2008; Ramirez and Beilock, 2011). Excessive levels of anxiety can also negatively affect student's social and emotional development and sense of self-worth, prompt students to use chemical substances to reduce stress, and lead to exhaustion (Salend, 2012; Zeidner, 1998).

PREVALENCE OF SCHOOLWORK-RELATED ANXIETY AMONG 15-YEAR-OLD STUDENTS

Anxiety has different dimensions, and PISA 2015 chose to focus on the students' cognitive and emotional reactions to schoolwork. PISA 2015 asked students to report whether they strongly agree, agree, disagree or strongly disagree with the following statements: "I often worry that it will be difficult for me to take a test"; "I worry I will get poor grades at school"; "I feel very anxious even if I am well prepared for a test"; "I get very tense when I study for a test"; and "I get nervous when I do not know how to solve a task at school". The PISA questions thus cover both study- and test-related anxiety. Students' responses were used to construct the index of schoolwork-related anxiety, standardised to have a mean of 0 and a standard deviation of 1 across OECD countries. Positive values on the index indicate that students reported higher levels of schoolwork-related anxiety than the average student across OECD countries; negative values indicate that students reported lower levels of anxiety than the average student.

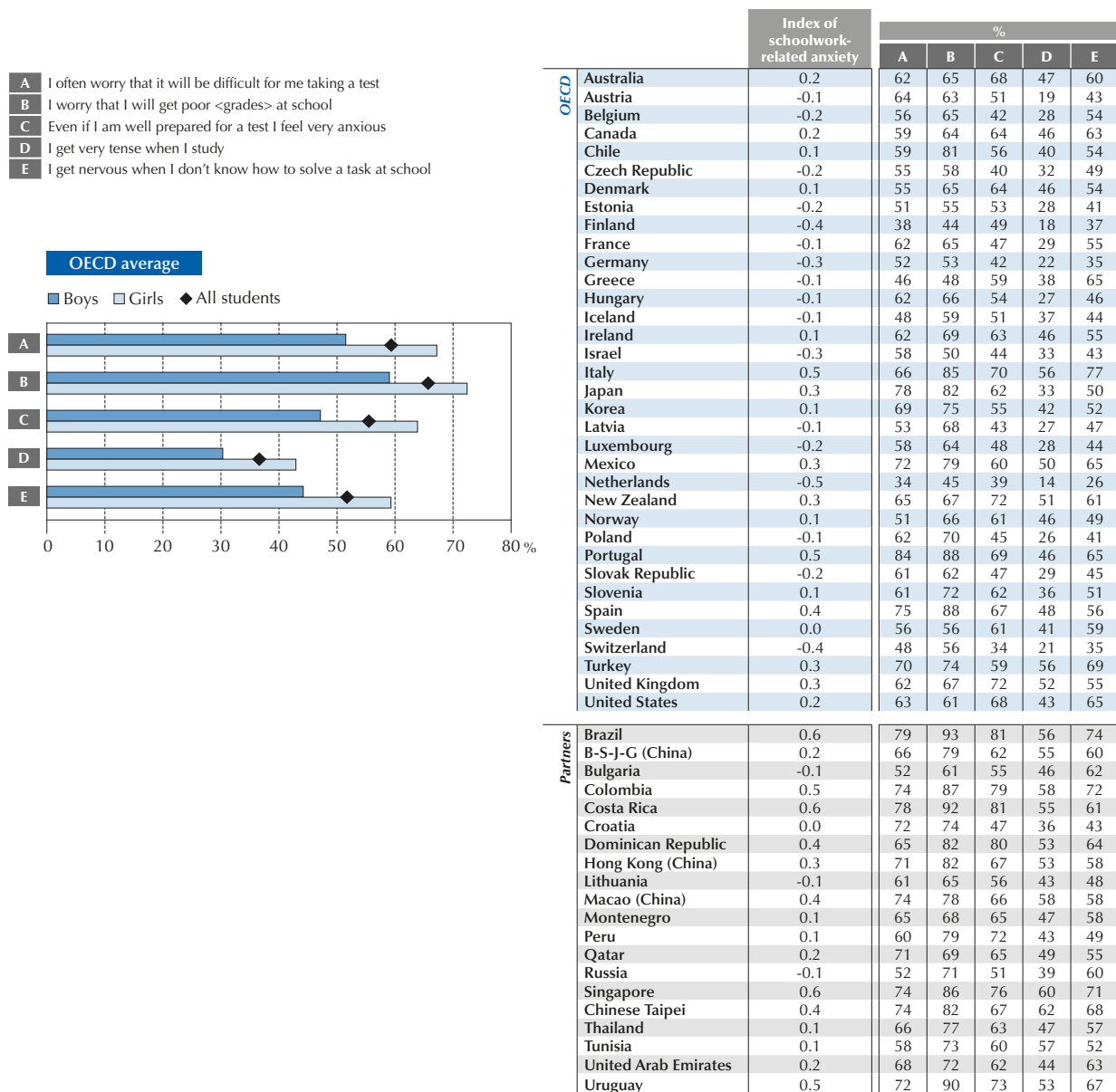
On average across OECD countries, about 59% of students reported that they often worry that taking a test will be difficult, and 66% reported that they worry about poor grades. Some 55% of students reported feeling very anxious for a test even if they are well prepared; 37% reported they get very tense when studying; and 52% reported that they get nervous when they don't know how to solve a task at school (Table III.4.1). There is a weak, negative correlation between an education system's performance in PISA and students' reported anxiety. Among the three countries where students reported the highest degree of schoolwork-related anxiety, Brazil and Costa Rica perform significantly below average, while Singapore is the top-performing country in PISA 2015 (Table III.4.5 and Figure I.2.13).

