

The relationship between teachers' day-to-day classroom management practices and anxiety in primary school children: A systematic review

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Abstract

Anxiety problems are common in children and can have profound adverse effects on personal, social and academic life. Almost 40% of anxiety disorders emerge before age 14, making primary schools invaluable settings for prevention and early support of child anxiety. Research indicates that school-based interventions can be costly and difficult to schedule, school staff lack confidence to deliver them effectively, and outcomes are mixed. One solution may be for school staff to adapt and enhance their day-to-day practices to better support children with anxiety. This systematic review aims to summarise what is known about the relationship between teachers' classroom management and anxiety in primary school-aged children. We searched ASSIA, British Education Index, Education Abstracts, Embase, ERIC, MEDLINE, PsycINFO and Scopus in December 2020 and June 2022, using a predefined strategy. We included studies of any design, published in peer-reviewed journals at any time, in any language, reporting associations between day-to-day classroom management strategies/methods and anxiety/internalising outcomes in children aged 4–11 years, taught in mainstream primary schools. Studies were assessed for quality/risk of bias. We identified eight studies (six quantitative, two qualitative) including 4505 children. We found some evidence that authoritarian, controlling

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and punitive classrooms may be linked to higher levels of anxiety, although, overall, existing evidence indicates either a weak or no association between classroom management and anxiety. This review highlights a paucity of research in this area. Furthermore, variability in design, measures and quality makes drawing firm conclusions difficult. Recommendations for future research are discussed.

KEYWORDS

anxiety, classroom management, schools, teachers

Context and implications**Rationale for this study**

This review explores what is currently known about the relationship between teachers' day-to-day classroom management practices and anxiety in primary school-aged children.

Why the findings matter

Anxiety problems are common and often start in the primary years, however there is scant evidence to inform primary school educators on how day-to-day classroom practices can be used to better support children with or at risk of anxiety problems.

Implications for researchers and practitioners

This review is relevant for primary classroom practitioners, school leaders, education professionals, academics, researchers and policymakers keen to better understand how to support those with or at risk of anxiety. Although overall findings indicate very small associations between teaching styles/practices and anxiety in children, there is very little research to draw on. Research is urgently needed that uses robust designs to focus on whether specific, feasible, day-to-day strategies can be used by school staff to effectively manage and minimise children's anxiety problems and, if so, how school staff can best be supported and equipped to deliver them.

INTRODUCTION**Rationale**

Anxiety is a normal emotion but in some cases levels of anxiety become so severe that they interfere with a child's ability to function. Anxiety disorders are among the most prevalent of mental health conditions in children and are currently estimated to affect the lives of 6.5% of children worldwide, with many others experiencing sub-clinical difficulties (Polanczyk et al., 2015). Untreated childhood anxiety disorders can adversely affect academic outcomes, confidence and motivation which, in turn, may have a negative impact on relationships with peers and teachers (Layard, 2008), and can lead to barriers to school attendance (Csóti, 2003). Longer term, untreated anxiety disorders can put individuals at increased risk of developing other mental health disorders, reduced employment opportunities, and lower earnings in adulthood (NICE, 2013).

Receiving timely and appropriate treatment can alleviate symptoms and prevent longer-term harm (Dadds et al., 1997, 2000), but mental health services, particularly for children, struggle to keep pace with demand (Thorley, 2016). For example, in the UK, high referral thresholds mean that just one quarter of referrals to specialist mental health services are successful and, even for those that are, wait times are long (Children's Commissioner, 2021: 2). When treatment is delayed, associated effects can become ingrained and are more difficult to overcome (Neil & Christensen, 2009).

There is strong consensus that schools are ideally placed to play a crucial role in identifying those at risk of developing mental health difficulties (Anderson et al., 2018; Moore et al., 2022) and provide a suitable setting for intervention delivery (Fazel et al., 2014). Teachers have regular, sustained contact with children (Chatterji et al., 2004; Shelemy et al., 2020), and schools play a pivotal role in the lives of students and families (Greenberg, 2010). Teacher knowledge of individual children and their experience of developmental and emotional 'norms' (Neil & Smith, 2017), also mean educational professionals are the most commonly consulted regarding emerging child mental health problems (Ford et al., 2007). The non-clinical nature of the school, its familiarity and its relative proximity to the family home may also contribute to the reduction of stigma and ease of access necessary for effective engagement with mental health support (Fisak et al., 2011; Masia-Warner et al., 2006). Given that almost 40% of anxiety disorders first emerge before the age of 14 (Solmi et al., 2022), primary schools are an invaluable setting for prevention and early support for child mental health problems. There is some evidence that school-based delivery of mental health interventions can be effective for anxiety problems, particularly those based on cognitive behavioural therapy (CBT), where individuals are encouraged to identify and manage difficulties by changing the way they think and behave (e.g., Baskin et al., 2010; Cooper et al., 2010; Dray et al., 2017; Hoagwood et al., 2007; McArthur et al., 2011; Shelemy et al., 2020). Findings are mixed, however, with one recent study evaluating a CBT-informed universal intervention for adolescent depression and anxiety reporting few improvements to mental health beyond increasing knowledge and awareness and, in some cases, even reporting iatrogenic effects (Andrews et al., 2022). Of the research that focuses exclusively on interventions for primary-aged children, findings are also mixed. Positive outcomes in terms of reductions in anxiety symptoms have been reported (Barrett & Turner, 2001; Bernstein et al., 2005; Eiraldi et al., 2016; Merrell & Guelder, 2010; Miller et al., 2011; van Starrenburg et al., 2017); although the effectiveness of interventions may be compromised when not delivered by healthcare professionals (Stallard et al., 2014). An Education Endowment Foundation evaluation of the FRIENDS for life school-based CBT programme (Wigelsworth et al., 2018) not only found no evidence of improved health outcomes for primary school aged children, but also found possible iatrogenic effects in one subgroup, with small increases in self-reported anxiety and depression among those eligible for free school meals.

