

RESEARCH AND ANALYSIS

A review of the literature concerning anxiety for educational assessments

ofqual

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Executive summary

This review pulls together statistics and academic literature relating to the causes, symptoms and effects of assessment-related anxiety, known as test anxiety in the literature. It is an academic piece of writing that considers what is currently known about test anxiety, by drawing on existing evidence and research, and may be of particular interest to specialists and practitioners working in the field. The nature of a literature review means that we are not reporting our own research or discussing our own perspectives. Rather, we are drawing together credible evidence that is already available and are considering what this might tell us about test anxiety. The review does not focus on particular assessments, but considers the issue more widely within the context of the global and UK mental health landscape, and the context of other related factors.

Childhood and adolescence is found to be a particularly sensitive period with regards to emotional and mental health. Amongst children and young people, evidence shows that depression- and anxiety-like experiences are increasing. There is also a rise in the number of children and young people using the NHS mental health services, and Childline is reporting increased use of its counselling service relating to emotional health and well-being. Whilst obviously concerning, these trends can be difficult to interpret. Recent campaigns have encouraged children and young people to identify, discuss and seek help for issues that affect their mental health. It is therefore possible that positive reactions to these campaigns and help-seeking behaviours have contributed to the increased use of services and increased detection of mental health concerns.

Whilst stress can be positive or negative, test anxiety relates only to the adverse experiences of stress, where perceptions of not being able to manage the stressor are internalised negatively. Test anxiety encompasses negative physiological, affective and cognitive responses to a test or assessment, where symptoms such as rapid heart rate and breathing, and worry about underperforming, occur before, during or after an assessed performance. Although these responses can be elicited by any evaluated performance, such as an interview, driving test, or a sports game, here we focus on responses to educational assessments.

Exams and revision are known to be sources of concern for some students and this has likely been the case since their inception. Despite there being no measure systematically evaluating the degree of test anxiety over time, there is evidence that suggests that its prevalence has been relatively stable. However, anecdotal evidence from the education sector and perceptions in the media suggest that, more recently, children and young people are experiencing more stress and anxiety in relation to assessments. A recent and positive shift in attitudes towards discussing mental health may, in part, explain this.

Test anxiety can be experienced by people of all ages, and is observed in some children and young people across all stages of education. It is difficult to determine the prevalence of test anxiety amongst students. However, it is estimated that a small number of students per class are likely to be highly test anxious, with females more likely to experience test anxiety than males. When a student perceives they cannot overcome academic pressures, these pressures can elicit a 'threat response' in which anxiety is experienced. This tends to occur where a student does not believe strongly in their academic competence and has ineffective strategies for

coping and regulating emotions. However, this is not the case for everyone. Where a student perceives they can overcome academic pressures, a 'challenge response' tends to be elicited. For these students, the academic pressures can be motivating rather than anxiety inducing.

After controlling for ability, high levels of test anxiety are generally associated with small reductions in test performance. As such, test anxiety could have a detrimental impact on performance in high stakes assessments, with further implications for entry to subsequent education and employment. But, regardless of the impact on performance, test anxiety can be significantly detrimental to a child or young person's mental health.

Evidence suggests that test anxiety does not have a single cause. Rather, many factors can increase test anxiety or protect against it. These factors are categorised according to the source of anxiety as intra- and inter-personal, or assessment-specific. For instance, individual differences in beliefs about academic ability, personal drives for academic behaviour and coping mechanisms can mediate the experience of test anxiety. Social interactions with teachers, parents and peers can also increase test anxiety through fear appeals (messages that are intended to encourage studying by warning about the consequences of failure), the setting of high standards for achievement, and the transference of stress.

Features of the assessment itself can also influence the degree of anxiety experienced. For instance, responding to multiple-choice questions is reported as being less anxiety-eliciting than writing extended responses. In contrast, performance-based assessments with the social element of an audience (such as oral language presentations and sports or performing arts assessments) are likely to elicit a greater degree of test anxiety than traditional pen and paper exams. Perceptions around difficulty and stakes of the assessment can also contribute towards test anxiety in some students.

Importantly, students might be able learn to respond to academic pressures differently, so it is possible to weaken threat responses, and therefore reduce test anxiety. Evidence indicates that there are several interventions that are effective in doing this, in which schools, teachers, parents, and, to some extent, peers, can have a role. Modification to the assessment context might be an appropriate intervention, however only where the integrity of the assessment is not compromised. More appropriate means of reducing test anxiety rely on students, parents and teachers creating a positive environment concerning assessments in which students' academic self-beliefs are nurtured. For parents and teachers, this might include setting only reasonable expectations for achievement and avoiding trying to motivate students using fear appeals.

Educative and therapeutic interventions can also help to alleviate anxiety around assessments, with a combination of approaches being most effective. Educative interventions aim to inform students about the causes and symptoms of test anxiety, and build academic study and test-taking skills that increase students' preparedness to take the assessment. Therapeutic interventions aim to challenge negative thoughts about the assessment and the student's ability to perform, and encourage relaxation strategies and mindfulness. These interventions have flexibility in their delivery, with evidence suggesting that highly test anxious students can benefit from both school-based and self-administered management of test anxiety. Importantly, these interventions should rely on a shared responsibility of teachers and parents to

encourage these practices, and for students to engage and be motivated to partake in them.

Introduction

This review combines statistics and academic literature to understand what is currently known about test anxiety. Although a test anxious response can be elicited by any evaluated performance (for example, an interview, driving test, or a sports game), the current review specifically focuses on the emotional response to educational assessments. This includes traditional written assessments, non-exam assessments, as well as subject-specific assessments, such as spoken language tests and performance-based assessments used in sports and performance arts qualifications. Whilst test anxiety is the focus here, assessment-related stress and anxiety are often seen as synonymous, with the terms 'stress' and 'anxiety' (and sometimes 'worry') frequently used interchangeably in the literature (Putwain, 2007). Because of this, when making reference to literature reporting 'stress' (in the context of negative stress responses) or 'anxiety' through this review, the term used in the original source is used. But, it is important to bear in mind that although stress and anxiety can sometimes be related, they can also refer to different experiences. It is important to consider this to encourage the correct use of these terms in future discourse. The note on the terms 'stress' and 'anxiety' below clarifies where these concepts might be the same, and where they might be different.

It is noteworthy that whilst aspects of the UK's assessment system relating to particular qualifications, subjects, or assessment types are explored here, this review considers test anxiety more generally. Test anxiety can be experienced by students of all ages. As such, test anxiety is explored here across the typical age of students, from primary school children aged 7, to university leavers aged 21. It must be noted though that there tends to be more literature within some assessment contexts. For instance, there is more research in the context of GCSE and A level exams, and there is a large body of research in which the participating students are attending university. Some literature is also set outside of the UK education context. However, these findings still contribute to understanding students' experiences in other phases and contexts of education relevant to the UK.

The content of the review is split into three sections: 'The mental health landscape', 'Emotional responses to assessments', and 'Interventions for test anxiety'. The first section considers test anxiety within the more general context of the global and UK mental health landscape. Other factors associated with mental health, such as depression and life-satisfaction, are therefore discussed here. This first section continues the exploration of test anxiety in the context of school-related stress and anxiety. Test anxiety is defined in the second section, and the symptoms, contributory factors and effects are explored. The prevalence of test anxiety across different demographics (such as age and gender) is also considered. The degree to which a student experiences test anxiety is dependent on a range of intra-and inter-personal, and assessment-related factors, which are introduced in turn in the second section of this review. The final section focuses on evidenced-based interventions for test anxiety. These interventions can be undertaken by students, teachers, schools

and parents to reduce negative symptoms associated with assessment-related stress and anxiety.

A note on the terms ‘anxiety’ and ‘stress’

Before considering the main body of this review, it is worth reflecting briefly on the terms ‘stress’ and ‘anxiety’. Putwain and colleagues (Putwain, 2007; Putwain, Connors, Woods & Nicholson, 2012) clarify the similarities and differences between stress and anxiety. They highlight that stress is a response occurring when one feels what can be achieved is less than what is expected or desired. For example, when there is work to be completed for a looming deadline that cannot be achieved without intervention. Stress can have a positive or negative effect on performance, and this depends on the response to the stress. Stress can be responded to as a challenge or a threat. Where stress is responded to as a challenge, this can result in increased motivation, working harder and better performance. A stressor can be perceived as a challenge when the individual’s focus is on success rather than failure, and when there is a positive self-belief in being able to manage the stress. On the other hand, if the stressor is perceived as a threat, this causes anxiety, can disrupt cognitive function (for instance, going blank in an exam), and as a result, can reduce performance. The threat response to stress can occur where there is a focus on failures, and consequences of failures, and where there is no self-belief in being able to manage the stress.

This explains why different people experience the same stressors differently, ultimately depending on the individual’s response to the stressor as a challenge or a threat. Importantly, this means that stress can be positive or negative, whereas anxiety is only negative. This understanding should encourage challenging the discourse that ‘a bit of stress is good for you’, because this might not be the case for everyone. The response an individual has to stress is also not impossible to change. We can learn to change anxiety-inducing threat responses to a more positive challenge response.

The mental health landscape

This section gives an overview of the mental health landscape for children and young people, globally and in the UK, and how this compares to that of adult populations. The findings in this section indicate that interpreting statistics relating to mental health is not straightforward. Whilst there has been an increase in depression and anxiety type symptoms reported by children and young people in the UK, this increase is not specific to recent years. Rather the increase has been observed for several decades, both in general and in the context of education. There has also been a greater use of youth mental health services. These increases must be considered in light of recent policy changes and campaigns, which have encouraged help-seeking behaviour and a more positive environment in which to recognise and speak about mental ill health. Moreover, population growth amongst children and young people is likely to contribute to an increase in the number (but not proportion) of users of these services.

Global trends in mental health

Mental health issues relating to anxiety and depression are experienced globally. Exploring 87 studies across 44 countries, a meta-analysis determined that 7% of the global population had experienced some type of clinical anxiety (Baxter, Scott, Vos & Whiteford, 2013). Major depressive disorder was examined in 120 studies in 74 countries and found to affect 5% of the population globally (Ferrari et al., 2013).

There is a perception that the prevalence of anxiety and depression over the past few decades has increased due to the stresses of modern life. However, there is limited evidence to support these views and the perceived increases might be due to changes in the methods used for detecting anxiety and depression. For instance, changes to the research method over time (such as less stringent measures or research tools measuring unrelated somatic symptoms), probing questions, and population growth increasing the number of affected patients, can over represent the prevalence of anxiety and depression in a population (Baxter, Scott, Ferrari, Norman, Vos & Whiteford, 2014; Guo, Tsang, Li & Lee, 2011; Narrow, Rae, Robbins & Regier, 2002; Willmott, Boardman, Henshaw & Jones, 2008).

There is stronger evidence to suggest that the prevalence of mental health issues relating to anxiety and depression have remained stable over time. Baxter et al. (2014) carried out a meta-analysis including 207 studies across 21 world regions (each world region consists of more than one country). Overall, the global prevalence of anxiety and depression was unchanged from 1990 to 2010. However, the study indicated that anxiety and depression are experienced differently across age and gender. Females are almost twice more likely to experience anxiety and depression than males, and there is a sharp increase in prevalence from age 10 to 24, after which there is a slow decrease over the lifetime. Early adolescence into young adulthood therefore seems to be a particularly sensitive time for experiencing anxiety and depression.

Mental health in the UK

Baxter et al. (2014) did not observe differences over time in the prevalence of anxiety and depression in young people globally. However, in the UK, mental health

services for children and young people are being increasingly drawn on. It is estimated that 1 in 10 children aged 5 to 16 suffer from a diagnosable mental health illness in the UK (Public Health England, 2016) and one in twelve 5 to 19 year olds have an emotional disorder such as anxiety or depression (NHS England, 2018a). According to NHS mental health statistics (first recorded in 2016), the number of adults in contact with mental health services has decreased over time, yet the number of children and young people (18 years and younger) in contact with mental health services has increased. In March 2016, 9% of those in contact with mental health services were children and young people, compared to 19% in March 2019.

Childline is a UK counselling service charity providing someone for children and young people to talk to when they have worries. Childline report statistics annually on the counselling sessions they have provided between the beginning of April and the end of March (2015, 2016, 2017 & 2018). The annual reviews report that they provide consistently around 300,000 counselling sessions to children and young people each year. Moreover, the most talked about concern in the latest report (published in 2018) is emotional health and well-being, with more than 39% of sessions discussing this as the main concern. In the 2018 report, Childline highlights that sessions mentioning anxiety have increased by 55% from 13,700 between April 2016 and March 2017 to 21,300 between April 2017 and March 2018.

The NHS and Childline statistics offer insight into mental health amongst adults and children in the UK, currently and in more recent years. The UK Household Longitudinal Study and the Children's Society's household panel survey (see Office for National Statistics, 2019a & 2019b; University of Essex, 2018; University of Essex, 2019) give an opportunity to examine more historic aspects of anxiety and depression.

UK longitudinal trends in well-being and mental health

Longitudinal trends in well-being and mental health are being monitored by The UK's Measuring National Well-Being programme, which was launched in 2010 (with first publication in 2012). The programme is run by the Office for National Statistics and collates measures of well-being and indicators of mental health taken from the UK Household Longitudinal Study and Children's Society's household panel surveys, which have been in operation for several years prior to the programme starting. Currently, these surveys give the most coherent longitudinal view of well-being and mental health in the UK. The National Well-being Measures track several different aspects of well-being and mental health in children aged 10-15 and adults aged 16+ over time (some measures have been tracked for longer than others though). Amongst these measures are self-reported measures for life-satisfaction and happiness, and indirect measures (sub-clinical indicators) of depression and anxiety. In some waves of the adult survey, the findings are reported separately for those aged 16-19 and 20-24; and in other years, the findings for those aged 16-24 are combined. This occurs where sample sizes are not sufficient.

