School-Based Intervention for Adolescent Anxiety

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ABSTRACT

This systematic literature review investigates the efficacy of adolescent anxiety interventions in schools. Collectively the studies in this review present findings that suggest school-based intervention programmes can be effective in reducing anxiety levels in adolescents. The majority of studies present group cognitive behavioural therapy in particular as an effective option. The research suggests that effective programmes include cognitive restructuring, exposure to anxiety provoking situations, and targeted social skills education components. Furthermore, the findings of several of the studies suggest that school-based cognitive-behavioural therapy can be effectively transported and disseminated to different cultural contexts.

Keywords
Anxiety, Adolescent, Teen, School, Intervention

INTRODUCTION

Anxiety and school-based treatment

According to Ryan and Warner (2012), anxiety is among the most common psychological disorders that children and adolescents face. It is suggested that up to 25% of young people experience anxiety at some stage during their formative years (Chavira, Stein, Bailey, & Stein; Costello, Mustillo, Keeler, & Angold, as cited in Mychailyszyn et al., 2011; Neil & Christensen, 2009), which if left untreated can lead to a range of social and psychological problems such as loneliness, dysphoric moods, underemployment, substance abuse, depression, and suicidal ideation (Rudd, Joiner, & Rumsek, as cited in Mychailyszyn et al., 2011; Ryan & Warner, 2012). The early onset of anxiety during these formative years is also said to be a predictor of serious adult psychopathologies, such as anxiety disorder, major depression, attempted suicide, and psychiatric hospitalisation (Ginsburg & Drake, 2002).

In light of these statistics, research efforts are progressively focusing on developing effective treatment programmes for child and adolescent anxiety

(Ginsburg & Drake, 2002). Numerous child and adolescent anxiety management programmes have previously demonstrated efficacy in randomised clinical trials, and have been endorsed in the research literature as meeting the standard for empirically supported treatments (Barrett, 1998; Barrett, Dadds, & Rapee,1996; Kendall, 1994; Kendall et al., 1997; Silverman et al., 1999). Amongst those, cognitive behavioural therapy (CBT) has emerged as the most heavily supported approach to treating child and adolescent anxiety (see Ollendick & King, 1998, for a review), with many CBT-based clinical studies demonstrating intervention efficacy of anywhere between 50% and 80% of the participants involved, that is, no diagnosis at post-intervention (Ginsburg & Drake, 2002). This research base provides a robust foundation of evidence for the efficacy of child and adolescent anxiety treatment programmes in clinical settings.

Due to the encouraging evidence presented in the clinical research, researchers are now beginning to turn their attention to examining the possible 'real world' applications of such interventions and suggest that intervention for anxiety would be most effective if it were to be delivered within a schooling, as opposed to clinical, environment (Ginsburg & Drake, 2002; Mychailyszyn et al., 2011; Ryan & Warner, 2012). The reason for this is that adolescents often remain untreated under the clinical service model because of significant barriers to clinical treatment. These barriers include such things as the difficulties associated with scheduling and planning appointments, a possible lack of transport to appointments, apprehensions towards treatment and fear of stigma, the potential unavailability of services, a general lack of time, and a lack of preliminary diagnoses which sometimes allows adolescents experiencing anxiety to 'fly under the radar'. Recent data estimates postulate that fewer than 4% of adolescents who suffer from anxiety actually receive evidence-based treatments, while the remaining 96% receive either no treatment at all, or non-evidence-based treatments (Ryan & Warner, 2012). It is suggested that the provision of school-based treatment can therefore overcome many of these barriers by utilising a context which provides maximum access to adolescents, an environment in which treatments can be both implemented and tested, and a diverse population who possess a range of psychological and emotional challenges. As a result of this shift in environment, it is foreseen that access to mental health services would be increased, and interventions would benefit from being situated within an "environment that is both clinically and practically meaningful" (Mychailyszyn et al., 2011, p. 225).