In addition to questions about the effectiveness of universal interventions, existing whole-class and targeted interventions usually come at significant financial cost (Patalay et al., 2020) which may preclude their use in many schools (Stallard et al., 2015). In addition, children who receive targeted interventions may be withdrawn from class, miss classroom-based learning, feel singled out (Fisak et al., 2011) or be isolated from their peers. This, along with issues over staffing, varying levels of commitment from management (Stallard, 2010) and waning enthusiasm (Askell-Williams & Koh, 2020) has prevented such approaches being sustained or scaled over time (McLoone & Rapee, 2012; Moore et al., 2022). Given the decontextualised nature of many school-based interventions, it is possible that, in the classroom, children may also struggle to apply strategies they learn outside of the classroom, or to transfer techniques to other situations when taught as part of stand-alone lessons. Commonly, teachers or support staff deliver such interventions, which places significant demands on staff whose timetable and capacity are already overstretched

(Rothi et al., 2008). As schools may also adapt and modify specific programmes to fit their individual needs, resources or timescales, their efficacy may also be compromised (Brown et al., 2012; Durlak & Du Pré, 2008). Although most teachers agree that schools have a responsibility, either alone or in partnership with external agencies, to address mental health needs (Reinke et al., 2011), a lack of knowledge and professional training means that individuals have concerns over their ability to identify and handle complex issues (Dray et al., 2017; Graham et al., 2011; Shelemy et al., 2019). They are, therefore, often reluctant to assume a therapeutic role for which they feel unqualified (Shelemy et al., 2019). It is important, therefore, to find approaches to supporting children with anxiety problems (whether formally identified or not) in primary schools, which take into account teachers' already busy schedules, and best reflect the needs, preferences and existing skills of school staff.

One solution may be for schools to adapt and enhance typical day-to-day classroom management practices (including, for example, classroom organisation, student-teacher interactions, and techniques and strategies used in teaching) to minimise and manage children's difficulties with anxiety. Reaching an agreed, precise definition of what constitutes 'classroom management' continues to present difficulties for educational researchers (Oliver et al., 2011). However, existing research indicates a clear point on which they all concur: classroom management, including teacher behaviour, layout, rules and routines, group contingencies, praise and feedback can affect outcomes for children (Conroy et al., 2008; Cooper, 2011; Curby et al., 2013; Korpershoek et al., 2016; MacAulay, 1990; Oliver et al., 2011; Postholm, 2013; Simonsen et al., 2008). The primary focus for much of this research to date has been to assess the effects of classroom management (defined here broadly as 'what teachers do and how they do it' at a class-wide level) on either academic, engagement or behavioural outcomes. The extent to which such management principles might also have an impact on child anxiety remains largely unexplored.

Objective

This systematic review aims to explore and summarise what is known about the relationship between teachers' classroom management practices and anxiety in primary school children, with a view to determining which, if any, practices may make a difference to levels of anxiety among children.

Method

This systematic review was conducted in accordance with the methods outlined in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement (Page et al., 2021) and was registered prospectively with the International Prospective Register of Systematic Reviews (PROSPERO) available at: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42021216651.

Eligibility criteria

Intervention type

To be included in this review, studies had to focus on the association between whole-class day-to-day class(room) management strategies, methods or techniques (for example, teaching styles, classroom and resource organisation, use of behaviour charts), and anxiety in

primary school children. These strategies, methods or techniques had to be implemented with the whole class in a mainstream, primary school classroom setting during the course of a normal school day and be implemented by the class teacher (or by other class-based personnel under the direction of the class teacher, e.g., teaching assistants). The methods, techniques and strategies used had to be transferrable. Studies that assessed strategies implemented as part of stand-alone lessons or in the teaching of a particular subject (e.g., Personal, Social, Health and Citizenship Education (PSHCE), Maths) or short-term interventions delivered over a specified number of sessions/weeks were excluded, as were those reporting on extra-curricular programmes, after-school sessions or home-based activities. Studies were also excluded if they focused specifically on test-induced anxiety, or on transitions between schools or major transition points within schools. Due to their highly personalised nature, studies related to the use of individual education or behaviour plans developed for specific pupils following, for example, functional behavioural assessments, were excluded. Studies were also excluded if they assessed management strategies not under the teacher's control—for example, matching for race/gender, segregation by sex or altering class size/year group.

Participants

Participants were children aged 4–11 years inclusive, taught in mainstream/general education settings. To allow for variation in education systems across countries, studies including some children older than 11 years were included, provided participants were taught in a primary school setting and the mean age was 4–11 years. Studies that exclusively focused on children under 4, or where strategies or techniques were first implemented in preschool and assessed at later time points, such as school readiness programmes, were excluded. Because children who have experienced specific adverse experiences are likely to require specialist therapeutic support that goes beyond the scope of what most schools can offer alone, studies that focused on children exposed to unusual life events, disaster or trauma were not included. Studies that focused solely on atypically developing children—for example, those taught in special schools, alternative provision settings, or children with an identified specific learning difficulty, or a mental or physical disability—were excluded, as were studies evaluating outcomes only for children learning English as an additional language. However, where studies included data from these children as part of the whole-class population, they were not excluded.