When interpreting the results it should be noted that the measures relating to depression and anxiety are different across the child and adult surveys. Therefore, whilst comparisons can be made within each population over time, comparisons between child and adult measures should be interpreted tentatively. Another important point is that the National Well-Being Measures do not use clinical measures of depression and anxiety, hence the figures do not indicate the

prevalence of these issues in the population. Rather, the National Well-Being Measures focus on emotional symptoms relating to depression and anxiety, and have a lower threshold than for clinical disorders (Baxter et al., 2014). Despite this, these measures currently offer the best indicator of how anxiety and depression-type experiences have changed over time.

Overall, the proportion of adults reporting high life satisfaction and happiness has increased between 2012 and 2018, from 26% to 31%, and 32% to 35% respectively. However, for young adults aged 16 to 19, although measured over a shorter period of time: between 2015/16 and 2017/2018, the proportion reporting high life satisfaction and happiness has decreased, from 36% to 33% for life satisfaction, and from 40% to 34% for happiness. For children aged 10 to 15, levels of life satisfaction and happiness have stayed the same, with around 80% of children reporting high life satisfaction and 75% reporting high levels of happiness between 2012 and 2017.

The proportion of adults (including young adults aged 16 to 19) reporting anxiety- and depression-type experiences has been consistent between 2011 and 2016, at around 18-20% of the population. However, the proportion of young adults reporting this is consistently marginally higher than the general adult population.

The National Well-being Measures survey asked children to report the degree to which they worry a lot and how often they are unhappy, downhearted or tearful. These measures are taken as a proxy for depression and anxiety and were included in the survey from 2009 to the latest version in 2017. The proportion of children aged 10 – 15 who reported worrying a lot has increased between 2009 and 2017 from 17% to 21%. Similarly, the proportion who reported that they are often unhappy, downhearted or tearful has marginally increased from 4% to 5%. These increases appear to be most noticeable between the surveys collected between 2013 and 2017.

The National Well-being Measures programme uses the General Health Questionnaire (GHQ; Goldberg & Williams, 1988) to capture levels of depression and anxiety like experiences. The GHQ has been used in UK research spanning three decades to assess changes in anxiety and depression over time. For instance, West and Sweeting (2003) and Sweeting, Young and West (2009) examined three cohorts of 15-year-olds in west Scotland in 1987, 1999 and 2006. Over this period, they found an increase in the proportion of male and female students who reported depression- and anxiety-like symptoms. This increase was greater for females than males. For example, the proportion of 15-year-olds who reported depression- and anxiety-like symptoms in 1987, 1999, and 2006 was 13%, 15% and 22% for males, and 19%, 33% and 44% for females.

Similarly, Collishaw, Maughan, Natarajan and Pickles (2010) used the General Health Questionnaire in a study with 16-17 years olds across England in 1986 and 2006. Ratings on the GHQ indicated an increase in mental health symptoms, particularly for depression and anxiety, where twice as many respondents reported these issues in 2006 compared to 1986. Again, the increase was greatest amongst females. These findings suggest that anxiety- and depression- like symptoms have been increasing amongst young people over time, and that these increases are greater for females than males.

Understanding trends in mental health issues in young people

Alongside an increase in reported poor mental health, the use of mental health services by children and young people has also increased in recent years, as indicated by statistics from the NHS and Childline. These statistics have raised concerns about child well-being and mental health, although the findings must be considered in the context of other changes. For instance, Baxter et al. (2014) indicate that the prevalence of depression and anxiety must be understood alongside changes in population growth and help-seeking behaviour.

Changes to population growth

Population growth may account for some of the increase in individuals making use of youth mental health services. The number of births in the UK between 1990 and 2010 took a U shaped curve, decreasing from 1990 to 2000 by 120,000, and then increasing from 2000 to 2010 by 130,000 (Office for National Statistics, 2015). Taking migration into account, the Office for National Statistics estimate a 7.8% increase in the number of 0 to 15-year-olds in 2018 compared to in 2008, which reflects approximately 912,000 more 0 to 15-year-olds (Office for National Statistics, 2019c). An increase in the population of children and young people since 2000 may have contributed to the increase in use of mental health services for children and young people. Indeed, increases in the number of global cases of anxiety and depression disorders can be partly explained by population growth (Baxter et al., 2014). However, whilst the number of individuals affected by anxiety and depression may be influenced by changes in population growth, the proportions who report experiencing these are not.

Changes to help-seeking behaviour

There is evidence that young people have generally found it difficult to seek help about their mental health concerns (Biddle, Gunnell, Sharp & Donovan, 2004; Rickwood, Deane, Wilson & Ciarrochi, 2005). The barriers that inhibit help seeking include fear of being stigmatised and difficulty in identifying the issue or expressing themselves (Salaheddin & Mason, 2016). Recent policy changes and campaigns in the mental health landscape aim to address these issues to improve public well-being and access to mental health services for children and young people. Appendix A outlines a timeline of recent movements aimed at encouraging open discussion about mental health. Social media platforms have also provided a space in which to discuss mental health. A number of hashtags such as #TimeToTalk, #InYourCorner and #EndTheStigma, and popular youth vloggers such as Zoella (now an ambassador for Mind), encourage the discussion of mental health. There are also celebrity mental health ambassadors that appeal to a range of audiences, such as Stephen Fry, JK. Rowling, Ed Sheeran, Matt Haig, Lady Gaga, Davina McCall, Ricky Hatton, and Princes William and Harry. The aim of these policy changes and campaigns is to improve attitudes and behaviours, reduce stigma attached to mental health and to encourage discussion about mental health, and they may have contributed to an increase in help-seeking behaviour (Clement et al, 2015).

Findings from recent studies indicate that these aims are being fulfilled. In 2017, Time to Change (2017a) released the latest results from the National Attitudes to Mental Illness Survey revealing that an estimated 4.1 million people have more

positive attitudes towards mental illness since 2007, and that attitudes have improved by 11% since 2009. Time to Change (2017b) further revealed that there are increasingly more articles discussing mental health, and, for the first time since the study began in 2008, articles discussing mental health were more likely to be anti-stigmatising (50%) than stigmatising (35%). This highlights an emerging openness to discussing issues related to mental health. It is therefore likely that these increases in positive attitudes have facilitated young people seeking help about any mental health concerns. This will likely have contributed to the increase in individuals accessing NHS mental health provisions and Childline counselling sessions.

The Children's Commissioner further indicates that in recent years only a small proportion of children and young people in need of mental health provision have been able to access it (Ford, Mitofran & Wolpert, 2013). This has been due to limited funding (Children's Commissioner for England, 2018). More recently, policy has changed to increase funding to enable children and young people to access mental health services. As such, the number of children and young people in contact with mental health services is expected to increase in future years.

Conclusions about overall mental health amongst children and young people

The findings regarding mental health in children and young people indicate that trends must be interpreted within a wider context. Whilst there has been an increase in depression and anxiety type symptoms reported by children and young people in the UK, this increase is not specific to recent years, but rather is a trend that can be observed across several decades. Moreover, recent policy changes and campaigns have encouraged help-seeking behaviour. Increases in the number of users of NHS mental health services and Childline counselling sessions may be evidence of this. Population growth amongst children and young people is also likely to have contributed to an increase in users of these services.

The mental health landscape in schools

The evidence suggests that childhood and adolescence is a particularly turbulent period, with children and young people more likely to report experiencing depression and anxiety than any other age group. Young people often report that school is one of the main contributors to feelings of stress and anxiety. This may not be surprising as children and young people spend a large proportion of their time in school or engaging in school-related activities. Whilst learning and assessment demands can be stimulating, if they are excessive, they can lead to stress and anxiety (Låftman, Almquist, & Östberg, 2013). This section explores school-related worries globally, with a more in-depth exploration of concerns relating to school in the UK.

Carroll (2018) explored the extent and nature of education-related media discourse between 1988 and 2017. He found that media coverage relating to school and education has been common for many decades, with reports covering assessment preparation, exam results and school life more generally. Coverage featuring the word 'stress' has fluctuated over time, but slightly increased from 2010 onwards. Over each year, the word 'stress' was more prominent between April and July, which coincides with the summer exam series. Media coverage featuring the term 'mental health' was found to be rare before the year 2000, but increased from the early to

mid-2010s, coinciding with the positive narrative around mental health attitudes and policies. These findings indicate an increase in media coverage on stress and mental health issues in relatively recent years, despite mental health issues having increased amongst children and young people for decades (e.g. Collishaw, et al., 2010; Putwain & von der Embse, 2019a; Sweeting et al., 2009; West & Sweeting, 2003).

Despite growing media coverage over recent years relating to education and mental health, there are relatively few sources capturing students' concerns about school first-hand. They too are somewhat limited in terms of what they cover. However, those that do exist provide a view of how students feel about schoolwork and exams, how this compares globally and how school-related concerns have changed over recent years. It is therefore useful to review this literature when considering issues around mental health in schools.

A global snapshot of school-related worries

The Programme for International Student Assessment (PISA) evaluates educational systems across the world every three years, offering a snapshot of student performance globally. As well as exploring the quality, equity and efficiency of the school systems, PISA collects information about school-related well-being, such as study- and assessment-related anxiety, motivation to achieve, expectations for further education and social school life. The PISA 2015 (OECD, 2017) report offers the latest published findings, surveying 15-year-olds across 72 countries.

On average, students from the UK reported feeling more anxious about studying and assessments than the global average. For example, even if they are well prepared for a test, 72% of students from the UK reported still feeling anxious, whereas the global average was 56%; and 52% of students from the UK reported feeling tense when they study, whereas the global average was 37%. However, for some other scales, the degree to which students in the UK reported assessment-related worry was similar to the global average. For instance, 62% of students in the UK indicated that they worry it will be difficult to take a test, whilst the global average was 59%. Similarly, 67% of students in the UK reported that they worry they will get poor grades, and the global average was 66%.

These data suggest that students in the UK are more likely to report studying- and assessment-related worries than the global average (although in a third of participating countries students reported a greater tendency to experience anxiety than in the UK). These findings should be considered in the context of a number of related factors. For instance, results from the PISA survey further report that globally, those who are most motivated to do well in school, and those with limited teacher and parental support, tend to be most concerned by schoolwork and assessments (these relationships are considered further below). Also, given the context of the mental health landscape in the UK being more open to identify and discuss mental health, it is possible that students from the UK are better able to report on their school-related anxiety. However, the degree to which students from other participating countries are open to talking about their school-related worries is unknown.

School-related worries in the UK

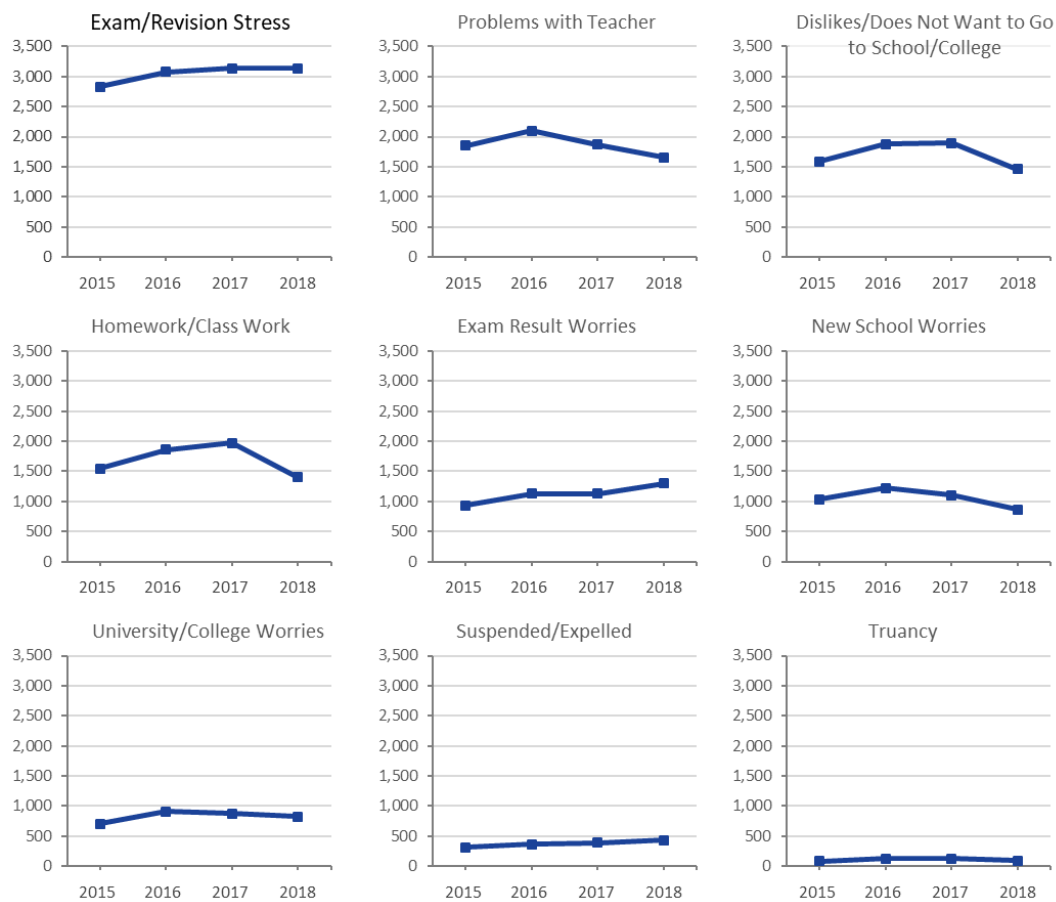
To understand school-related worries in the UK specifically, we turn to data from Childline. As previously discussed, any changes over time in the number of counselling sessions Childline has provided might indicate changes in attitudes towards mental health or an increase in help-seeking behaviour. For this reason, the Childline data relating to the number of sessions provided should be interpreted with caution. It might therefore be more informative to consider other measures – such as what children and young people are most worried about, and how this might have changed over time. This is not entirely unproblematic either though, since some concerns may be more conducive to help-seeking behaviour than others. Despite these caveats, the Childline reports offer the best insight into the types of concerns children and young people in the UK have. According to Childline, problems in school or with education first featured in the ten most commonly reported concerns in 2014 . Between 2014 and the latest report in 2018, the proportion and rank order of all counselling sessions where problems with school or education were the main concern has, in general, remained stable (see Table 1). When this is explored by age, the proportion of sessions discussing school or education is also stable within each age range, but the proportion is greater amongst younger children, with 7%, 6% and 4-5% of all sessions provided for problems with school or education for under 11 year olds, 12-15 year olds and 16-18 year olds, respectively. This is reflective of older children being more likely to discuss other issues, such as mental health and sexual relationships.