Ryan and Warner (2012) suggest, however, that further investigative steps are required to ensure that such interventions disseminate to, and are sustainable in the school-based setting. Much of the literature suggests that the integration of mental health services into schooling environments remains relatively untested and further "empirical evaluations in school settings are needed" (Mychailyszyn et al., 2011, p. 228). This systematic review aims to address this need by systematically collating, evaluating, and discussing relevant empirical research that investigates the question: what school-based interventions are effective in reducing adolescent anxiety?

Evidence-based practice and systematic literature reviews

It is important to note that the research findings published in this review are for the provision of evidence-based practices in education. The research question presented above has been identified by practice advisors in the New Zealand Ministry of Education, and reflects a growing area of concern for young people. This systematic review contributes to the importance of up-to-date research evidence that adequately informs education professionals.

Evidence-based practice (EBP) in education has evolved out of a desire for educational psychologists, teachers and educators to become both scientists and practitioners, and encompasses a comprehensive approach to practice which seeks to investigate and integrate all the available evidence that might assist in reaching desired outcomes (APA Presidential Task Force, 2006). The EBP framework is based on the analogy of the "three legged stool" (Spring, 2007, as cited in Williams, Rogers, Carson, Sherer, & Hudson, 2012, p. 15), in which each leg represents one of the three foundational components of EBP: research evidence, clinical expertise, and client preference (Williams et al., 2012). Systematic reviews of robust research evidence (i.e., randomised clinical trials and empirically supported treatments) are regarded as the gold standard in research evidence (APA Presidential Task Force, 2006), and are significant contributors to the research evidence component in the EBP paradigm. This review contributes to the research evidence component of EBP for school-based intervention for adolescent anxiety.

In order to ensure that this systematic review of research evidence aligns with the maxims of EBP, it is paramount that the question being asked of the research is of the highest quality. The PESICO template, developed by Schlosser, Koul and Costello (2007) for specifically designing well-built questions in EBP, presents six key question components that quality questions address: **P**erson, **E**nvironment, **S**takeholders, **I**ntervention, **C**omparison, and **O**utcome. The research question for this systematic literature review was refined and rationalised using this template.

OBJECTIVES

The objectives of this systematic review are to:

- Source all studies that meet the inclusion criteria for the systematic review.
- Extract data / results / findings from the studies for critical analysis.
- Critically analyse the findings relative to the research question.
- Comprehensively answer the research question, placing particular emphasis on evidence-based practice and the New Zealand context.

METHOD

Inclusion and Exclusion Criteria

The studies included in this systematic review were required to be empirical research, which examined the efficacy of school-based interventions in treating adolescents with high anxiety levels. For the purposes of this review, intervention is defined as "all direct services", "including assessment, diagnosis, prevention, treatment, psychotherapy, and consultation" (APA Presidential Task Force, 2006, p. 273). Studies that focused on depression and other psychological dispositions were purposely excluded from the review in order to maintain the focus of the review on anxiety interventions in school-based settings. To be included in this review, studies required an evaluative element which allowed for scrutiny of the intervention's efficacy and for comparability across studies. The interventions included must have been delivered within school-based settings, though no other restrictions were placed upon the nature of the intervention. To ensure the review remained focused on adolescent treatments, study participants were required to be between the ages of 12 and 19. Social anxiety disorders, generalised anxiety disorders, and phobias were included in the inclusion criteria to ensure that all relevant research in the field of school-based anxiety treatment for adolescents was obtained. Studies were selected from any date range and any country of origin, and were required to be published in English.

Search Procedures

Systematic searches were conducted in a range of electronic databases, namely: ProQuest (which collectively searched a total of 53 databases including ERIC and PsychInfo), Academic Search Premier, and A+ Education. Keyword prefixes included: anx* phobia* adolescen* teen* school* class* intervene* treat*. Title and abstract searches were undertaken using a range of keyword combinations to ensure that all relevant studies were obtained. Titles, abstracts, and article content were then screened for inclusion using the aforementioned inclusion and exclusion criteria. Secondary searches were then undertaken by searching the in-text citations and reference lists of included studies. Eight studies were sourced by primary searches and a further study was sourced by secondary searches.