Outcomes

Eligible studies were those that reported on child anxiety measures (e.g. trait anxiety, anxiety symptoms, anxiety problems, anxiety disorders, or internalising/emotional symptoms) or, in the case of qualitative research, those that contained specific references to children's anxiety outcomes. Child anxiety measures/outcomes could be reported by teachers, parents and/or children. Studies that used measures which included a global mental health score (e.g., Strengths and Difficulties Questionnaire (SDQ) Total Difficulties (Goodman, 1997)) were excluded unless it was possible to isolate and extract separate anxiety or internalising outcomes.

Study design

Eligible studies could use any empirical design and were published in peer-reviewed journals on any date, in any language. Studies did not have to include a control or comparator, but

where a control/comparison was included, the target strategy could be compared to passive controls (e.g., wait-list), active control (e.g., other school-based technique) or usual school practice. Studies that analysed secondary data (meta-analyses, systematic reviews) or that did not contain empirical data—for example, editorials, guidance and planning documents, protocols, commentaries, resources and textbooks—were excluded.

Information sources

Potential studies were identified using the following electronic databases: Applied Social Sciences Index and Abstracts (ASSIA) (ProQuest), British Education Index (EBSCO), Education Abstracts (EBSCO), EMBASE (Ovid), ERIC (EBSCO), MEDLINE (Ovid), PsycINFO (Ovid) and Scopus. All searches were carried out in December 2020 and subsequently rerun on all databases in June 2022 (with the start date set at December 2020) to include any eligible studies that had been published in the interim.

Search strategy

Terms and keywords identified in the background literature were used to create a preliminary list of search terms which was then piloted, modified and developed with colleagues and information librarians using thesauri, truncation and additional terms linked to the target intervention, participant population, setting and outcomes. The same search string was used for each platform, with minor modifications as required by each database (see Table S1 in supplementary material).

Selection process

Retrieved records from all databases were deduplicated and uploaded to Rayyan (Ouzzani et al., 2016) and the titles and abstracts of potential studies were independently screened by two reviewers (HM and ET). Studies published in languages other than English were initially screened using DeepL Translator (<https://www.DeepL.com/translator>) and any potentially relevant studies were checked against inclusion criteria by speakers fluent in that language. Studies that did not meet at least one of the inclusion criteria were excluded. Inter-rater agreement was good ($k = 0.77$). Disagreements were resolved through discussion or by a third reviewer where necessary (CC/TR). The full texts of studies that could not be excluded on the basis of the information contained in the title and abstract were then retrieved and screened independently by two reviewers (HM and ET). Any that did not meet all inclusion criteria were excluded. Primary reasons for exclusion were documented in each case. Discrepancies in decisions when screening full texts were again resolved through discussion or with input from a third reviewer (CC/TR). On occasion, papers were not readily available, and authors were contacted directly to request the paper. All requests were successful. Hand searches of reference lists from eligible reports were also conducted to identify potentially relevant research. Studies which satisfied all criteria were included in our review.

Data collection process

Data from included studies were extracted by one author (HM) using a bespoke data extraction sheet and checked by a second reviewer for accuracy (TR). Data extracted related to the

following: Study Characteristics (e.g., author, title, design, research question/focus, location, outcome measures, informant); Participant Information (e.g., number, age range, gender) and Study Results (e.g., reported outcomes/summary findings for anxiety). Corresponding authors were contacted by email for any missing information.

Study risk of bias assessment

Because a number of different designs were considered eligible, risk of bias/quality was appraised independently by two reviewers using three different tools, each appropriate to the designs represented in the literature. Randomised designs were assessed using the revised Cochrane tool for cluster-randomised trials (Sterne et al., 2019); cross-sectional designs were assessed using the AXIS Appraisal Tool for Cross-Sectional Studies (Downes et al., 2016); and qualitative studies were assessed using the CASP Qualitative Studies Checklist (CASP, 2022). Each tool provides guidance to assess risk of bias/quality related to a variety of domains appropriate to the design (e.g., recruitment process, sampling, handling/reporting of missing data etc.). The Cochrane tool uses an algorithm linked to responses to questions to give an overall automated assessment of risk of bias. The AXIS and CASP tools require reviewers to assess studies against a number of criteria rated 'yes', 'no', 'cannot tell' and to use these to guide them towards an overall judgement. Studies assessed using the AXIS tool were assigned to one of four categories: very low quality (where 4 or fewer of the AXIS criteria were met), low quality (5–9 AXIS criteria met), moderate quality (10–15 AXIS criteria met), and high quality (>15 AXIS criteria met). This approach is in line with assessments made by other researchers using the AXIS tool (Bull et al., 2019). We used the same approach to rate the qualitative studies assessed using the CASP checklist: very low quality (3 or fewer CASP criteria met), low quality (4–5 CASP criteria met), moderate quality (6–8 criteria met) and high quality (9–10 criteria met).