Table 1: The rank order, proportion and number of sessions in which problems in school or education were the main concern in Childline counselling sessions between 2014 and 2018.

Childline report	Rank	Proportion of all counselling sessions	Number of counselling sessions
2014	7 th	4.6%	12,911
2015	9 th	5.0%	13,815
2016	8 th	4.8%	15,470
2017	8 th	5.1%	15,156
2018	8 th	4.7%	12,995

Childline sessions relating to a problem with school or education cover a range of issues such as disliking school, truancy, problems with a teacher, and worries about assessments and results. Figure 1 shows the number of Childline counselling sessions from 2015 to 2018 relating to each of these issues. For all years in which this data is available (2015 to 2018), exam or revision stress accounts for about 26% of sessions discussing school-related concerns, and approximately 1% of all Childline sessions. When interpreting this data, it needs to be taken into account that the data does not allow for the disentangling of positive responses to exam or revision stress (where the student identifies and works through the challenge) and negative threat responses (where the student does not perceive themselves as being able to meet demands for achievement). However, it is more likely that children and young people approach Childline regarding negative rather than positive responses to stress.

Table 2: The count of counselling sessions that include problems with school or education from 2015 to 2018.



Note: School or education-related issues are in the order of most common in 2018, top left to bottom right.

The Childline data suggests that whilst exam or revision stress is the most common issue within school- or education-related issues, sessions discussing exam or revision stress make up a relatively small proportion of all Childline counselling sessions. The proportion of sessions discussing exam or revision stress has also remained stable over time. And, while the number of sessions relating to exam result worries has slightly increased between 2017 and 2018, these sessions make up a small proportion of all counselling sessions and longer term data is needed to determine whether this is a trend that will continue.

Although the Childline data might provide the most comprehensive view of what children and young people are most worried about, there are some limitations. For instance, this dataset only gives a snapshot of the concerns discussed in the counselling sessions and we are unable to evaluate the severity and details of what was discussed. As such, this data may only capture the most severe cases of exam stress. Some concerns might also be easier or more difficult to talk about, which may result in their over or under-representation. Moreover, users of the Childline counselling service are children and young people up to age 18. As such, those using these services to discuss concerns about exam and revision stress have a different experience of exams and revision depending on their age. For instance, the number of exams sat, and the nature of the stakes of the exams will be different across the age range, and the data is not provided by age.

There is a perception from some stakeholders and in the media that children and young people are becoming more worried about exams and revision. Some recent changes in the assessment system may have a role in moderating the degree of exam and revision stress a student may experience (for instance, the increasingly popular choice to attend university can heighten the stakes attached to assessment outcomes, and school accountability measures can influence teachers' communication around assessments). The literature does not contain long-term data to measure exam stress over time, so there is no evidence to support or refute this perception. However, research literature from the UK, America and Australia spanning back to the 1980s reports similar findings to that in the Childline data, whereby exams, exam results, pressures from teachers, excessive homework, having too much to do and worrying about the future were consistently identified as the most prominent sources of stress for students (Abouserie, 1994; Amen & Reglin 1992; Kohn & Frazer, 1986; Kouzma & Kennedy, 2004). It is likely that perceptions of student worries and stress are influenced by emergent positive discourse around mental health. This has led to more openness to discussing mental health, reductions in stigma, and increases in help-seeking behaviours, which has possibly resulted in better detection of these types of issues. It is therefore possible that students are more open to talking about exam-related stress, rather than actually feeling more stressed. Alternatively, consideration must be given to the possibility that changes in assessment-related concerns occurring in the past couple of years are not yet captured in published statistics and research. This can be because of the inevitable delay between data collection and reporting.

Conclusions about school and education related stress

Education is a major part of a child and young person's life, and evidence suggests that school life and education are a source of stress and anxiety. Exams and assessments, in particular, are the most prominent source of school related stress, and have been for decades. Childline statistics do not indicate a recent increase in the number of counselling sessions where the main concern is stress about exams or revision and although this data is limited, it gives the best and most recent insight into the experiences of young people. It is likely that recent changes in how we talk about stress and anxiety has contributed to greater openness and better detection of school-related anxiety for studying and taking exams.

The results of the PISA survey, Childline reports and academic literature explored here indicate that some students worry about exams and revision, as is reflected in media discourse. In order to consider how to manage assessment-related concerns in children and young people, this review reflects on what the literature understands about the causes of these worries, and the contexts in which they occur.

Emotional responses to assessments

From the beginning of school, children embark on an academic journey that involves testing and assessments. For most, this now means leaving school-based education aged 18, after which young people can choose to continue to study at university level, with this becoming an ever more popular choice (Universities UK, 2018).

Assessments in education serve multiple purposes. They are used for monitoring the quality of education our children and young people receive; for developing skills and knowledge; and for certification of attainment of these skills and knowledge (Newton, 2007), the latter of which is required by higher education institutions and employers.

For some students, assessments can be a source of worry. In this section, assessment-related anxiety is defined and the contexts in which this occurs are explored, drawing on the findings of two key resources. These are meta-analyses that examined the correlates, causes and effects of test anxiety, by collectively considering the findings of 800 studies published between 1950 to 2017 (Hembree, 1988; von der Embse, Jester, Roy & Post, 2018). These meta-analyses reveal the relationships between test anxiety, performance, and intrapersonal and demographic factors. To understand the factors related to test anxiety, the following sections refer to the findings of these meta-analyses, along with further details from related research and the wider literature.

Test anxiety

Assessment-related anxiety is known in the literature as test anxiety. Test anxiety has been defined differently over the years, from which Putwain (2008a) has identified two emerging themes: that test anxiety occurs only in the specific situation of performance assessment, and that test anxiety has a social dimension about how performance is evaluated by others. Test anxiety is experienced when the individual appraises evaluated performances, such as school examinations, as threatening, and can manifest before, during and after an assessment as physiological or cognitive symptoms (Chamberlain, Daly & Spalding, 2011; Spielberger & Vagg, 1995). Assessments can be conceptualised as threatening through fear of failure and motivations for achievement (Putwain, 2009a). The physiological symptoms of test anxiety can manifest as hyper-arousal and tension, which can be experienced as rapid heart-rate, muscle tenseness, light-headedness, and an upset stomach.

There are two components of the cognitive symptoms of test anxiety, both relating to worry. The first is pervasive thoughts of failure which can occur before, during or after an assessment. These can include thoughts such as “I’m not ready to sit the exam – I don’t know anything”, “This test is too hard – I can’t do it”, or “I haven’t got my results yet but I know I have failed!”. The second cognitive component relates to social evaluation and manifests as worries about how others (such as parents, teachers, and peers) will judge the assessed performance (Lowe & Ang 2012; Lowe, Ang & Locke, 2011; Lowe et al, 2008).

Test anxiety is often experienced alongside assessment-related stress, with the terms frequently used interchangeably (Putwain, 2007). Stress is a response that occurs when one feels that what can be achieved is less than what is expected or desired - for example, when there is work to be completed for a looming deadline that cannot be achieved without intervention. Stress experienced around

assessments is associated with physiological symptoms of arousal, like in test anxiety. Stress can often be the precursor to anxiety, and whilst it is possible that stress and anxiety may share some contributing factors, unlike anxiety, stress symptoms tend to ease when progress is made to prepare for the assessment and dissipate once the assessment is complete. Stress is therefore considered a short-term response to a threat, whereas anxiety can be long-term. Because assessment-related stress and test-anxiety are closely linked, and sometimes seen as synonymous in the literature, these concepts are not differentiated here and both concepts are referred to in the current review.

The prevalence of test anxiety

Determining the proportion of students who experience test anxiety is not straightforward, because there is no clear distinction between those who experience test anxiety and those who do not. Rather, individuals lie on a continuum and experience test anxiety to varying degrees, from 'no test anxiety' to 'high test anxiety'. The literature tends to focus on individuals with high levels of test anxiety, and this is mirrored in the current review.

Because test anxiety lies on a continuum, to determine the prevalence of high test anxiety would require arbitrary categories to be drawn from a continuous scale. Thus, whilst it might be meaningful in practice to determine the proportion of students that sit within the high test anxiety category, the concept of 'high' test anxiety is still not defined. This results in studies reporting the prevalence of high test anxiety based on different definitions of high test anxiety. Unsurprisingly, then, the reported prevalence of high levels of text anxiety varies quite considerably (von der Embse, Barterian & Segool, 2013).

It would be useful to understand the prevalence of high levels of test anxiety due to the potential negative implications of experiencing it (see below). Having a reliable measure of high test anxiety therefore has the potential to inform change. Using 11 previous studies conducted between 2005 and 2012, and their own research, Putwain and Daly (2014) calculated estimates of the proportion of students who would be considered as experiencing high levels of test anxiety in English secondary schools. In this study the estimates were based on scores equal to or above two thirds of the maximum score in the test anxiety measure (i.e. those at or above the 66th scale percentile). This threshold is supported by reliable differentiations between high and low test anxious students on measures of clinical anxiety and depression, and clinical anxiety also being predicted with 96.6% accuracy at this point (Herzer, Wendt & Hamm, 2014; Warren, Ollendick & King, 1996). The authors found that in most studies, the estimated prevalence of high levels of test anxiety was between 12% - 18% (however, for two studies this was 2% and 30%). This means that, on average, around 5 children in a class of 30 are likely to experience high levels of test anxiety. However, whilst we can estimate the number of children that experience high test anxiety, this does not mean that all highly test anxious students will be negatively impacted. This will depend on a number of other factors, as discussed below. Moreover, it is possible that the degree of test anxiety experienced by each student can change over time.

Test anxiety across demographics

As with general anxiety, certain demographic factors can make an individual more prone to experiencing test anxiety. The demographic factors of particular interest in this context are individual differences in trait and state anxiety, age, gender, academic ability, having special educational needs and disability, and the use of access arrangements.

Individual difference in trait and state anxiety

Anxiety can manifest as a result of trait or state anxiety. Trait anxiety refers to individual differences in a stable personality trait, whereas state anxiety refers to anxiety that is elicited in specific situations. There is a critical interaction between trait and state anxiety, and an individual's perception of a situational threat. State anxiety is interactively determined by trait anxiety and the situational threat (Derakshan & Eysenck, 2009). This means that those with high trait anxiety have a low threshold for specific situations to elicit state anxiety, especially when the specific situations are perceived as threatening. Therefore, individuals with high trait test anxiety are more readily predisposed to experience state anxiety associated with assessments (Spielberger & Vagg, 1995). Individual differences in trait and state anxiety are further related to differences in personality. Expectedly, personalities with a higher levels of neuroticism (a vulnerability to environmental stressors) are more likely to experience test anxiety, whereas conscientiousness, extraversion, agreeableness and openness to experiences can be protective against test anxiety (von der Embse et al., 2018).

Age

Children and young people of all ages can feel worried or anxious and this is also the case with anxiety specific to assessments. An international meta-analysis of 238 studies indicated that test anxiety can be experienced at any age and across the school levels: primary school, secondary school and in further and higher education (Segool, Carlson, Goforth, von der Embse & Barterian, 2013; von der Embse et al., 2018). Connor (2001; 2003) indicates that children aged 7 sitting their KS1 National Curriculum Tests can experience symptoms of test anxiety such as tenseness, withdrawal and refusal to continue the test. The degree to which students experience test anxiety is found to increase with age, as does overall perceived school pressure (Byrne, Davenport, & Mazanov 2007; Klinger et al. 2015). However, the perceived importance of an exam may mediate this effect, as the stakes attached to exam performance tend to increase with age. This is discussed further below.

Gender

Gender differences are found in general trait anxiety, with females more likely to report anxiety than males (Baxter et al., 2014). Similar findings are found for related disorders such as negative affect and neuroticism (Baxter et al., 2014; Lynn & Martin, 1997), and for test anxiety (Hembree, 1988; von der Embse et al., 2018). These differences are largely attributable to females reporting more worry and tension, and differences in the social component of test anxiety – feelings associated with being evaluated by others (Putwain & Daly, 2014, von der Embse et al., 2018). A meta-analytic review examined gender differences in test anxiety across 49 studies in English speaking countries (von der Embse et al., 2018). The review found

that gender differences in test anxiety in school-age boys and girls increased from primary school to age 18, and then decreased in higher education. Putwain and Daly (2014) note that there has not been a thorough exploration to understand gender differences in test anxiety. However, findings from the wider literature relating to stress and coping may clarify this. For instance, Stöber (2004) found that males and females prepare for exams in different ways, with males being less likely to prepare and seek support for studying, and more likely to avoid thinking about the exam through denial, mental disengagement, distraction, and trivialising the exam. It is also possible that gender differences in school-related worries are due to boys being less likely to share their concerns than girls (Rose et al., 2012).