In all countries and economies that participated in PISA 2015, girls reported greater anxiety than boys (Table III.4.5). On average across OECD countries, boys were about 13 percentage points less likely than girls to report they get very tense when they study (Figure III.4.1). About 64% of girls but 47% of boys reported feeling very anxious even when they are well prepared for a test. This gender difference is particularly striking in the Nordic countries of Denmark, Iceland, Norway and Sweden (Table III.4.2). One possible explanation may be that girls are less self-confident than boys and, as a result, experience more worry and discomfort before and during evaluations (Zeidner, 1998). For girls, the prospect



of an assessment, particularly in subjects like mathematics and science, may pose what psychologists call a “stereotype threat” (Stoet and Geary, 2012) – the possibility that poor performance will confirm negative assumptions about the group to which they belong (for example, the stereotype that girls cannot excel in mathematics and science) (Stoet and Geary, 2012). Another possibility is that boys choose not to report being anxious in PISA because of social norms that expect boys to be strong and confident.

Figure III.4.1 ■ **Prevalence of schoolwork-related anxiety, by gender**
Percentage of students who reported that they “agree” or “strongly agree” with the following statements



Note: All gender differences are statistically significant (see Annex A3).

Source: OECD, PISA 2015 Database, Tables III.4.1, III.4.2 and III.4.5.

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Socio-economic status is related to schoolwork-related anxiety in the majority of countries and economies that participated in PISA 2015. Differences in anxiety related to socio-economic status are particularly wide in Denmark, Luxembourg and Sweden (Table III.4.2). In Sweden, for example, 65% of disadvantaged students but only 48% of advantaged students reported they often worry about the difficulty of a test. In Luxembourg and Tunisia, disadvantaged students were at