Effect measures

Per the study protocol, we intended to use the effect sizes (Cohen's d ; Cohen, 1988) published in individual studies or, if this was not reported, to calculate them ourselves where possible using the statistics as reported in the papers, in order to conduct statistical synthesis of the results of the included studies and generate a summary finding. However, included studies were not of sufficient similarity to permit meaningful statistical synthesis. Thus, we opted to conduct a narrative synthesis (Popay et al., 2006), whereby the characteristics and findings of each study are summarised and considered in relation to other studies in the review.

RESULTS

Study selection

Our initial search retrieved 37,059 records across all databases, of which 12,055 were duplicates. Of the 25,004 studies which remained after deduplication, we were able to exclude 24,278 after screening their titles and abstracts. The full texts of the 726 remaining papers were successfully sourced and screened. We excluded 718 studies at this stage. Hand searches of all relevant papers yielded a further seven potential studies, all of which were subsequently excluded. A total of eight studies met the criteria for inclusion. The study selection process is presented in the PRISMA flow chart in Figure 1.

Description of included studies

Of the eight studies eligible for inclusion in this review, six reported quantitative data, one reported qualitative data and one was a mixed-methods study, from which we extracted the qualitative data that was relevant to this review. Of those that reported quantitative data, five of the six were cross-sectional/observational in design and one was a cluster randomised controlled trial (RCT). With one notable exception (Zimmerman, 1970) all studies were conducted between 2007 and 2021. An overview of the characteristics of each study, together with a risk of bias rating, is provided in Table 1a (quantitative) and 1b (qualitative).

Location and educational setting

All data included in this review were collected in high-income countries. One report included data collected from children attending school in a refugee settlement in Palestine (Hargreaves & Affouneh, 2017), however, this was not included because we excluded studies where participants were exposed to unusual life events, disaster or trauma. Therefore, only the data pertaining to interviews conducted with children in the UK were relevant to this review. Four of the eight studies were conducted in the USA, one in Germany, one in Greece, and two in the UK. Two studies specifically reported on urban settings (Hargreaves & Affouneh, 2017; Kreutzmann et al., 2014) and one in which the majority of participants were from suburban settings (Kowalski & Froiland, 2020). All studies were conducted in mainstream primary/elementary schools, with three studies making specific reference to school type: private (LaBillois & Lagacé-Séguin, 2007), public (Poulou et al., 2021), and state (Hargreaves & Affouneh, 2017).

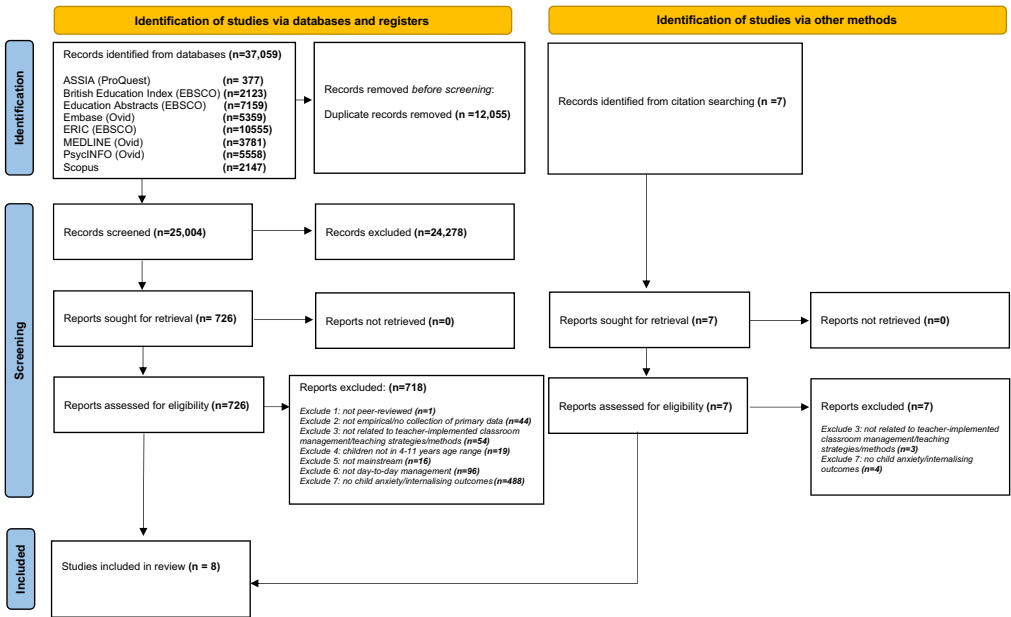


FIGURE 1 PRISMA flowchart of study selection process

Participants

Included studies represented a total of 4505 children. Participant numbers varied widely across studies, from 33 (LaBillois & Lagacé-Séguin, 2007) to 2075 (Ford et al., 2019). The number of schools recruited for each study also varied considerably. Two studies focused on data collected from a single school (Hargreaves & Affouneh, 2017; LaBillois & Lagacé-Séguin, 2007), one using data from three schools (Zimmerman, 1970), one from 80 schools (Ford et al., 2019), and one from 165 schools (Poulou et al., 2021). The three remaining studies reported data in terms of how many classrooms or states, rather than schools, were represented in the sample. The study conducted by Hughes and Coplan drew on a subset of archival data taken from the National Institute of Child and Human Development (NICHD) Study of Early Child Care and Youth Development (SECCYD).