Academic ability

The effects of test anxiety across ability levels has largely been considered using teachers' perceptions of performance in the classroom. These measures are therefore likely to be somewhat influenced by a student's engagement in class. These findings indicate that, after controlling for prior achievement, higher levels of test anxiety tend to be experienced by students with lower ability (Hembree, 1988; von der Embse et al., 2018). However, it is not necessarily a straightforward relationship. It is possible that lower assessment achievement of test anxious students is a result of interference with cognitive resources (such as memory and attention; Owens, Stevenson, Norgate & Hadwin, 2008). Moreover, students feel anxious over assessments if they perceive themselves to be less academically competent (Zeidner & Schleyer, 1998; Zeidner & Schleyer, 1999). This relationship may also be moderated by a number of intrapersonal factors (see below). For instance, students going to university (who tend to be higher ability students) reported greater test anxiety than those not continuing their studies (Banks & Smyth, 2015). The relationship between academic ability and test anxiety is therefore likely to be more complicated on an individual level, and can be influenced by the nature of the stakes attached to achievement in an assessment.

Special educational needs, disability and access arrangements

Compared with students without learning disabilities, students with special educational needs and disability report greater levels of stress, nervousness and anxiety in general, and for exams in particular (Heiman & Precel, 2003; Nelson & Hardwood, 2010). For instance, a meta-analysis exploring test anxiety in 12 studies reported that students with a specific learning disability or ADHD were more likely to report higher levels of test anxiety than those without (von der Embse et al., 2018). The cognitive component of test anxiety may mediate this effect, as thoughts are found to be more focused on worry than assessment-related cognitions and behaviour (Whitaker, Lowe, & Lee, 2007). These worrying thoughts likely result from a perceived importance of reading, writing and maths skills for academic success, alongside the recognition that these skills may be less easily mastered.

Where a student has special educational needs (which includes a diagnosed mental health condition) disabilities, or temporary injuries, they can have access arrangements applied to their assessment (JCQ, 2019). The most common access arrangement is the allocation of 25% extra time (Ofqual, 2018), of which there is some evidence to support that this type of arrangement can alleviate test anxiety. For instance, where a student experiences pressure imposed by time restraints of an

exam, extra time allocations have been found to reduce their anxiety (Hunt & Sandhu, 2017; Marquart, 2000; Putwain, 2009a). Access arrangements for students with a diagnosed mental health condition may take the form of, for instance, taking the assessment in an environment other than the exam hall. Findings indicate that this can have positive implications for reducing anxiety experienced during the assessment (Putwain, 2009a). Where students had been provided with an alternative environment in which to take an assessment, such as a classroom or library, anxious students expressed a preference for this. This may be due to the absence of other test takers, which can be perceived as anxiety inducing, and being in a safe and familiar context (Putwain, 2009a).

Effects of test anxiety on performance

For some, stress can be internalised positively as a challenge, which can motivate academic behaviour and increase performance (Putwain, 2007; Putwain et al, 2012). For others, stress can be internalised as a threat, which results in anxiety that can be debilitating to performance (Chamberlain et al., 2011). For instance, excessive anxiety can interfere with executive cognitive processes (resulting in, for example, forgetting content or 'going blank in an exam'), and occupy working memory resources and divert attention away from the task at hand (Arnsten, Mazure, & Sinha, 2012; Cassady, 2004; Derakshan & Eysenck, 2009; Owens, Stevenson, Hadwin & Norgate, 2014; Owens et al., 2008). This is consistent with attentional control theory (Derakshan & Eysenck, 2009). This theory also proposes that worrying thoughts (as a result of anxiety) can promote the use of alternative performance-enhancing strategies. These strategies can include increased effort and enhanced focus, which can compensate for the negative effects of anxiety. The use and effectiveness of these strategies is likely to depend, however, on a number of personal characteristics, as explored below.

The effects of test anxiety can also depend on when the anxiety is experienced. For instance, anxiety at the beginning of an exam can promote a sense of urgency and motivation to perform. However, anxiety in the weeks and days running up to the exam can be associated with sleeplessness, inescapable guilt for not revising (at all or in designated relaxation time), and being overwhelmed by the amount of content students think they must study (Chamberlain et al., 2011).

Experiencing high levels of test anxiety is likely to have a different impact on individuals depending on individual characteristics and the context (for instance individual differences in personality and trait/state anxiety). However, von der Embse et al's (2018) and Hembree's (1988) meta-analyses suggests that, after controlling for prior attainment, high levels of test anxiety are associated with reduced performance. This effect is likely driven by deficits in cognitive proficiency, vocabulary and comprehension, and non-verbal reasoning skills. That said, any reduction in test performance attributable to higher levels of test anxiety tends to be relatively small, but can also be difficult to interpret (Hembree, 1988; Putwain, 2008b; Seipp, 1991; von der Embse et al., 2018). The impact of test anxiety on grade outcomes is also likely smaller than the impact on test performance. This is because of the width of grade boundaries, where a small range of marks are awarded the same grade. Therefore, although students near a boundary may be more likely impacted in terms of grade outcomes, a student with a mark in the middle of the grade boundaries is less likely to be impacted. However, this effect does depend on

the width of the grade boundary. Nevertheless, it remains important to distinguish between the negative experience associated with test anxiety and the impact on performance and grades. Although students may not be negatively impacted in terms of grade outcomes, the experience of high levels of test anxiety can still have detrimental effects of mental health and well-being.

Factors associated with test anxiety

Evidence over the past few decades indicates that exam and revision stress are reported as the most prominent sources of school-related stress and anxiety (Abouserie, 1994; Amen & Reglin 1992; Kohn & Frazer, 1986; Kouzma & Kennedy, 2004). A number of contextual factors contribute towards test anxiety. For example, a wealth of literature indicates that certain intrapersonal aspects can contribute towards test anxiety. This suggests that certain characteristics or 'types' of students are typically more anxious about assessments, which implies an emphasis on the cause of test anxiety being internal. However, this is not necessarily the whole picture. Whilst there are a number of intrapersonal aspects that are associated with test anxiety, there is an increasing understanding of the influence of a student's wider social environment, the interpersonal factors. In particular, the social interactions with teachers, peers and parents can impact the degree to which a student experiences test anxiety. In addition, aspects of the assessments themselves can impact the degree of test anxiety experienced.

The literature exploring the contributors to test anxiety is extensive, so what is provided here is a summary of the key findings. These findings are presented under two sections: intra- and interpersonal factors associated with test anxiety, which relate to the personal and social factors involved with preparing for taking an assessment; and the role of assessment-specific factors on test anxiety.

Intra- and interpersonal factors

The literature exploring intra- and interpersonal contributors to test anxiety explore many interrelated constructs, some of which overlap to a certain degree. Here, these constructs are summarised under four related themes: academic competence beliefs, coping, motivation and emotional contagion (see appendix B for further details). It is important to consider these factors, as understanding them can aid the management and reduction of test anxiety, as will be borne out in the final section of this review.

People tend to make evaluations about their competencies throughout life. This is also the case in academic contexts. When students appraise their academic ability, this is in relation to their academic self-concept and self-efficacy (Rosen, 2010). The literature around academic self-concept indicates that those who have negative appraisals about their own ability (regardless of actual ability) and reduced academic agency are more likely to experience test anxiety (von der Embse et al., 2018). These negative appraisals can be, for example, having low confidence and self-esteem in relation to academic ability, and poor regulation of setting and working towards academic goals.

If a student's academic self-concept does not align with and threatens their academic goals (such as success in an assessment), this can cause anxiety. Students may then try to use strategies to reduce the accompanying anxiety. The ability to cope appropriately with adverse situations plays a major role in the degree

of test anxiety experienced, as well as for psychological well-being in general. Coping can be in the form of behavioural mechanisms (such as problem vs. emotional-focused coping; Lazarus & Folkman, 1984; Schutz, Distefano, Benson & Davis, 2004; Skinner & Saxton, 2019), or this can be a personal characteristic which facilitates the ability to sustain academic setbacks (such as academic buoyancy; Putwain, Connors, Symes & Douglas-Osborn, 2012).

Evidence suggests that there is a small negative correlation between problem-focused coping and test anxiety, with those actively tackling the stressor (for instance by planning and implementing steps to overcome the anxiety) experiencing lower test anxiety (von der Embse et al., 2018). Emotional coping strategies like avoidance, however, are positively correlated with test anxiety. For instance, those who are more likely to ignore or avoid the anxiety-provoking assessment and related academic activities tend to experience more test anxiety (von der Embse et al., 2018). These findings are likely driven by feelings of preparedness (Ergene, 2011) – although avoidance might reduce anxiety at the time, it negatively impacts overall preparedness to manage the assessment close to or during it.

Some students have a protective coping characteristic against test anxiety. This is academic buoyancy (an everyday type of resilience), whereby students are able to continue engaging in academic behaviours despite a routine setback in academic life, such as a dip in motivation or a poor result in a test. Academically buoyant students tend to experience lower levels of test anxiety (Putwain et al., 2012). This relationship is mediated by a positive academic self-concept, whereby positive self-beliefs and self-regulatory mechanisms minimise the appraisal of performance-evaluative situations as negative. This is key in reducing test anxiety (Putwain, Daly, Chamberlain & Sadreddini, 2015).

A student's motivation to undertake academic behaviours can also moderate the degree of test anxiety experienced. Motivation to perform well in an assessment can be intrinsically or extrinsically generated (see Ryan & Deci, 2000). Differences in the way in which a student is motivated has implications for their behavioural approaches to achieving academic goals and effort to engage in academic behaviours.

Intrinsic academic motivation is characterised by a personal drive to undertake academic behaviours, and is linked to personal goals for achievement (see Maehr, 1989; Elliot, 2005). Where the student's personal drive is in pursuit of mastery, i.e. intellectual stimulation and personal growth, levels of test anxiety tend to be lower (von der Embse et al., 2018). However, where a student is driven by performance evaluations, where they critically evaluate their own competence against others' or against unreasonably high standards, test anxiety is often experienced to a higher degree. These critical evaluations can be against a high standard that is set by the self, but can also be against a high standard that is perceived to be set by others (self-prescribed and socially-prescribed perfectionism, respectively; Flett & Hewitt, 2002). Although the setting of high standards can be motivating for some students (who appreciate the challenge), it can also have the opposite effect. For instance, striving for perfectionism is associated with a lack of confidence to perform in more difficult contexts and cognitive interference, in which the appropriate cognitive processes are replaced by test-irrelevant thoughts.

Intrinsic motivations and achievement goals that focus on self-growth are also related to academic effort. For instance, students who are driven by the personal

desire to learn for intrinsic enrichment rather than for performance-based evaluations are more likely to engage more effortfully in their studies. These intrapersonal characteristics that facilitate an intrinsic desire to learn can be protective against test anxiety (and are associated with higher achievement; Putwain & Symes, 2018; von der Embse et al., 2018).

Students can also be extrinsically motivated in their preparations for assessments where academic behaviours are regulated by external parties who promise rewards for academically conducive behaviours, or sanctions where studiousness is lacking. As well as high standards being perceived as set by others, unreasonably high achievement goals can also be set by schools and parents. These can have a negative, rather than the intended positive effect, whereby students can feel marginalised and demotivated, and are less likely to perform well as a result (Fletcher, Bonell, & Rhodes, 2009). The setting of high standards also creates a competitive atmosphere in which some students are more likely to experience anxiety and withdraw (Roeser, Eccles & Sameroff, 2000). External motivations for academic behaviours, in general, are associated with more test anxiety. This is likely because students' behaviours do not align with their personal desires and drives (von der Embse et al., 2018).

In the run up to assessments, particularly those perceived as high stakes, teachers might use tactics that they believe to be motivational to encourage studying and test preparation, such as fear appeals. Fear appeals are messages that often emphasise the importance of high-stakes exams and the necessity of achieving certain grades for progression to subsequent education or employment. Teachers can also indicate the negative consequences of not responding to these messages, such as having unfavourable occupational opportunities (Putwain & Symes 2014; Putwain, Symes & McCaldin, 2017). The use of fear appeals is observed across the range of educational stages and even though the intention is to motivate academic behaviour, they can be detrimental. For instance, constant references to National Curriculum Tests by teachers in primary schools is argued to be a source of fear for students (Hall et al., 2004), and students studying for their GCSEs often experience fear appeals as an upsetting and anxiety-provoking threat (Putwain & Roberts, 2009).

The degree to which a student internalises the fear appeal as a threat or a challenge depends on the student's academic self-concept and their evaluation of the message. If the student believes that they are capable of achieving the desired outcome of the fear appeal, then the student typically interprets the message as challenging and responds positively with conducive academic behaviour. However, if the student does not believe that they can achieve the desired outcome, they typically interpret it as a threat and respond with behaviours that impede academic success (such as procrastination and avoidance; Putwain & Symes, 2014; 2016). For those who perceive fear appeals as a threat, the worry and tension experienced as a result has been shown to contribute to higher levels of test anxiety, lower class engagement and lower task performance (Putwain & Best, 2011; Putwain, Nakhla, Liversidge, Nicholson, Porter & Reece, 2017; Putwain & Symes, 2014).