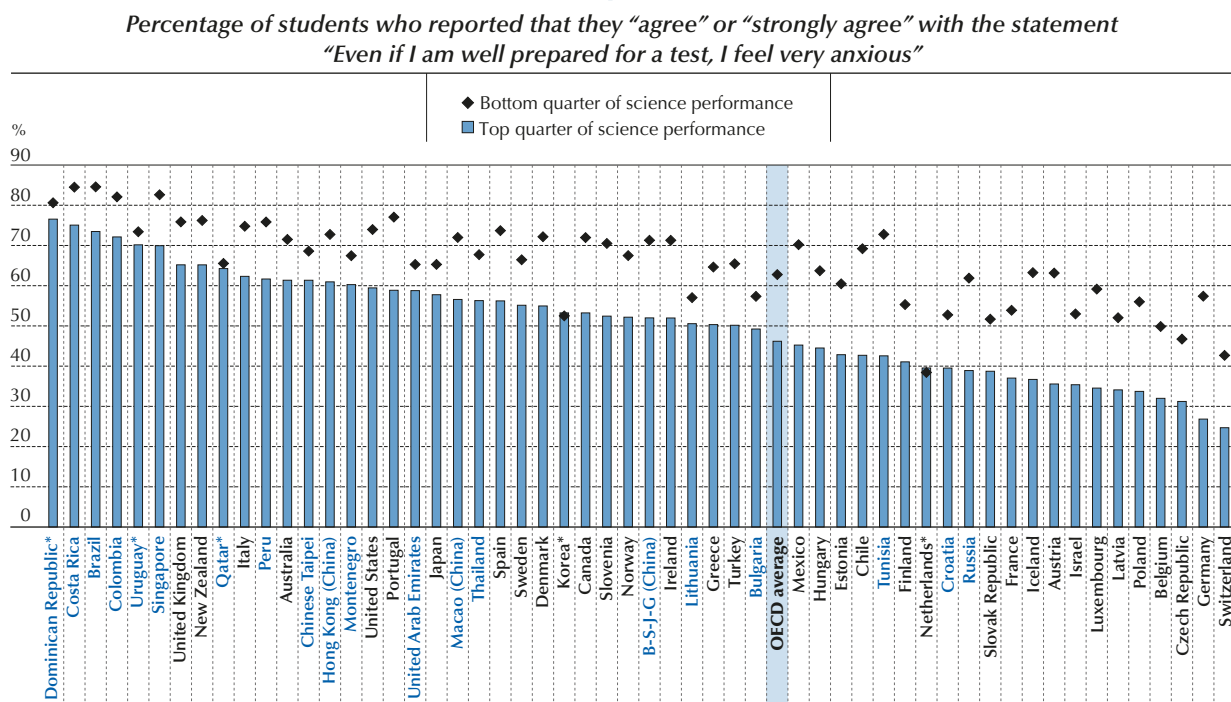
least 18 percentage points more likely than advantaged students to feel anxious about a test, regardless of how well prepared they are. By contrast, advantaged students in Colombia, the Dominican Republic, Korea, Peru and Spain were at least 5 percentage points more likely than disadvantaged students to report that they worry about getting poor results. Advantaged students in Korea, in particular, were more likely than disadvantaged students to also report feeling tense when studying and feeling anxious even if they felt well prepared for the test. Sources of academic anxiety vary across cultures (Zeidner et al., 2005), and in some cultures parental expectations increase as socio-economic status rises (Ang and Huan, 2006; Chen, 2012; Xiao, 2013).

CONSEQUENCES OF SCHOOLWORK-RELATED ANXIETY

Anxiety can be highly disabling (Herzer, Wendt and Hamm, 2014). People with high levels of anxiety are more likely than people with low levels of anxiety to think and behave in ways that are irrelevant to the task at hand, thus undermining their performance (Sarason, Sarason and Pierce, 1990; Spielberger, 2013). Highly anxious students often feel that they have no influence over the outcome of the evaluation (Schunk, 1991).

PISA 2015 shows that anxiety is negatively related to performance in science, mathematics and reading. On average across OECD countries, 63% of low-achieving students in science (students in the bottom quarter of science performance in a country) and 46% of high-achieving students (students in the top quarter) reported that they feel anxious for a test no matter how well prepared they are (Figure III.4.2). The difference in schoolwork-related anxiety between low-achieving and high-achieving students in science is particularly large (over 25 percentage points) in Austria, Chile, Germany, Iceland and Tunisia (Table III.4.3a). By contrast, in Brazil, Colombia, Costa Rica, the Dominican Republic, Korea, Peru, Spain, Thailand and Tunisia, high-achieving students in science are more concerned than low-achievers about getting poor grades. At the cross-national level, there is a weak, negative relationship between the index of schoolwork-related anxiety and the system's science performance.

Figure III.4.2 ■ **Schoolwork-related anxiety among students in the top and bottom quarters of science performance**



Note: Differences in the percentage of students who feel anxious that are not statistically significant are marked with an asterisk next to the country/economy name (see Annex A3).

Countries and economies are ranked in descending order of the percentage of high-performing students in science who reported that they feel very anxious even if they are well prepared for a test.

Source: OECD, PISA 2015 Database, Table III.4.3a.