Year groups recruited from schools ranged from Reception/Kindergarten to Year/Grade 6. One study (Kreutzmann et al., 2014) included older children up to 13 years old, but as the mean age reported was 10.79 years, it was still eligible to be included in our study. For those studies that reported on gender (Hughes & Coplan, 2018; Kowalski & Froiland, 2020; Kreutzmann et al., 2014; LaBillois & Lagacé-Séguin, 2007), the male/female split was relatively even in all cases bar one (LaBillois & Lagacé-Séguin, 2007) where 21 boys and 12 girls were included in the study.

Study focus

The specific manner in which studies considered the relationship between classroom management or teaching practices and anxiety varied between studies. Five of the eight studies considered the impact of teaching styles/teacher behaviours/teachers' expressed emotions on anxiety/anxious behaviour. Kowalski and Froiland (2020) explored parent perceptions of teachers' use of extrinsic rewards and punishments and its impact on their children. Kreutzmann et al. (2014) investigated how teachers' responses to errors (that is, how 'friendly' they are towards mistakes at the class level) can affect children's self-efficacy, fear of making mistakes, enjoyment of learning and their engagement. LaBillois and Lagacé-Séguin (2007) aimed to identify whether different teaching styles predicted parent-reported anxiety levels in children. Poulou et al. (2021) examined whether emotions expressed by teachers (both positive and negative) and their classroom management practices were associated with children's social-emotional and behavioural competence. Zimmerman (1970) considered the effects of teacher reinforcement (i.e., acceptance of feelings, praise and encouragement) on students' anxiety. Two of the remaining studies looked at the wider aspect of class climate. Hughes and Coplan (2018) considered the importance of classroom climate for anxious children, examining the links between anxious solitude (defined as solitary behaviours or withdrawal linked to social anxiety, hesitation to initiate and difficulty in maintaining peer relationships) and classroom climate (i.e., the emotional support offered by teachers and the instructional practices they use in the setting). This study explored interrelations between these two variables and engagement, achievement and gender. Finally, one study investigated what children fear in the classroom, what they perceive happens to them and their learning when they are fearful, and their suggestions as to how fears might be overcome or addressed (Hargreaves & Affouneh, 2017), and one study examined the impact of a classroom management training intervention for teachers on children's mental health, enjoyment of school and behaviour (Ford et al., 2019).

TABLE 1A Summary of included quantitative studies

Author	Year	Design	Location	N	Age	Gender	Focus	Measure used	Informant	Quality rating (no. of AXIS criteria met)
Ford et al.	2019	Cluster RCT	UK	2075 children (1037 intervention; 1038 control)	Reception–Year 4 (4–9 years; M = 6.2 years)	Data not provided	Evaluated whether TCM improved children's mental health (primary outcome) enjoyment of school and behaviour, whether any impact was sustained and whether TCM was cost-effective	Strengths and Difficulties Questionnaire (SDQ) (Goodman, 1997)	Teacher	High
Hughes & Coplan	2018	Cross-sectional	USA	712 children in 712 different classrooms (taken from archival data from the National Institute of Child and Human Development NICHD Study of Early Child Care and Youth Development (SECCYD) 1998) 1 participant per classroom.	Grade 3 (M = 8.53 years)	49.6% (N = 353) girls 50.4% (N = 359) boys	The interaction of anxious solitude (AS) and classroom climate on academic outcomes (AS as a moderator in the relationship between class climate and engagement (rather than impact of climate on AS))	Anxious Solitude (AS): Teacher Report Form (TRF) Classroom Climate (CC): Classroom Observation Scale (COS; NICHD, 1998)	AS = Teacher CC = Researcher	High (16)
Kreutzmann, Zander & Hannover	2014	Cross-sectional	Germany	421 children	9–13 years (M = 10.79 years)	226 girls, 195 boys	The extent to which the handling of mistakes in class (both by teachers and pupils) is associated with pupil academic and emotional outcomes in primary school	SchuFekU (Spychiger et al., 2006)	Child	Moderate (14)

TABLE 1A (Continued)

Author	Year	Design	Location	N	Age	Gender	Focus	Measure used	Informant	Quality rating (no. of AXIS criteria met)
La Billois & Lagacé-Séguin	2007	Cross-sectional	USA	33 children	Grades 2 & 4 M = 7.5 years	21 boys, 12 girls	Identified predictive pathways to anxiety from teaching styles with emotional regulation as the moderating variable	Revised Teaching Style Inventory (Grasha, 1996); Early Adolescent Temperament Questionnaire-Revised (Roithbart, 1996) Child Behaviour Checklist (Achenbach, 1991)	RTSI; Teacher EATQR; Child CBCL; Parent	Moderate (15)
Poulou et al.	2021	Cross-sectional	Greece	662 children	Kindergarten & Grade 1	Data not provided	The association between teachers' emotional expressiveness, classroom management and students' social emotional and behavioural competence	Classroom Expressiveness Questionnaire (CEQ) (Mirabile & Kodlubby, 2015) Behaviour & Instructional Management Scale (Martin & Sass, 2010; Sass et al., 2016) Social Competence & Behaviour Evaluation (SCBE; LaFreniere & Dumas, 1996)	Teacher	High (15)
Zimmerman	1970	Observational	USA	443 students	Grades 3–6	Data not provided	The effect of teacher reinforcement on student school anxiety	Interaction Analysis (IA) (Flanders, 1960) School Anxiety Questionnaire (SAQ) (Bergan, 1968; Dunn, 1968)	IA: Trained observer SAQ: Child	Low (9)