Putwain and von der Embse (2018) explored why some teachers use fear appeals as a motivational tactic. They found that teachers' use of fear appeals was more likely where the teachers had lower self-efficacy for engaging students and greater perceived importance of the tested outcome. There is also evidence that teachers

might transfer the stress they perceive from school targets or performance measures to students through strategies that aim to boost students' performance, such as the removal of extracurricular activities and detailed and frequent scrutiny of student progress (Hutchings, 2015).

The stress and anxiety experienced by teachers and other students can be transferred through emotional contagion (Burgess, Riddell, Fancourt & Murayama, 2018; Hatfield et al., 1993). Teachers report a range of factors that they consider to cause stress and burnout. For instance, in addition to school accountability pressures, teachers report that curriculum changes, workload, pupil behaviour, lack of promotion prospects, unsatisfactory working conditions and poor relationships all contribute to poor mental well-being (see Putwain & von der Embse, 2019b). Research suggests that this has been the case for several decades (Fernet, Trépanier, Julie & Levesque-Côté, 2016; Travers & Cooper, 1996). This experience of stress and burnout can be transferred from teachers to pupils in the classroom (Oberle & Schonert-Reichl, 2016). Around 70% of teachers indicated that their stress levels sometimes affect the way that they interact with pupils (Hutchings, 2015).

Moreover, teachers may become unable to effectively manage the social and emotional challenges in the classroom, resulting in students being more likely to disengage and underperform (Marzano, Marzano & Pickering, 2003). In particular, students who have social anxiety are at greater risk of the transference of stress from teachers, and are more at risk of scoring highly on the socio-evaluative dimension of test anxiety (Djik, Fischer, Morina, Eeuwijk & van Kleef, 2018). Importantly, school-based emotional contagion does not stop in the classroom, and job-induced tensions observed between principals and teachers are suggestive of how stress can also circulate amongst teaching staff (Westman & Etzion, 1999). On the other hand, emotional contagion can also function with positive emotions. Teachers who are intrinsically motivated for their students to do well, and are enthusiastic about the subject, are more likely to have students who are engaged, positive about their learning and enjoy the class, regardless of their overall enjoyment of the subject (Frenzel, Goetz, Lüdtke, Pekrun, & Sutton, 2009; Radcliff, Sarrazin, Legrain & Wild, 2010). This has positive implications for a student's academic self-concept and achievements goals, which can be protective against test anxiety (von der Embse et al., 2018).

Stress and anxiety can also be transferred within the student population. For instance, students report that their concerns are influenced by their peers being worried about assessments, and that this contributes to their own self-reported anxiety (Bonaccio & Reeve, 2010). The anxiety transferred between students can be primary, such that observing other students worrying makes another student worry, or secondary, whereby others' expressions of subjective difficulty elicits anxiety. High-achieving females tend to be more susceptible to emotional contagion. This is because they are more likely to discuss school pressures and what is worrying them, and compare themselves to one another than boys (Låftman et al., 2013). The waiting time before an exam is further reported as a particularly stressful time for students, because they often compare their revision strategies and content with their peers (Chamberlain, et al., 2011).

Contagion also has a role in the transmission of perceptions of assessments (there is more detail on this below). Perceptions are subjective and can be influenced by others. For instance, children taking National Curriculum Tests have little to no prior

experience of formal assessments and for the students taking KS1 (aged 7) and KS2 (aged 11) tests there are no personal stakes attached to them. Despite this, some primary school children may show signs of stress and anxiety related to these assessments. Evidence suggests that, where teachers continuously reference these assessments in the classroom, children can perceive them as highly important, and critically, think they have personal stakes for the student. This has implications for setting expectations for good performance standards and can result in test anxiety (Connor, 2001, 2003; House of Commons Education Committee, 2017). It is equally plausible that where teachers, parents and other sources (such as the media) give the impression that an assessment is very difficult, these perceptions are transmitted to students. This can have implications for students' perceived competence and their experiences of test anxiety.

Overall, it is important to note that there are a number of individual differences in personal drive, coping, and beliefs about academic ability. Moreover, there is a complex relationship between them. This means that each academic context is experienced in a different way for each student. The role of stress as being internalised as positive or negative plays an important role. What may be motivating for one student may be less motivating and rather, anxiety inducing for another. For instance, motivations for academic behaviours in the form of fear appeals (if negatively appraised) and striving for unreasonably high standards are likely to result in a greater degree of test anxiety, and do not necessarily facilitate academic behaviours in preparing for the assessment. On the other hand, an internal drive for personal growth can be protective of test anxiety and is associated with studiousness. The literature outlined here also indicates that test anxiety is not wholly an internally generated experience, rather interactions between peers, parents and teachers are critical to the degree to which a student experiences anxiety in the face of preparing for and taking an assessment.

Assessment-specific factors

Although individual differences have a large role to play in the experience of test anxiety, the specific features of the assessments themselves can be influential. Assessments are not designed to be inherently stressful, and most of the time the assessment context is not too dissimilar to what a student experiences in preparing for the assessment. For instance, sitting and writing for an extended period on content that has been learned over prior months does not typically lend itself to being an anxiety-inducing experience, rather it is what the writing is used for that contributes towards this. However, some aspects of assessment conditions may be more anxiety inducing, regardless of the personal or external pressures a student may experience, and the use of the assessment task. The test anxiety literature does not tend to focus on these specific conditions, meaning that there is little evidence relating to how the design of assessments may be related to test anxiety. As such, here we draw on the wider literature to gain some insight into assessment-specific factors that may influence test anxiety. This includes the roles of different modes and structures of assessments such as item types in written exams, performance-based assessments, and non-examined assessment, modular versus linear qualification structures and the role of perceptions around the assessment. Subject specific anxiety is also considered, however the literature in this area is particularly lacking.

A lack of evidence considering how the features of an assessment might relate to test anxiety is perhaps not particularly surprising when it is considered that policy

makers and assessment designers aim to create an assessment that is the most appropriate means with which to assess a construct: that is the skill, behaviour or knowledge that is intended to be measured. Sometimes, this can be a more anxiety-eliciting method. However, if evidence was generated that indicated that a construct could be optimally assessed in a way that is less anxiety-provoking, then this approach might be more desirable – but only where this did not interfere with the assessment of the construct.

Modes of assessment

The test anxiety literature tends to focus on emotional responses to traditional pen and paper style written exams, as has been covered above. However, although written exams are common, they are not the only form of assessment. This is because some skills, knowledge and understanding cannot be validly assessed in a written exam. For instance, performing arts, sports subjects and skills-based vocational qualifications may include performance-related assessments; foreign languages include speaking assessments to examine proficiency in spoken language; technical and vocational qualifications may include a professional discussion; and the spoken language endorsement in English language GCSEs require some students to be audio recorded when they present their work¹. Non-examination assessments (often known as coursework) can further provide an opportunity to assess more extensive project-type work. We consider these different formats of assessment below.

Written exams: the role of item format

In written exams, students are required to respond to a number of questions or items, which can take several formats. They may be highly structured, such as in multiple choice questions or true/false selections, or they may require the construction and organisation of ideas, such as in short answer responses or extended essay-type responses. The latter item types are likely to require a much greater level of cognitive demand and are therefore considered more complex to respond to than more structured items.

As previously discussed, students' perceptions of familiarity, difficulty and the stakes attached to an assessment can contribute towards the anxiety experienced before and during that assessment (Bonaccio & Reeve, 2010; Cizek, 2001; Hembree, 1988; Pekrun et al., 2004). There is evidence of a similar effect for different item formats. For instance, the greater the complexity required in a response, the more likely students are to perceive the item as challenging, less familiar and more valuable (Sommer & Sommer, 2009). This is likely why students feel less anxious taking multiple-choice questions than essay type questions and expect to perform better in them (Zeidner, 1987).

The order in which items are presented can also impact the degree of test anxiety experienced during the assessment. For instance, multiple-choice questions that are not in a sequential order, such as where the order of items do not stay with topic groups or in order of increasing difficulty, are more anxiety provoking than sequentially presented items (Chen, 2012; Pettijohn & Sacco, 2007). However, whilst other evidence indicates that order of item difficulty does not impact test anxiety

¹ A school does not need to record all students for the spoken language endorsement in English language GCSEs. As such, students who find this particularly anxiety inducing need not be recorded.

(Gohmann & Spector, 1989), items ordered in an easy-to-hard (rather than hard-to-easy) arrangement have been found to be associated with better performance (Hambleton, 1971), and can result in a more positive academic self-concept, which is associated with reduced test anxiety (von der Embse et al., 2018). The 'ramping up' of question difficulty is commonly aspired to by awarding organisations when they design their assessments. It is worth noting that assessments for typical qualifications in the UK such as GCSEs and A levels, are not intended to be speeded. However, because students work at different paces, it is likely that for some students more time in an assessment would be preferred to complete the assessment to their satisfaction.

Written exams: the role of time restrictions

Traditional pen and paper exams are typically taken within a set time period. Although there is limited research specifically considering the impact of time limits on test anxiety, there is related literature exploring the role of extra time for students with disabilities. In general, this research suggests that time pressures imposed on test takers during timed exams can increase test anxiety. Moreover, test anxiety is reduced where extra time is allocated, which has positive implications for a test-taker's cognitive and attentional control in undertaking the assessment (Elliott & McKeivitt, 2000; Hunt & Sandhu, 2017; Marquart, 2000; Owens et al., 2008).

Increased anxiety is also experienced in the presence of time-relevant distractors such as a ticking clock during timed conditions compared to non-timed conditions (Hunt & Sandhu, 2017). Although, arguably, not having an indication of time remaining to complete a task in timed conditions can also be anxiety inducing. But, even where time limits are not imposed, having thoughts about time pressures can be associated with increased anxiety (Hunt, Clark-Carter & Sheffield, 2014). The anxiety experienced during timed exams is likely due to worrisome thoughts of not completing the paper in time, not being able to perform because coping of strategies that restrict cognitive performance, and the repercussions of this for achievement (Chamberlain et al., 2011; Hopko et al., 1998). It is therefore likely that the stakes of the assessment have a mediating role on the impact of timed assessments.

Performance-based assessments

An important contributor to test anxiety is the social-evaluative aspect, that is, the perceived threat of performance evaluation (Putwain, 2008a). The degree of performance evaluation in any given assessment context can vary. For traditional pen and paper style assessments, there is no intended social component to the test-taking context (although students may experience social-evaluative anxiety unrelated to the assessment, caused by the feeling of being observed by invigilators or other test takers). Conversely, performance-based assessments such as oral language tests, presentations, and skills-based vocational assessments are more social in nature. Potential evaluation from an 'audience' in these contexts can therefore contribute towards test anxiety.

Research suggests that oral exams can be particularly stressful for students (Daly, Chamberlain & Spalding, 2011), and several features of the assessment can contribute to this. For instance, they can (but not always) follow less familiar structures than written tests, can be unpredictable, difficult to control and are more social in nature in that they require social skills, interaction and communication with others (Laurin-Barantke, Hoyer, Fehm, & Knappe, 2016). Situations in which skills,

knowledge and behaviours are presented to an audience and where there is a risk to self-esteem are associated with the worry and emotionality dimensions of test anxiety (Rost & Schermer, 1989; Sparfeldt, Rost, Baumeister & Christ 2013). The anxiety experienced can detract from an individual's ability to focus on the assessment. This can result in diminished performance driven by a failure to incorporate vocabulary and grammatical material in the assessment (Horwitz, Horwitz & Cope., 1986).

Whilst there is evidence relating to oral assessments, the test anxiety literature does not specifically explore anxiety experienced when undertaking performance assessments, for example in music, dance or sports, or when a presentation is being assessed. However, the literature on oral language tests and the wider literature on public speaking and performance anxiety can help in understanding the possible implications of these contexts. The literature refers to debilitating performance anxiety, whereby excessive anxiety about a performance disables the individual from demonstrating their maximum skills and abilities.

In performance-based assessments, the role of the audience is an important contributory factor to anxiety (Putwain, 2008a). The social component of test anxiety relating to the threat of evaluation by others therefore makes it likely that performance-based assessments, of any kind, are more anxiety-provoking than written exams. However, in subjects in which a performance is imperative to measure the application of skills and knowledge in a relatively authentic context, this assessment type may be the most suitable means with which to measure the desired construct. Moreover, it is likely that dealing with anxiety related to social-evaluation in these assessments is a legitimate part of the construct being measured.

Non-examination assessment versus exams

Non-examination assessment (NEA) measures subject-specific knowledge and skills that cannot be tested by timed written papers. Whilst there is extensive literature considering the impact of exams on test anxiety, there is limited evidence exploring the effects of NEA, such as coursework or controlled assessments. One study (Putwain, 2009b) found that coursework was preferred over exams by most, but not all students. In another study, students thought that NEA was less stressful than traditional exams (Barrance, 2019). Students appreciated that coursework was not completed under formal conditions and reported a greater sense of control in planning their time to complete the work. However, the level of control under which coursework is completed was identified as stressful because workload and deadlines exerted excessive pressure on students, especially where there are multiple pieces of coursework due within a small time-frame (Denscombe, 2000; Putwain, 2009b). Students also identified that teachers' reminders and fear appeals concerning coursework deadlines created worry and panic (Putwain, 2009b).