Data Extraction

Using these search procedures, nine studies were identified for inclusion. A large number of studies were searched and screened for potential inclusion in the review with many failing to meet the inclusion criteria due to the study intervention not being specific to anxiety. The studies included investigated a range of interventions, and collectively involved a diverse sample of participants from a range of nations and cultures.

RESULTS

Table 1 provides a summary of the nine studies included in this systematic review. The table includes five headings: Study, Participants, Data Collection, Intervention Methods, and Findings and Recommendations.

Table 1 TABLE OF EVIDENCE

Summary of studies investigating the efficacy of school-based interventions for adolescent anxiety

STUDY	PARTICIPANTS	DATA COLLECTION	INTERVENTION METHODS	EFFICACY FINDINGS AND RECOMMENDATIONS
Number 1: Masia, Klein, Storch, & Corda (2001)	6 Caucasian participants (3 male, 3 female) from a suburban middle-class high school in Long Island, United States. Required a minimum social phobia diagnosis of 4/8 (moderate, ADIS-C). Average age = 15.2 (range = 14-7)	Pre-test - post-test design. Two types of measure – independent evaluator rating and self-report inventory. No control group.	**Skills for Academic and Social Success (SASS) (CBT)** 12 group sessions, and 2 unstructured meetings. (1 educational session, 1 realistic thinking session, 4 social skills sessions, 5 exposure sessions, 1 relapse prevention session). Led by trained clinical psychologist. 2 groups, split by gender.	All participants markedly or moderately improved. 50% of subjects no longer met criteria for social phobia. Mean ADIS-C decreased from 6.8 to 3.3. Study advocates interventions based on social skills training and realistic exposure exercises. Programme was overwhelmingly supported by the school community. Study highlighted school failings in adequately addressing anxiety. Recognised the main obstacle was low participation.
Number 2: Ginsburg & Drake (2002)	12 African-American participants (2 male, 10 female) from an urban high school in Baltimore, United States. Required a minimum social phobia diagnosis of 4/8 (moderate, ADIS-IV-C). Average age = 16.6 (range = 14-17)	Pre-test - post-test design. Two types of measure – diagnostic interview and self-report inventory. Used an Attention-Support Control Group	**Experimental Group: CBT** 10 x 45min sessions covering: The nature of anxiety, rationale for CBT, relaxation exercises, cognitive restructuring, exposure exercises, relapse prevention, daily diaries **Attention-Support Control Group:** No CBT, but provided attention support for anxiety through group support sessions.	75% of CBT and 20% of AS-Control participants no longer met criteria for anxiety disorder after intervention. CBT participants' impairment ratings decreased by 5 points (on an 8-point scale). Both groups reported extremely positive treatment satisfaction. Results showed CBT as a superior intervention to attention-support. Study advocates treatments that provide specific information on anxiety reduction, and instruction in cognitive and behavioural strategies. Suggests CBT can be used for teenagers of diverse backgrounds. Highlights the need to increase African-American access to, and education about, effective treatments.