TABLE 1B Summary of included qualitative studies

Author	Year	Design	Location	N	Age	Gender	Focus	Measure used	Informant	Quality rating (number of CASP criteria met)
Hargreaves & Affouneh	2017	Qualitative	UK	60 (30 in each class)	Year 3 (7–8 years) and Year 6 (10–11 years)	Data not provided	Explored how children describe fear in authoritarian classroom and its influence on their learning	(1) Whole-class drawing exercise (2) Completing sentences (3) Interviews	Child/Teacher	Moderate (6)
Kowalski & Froiland	2020	Mixed methods (Cross-sectional/Qualitative)	USA	99	Kindergarten-Grade 5	48 girls and 50 boys (1 not disclosed)	Examined parent perceptions of classroom management systems in schools with a particular focus on how external rewards and punishments are experienced by children	Online bespoke survey (included open-ended questions where parents commented on how behaviour systems affected children)	Parent	Moderate (7)

Outcome measures

Measures of anxiety outcomes differed across all studies. Quantitative studies used published questionnaires relating to child anxiety/internalising symptoms or behaviours. Zimmerman (1970) used the School Anxiety Questionnaire to assess state anxiety in contexts relating specifically to test, report card and performance anxiety, Kreutzmann et al. (2014) used a questionnaire on mistake culture to assess students' fear responses, Hughes and Coplan (2018) used selected items from the Teacher Report Form (TRF) relating to social anxiety/withdrawal, and three studies used broader measures of internalising/emotional symptoms, namely the Child Behaviour Checklist (CBCL) (LaBillois & Lagacé-Séguin, 2007), the Social Competence and Behaviour Evaluation (Poulou et al., 2021) and the Strengths and Difficulties Questionnaire (Ford et al., 2019). The two qualitative studies used bespoke measures including an open-ended online survey, drawing, and sentence-completion exercises and interviews.

Informants also varied across studies with four of the eight studies using multi-informant reports and four relying on a single informant. Only one study (Ford et al., 2019) reported follow-up outcomes at 9, 18 and 30 months. Although Zimmerman (1970) reported an outcome for a second timepoint, this was used to check test–retest reliability rather than to report changes in participants' anxiety outcomes over time.

Quality assessment

Included studies were of variable quality. One study was assessed as low quality, four were moderate and three were high. Generally, the quality of studies was difficult to assess, with 'cannot tell' ratings frequently applied across assessment criteria because of insufficient information provided in papers. Notably, the three studies that were rated 'high' provided substantial detail in their reporting compared to other studies and yet, even then, only one study (Ford et al., 2019) satisfied all relevant assessment criteria. Overall, the body of relevant evidence is weak to moderate in quality.

Overall findings

A summary of results for each of the included studies is provided in Tables 2a (quantitative) and 2b (qualitative).

Quantitative studies examining the association between children's anxiety outcomes and classroom climate (Hughes & Coplan, 2018) or teaching styles/behaviours (Kreutzmann et al., 2014; LaBillois & Lagacé-Séguin, 2007) reported small effects, with the exception of one low quality study that reported large effects for the negative association between teacher use of reinforcement and praise, and student school anxiety levels (Zimmerman, 1970). Kreutzmann et al. (2014) found a positive association between the 'mistake friendliness' of the teacher and reductions in children's fear, although this 'mistake friendliness' was more likely to result in children viewing mistakes more positively rather than wholly removing fears about making them.

In their examination of teaching styles, LaBillois and Lagacé-Séguin (2007) also found that higher 'formal authority' was associated with higher child anxiety, with a small effect. This is echoed in the study by Poulou et al. (2021), which found a small positive association between teachers' use of more controlling, teacher-centred behavioural/instructional management approaches and children's anxious/withdrawn behaviour. Teacher-reported

anxious/withdrawn behaviour was lower in students whose teachers had rated themselves highly on positive expressiveness compared to negative expressiveness, but again, with small effects. The single RCT (Ford et al., 2019) evaluated the effectiveness of a teacher classroom management training programme compared to usual practice, and found negligible or no difference between groups on teacher-reported child emotional symptoms at the 9-month, 18-month or 30-month follow-up. Both qualitative studies suggested that authoritarian, overcontrolling and punitive teaching approaches are perceived by parents and children to contribute to children's anxiety and fear.

DISCUSSION

This review synthesised existing available evidence on the relationship between classroom management and primary-school aged children's anxiety, with a view to determining whether the body of research can guide decisions about policy and practice relating to classroom management.

The findings highlighted that there is currently a paucity of research relating to classroom management and its effects on anxiety in primary school children. We identified just eight studies for inclusion in the review. Together, these suggest that more authoritarian classrooms, punitive teaching styles, teacher-centred management practices, negative teacher affect, and behaviours that are less tolerant of mistakes may be associated with higher levels of child anxiety. Likewise, there is some suggestion that teachers who are more outwardly positive towards their students, more emotionally supportive and who make use of less controlling, student-centred management practices may create a safe, secure, positive and caring environment in which students feel less anxious. Overall, included quantitative studies found only small, non-significant effects in terms of the association between classroom management and children's anxiety, and, as the majority were cross-sectional, firm conclusions over any causal links between the factor examined and its outcome on children cannot be drawn. In addition, results were inconsistent across studies and missing data meant that it was not possible to calculate the effect size for key associations for all studies. This places further limits on reaching clear conclusions.