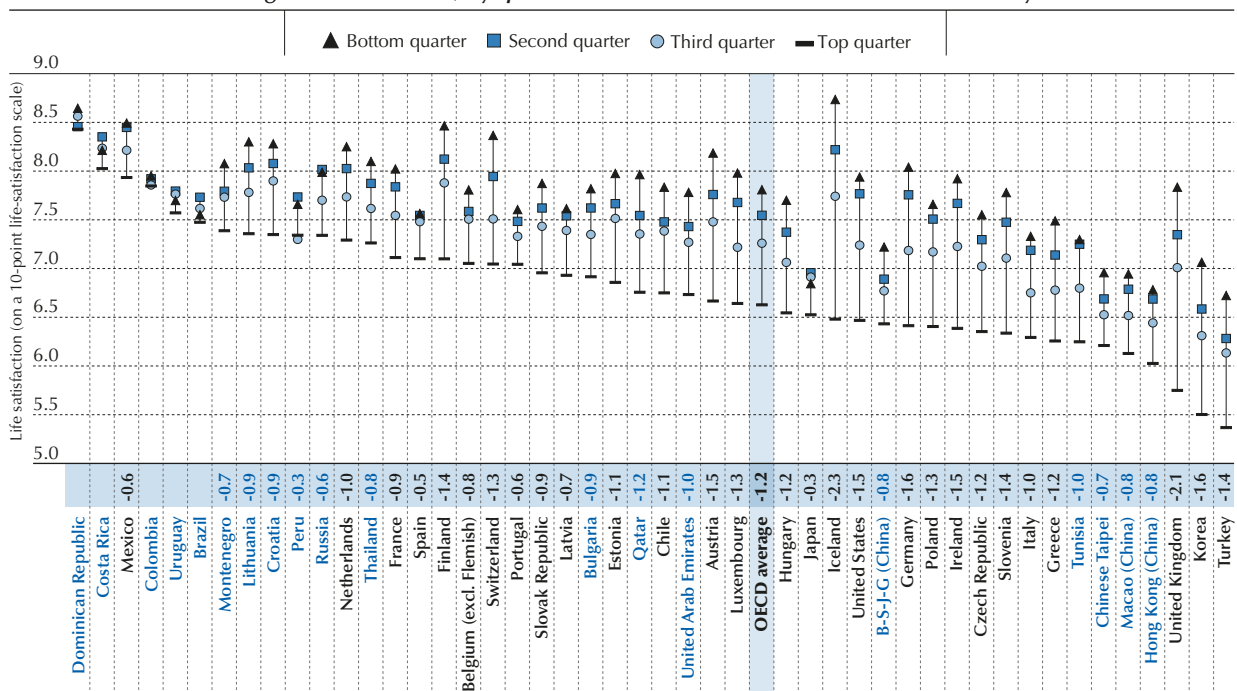
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The fear of making mistakes on a test often disrupts the performance of top-performing students who “choke under pressure” (OECD, 2015). On average across OECD countries, 55% of girls but 38% of boys who are among the top 25% of students in their country in science performance reported that they feel very anxious for a test even if they are well prepared (Table III.4.4). But gender differences in anxiety are also observed among low-achieving students. Some 71% of low-achieving girls but 54% of low-achieving boys in science reported that they feel very anxious even if they are well prepared.

On average across OECD countries, students in the top quarter of the index of schoolwork-related anxiety reported a level of life satisfaction that is 1.2 points lower (over half of a standard deviation on the life satisfaction scale, which ranges from 0 to 10) than students in the bottom quarter of the index (Figure III.4.3 and Table III.4.9). The relationship between life satisfaction and schoolwork-related anxiety is particularly strong in Iceland and the United Kingdom (over two points of a difference on the scale between students in the top quarter and those in the bottom quarter of the index of schoolwork-related anxiety). Only in Brazil, Colombia, Costa Rica, the Dominican Republic and Uruguay is this relationship not statistically significant.

Figure III.4.3 ■ **Schoolwork-related anxiety and life satisfaction**
Average life satisfaction, by quarter of the index of schoolwork-related anxiety



Note: Statistically significant differences between the top and bottom quarters on the distribution of schoolwork-related anxiety are shown next to the country/economy name (see Annex A3).

Countries and economies are ranked in descending order of the average life satisfaction among students in the top quarter of the index of schoolwork-related anxiety.

Source: OECD, PISA 2015 Database, Table III.4.9.