An evaluation of the introduction of controlled assessment (Ipsos Mori, 2011, commissioned on behalf of Ofqual) involving 20 in-depth interviews with key stakeholders indicated that there was ambiguity in whether controlled assessment was more or less anxiety-inducing than coursework. On one hand, interviewees reported that controlled assessment may more closely reflect the environment of an exam compared to coursework, which may increase test anxiety. On the other hand, interviewees reported that controlled assessment can enable schools to co-ordinate the assessment load and deadlines for different subjects across the academic year and across subjects, more so than with coursework where multiple deadlines for

different subjects were often close together. However, controlled assessment coordinated in this way may in turn contribute to continuous levels of stress throughout the academic year, as teachers believed that students would feel that they are continuously assessed. This reflects sentiments around modular exams, where multiple assessments throughout the year was thought to increase overall workload (Vidal Rodeiro & Nádas; 2010).

Modular and linear assessments

The structure of the assessment can have implications for test anxiety. There are different ways of structuring assessments, in a linear or modular structure. For modular assessments, students can enter modules in different exam series throughout the course of study, and choose to re-sit one or more modules. In linear systems, all assessments are sat in one session.

Vidal, Roderiro and Nádas (2010) explored the impact of modular and linear assessments for GCSE English and mathematics by interviewing students. This research did not explicitly set out to explore the effects of modular or linear assessments on the degree of test anxiety experienced. However, findings concerning motivation, opportunities for feedback, the degree of familiarisation of the assessment, and the impact on pressure and workload could indicate that certain assessment structures may be more or less anxiety-inducing (although this is also likely to be mediated by the individual differences of students).

The findings were generally mixed with regards to the impact modular or linear assessments may have on test anxiety, however. Students commented that modular systems offer more opportunities for feedback and increase their familiarity with the assessment context. The opportunity for resits also reduced worry over performance in the first sitting of the exam. This is likely because the perceptions of the stakes attached to the assessment were lessened. However, the summative exams in modular systems can be a major source of test anxiety that students experience multiple times over the course of study.

For linear systems, it was found that, although assessments are at the end of the course, there are opportunities for feedback and familiarity with the assessment by means of mock exams. However, in a separate study, Chamberlain et al. (2011) find that because mock exams are typically taken in the middle or towards the end of the course, some students can find the additional workload of concurrently studying new material and revising for mock exams stressful. The workload in a linear system could have positive implications for test anxiety, as students reported that it was more manageable in a linear compared to a modular system. This was because it was felt that there was more time for teaching and learning.

These findings are mirrored by teachers' reports on student stress across the modular and linear assessment systems (Baird et al., 2019). Some teachers expressed that the greater stakes attached to linear exams and not being able to track progress over the course of the qualification means that students likely felt more stressed in a linear system. However, other teachers noted that students do not necessarily realise that modular exams are lower stakes. These teachers thought that students are as stressed for modular exams and have to endure them over the two year course, compared to just at the end of the course in the linear system.

Perceptions of the assessment

A student's perception of the testing context can influence the degree to which an assessment is anxiety provoking. These perceptions can be based on psychological appraisals of a particular assessment context, rather than the characteristics of the assessment in reality (Bonaccio & Reeve, 2010). As such, we consider here how perceptions of unfamiliarity, instrumentality (this is the stakes attached to achievement in an assessment), and difficulty can influence test anxiety.

Unfamiliarity

An unfamiliar testing context is generally associated with increased test anxiety. This unfamiliarity can either be related or unrelated to the test (Bonaccio & Reeve, 2010). For instance, being unfamiliar with the mode of assessment or the item type can contribute to test anxiety that is related to the test, whereas not knowing where to go for the exam can contribute to anxiety that is unrelated to the test. Academic skill building exercises and taking mock assessments under live exam conditions may therefore increase preparedness and reduce test anxiety (Ergene, 2011).

Instrumentality

The perceived instrumentality of the assessment scores is also a factor that can influence experiences of test anxiety. Students can respond differently to assessments depending on their perceived stakes. High-stakes assessments feature in the UK education system and are those for which success or failure hold heightened importance – for example, they can influence access into further and higher education or employment. But, although school and college leavers' assessments (such as GCSEs and A levels) are generally considered high stakes, this is dependent on a personal evaluation of utility. For this reason, the perception of the stakes of an assessment mediates the worry experienced around them, and explains why students experience lower levels of test anxiety for assessments they do not consider valuable to themselves (Bonaccio & Reeve, 2010; Cizek, 2001). For instance, Banks and Smyth (2015) found that students taking the equivalent of A level qualifications in Ireland were more anxious about the assessments if their achievement was evaluated for access to university, compared to students who were not intending to continue studying. This also explains why test anxiety is reduced for classroom assessment tests compared to high stakes national and state exams (von der Embse et al., 2018). Perceptions of instrumentality and personal importance of assessment results can also be influenced by pressure from teachers, parents and peers.

Difficulty

Perceptions of difficulty should be distinguished from objective assessment difficulty. Perceptions of difficulty relate to the academic self-concept and beliefs about competence in responding to the assessment content. It also relates to the degree of ease with which a desired standard can be achieved, both of which may or may not reflect reality. On the other hand, assessment difficulty is an objective account of success in an assessment measured by attainment of overall grades or marks (Pollitt, Ahmed & Crisp, 2007). When an assessment is perceived as being more difficult, students report experiencing higher levels of test anxiety (Bonaccio & Reeve, 2010; Hembree, 1988; Hong, 1999; Pekrun, Goetz, Perry, Kramer, Hochstadt & Molfenter, 2004). This is likely because perceptions of difficulty result in a perception that performance will more likely result in failure (Putwain, 2009).

The degree of congruence between perceptions of difficulty and objective assessment difficulty has further implications for expectations for academic perfectionism, where academic perfectionists strive for the highest possible marks. Academic perfectionists experience greater test anxiety, and this is driven by worries about mistakes they may make (Brown, Heimberg, Frost, Makris, Just & Leung, 1999). It is likely then that increased perceptions of difficulty will result in greater concerns about making mistakes, which in turn can exacerbate test anxiety.

Subject-specific anxiety

Test anxiety for particular subjects is generally under researched and whilst the literature explores test anxiety in the context of particular subjects, (for example, Gregor, 2005; Devine, Fawcett, Szűcs, & Dowker, 2012; Eklöf & Nyroos, 2013; Liao & Teoh, 2016; Salehi & Marefat, 2014), the subjects themselves were not the focus of the research. As such, conclusions about the subjects that are associated with higher levels of test anxiety cannot be made. However, some subjects may lend themselves to different types of assessments considered in this review. For instance, perceptions of subject difficulty, performance-based assessments, and item and response types used in the exam may mediate degrees of test anxiety by subject.

Conclusions about contributing factors to test anxiety

The academic literature indicates that there are many contributing factors to test anxiety, across multiple sources. Here the role of intrapersonal factors, such as individual differences in internal drive and approaches to achievement goals; interpersonal factors, such as motivational tactics from teachers and parents and emotional contagion; and assessment-specific factors, such as the assessment type, are explored. On the whole, it appears that test anxiety is largely a response to identifying that there is an incongruence between beliefs of what can personally be achieved, and the perceived demands and performance expectations of the assessment. The standards of these expectations, and perceptions of the demands of the assessments, can be set personally, but can also be influenced by parents, peers and teachers, and potentially others. Ultimately, this can leave the student feeling unprepared to manage the assessment, despite this not necessarily being the case in reality.

Interventions for test anxiety

So far, this review has addressed the causes, symptoms and effects of test anxiety. What remains to be considered is how debilitatingly high levels of test anxiety can be reduced. Interventions for test anxiety tend to focus on anxiety reduction techniques. However, there is also scope for the causes of test anxiety to be managed. This review has identified that the causes of test anxiety can be intrapersonal, interpersonal and assessment-related. Intrapersonal factors relate to the individual's characteristics and intrinsic attitudes to undertaking assessments. These can depend on the way in which a person thinks. Cognitive-behavioural psychology explains that our thoughts, feelings and behaviours are linked. Therefore, by changing our thoughts, the emotional responses, our feelings, can also be altered. It is on this basis that many test anxiety interventions function, as will be discussed further below.

It is worth noting that whilst there is a wealth of literature exploring causes and correlates of test anxiety, there is less literature on interventions. Moreover, much of this literature is set in the context of undergraduate education, whilst evidence for school-based programmes aimed at younger students is limited (Putwain & Pescod, 2018; von der Embse et al., 2013). The age distinction is an important one to make when determining effectiveness of test anxiety interventions, as some interventions may require students to undertake tasks that might be more developmentally appropriate to older children. For instance, cognitive skills such as logic, self-reflection and perspective taking, become more concrete in late childhood to early adolescence (Klausmeier & Allen, 2014). Because of this, young children may struggle with identifying their worries and altering unhelpful thought patterns. However, modifications to interventions can be put in place, for instance, visual aids or assistance from an adult can help a younger child engage with more complex styles of thinking (Kingery, Roblek, Suveg, Grover, Sherrill & Bergman, 2006).

Interpersonal causes of test anxiety are those that arise from social interactions with teachers, parents, and to some extent peers. These can take the form of motivators, such as fear appeals, the setting of unreasonably high standards for achievement, and the transference of stress and anxiety through social contagion. Test anxiety as a result of interpersonal interactions can too be addressed and minimised, though often this can be complicated as there are other factors to consider. For example, teachers' use of fear appeals can be influenced by perceived pressures for their students to perform well in assessments due to school accountability measures (Hutchings, 2015; Putwain & von der Embse, 2018). But, teachers' increased understanding that the use of fear appeals may have the reverse of the intended effect may help reduce their use, and consequently reduce the negative implications for test anxiety.

Other interpersonal causes are perhaps more straightforward to address. For instance, Martin and Elliot (2016) suggest that teachers can help students set achievable but stretching 'personal best goals' over the year to help motivation, which may be a better strategy than using fear appeals as a motivational tactic. Also, by encouraging an intrinsic desire to learn (Ryan & Deci, 2000), students can shift their focus from learning for the test, to learning for personal desire, which tends to be associated with reduced test anxiety. Moreover, there is a wealth of literature indicating that a good support network has positive implications for test anxiety.

The degree to which students perceive their peers, parents and teachers as being supportive is linked to positive academic beliefs, reduced anxiety, and increased enjoyment of a subject. A good support network also promotes greater academic achievement (Mattanah, Lopez, & Govern, 2011; McGraw, Moore, Fuller & Bates, 2008; Robbins, Oh, Le, & Button, 2009; Schunk, Pintrich, & Meece, 2008; Skinner, Furrer, Marchand, & Kindermann, 2008).

The literature also suggests that teachers can be socially supportive of their students through creating positive learning environments. Positive learning environments can include: designing lessons that focus and build upon students' strengths and abilities rather than identifying weaknesses; giving positive and accurate feedback; encouraging cooperative rather than competitive peer relationships; and encouraging students to be intrinsically motivated to study, rather than being coercive or focusing on the instrumentality of assessment outcomes (Jennings & Greenberg, 2009).

Simple endeavours can encourage students to be intrinsically motivated, and this is typically linked to reduced anxiety around assessments (Valerio, 2012; von der Embse et al., 2018). For instance, evidence suggests that engaging and rich learning experiences that deliver content in a purposeful and applied manner can encourage deep and relevant understanding. This also mediates against a loss of motivation and disliking a subject (Handley, 2010; Zevenbergen, Walsh & Niesche, 2009). Social contagion also suggests that a teacher's passion and enthusiasm enhances students' learning. For instance, positive narrative and energy causes learners to believe the content has intrinsic value, thus motivating students' academic behaviour (Palmer, 2007).

Perceptions of support outside of the classroom can also influence students' motivation for academic behaviour and their perceptions of their own ability. Parental support is an important protective factor against school-related emotional distress in general (McGraw et al., 2008) and test anxiety in particular (Putwain, Woods & Symes, 2010). This is driven by increased engagement, intrinsic motivation to learn and more positive perceptions of their own ability (Mattanah et al., 2011; Reynolds & Clements, 2005). On the other hand, high parental expectations relating to achievement and performance can be a stressor (Ang & Huan 2006). Students also report feeling more anxious when parents berated a lack of revision (or perceptions thereof), or when parents failed to account for revision workload in relation to expectations for doing household chores (Chamberlain et al., 2001).

Parental support can take many forms that can be categorised as: positively reinforcing - such as valuing good study habits and having a positive home-school relationship; and negatively reinforcing - such as avoiding the use of coercion to encourage academic behaviours, and avoiding setting unreasonably high expectations for achievement (Reschly & Christenson, 2009). The latter may be difficult to accomplish however, as parental expectations can be inferred by the student in light of high-performing siblings (Låftman, et al., 2013).

Assessment-related causes of test anxiety refer to the features of the assessment context that generate anxiety. In some contexts, modifications to the mode of assessment may be a suitable solution to reduce test anxiety (Hurren, Rutledge & Garvin, 2006). This is only appropriate though where the desired construct is still effectively assessed. For instance, although performance-based assessments are likely more anxiety provoking, a piano assessment would need to, at least in part, assess a piano playing performance. However, it is possible that making some

changes to the assessment context, such as minimising the audience to only those necessary or by pre-recording the performance, could reduce anxiety.

Alternatively, a more practical solution to reduce test anxiety is to address the physiological and emotional responses through an intervention. These type of interventions generally focus on reducing students' anxiety based on theory and practice closely aligning with interventions for generalised anxiety disorders (von der Embse et al., 2013). Two reviews exploring test anxiety interventions spanning from 1973 to 2010 found that the most effective interventions are those that sit within psychoeducation, academic skill-building and cognitive-behavioural practices, with approaches that combine interventions being most effective (Ergene, 2003; von der Embse et al., 2013).

Psychoeducation

Psychoeducation refers to the providing of information, education materials, or advice about a particular disorder. For test anxiety, psychoeducation covers the psychological and physical causes, effects and symptoms of test anxiety, and the normalcy of test anxiety. By being able to better understand the experience of test anxiety, those who experience it are better equipped to manage it.