The one randomised controlled trial included in this review was also the only study to assess associations between classroom management practices and emotional outcomes over time and, notably, was the only study to evaluate an intervention aimed at teachers. This study evaluated the effectiveness of 'Teaching Classroom Management (TCM)' (Webster-Stratton, 1994) on improving emotional and behavioural problems in primary school children. Although it found small but statistically significant improvements on the SDQ total difficulties score at 9 months, these were not maintained at 18 and 30 months. No significant effects were found specifically for emotional symptoms. This leads us to question whether a different approach to classroom management training might be required to maximise the effects of any such training on emotional symptoms. The distinct lack of intervention studies found in our search to assess the effects of classroom management, or indeed any that assessed outcomes linked to specific teaching strategies, again makes conclusions about useful and effective practices hard to establish and recommendations difficult to formulate.

Included studies varied widely in terms of quality and design and, notably, in many cases the findings related to children's anxiety were incidental or secondary to the study's main focus. Furthermore, although qualitative studies indicated behaviours and practices that were considered unhelpful, none of the included studies provided much, if any, insight into specific strategies and techniques that can and should be used by teachers to make a measurable difference to children's anxiety. This limits any specific recommendations for practice based on existing evidence. The considerable heterogeneity in anxiety-related measures

TABLE 2A Summary of results from quantitative studies

Study	Summary finding	Effect size (<i>d</i>)
Ford et al. (2019)	Effect of TCM intervention on emotional outcomes on SDQ:	
	At 9 months: TCM Mean (S.D.) = 1.3(1.9); Control Mean (S.D.) = 1.5 (2.2) Adjusted Mean Diff = -0.3, $p = 0.14$	0.10
	At 18 months: TCM Mean (S.D.) = 1.7 (2.2); Control Mean (S.D.) = 1.6 (2.1) Adjusted Mean Diff = 0.1, $p = 0.63$	0.05
	At 30 months: TCM Mean (S.D.) = 1.6 (2.1); Control Mean (S.D.) = 1.6 (2.1) Adjusted Mean Diff = -0.005, $p = 0.98$	0
Hughes and Coplan (2018)	Partial correlation between anxious solitude (AS) and classroom climate (controlling for socioeconomic status): $r = -0.06$, $p > 0.05$	0.12
Kreutzmann et al. (2014)	Association between fear of error (FA) and perceived error-friendliness of teacher (FF): $r = -0.14$, $p > 0.05$	0.28
LaBillois and Lagacé-Séguin (2007)	Association between personal or delegator style and parent-reported child anxiety: beta not reported, $p > 0.05$	<i>Could not be calculated^a</i>
	Association between expert teaching style and parent-reported child anxiety: $\beta = -0.43$, $p > 0.05$	
	Association between facilitator teaching style and parent-reported child anxiety: $\beta = -0.31$, $p > 0.05$	
	Association between formal authority teaching style and parent-reported child anxiety: $\beta = -0.14$, $p > 0.05$	
Poulou et al. (2021)	Association between teachers' positive emotional expressiveness and anxiety/withdrawal: $r = -0.21$, $p = 0.02$	0.43
	Association between teachers' negative emotional expressiveness and anxiety/withdrawal: $r = -0.11$, $p = 0.3$	0.22
	Association between teachers' behavioural management and anxiety/withdrawal: $r = 0.10$, $p = 0.4$	0.2
	Association between teachers' instructional management and anxiety/withdrawal: $r = 0.05$, $p = 0.8$	0.1
Zimmerman (1970)	Association between teachers' Reinforcement–Punishment index and class mean SAQ: $r = -0.40$, $p < 0.05$ (T1) and $r = -0.53$, $p < 0.05$ (T2)	0.87 (T1); 1.25 (T2)
	Association between teachers' Praise–Criticism index and class mean SAQ: $r = -0.42$, $p < 0.05$ (T1) and $r = -0.37$, $p > 0.05$ (T2)	0.93 (T1); 0.80 (T2)

^aAuthors were contacted to request additional data to permit calculation of effect size, but relevant data were no longer available.

used across studies limits meaningful synthesis of findings. Although four of the eight studies made use of multi-informant reporting, as recommended (Polanczyk et al., 2015), studies often used measures (or subscales of wider measures—often adapted to suit their own purposes) that assessed emotional/internalising problems (e.g., SCBE, SDQ) which, while a helpful indicator, may not adequately pinpoint anxiety outcomes specifically. Only one study (Zimmerman, 1970) used a measure that focused entirely and specifically on measures of school-related anxiety (the School Anxiety Questionnaire); however, this only measured state anxiety linked to report cards, recitation, tests, achievement and failure,

TABLE 2 B Summary of results from qualitative studies

Study	Summary result
Hargreaves and Affouneh (2017)	Authors reflected that authoritarian, over-controlled classrooms lead to fear, which obstructs desirable learning. Children reported feelings of fear, tension, pressure, hesitancy. Children also reported their fears of looking stupid (even in collaborative/small groups), disappointing the teacher, provoking disapproval—including punishment and shouting (even overhearing shouting elsewhere), being singled out/publicly questioned/put in embarrassing situations, getting a red card, being sent to senior staff, having written accounts of offences sent to parents. They also reported worries over being kept in at break, moved away from friends, working in prescribed groupings, speaking in front of others and fear of competition.
Kowalski and Froiland (2020)	Controlling systems and teacher-imposed rewards/consequences (e.g., behaviour charts, online programmes with points to be won/lost, token economies etc.) felt to induce anxiety and contribute to negative experiences in school (including feeling singled out, picked on, afraid of being in trouble, being overly critical of self, school anxiety, unnecessary grief and public shame)

which—given the study's wider focus on the effects of teacher reinforcement—seems somewhat limited. Indeed, no two studies used the same measures to assess outcome. This variation in the measures used, the specific foci of the different studies and the ways they are reported, make it difficult to synthesise findings. Going forward, it will be important to establish a clear consensus over which scales are most adequate and most reliable as specific classroom-based measures of anxiety.