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SOURCES OF AND REMEDIES FOR SCHOOLWORK-RELATED ANXIETY

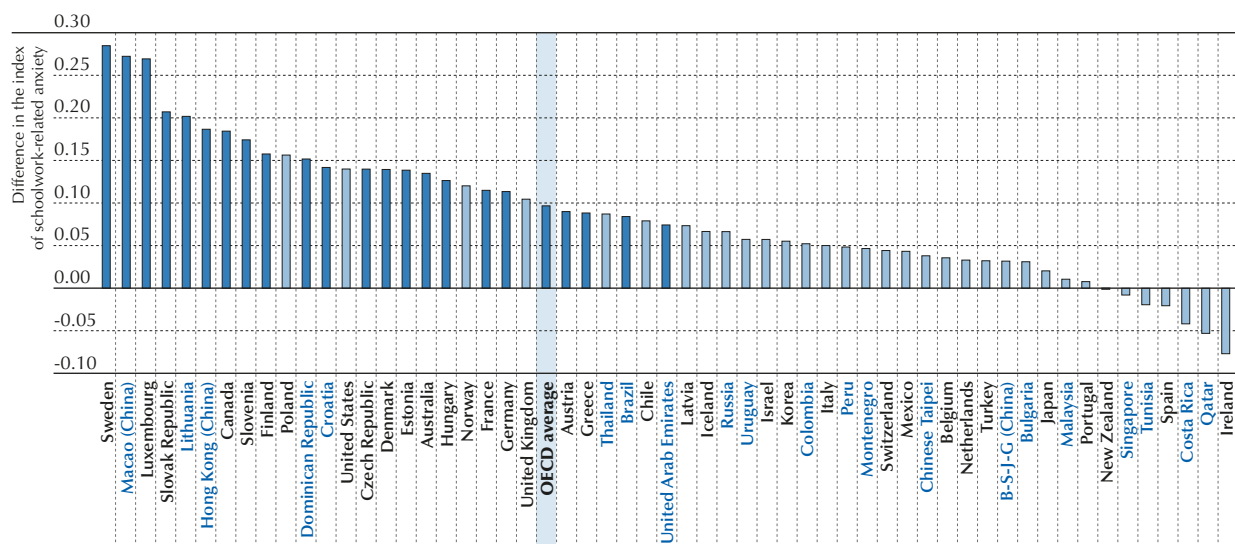
Students who attend schools with high performance standards may face a greater risk of developing anxiety about schoolwork, particularly if they feel that they cannot keep up with the achievements of their peers, and if teachers and school leaders assign a high value to rankings and competition within the classroom. Parents of students in elite schools often pay substantial tuition fees and expect their children to gain admission to top-tier universities. These elite tertiary institutions are becoming more and more selective, and some schools are responding to this competitive climate by providing more difficult classes, not always appropriate to the students' developmental levels. Students in these schools may feel caught in a cycle of escalating demands that is largely out of their control (Leonard et al., 2015). Figure III.4.4 shows that, after accounting for the performance of individual students, schoolwork-related anxiety is greater in top-performing schools (those whose students' average science performance is in the top decile of the country).

In other words, for given level of performance, students report greater anxiety if they attend more competitive schools. This result suggests that comparisons with peers can be a source of anxiety, and that a highly competitive learning environment can be a double-edged sword: some students thrive on competition, while others cannot cope with the stress.

Long study hours represent another possible factor of schoolwork-related anxiety. Students in selective, high-pressure schools might feel obliged to invest extra hours of work to comply with external expectations and with their own motivation for academic achievement. Table III.4.10 shows that, on average across OECD countries, students in schools where the average student studies more than 50 hours per week were more likely to report anxiety than students in schools where the average study time is between 35 and 40 hours per week. The relationship between study time in school and anxiety is more evident in some countries than in others. For example, in Belgium and Israel, students in schools with long study time are at least 11 percentage points more likely to report that they feel anxious for a test even if well prepared than students in schools with short study time.

Figure III.4.4 ■ **Schoolwork-related anxiety in top-performing schools**

Difference in prevalence of schoolwork-related anxiety between schools in the top decile of science performance and all other schools, after accounting for students' performance



Note: Statistically significant differences are marked in a darker tone (see Annex A3).

Countries and economies are ranked in descending order of the difference in schoolwork-related anxiety between schools in the top decile of science performance and all other schools.

Source: OECD, PISA 2015 Database, Table III.4.8a.

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Both parents and educators often argue that anxiety is the natural consequence of testing overload. In about five out of six school systems, students are assessed at least once a year with mandatory standardised tests; in about three out of four countries/economies, students are assessed at least once a year with non-mandatory standardised tests (OECD, 2016). However, the frequency of tests as reported by school principals seems unrelated to students' level of anxiety. In fact, on average across OECD countries, students who are assessed through standardised or teacher-developed tests at least once a month reported the same level of anxiety, on average, as students who are assessed less frequently (Table III.4.15).

One interpretation of this result is that it is not the frequency of tests, but rather students' perception of the assessment as more or less threatening that determines how anxious students feel about tests. This perception is influenced by characteristics of the evaluation itself and by personal factors. According to Zeidner (1998), the nature of the task, difficulty, atmosphere, time constraints, examiner characteristics, mode of administration and physical setting determine whether an assessment is more or less likely to generate anxiety. These features of the testing environment interact with personal characteristics, such as study skills, test-taking skills, the desire for achievement, self-efficacy and academic ability. An important caveat in the interpretation of this result is that PISA data do not make a distinction between high-stake tests and low-stake tests.