Psychoeducation interventions have flexibility in the way that they can be delivered. Leaflets, posters or information presented in lectures or classroom contexts can be effective for reducing symptoms of test anxiety (Rajiah & Saravanan, 2014; Weems, Taylor, Costa, Marks, Romano & Verrett, 2009; Yahav & Cohen, 2008), as well as for depression, anxiety and psychological distress more generally (Donker, Griffiths, Cuijpers & Christensen, 2009). Learning about test anxiety may also help an individual organise their thoughts and identify the cause of their concerns, which is a fundamental aspect of cognitive based treatments.

Academic skill building

Interventions that focus on academic skill building promote effective study habits and test taking skills. Study habits refer to the degree to which a student engages in appropriate study routines to prepare for an upcoming assessment (Credé & Kuncel, 2008). Effective study habits include behaviours such as acquiring, recording, organizing, synthesizing, remembering, and using information (Malhotra & Mehta, 2015). Specifically, these behaviours can include deep understanding of the subject matter, concentration, time management, being task-oriented and taking part in study-specific social interactions (this is discussing subject content with peers; Credé & Kuncel, 2008; Mukhopadhyaya, & Sansanwal, 1985; Tobias, 1985). Effective study habits are associated with lower levels of test anxiety because by engaging with activities that assist in subject understanding, there is greater alignment between desired assessment outcomes and what is personally achievable. As such, feelings of worry are reduced by increasing feelings of preparedness to take an assessment (Cassady, 2004; Ergene, 2011).

Engaging in effective study habits is facilitated by working within an appropriate environment. Limited cognitive capacity models outline how cognitive resources are finite. As cognitive demand increases (for example, when multi-tasking or switching between tasks), task performance decreases (Basil, 1994; Lang, 2000). In accordance with this model, an environment which has minimal distractions

facilitates effective study habits. For instance, engaging with off-task activities while studying, such as using a mobile phone, is found to have a negative impact on learning and preparedness for an assessment (David, Kim, Brickman, Ran & Curtis, 2014; Wood, Zivcakova, Gentile, Archer, De Pasquale & Nosko, 2011). However, the relationship between technology use and test anxiety can be more complicated on a personal level. Some report using technology in an attempt to relieve stress or as an avoidance coping mechanism (i.e as a distraction; Kim, Seo & David, 2015; Snodgrass, Lacy, Eisenhauer, Batchelder & Cookson, 2014), whilst for others smartphone use is associated with sleeplessness and negative affect (Thomé, Härenstam & Hagberg, 2011). Nevertheless, a feeling of underpreparedness caused by engaging with academic-unrelated distractions in designated study time can increase test anxiety.

Whilst study habits focus on preparedness for an assessment, test-taking skills aim to facilitate effective management of the assessment context (Dodeen, 2009). Test-taking skills include effective time management, knowing how to deal with difficult questions, reviewing answers and underlining key parts of the question (Bradley, McCraty, Atkinson, Tomasino, Daugherty & Arguelles, 2010; Carter et al, 2005; Dodeen, Abdelfattah & Alshumrani, 2014; Weems et al., 2009). Test-taking skills can also be subject-specific. For instance, for subjects with essay-type responses, 'point, evidence, explain' can be a useful framework that guides candidates to formulate and quantify an argument (Dobbs, Jessop, Campbell-Hall, McDonough & Nichols, 2014). By feeling equipped to engage with the assessment, students feel more in control and prepared for managing the requirements of the assessment. Because of this, test-taking skills are associated with reductions in test anxiety (Bradley et al., 2010; Carter et al, 2005; Dodeen et al., 2014; Weems et al., 2009).

Cognitive-behavioural approaches to test anxiety interventions

Cognitive-behavioural interventions for test anxiety are grounded in cognitive and behavioural psychology and cognitive-behavioural therapy (CBT). These approaches argue that our thoughts, feelings and behaviours are linked. Negative thoughts around an assessment and performance can therefore elicit feelings of worry and tension.

Worrisome thoughts and physiological stress are addressed in CBT by managing negative thoughts through cognitive restructuring and relaxation exercises. These techniques have been shown to be effective in alleviating worry and fears relating to social evaluation (James, James, Cowdrey, Soler & Choke, 2015), as well as reducing test anxiety in children and young people (Ergene, 2003; von der Embse et al., 2013). They can also be protective against symptoms occurring in the future. The techniques underpinning cognitive restructuring and relaxation practices are introduced here.

Cognitive restructuring

One of the aims of CBT is to change negative thought patterns through cognitive restructuring. Cognitive restructuring enables an individual to disconfirm and re-appraise unjustified thoughts, take perspective, decatastrophise (avoiding thinking of the worst-case scenario), and accept the current situation. In order to do this, the

individual must be able to pay attention to and rationally evaluate their own thoughts, and understand that thoughts can influence feelings and behaviours. One method of doing this is expressive writing. Evidence suggests that expressive writing about thoughts and feelings of an upcoming assessment addresses negative, unjustified and irrational thoughts and reduces rumination. As a result, the negative impacts of test anxiety on performance can be reduced (Ramirez & Beilock, 2011).

Because our thoughts, feelings and behaviours are closely linked, negative thoughts about not being able to study for or sit an exam can result in feelings of anxiety and behaviours that hinder academic performance. Disconfirmatory strategies which identify, challenge and replace negative thoughts with positive thoughts can alleviate this anxiety (Wells & Papageorgiou, 2001), and therefore better enable the preparation for and management of the exam.

As set out above, perceived importance of attainment and high achievement expectations can be contributing factors to test anxiety. There are efforts to help students manage their expectations and retain perspective about their results from assessments – for example, through campaigns such as ‘NoWrongPath’ in Scotland. NoWrongPath focuses on the view that there are many routes to being successful in life, with the intention of lowering unreasonably high achievement expectations. Reducing the importance of exam results in this way reflects cognitive strategies to manage anxiety outlined by Clark (2014) such as taking perspective and decatastrophising, and is linked to effective emotion regulation. Clark explains that, in order to take perspective, individuals are encouraged to consider their emotional experience as a single moment in time and to compare it to experiences they will have throughout their lifetime. Evaluating the long-term consequences of the causes of anxiety also puts the experience into perspective of their life as a whole. As a result, anxiety is reduced.

Decatastrophising refers to the evaluation of a ‘worst-case’ scenario for its realistic and probable effects. This strategy helps to minimise cognitive distortions that often exaggerate negative implications in a given context. With regards to test anxiety, taking perspective and decatastrophising evaluates and rationalises the severity of the implications of assessments, which in turn can alleviate anxiety.

An adaptive coping strategy to manage anxiety is the practice of acceptance. Acceptance is a mindfulness technique that draws attention to the present to disengage with thoughts that increase stress and anxiety (Brown, Ryan, & Creswell, 2007). In acceptance, unpleasant experiences, emotions or current situations are actively observed and accepted by the individual without ascribing a positive or negative judgment to them (Baer, 2003). Accepting that no amount of worrying about previous exam performance can change the outcome can alleviate the anxiety experienced after an exam. Acceptance has been found to be successful in alleviating a range of disorders amongst adolescents (Biegel, Brown Shapiro, Schubert, 2009).

Relaxation strategies

A central symptom of test anxiety is tension, the state of physiological arousal. Relaxation strategies enable the individual to reduce physiological responses associated with test anxiety, and there are a number of techniques that have proved effective. Diaphragmatic breathing (deep breathing with the belly rather than chest expansion) and guided muscle relaxation (progressive tensing and relaxing of

groups of muscles) have been found to reduce test anxiety in children aged 8-9 years (Larson et al., 2010). Relaxation techniques can also be progressively paired with the anxiety inducing stimuli (i.e. an assessment) to train the individual to experience the assessment alongside a feeling of calmness, rather than tension. This method is called systematic desensitisation, and is proven to weaken the automatic physiological stress response in the face of anxiety (Egbochuku & Obodo, 2005). Moreover, by being aware of the physiological response when experiencing stress or anxiety, these responses can be consciously controlled. This can be achieved through biofeedback strategies (Bradley et al., 2010; Yahav & Cohen, 2008), in which the student tunes into their physiology, such as heart rate or breathing, and brings it to a calm state using relaxation techniques.

Mindfulness

Mindfulness is the awareness of the present moment. Practising mindfulness can promote good mental health by improving the detection and management of our own stress and anxiety (NHS, 2018b). Mindfulness can help children and young people identify when they are experiencing worry, manage difficulties they have and cope with studying for and taking exams (Weare & Huppert, 2018; White, 2012). Whilst evidence showing the effectiveness of mindfulness specifically for test anxiety is still relatively limited, the findings so far seem promising (Weare & Huppert, 2018).

Global interventions

Because test anxiety has many contributing factors, there are many approaches to manage and reduce test anxiety. The most effective interventions are those that are global, in the sense that they address multiple aspects of test anxiety using several different practices (Ergene, 2013; von der Embse et al., 2013). For instance, the programme 'Strategies to Tackle Exam Pressure and Stress' (STEPS) pulls together varied practices to help manage stress associated with exams (Putwain, Chamberlain, Daly & Sadreddini, 2014). This programme administers psychoeducation, academic skill building, cognitive restructuring, relaxation and techniques for self-awareness. The programme can be carried out either in the classroom or at home, with both means shown to be effective in reducing test anxiety amongst highly test-anxious students (Putwain et al., 2014; Putwain & Pescod, 2018). However, the programme was more effective when facilitated in a small group compared to when undertaken alone.

Typically, the cognitive-behavioural, skills-based and relaxation interventions discussed here rely on delivery by educational or psychological practitioners. This can raise concerns about resource demands, both financially and in terms of students' and teachers' time. However, the STEPS programme demonstrates that these types of techniques can be delivered with or without practitioners, with success (Putwain et al., 2014; Putwain & Pescod, 2018). However, in either instance, these interventions rely on the students' engagement, and motivation to put these skills in practice.

Conclusions about interventions for test anxiety

Overall, evidence indicates that the school-environment, peer relations and family have an important role in supporting young people's well-being and acting as buffers against negative mental health behaviours and outcomes. As such, joint

responsibility among schools, parents and students should be taken in its management. Importantly, debilitatingly high levels of test anxiety can be reduced. Whilst it is not typically feasible to amend the mode of assessment, simple endeavours by teachers, schools and parents can have a positive impact. For instance, anxiety-inducing fear appeals (Hutchings, 2015; Putwain & von der Embse, 2018) and the setting of unreasonably high expectations by teachers and parents can be avoided or moderated. School-based or self-administered interventions that target test anxiety using several different strategies also offer a means with which students can personally control and alleviate their own anxiety (Gregor, 2005).

An advantage of school-based interventions is that the vast majority of students can be reached. Therefore, the classroom may be a powerful tool in which to identify and address assessment-related concerns and worries. Indeed, some schools already have provisions to implement some strategies and interventions to help manage student stress and anxiety (Baird et al., 2019). Interventions are not necessarily required for all students (Putwain & Pescod, 2018), rather programmes targeted at highly anxious individuals, as opposed to inclusive programmes for all students, are delivered for clinical and general forms of anxiety (Neil & Christensen, 2009). However, it is possible that benefits of interventions may be experienced by those with a lesser degree of test anxiety by developing healthy well-being and mental health habits and skills.

Sometimes it may not be feasible to undertake school-based interventions, or a student may not wish to participate. This may be due to issues around stigma, confidentiality, trust in the provider, accessibility of resources (especially in rural or underfunded areas) and problems recognising symptoms (Gulliver, Griffiths & Christensen, 2010). However, evidence-based mental health apps have the potential to target and reduce depression and anxiety, especially where availability to provide support in this way is limited (Donker, Petrei, Proudfoot, Clarke, Birch & Christensen, 2013).

Overall conclusions

This review has explored the literature to understand what is currently known about the symptoms, causes and effects of test anxiety. This was considered in the context of the global and UK mental health landscape, and in the context of other school-related worries. Overall, findings indicate that assessments are a source of anxiety for students and have been for several decades. However, evidence also suggests that identifying trends in test anxiety or quantifying the prevalence of test anxiety is not straightforward. For example, while there are concerns that the prevalence of test anxiety has increased over time, it is possible that this is at least partly a result of positive changes in attitudes towards mental health, which may have increased the detection of test anxiety. Conversely, it is also possible that concerns students have around their assessments occurring in the past couple of years are not yet captured in the literature and statistics because of the inevitable delay between data collection and reporting, resulting in under-reporting.

This review also explored the factors that can contribute towards test anxiety. These were considered under two categories: intra- and interpersonal factors, and factors that are specific to the assessment. Importantly, it should be acknowledged that it is the relationship between the intra- and interpersonal factors, and the assessment context and features that influence whether an individual experiences test anxiety that is debilitating to performance and mental well-being.

Intrapersonal factors refer to the individual's characteristics and personal motivations that influence the likelihood that they perceive an assessment as threatening. The interpersonal contributory factors to test anxiety emphasise the importance of relationships with teachers, parents and peers. In particular, teachers' use of fear appeals to try and encourage studying (which can be in response to perceived pressures from school accountability measures), the transference of stress from teachers to students, and stress transferred amongst students through social contagion are some ways that social interactions in the classroom can contribute towards test anxiety.

Parents and teachers setting unreasonably high expectations for attainment can also put added pressure on students to perform well. Some features of the assessment and the assessment structure are also associated with test anxiety. For instance, performance-based assessments (such as presentations or sports performances), are likely more anxiety provoking than written exams. But, they are potentially less prone to the cognitive interference nature of test anxiety, as cognitive load may be reduced in these types of assessments, compared with written exams. Written exams comprised of structured items, such as multiple choice items or short response items, are less anxiety provoking than essay style long answer responses. However, whilst it may be the case that some assessment types can be more anxiety provoking than others, it is important that the desired construct is assessed.