The geographical scope of studies included in this review was limited. Four out of the eight studies were conducted in the USA, and, as all data included in this review were taken from research conducted in high-income countries, with different educational systems, it is unclear whether findings are relevant in other countries or contexts.

Clear and precise definitions of what exactly is meant by 'classroom management'—what it is, and by extension, what it is not—have historically been difficult to establish (Hoy & Weinstein, 2006; Oliver et al., 2011). There is a clear consensus that procedural and disciplinary elements of classroom life to maintain productivity and order (Egeberg et al., 2016) (e.g., rules, routines, consequences, organisation) are part of that management process. Yet it is perhaps this focus on procedure and discipline that has resulted in the concept of 'classroom management' often being synonymous with 'behaviour management', possibly to the exclusion of other meanings. There is debate around whether or not other aspects, for example instructional practices, interactions and communication, should also be included (Manning & Bucher, 2013), and indeed whether classroom management actually encompasses 'everything a teacher does' (Sieberer-Nagler, 2016: 163). It is worth considering whether the terms used should also change to reflect the wider focus—for example, using the term 'classroom practice' rather than simply 'management', which brings with it historically ingrained associations with behaviour. If the definition of 'classroom management' is broadened in this way, there is potential for a wider examination of influences, and a fuller understanding of how schools might develop their classroom practices to support those with anxiety.

Recommendations

Further research into classroom management and its specific impact on anxiety outcomes for primary school children is clearly needed as a matter of urgency to allow school leaders, teachers and support staff to make informed decisions over how to adapt their existing prac-

tice to provide low-cost, easy-to-implement, and sustainable methods of responding to the increasing needs of children in school. To achieve this, we recommend that future research include qualitative studies to explore experiences of classroom management approaches, which—along with theoretically driven work—can inform specific strategies that teachers can use to help manage and minimise anxiety in primary school children. Findings from this review suggest some strategies and approaches that could be investigated further include positive approaches to praising and rewarding behaviour and academic work, warm and open interactions with children, and positive and constructive responses to mistakes, including helping children to problem solve following mistakes, or in moments of difficulty or challenge. We then recommend that these are evaluated in trials that use longitudinal methods and sufficiently well-powered, randomised controlled designs to assess the effects of different classroom practices on anxiety in children. In school-based settings, studies that randomise at the school level, rather than at the individual level, may be practically and logistically more feasible. Should randomisation not prove feasible in context, then studies should at the very least use alternative designs which ensure that theoretical and systematic differences between comparison groups are well balanced; and which acknowledge, minimise and, where possible, control for relevant confounders. Implementation and process evaluation studies will be required to run alongside these approaches to maximise their impact on practice. Due consideration should also be given to appropriate measures that best reflect the anxiety outcomes in children and adequately capture the specific classroom management strategies being investigated.

Strengths and limitations of search strategy and selection process used for this review

We used a clear and rigorous search strategy, based on broad search terms and subject to precise inclusion and exclusion criteria. The inclusion of multiple terms for the same concept and our decision to include wider references to different internalising and behaviour terms, and not to limit by study design, publication date or publication language, allowed a very broad search which maximised the potential for us to retrieve relevant material that may otherwise have been excluded. That said, the complex nomenclature and lack of definition around 'classroom management' as a construct, while mitigated by the inclusion of multiple terms of reference, may still have led us to miss some relevant studies. Double screening of all search results at both title and abstract stage and when examining full text articles ensured robust screening and selection. While we are satisfied that this review offers a true reflection of the best available published evidence given the predetermined criteria to which it was subject, decisions to include only peer-reviewed studies, while commonplace, may have inevitably led to the omission of some relevant and useful material.

SUMMARY AND CONCLUSIONS

Despite the impetus for schools to invest in supporting the mental health needs of children (including those with anxiety problems), budgets are tight, the school day is busy and staff time is limited. As highlighted by Moore et al. (2022), there are many barriers to sustaining formal mental health interventions in educational settings, so it is imperative that primary schools find other, less resource-intensive means designed intentionally to support those who need it. This review has revealed that, for primary schools looking to determine how existing classroom practices can be used to better support children with or at risk of anxiety problems, there is currently scant evidence to suggest how this might be done effectively on

a day-to-day basis. Where research has taken place, it is rarely of the type or quality that would allow for confident causal inferences.

Future research should focus on whether specific, feasible, day-to-day strategies can be used by school staff to effectively manage and minimise children's anxiety problems and, if so, how, and by what means, school staff can best be supported and equipped to deliver these strategies.

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CONFLICT OF INTEREST

The authors declare no competing interests.

ETHICS STATEMENT

This article does not contain any studies with human participants or animals performed by any of the authors.

DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no new data were created or analysed in this study.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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