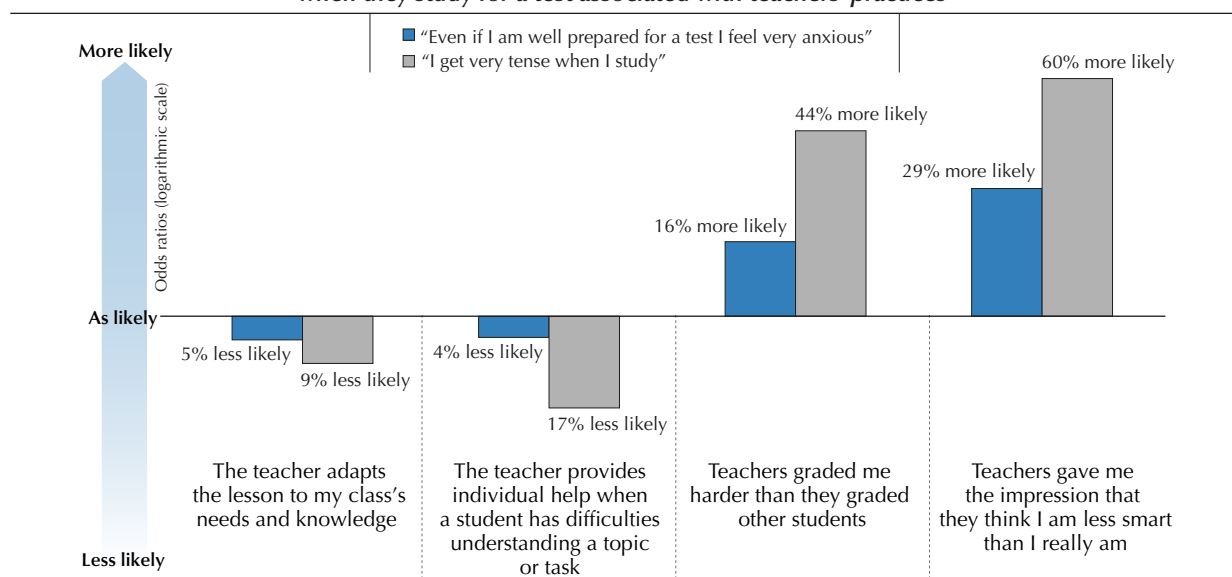
Teachers can reduce anxiety and stress by regularly teaching students effective study methods. They can also help students feel prepared for the test by going over the content likely to be used in high-stakes exams, and by designing and conducting mock tests so that students are not confronted with completely unfamiliar material during the real test.

The way teachers communicate to students about homework and tests is important too. Under pressure to improve their students' test performance, teachers may emphasise the need to do well on a test to gain access to better jobs or university later on (Putwain, 2008). But these appeals to students' fears can make students feel threatened – and make them much more anxious (Putwain and Symes, 2014; Putwain and Best, 2012).

The quality of student-teacher relations and the classroom environment can greatly enhance students' resilience, motivation and confidence about schoolwork (den Brok, Brekelmans and Wubbels, 2004; von der Embse et al., 2016). For teachers, this means working to build students' self-efficacy and self-confidence by communicating clear, concrete and realistic expectations for performance. When teachers help students to set realistic learning goals, students are more likely to define and experience success on their own terms, regardless of their overall grade or the performance of their classmates (Ormrod, 2014).

Figure III.4.5 shows that teachers' practices, behaviours and communication in the classroom are associated with students' feelings about assessments. On average across OECD countries (and in 12 countries and economies with available data [Table III.4.11]), after accounting for students' performance and socio-economic status, students who reported that their science teachers adapt the lesson to the class's needs and knowledge were less likely to report feeling anxious even if they are well prepared for a test, or to report that they get very tense when they study. Students were also, on average, less likely to report anxiety if the science teacher provides individual help when they experience difficulties.

Figure III.4.5 ■ **Teachers' practices and students' schoolwork-related anxiety**
Likelihood that students feel anxious for a test even if they are well prepared or get very tense when they study for a test associated with teachers' practices




Notes: A logarithmic transformation of the odd ratios is plotted to make the values below one and above one comparable in the graph. The interpretation of the odd ratios (in terms of percentage change in the likelihood of the outcome) is indicated above or below each bar.

The values account for students' differences in the PISA index of economic, social and cultural status (ESCS) and performance in science.

All values are statistically significant (see Annex A3).