Overall, evidence suggests that the experience of test anxiety is largely a response to a disparity between beliefs of what can personally be achieved, the perceived difficulty of the assessment, expectations for performance and poor coping and emotion regulation. These beliefs can be set by the students, but can also be influenced by parents, peers and teachers. Ultimately, anxiety results from this disparity, which leaves the student feeling unprepared to manage the assessment, despite this not necessarily being the case in reality. Because of this the

assessment, and preparation for it, is perceived as threatening, and test anxiety ensues.

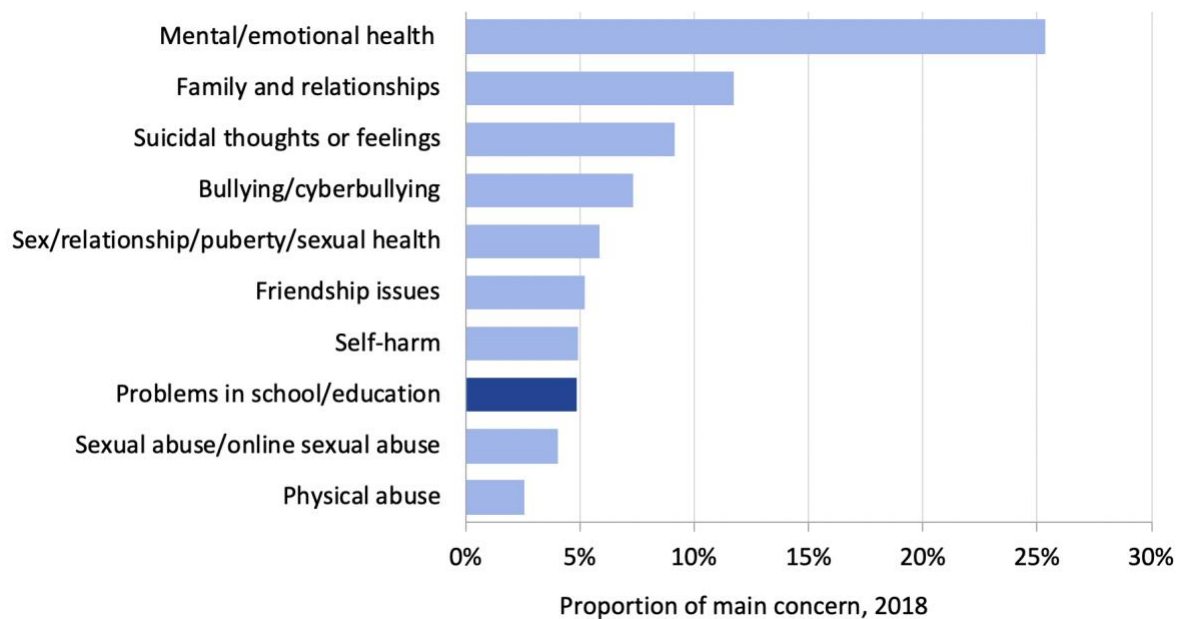
This review has explored how test anxiety can be managed. The literature provides evidence for a number of effective interventions that can be undertaken in school-based settings or on an individual basis. These interventions go beyond the avoidance of interpersonal contributors to test anxiety. For instance, the avoidance of fear appeals and the setting of unreasonably high expectations by parents and teachers can alleviate test anxiety. Test anxiety interventions include learning about the causes and symptoms of the condition, academic skill-building to prepare students for the assessment, and cognitive-based therapies to challenge negative thoughts and responses to assessments (including mindfulness, relaxation strategies and cognitive restructuring). The research literature indicates that the most effective interventions are those which combine several of these practices. Importantly, because test anxiety can be influenced by a range of interpersonal relationships at home and at school, and because test anxiety can be managed using school-based or homework-based interventions, evidence suggests that there can be a joint responsibility between schools, parents and students in reducing students' test anxiety.

Appendix A - A timeline of key policy changes and campaigns supporting the transformation in mental health in recent years

- 1990s Care Programme Approach, promoting mental health, supporting people with severe mental illness, and developing services for children and homeless people
- 1999 National Service Framework for Mental Health, an evidence based service, was launched
- 2000 The NHS Plan was set up to put the National Service Framework for Mental Health in place
- 2004 A National Service Framework for Children, Young People and Maternity services was set up
- 2007 Time to Change campaign – a social movement changing how we think and act about mental health
- 2009 Time to Change social marketing campaign
- 2011 Mental health strategy under the Coalition government
- 2011 Time to Change campaign - to end stigma and discrimination
- 2015 Future in Mind: consensus to make access to quality health care easier for children and young people
- 2016 Five Year Forward View for Mental Health (Independent Mental Health Taskforce)
- 2016 Heads Together campaign – tackling stigma and changing the conversations on mental health
- 2016 Time to change campaign – reaching out to audiences not yet engaged to change attitudes and behaviour to mental illness
- 2017 The Government's Response to the Five Year Forward View for Mental Health – recommendations accepted
- 2017 In Your Corner campaign – aimed at increasing awareness and improving attitudes with a specific focus on men and young people
- 2017 Transforming Children and Young People's mental health Provision: a Green Paper
- 2017 Mental Health Services and Schools Link Programme - Coordinated by local Clinical Commissioning Groups (CCG), the programme will bring together education and mental health services
- 2018 Government Response to the First Joint Report of the Education and Health and Social Care Committees of Session 2017-19 on Transforming Children and Young People's Mental Health Provision: A Green Paper
- 2019 The NHS long term plan: what does it mean for mental health? Centre for mental health briefing
- 2019 Towards mental health equality: a manifesto for the next prime minister (The Mental Health Policy Group)

Appendix B – The ten most common types of concerns discussed during Childline counselling sessions, report published 2018

The proportions of the ten most common types of concerns discussed during Childline counselling sessions, report published 2018.



Note: Data collected between April 2017 and March 2018

Appendix C – Further details on contributors to test anxiety

<p>Academic competence beliefs</p>	<p>Academic self-concept refers to the perceptions and evaluations a student makes about their academic abilities (Rosen, 2010). It is inter-related with a number of other academic concepts, such as academic agency, self-regulative strategies, self-efficacy, self-esteem and academic confidence. Those with positive appraisals of their academic self-concept are less likely to experience test anxiety (von der Embse et al., 2018)</p> <p>Locus of control (Rotter, 1966) relates to a sense of agency and the extent to which consequences are believed to be a result of one’s own actions. In an academic context, those with an internal locus of control believe that academic success or failure is a result of their own behaviours, whereas those with an external locus of control attribute success or failure to fate and luck.</p> <p>Self-regulation is an active process in which learners set learning goals and then regulate behaviours towards these goals (Pintrich, 2000).</p> <p>Academic self-efficacy relates to an individual’s beliefs about being capable of achieving a level of attainment or academic goal, for instance, “I am capable of getting a good grade in this test”.</p> <p>Academic self-esteem relates to evaluations and attitudes an individual has about themselves <i>regardless</i> of ability, such as, “I am good at maths”.</p> <p>Academic confidence relates to evaluative beliefs about how an individual will respond to academic demands, such as “I will be able to answer all of the questions in the exam”.</p>
<p>Coping and emotional regulation</p>	<p>Coping is a response to external stressors in which strategies are engaged to reduce stress or anxiety. There are two broad categories of coping mechanisms: emotion-focused coping and problem-focused coping (Lazarus & Folkman, 1984).</p> <p>Emotion-focused coping relates to the regulation of emotions in adverse situations. This can take the form of either positive reframing or avoidance of the negative event. Positive reframing involves being hopeful and optimistic, and ultimately changes the way in which the negative event is comprehended and internalised. In relation to assessment-related anxiety, positive reframing may take the form of thoughts such as “I’m sure I have done enough studying to pass this exam”. Avoidance of a stressor is characterised by denial and self-distraction, and although this may reduce negative emotions associated with the stressor initially, this is often maladaptive as it just displaces the anxiety to a later stage. Avoidance in the face of assessment-related anxiety may take the form of distracting oneself with assessment irrelevant tasks rather than studying.</p>

	<p>Problem-focused coping strategies tackle the stressor in practical ways by taking action to overcome it. These coping strategies tend to involve determining the source of the anxiety, planning steps to overcome it and implementing these steps. For example, this may include determining gaps in knowledge for an upcoming exam, making a study or revision plan, and then following this plan.</p>
	<p>Academic buoyancy refers to a constructive and positive response that allows students to ‘keep afloat’ in the face of routine setbacks in academic life (Putwain et al., 2012). These routine setbacks are typical for the majority of students, for instance, tension associated with exams or dips in engagement or motivation. Academic buoyancy can be distinguished from academic resilience, which refers to academic success despite the presence of major- life adversities, for instance in personal characteristics or life experiences (Martin & Marsh, 2009).</p>
<p>Motivation</p>	<p>Intrinsic motivation refers to a drive that is generated internally. Intrinsically motivated students have an inherent satisfaction in being studious. They are enthusiastic to learn new things, have an internal drive for accomplishment, and studying is often in the pursuit of intellectual stimulation and growth (Ryan & Deci, 2000).</p> <p>Extrinsic motivation refers to behaviours that are driven by external factors. This can be in the form of external regulation where imposed rewards or punishments drive academic behaviour (Ryan & Deci, 2000).</p>
	<p>Perfectionism is characterised by the setting of unreasonably high standards for performance and being overly critical about one’s behaviour in the pursuit of perfection (Flett & Hewitt, 2002). There are two different types of perfectionism: self-prescribed perfectionism, and socially prescribed perfectionism, and these concepts can be applied to an academic context. Self-prescribed perfectionism is a form of internal motivation that is driven by critical evaluations of performance, rather than by interest and intrinsic enthusiasm about a subject. Socially prescribed perfectionism is the perception that others have high standards for the self, and that only by meeting these standards will others be accepting of you. In both instances, this involves setting excessively high standards of acceptable achievement for oneself, where perfect academic results are strived for, sometimes regardless of personal capabilities (Låftman et al., 2013). As such, academic perfectionism can contribute to anxiety through fears of failure, because such high standards may be perceived as less achievable. When these excessive expectations are not met, individuals may ruminate on their results, regardless of whether they objectively performed well (Stoeber, Feast & Hayward, 2009).</p>

	<p>Achievement goals: There are two achievement goal dimensions: mastery goals and performance goals (Maehr, 1989). Mastery goals relate to the personal desire to learn new skills and enrich knowledge, whereas performance goals focus on competence in comparison to that of peers. Each type of achievement goal is further associated with typical behaviours that differ by the nature of avoidance or approach. This means there are four types of achievement goal (Elliot, 2005):</p> <ul style="list-style-type: none">• mastery-approach (the desire to learn as much as possible)• mastery-avoidance (the avoidance of incompetence)• performance-approach (performing better than others)• performance-avoidance (the avoidance of performing worse than others) <p>An individual's behaviour in preparing for an assessment can therefore be motivated by their achievement goals. For instance, studying because of a personal desire to know more about the subject (mastery-approach); studying to avoid poor attainment and seeming incompetent (mastery-avoidance); studying to have better attainment than peers (performance-approach); and studying with the aim of performing less incompetently than peers (performance-avoidance).</p>
Emotional contagion	<p>Emotional contagion is a phenomenon in which people tend to experience emotions similar to those that they observe (Hatfield et al. 1993). In the classroom, emotions can be transferred between students, and between teachers and students (Burgess et al., 2018).</p>

Appendix D - Resources for managing assessment-related anxiety

The following table comprises a list of resources aimed at students, parents and the school to help manage worries about exam and revision stress.

Advice for children and young people	Childline is a service provided by the NSPCC offering confidential advice to children and young people. See Childline's tips for beating exam stress .
	YoungMinds is a charity working to improve emotional well-being and mental health amongst children and young people. See YoungMinds' advice for young people .
	Student minds is a mental health charity for students. See Student minds' resources for dealing with exam stress .
	Mind is a charity providing mental health support for anyone experiencing a mental health problem. See Mind's 14 ways to beat exam stress .
	BBC Bitesize offers resources to help students with homework, revision and learning. See Bitesize's advice on how to deal with exam stress .
	GoConqr is a personal learning environment to aid learning and revision. See GoConqr's tips of how to deal with exam stress .
	The Student Room is an education website offering peer support for students. See The Student Room's advice on dealing with exam stress .
Advice for parents	YoungMinds is a charity working to improve emotional well-being and mental health amongst children and young people. See YoungMinds' advice for parents .
	NHS : See the advice from the NHS: Help your child beat exam stress .
	Family lives is a charity helping parents to deal with the changes that are a constant part of family life. See Family Live's advice for supporting your teenager through their exams .
	Relate is a charity offering relationship support. See Relate's advice for coping with exam stress as a family .
	TheSchoolRun.com is a website offering resources to help learning at primary school. See their advice on helping your primary school child with exam stress .
	Teenagers Translated is a website offering information to help parents understand their children during their teenage years. See their advice on managing exam stress .
Advice for schools	Centre for Education Research Practice (CERP) are part of an exam board (AQA) and aim to inform education policy and practice through research. See the CERP STEPS programme which aims to help students manage and minimise GCSE exam stress.
	Mentally Healthy Schools is a website working with Heads Together to offer advice and resources to help promote children's mental health and well-being in primary school. See their advice on what schools can do to manage academic and exam stress .
	The Mindfulness in Schools Project is a charity aiming to improve children's mental health and well-being using mindfulness.

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