Number 3: Olivares et al. (2002) Garcia-Lopez et al. (2002) Garcia-Lopez et al. (2006)	59 participants from Spain (77.97% female) Participants met DSM-IV criteria for generalised social phobia. Average age = 15.92 (range = 15-17)	Pre-test - post-test – follow-up design. Two types of measure – semi-structured interview and self-report inventories. Used a control group.	**Three Experimental Conditions:** **Social Effectiveness Therapy for Adolescents (SET-A)** 29 sessions covering: education, social skills, exposure, programmed practice. **Cognitive Behavioural Group Therapy for Adolescents (CBGT-A)** 16 sessions covering: education and skills, and exposures. **Therapy for Adolescents with Generalised Social Phobia (IAFSG)** 12 sessions covering: social skills, cognitive restructuring, and exposures. **One control group:** No intervention.	Results indicate that those receiving active treatment were significantly improved compared to the control; however, they were not regarded as clinically significant changes (DSM-IV). CBGT-A maintained post-test scores at follow-up. SET-A & IAFSG significantly improved on post-test scores at follow-up. Results suggest that a cognitive restructuring component contributes to maintaining long-term change and exposure is the active ingredient in treating social phobia. Programs that included public speaking showed higher efficacy (SET-A, IAFSG). Results were maintained and consolidated over a 5-year follow-up period.
Number 4: Masia-Warner et al. (2005)	42 participants from 2 high schools in New York, United States (74.3% female, 82.9% Caucasian). Required a minimum social phobia diagnosis of 4/8 (moderate, ADIS-PC). Average age = 14.8 (range = 13-17)	Pre-test - post-test – follow-up design. Three types of measure – independent evaluator ratings, self-report inventories, and parent ratings. Used a wait-list control group.	**SASS (CBT)** 12 group sessions. (1 educational session, 1 realistic thinking session, 4 social skills sessions, 5 exposure sessions, 1 relapse prevention session) 2 individual meetings with leaders 4 social events 2 group booster sessions (post-intervention) 2 parents meetings 2 teacher meetings Led by trained clinical psychologist **Wait-list Control Group:** Received intervention after completion of initial research phase.	67% of the intervention group no longer met diagnosis criteria at post-test and follow-up, compared to 6% of control. 94.4% of the intervention group were classified as responders, compared to 11.8% of control. Study demonstrates the power, viability, and suitability of school-based treatment. Study suggests shorter treatments are equally effective and non-referred participants potentially require less intensive intervention. Suggests future studies examine efficacy of clinical vs. school-based intervention, and efficacy of aspects of school-based intervention using attention control groups.

Number 5: Masia-Warner et al. (2007)	36 participants from 2 high schools in New York, United States (83.3% female, 72.2% Caucasian) Required a primary diagnosis for social anxiety disorder (ADIS-PC). Average age = 15.1 (range = 14-16)	Pre-test - post-test – follow-up design. Three types of measure – independent evaluator ratings, self-report inventories, and parent ratings. Used an attention control group.	**SASS (CBT)** 12 group sessions. (1 educational session, 1 realistic thinking session, 4 social skills sessions, 5 exposure sessions, 1 relapse prevention session) 2 individual meetings with leaders 4 social events 2 group booster sessions (post intervention) 2 parent meetings and 2 teacher meetings **Attention Control Group: Educational-Supportive Group Function (ESGF)** Mirrors SASS in amount of professional attention and format. Omits any therapeutic elements considered specific to reversing anxiety (social skills, cognition, exposure). Both led by trained clinical psychologist.	59% of the intervention group no longer met diagnosis criteria at post-test and follow-up, compared to 0% of control. 82.4% of the intervention group were classified as responders, compared to 6.7% of control. Study demonstrates the power, viability, and suitability of school-based treatment. Emphasises the importance of social skills training and exposure. Concludes that adolescents with social anxiety disorder do not respond to non-specific treatment. Relaxation and implementation of social events alone are ineffective. Recommends further trials with larger and more diverse samples.
Number 6: Campbell (2008)	7 participants from a large city secondary school in Brisbane, Australia (4 males, 3 females). Students were identified as anxious from teacher referrals, support staff ID, and self-reports. Age = Year 9	Pre-test - post-test design. One type of measure – Student self-report inventories. No control group.	**Worrybusters** CBT using a cross-age peer tutoring approach. Adolescents first complete the program themselves, and then acted as tutors of the program for a group of primary aged children diagnosed with anxiety. Intervention included: 8 x 1.5hr sessions teaching coping skills and facing fears using books, video, puppets, discussion, role-play, balloons, and breather exercises.	Some preliminary evidence for efficacy but severely restricted by study limitations. Authors advocate cross-age tutoring approach as a means of engaging youth with anxiety by developing an altruistic program. They support a tutoring approach as it provides adolescents with a practice in an 'exposed' environment. Research findings are undermined by: small sample, self-report limitations, no control group, students not clinically diagnosed, no follow-up, numerous threats to validity such as test awareness, inadequate sample selection.