Source: OECD, PISA 2015 Database, Table III.4.11.

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By contrast, negative teacher-student relations can threaten students' confidence and lead to greater anxiety. Figure III.4.5 also shows that, on average across OECD countries (and in the majority of countries and economies with available data [Table III.4.11]), students are 60% more likely to report feeling very tense when they study, and about 29% more likely to report feeling anxious before a test, if they perceive that their teacher thinks they are less smart than they



really are. Neuroscience research has shown that even short-term negative emotions at school (for example, the fear that arises in response to a teacher's facial expression showing anger) can exacerbate students' test and study anxiety (Raufelder et al., 2016).

Positive relationships with parents are another form of social support that enables adolescents to cope with stressful events (Baumrind, 1991; Cohen and Wills, 1985). Parents can help children manage anxiety by encouraging them to trust in their ability to accomplish various academic tasks. Parents who put excessive pressure on their children, by attributing too much importance to test scores and grades or setting unrealistically high expectations, can make students worry more and undermine their confidence (Gherasim and Butnaru, 2012; Putwain, Woods and Symes, 2010).

On average across OECD countries, almost 90% of students reported that their parents encourage them to be confident (Table III.9.18). Table III.4.13 shows that, after accounting for differences in performance and socio-economic status, girls who perceive that they get this form of emotional support from their parents were 21% less likely to report that they feel tense when they study, on average across OECD countries. This relationship is stronger among girls than among boys, possibly suggesting that parents have more difficulty communicating with and addressing the insecurities of their sons. This finding is consistent with previous research showing that boys have a tendency to perceive any intervention from their parents as a form of pressure, whereas girls are better at distinguishing between parental support and parental pressure (Leff and Hoyle, 1995; Raufelder et al., 2016).

What these results mean for policy

- Teachers, school leaders and school psychologists should be aware of the impact on well-being of severe schoolwork-related anxiety, and act together to create a more supportive and positive learning environment.
- Schools can educate parents about the deleterious effects of chronic anxiety among students, and engage families and students in a dialogue about expectations for achievement and the definition of success.



References

- Ang, R. P. and V.S. Huan (2006), "Academic expectations stress inventory: Development, factor analysis, reliability, and validity", *Educational and Psychological Measurement*, Vol. 66/3, pp. 522-539, <http://dx.doi.org/10.1177/0013164405282461>.
- Baumrind, D. (1991), "The influence of parenting style on adolescent competence and substance use", *The Journal of Early Adolescence*, Vol.11/1, pp. 56-95, <http://dx.doi.org/10.1177/0272431691111004>.
- Chen, H. (2012), "Impact of parent's socioeconomic status on perceived parental pressure and test anxiety among Chinese high school students", *International Journal of Psychological Studies*, Vol. 4/2, pp. 235-245, <http://dx.doi.org/10.5539/ijps.v4n2p235>.
- Cohen, S. and T.A. Wills (1985), "Stress, social support, and the buffering hypothesis", *Psychological Bulletin*, Vol. 98/2, pp. 310-357.
- Cortina, K.S. (2008), "Leistungsängstlichkeit [Performance anxiety]", in W. Schneider and M. Hasselhorn (eds.), *Handbuch Der Pädagogischen Psychologie*, Hogrefe, Göttingen, Germany, pp. 50-61.
- den Brok, P., M. Brekelmans and T. Wubbels (2004), "Interpersonal teacher behaviour and student outcomes", *School Effectiveness and School Improvement*, Vol. 15/3-4, pp. 407-442, <http://dx.doi.org/10.1080/09243450512331383262>.
- Gherasim, L.R. and S. Butnaru (2012), "The effort attribution, test anxiety and achievement in sciences: The moderating effect of parental behaviour", *International Journal of Learning*, Vol. 18/10, pp. 283-291.
- Herzer, F., J. Wendt and A.O. Hamm (2014), "Discriminating clinical from nonclinical manifestations of test anxiety: A validation study", *Behavior Therapy*, Vol. 45/2, pp. 222-231, <http://dx.doi.org/10.1016/j.beth.2013.11.001>.
- Leff, S.S. and R.H. Hoyle (1995), "Young athletes' perceptions of parental support and pressure", *Journal of Youth and Adolescence*, Vol. 24/2, pp. 187-203, <http://dx.doi.org/10.1007/BF01537149>.
- Leonard, N.R. et al. (2015), "A multi-method exploratory study of stress, coping, and substance use among high school youth in private schools", *Frontiers in Psychology*, Vol. 6/1028, <http://dx.doi.org/10.3389/fpsyg.2015.01028>.
- OECD (2016), *PISA 2015 Results (Volume II): Policies and Practices for Successful Schools*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264267510-en>.
- OECD (2015), *The ABC of Gender Equality in Education: Aptitude, Behaviour, Confidence*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264229945-en>.
- Ormrod, J.E. (2014), *Educational Psychology: Developing Learners*, 8th edition, Pearson Education, Upper Saddle River, NJ.
- Putwain, D. (2008), "Examination stress and test anxiety", *The Psychologist*, Vol. 21/12, pp. 1026-1029.
- Putwain, D. and N. Best (2012), "Do highly test anxious students respond differentially to fear appeals made prior to a test?", *Research in Education*, Vol. 88/1, pp. 1-10.
- Putwain, D.W., K.A. Woods and W. Symes (2010), "Personal and situational predictors of test anxiety of students in post-compulsory education", *British Journal of Educational Psychology*, Vol. 80/1, pp. 137-160, <http://dx.doi.org/10.1348/000709909X466082>.
- Ramirez, G. and S.L. Beilock (2011), "Writing about testing worries boosts exam performance in the classroom", *Science*, Vol. 331/6014, pp. 211-213, <http://dx.doi.org/10.1126/science.1199427>.
- Raufelder, D. et al. (2016), "Adolescents' socio-motivational relationships with teachers, amygdala response to teacher's negative facial expressions, and test anxiety", *Journal of Research on Adolescence*, Vol. 26/4, pp. 706-722, <http://dx.doi.org/10.1111/jora.12220>.
- Salend, S.J. (2012), "Teaching students not to sweat the test", *Phi Delta Kappan*, Vol. 93/6, pp. 20-25, <http://dx.doi.org/10.1177/003172171209300605>.
- Sarason, B., I. Sarason and G. Pierce (1990), "Traditional views of social support and their impact on assessment", online article, https://www.researchgate.net/publication/232474109_Traditional_views_of_social_support_and_their_impact_on_assessment (accessed 3 April 2017).
- Schunk, D.H. (1991), "Self-efficacy and academic motivation", *Educational Psychologist*, Vol. 26/3-4, pp. 207-231, <http://dx.doi.org/10.1080/00461520.1991.9653133>.
- Spielberger, C.D. (ed.) (2013), *Anxiety: Current Trends in Theory and Research*, Academic Press, London, UK.
- Stoet, G. and D.C. Geary (2012), "Can stereotype threat explain the gender gap in mathematics performance and achievement?", *Review of General Psychology*, Vol. 16/1, pp. 93-102, <http://dx.doi.org/10.1037/a0026617>.
- Vogl, E. and R. Pekrun (2016), "Emotions that matter to achievement" in Brown, G.T.L. and L. Harris (eds.), *Handbook of Human and Social Conditions in Assessment*, Routledge: Taylor and Francis Group, New York, NY, pp. 111-128.
- von der Embse, N.P. et al. (2016), "Teacher stress, teaching-efficacy, and job satisfaction in response to test-based educational accountability policies", *Learning and Individual Differences*, Vol. 50, pp. 308-317, <http://dx.doi.org/10.1016/j.lindif.2016.08.001>.

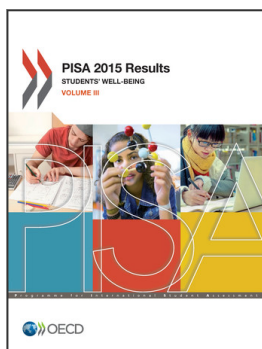


Xiao, J. (2003), *Academic Stress, Test Anxiety, and Performance in a Chinese High School Sample: The Moderating Effects of Coping Strategies and Perceived Social Support*, Doctoral dissertation, Georgia State University, Atlanta, GA, http://scholarworks.gsu.edu/cps_diss/88 (accessed: 3 April 2017).

Zeidner, M. (2007), "Test anxiety in educational contexts: Concepts, findings, and future directions", in P.A. Schutz and R. Pekrun (eds.), *Emotion in Education*, Educational Psychology Series: Elsevier Academic Press, San Diego, CA, pp. 165-184.

Zeidner, M. (1998), *Test Anxiety - The State of the Art*, Kluwer Academic/Plenum Publishers, New York, NY.

Zeidner, M. et al. (2005), "Evaluation anxiety: Current theory and research", in A.J. Elliot and C.S. Dweck (eds.), *Handbook of Competence and Motivation*, Guilford Publications, New York, NY, pp. 141-166.



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