Number 7: Berry & Hunt (2009)	46 male participants from 7 catholic schools in Sydney, Australia (74% Caucasian). Participants required an anxiety score of at least 1 SD above the population mean for the SCARED test. Average age = 13.04 (range = 12-15)	Pre-test - post-test design. One type of measure – Student self-report inventory. Used a wait-list control group.	**Experimental Group: Confident Kids Program** A cognitive behavioural intervention 8 x 1hr sessions led by intern clinical psychologists. 1 psychoeducation session, 2 cognitive restructuring sessions, 1 exposure session, 1 coping session, 1 social skills session, 1 self-esteem session, and 1 overview and relapse prevention session. **Wait-list Control Group** Received intervention after completion of initial research phase.	Participants reported a significant reduction in anxiety, bullying experiences, and depression. However, other than anxiety reduction there were no other changes in the use of coping strategies (i.e. Aggressive responses, running away, seeking help). Results suggest: Increased skills reduce incidences and impact of bullying. Improved anxiety management is a key element in reducing anxiety related bullying events.
Study 8: Lupu & Iftene (2009)	88 participants from a high school in Cluj-Napoca, Romania (60.22% male). No prior diagnosis, though participants were initially tested for anxiety using 3 standardised tests (ABS II, STAI, HADS). Average age = 17.4 (SD = 0.82)	Pre-test - post-test design. One type of measure – self-report inventories. Used a control group.	**Experimental Group: Rational Emotive Behaviour Education (REE)** Program focussed on addressing irrational beliefs to reduce anxiety. 50min REE lesson followed by a daily reading of a rationality text, for a period of 2 weeks. **Control Group** No intervention.	Results confirm a correlation between irrationality and anxiety, and show a significant decrease in anxiety for the experimental group post-intervention. Research findings are significantly undermined by: A lack of detail outlining the nature of the intervention, screening procedures, and diagnoses No recognition of limitations, threats to validity, or visible ethical issues.

Study 9: Miller et al. (2011)	27 participants from one high school in Canada (56% female). Referral to the program was by school staff or self-nomination. Average age = 14.67 (SD = 1.15)	Pre-test - post-test design. Three types of measure – Self-report inventories, parent ratings, program evaluation. No control group.	**Experimental Group: Skills for Academic and Social Success (SASS) (CBT)** 10 group sessions. (1 educational session & realistic thinking session, 4 social skills sessions, 4 exposure sessions, 1 relapse prevention session) 2 individual meetings with leaders 2 social events Led by trained adult/student pairs from the school.	Participants reported a reduction of symptoms of anxiety (large effect) and reduced anxious avoidance (medium effect). Largest effects were found for social anxiety reduction. There were no significant changes in anxious coping, separation anxiety, parent ratings. 7 students were diagnosed in the clinical range at pre-test, compared with 2 at post-test. The program was positively received. Advocates for the peer counsellor approach. Provides evidence for the transportability and dissemination of SASS.

Participants

Demographics

The nine studies in this review all include adolescent participants currently attending secondary school. Across the board, the authors of the studies presented a relatively comprehensive summary of their samples. Eight of the nine studies reported the average age of the participants with the associated range or standard deviations (studies 1-5, 7-9); the remaining study, study 6, only supplied a year level and no mean or measure of spread. The average age of participants varied from 13.04 years (study 7) to 17.4 (study 8). The sample sizes for the studies were all reported, with study 1 including the least participants with 6, and study 8 including the most with 88. Gender was also well reported with all the studies either numerically stating the gender distribution (studies 1, 2, 6, 7) or supplying a percentage value (studies 3, 4, 5, 8, 9). Studies 2, 3, 4, and 5 included female dominated samples; studies 7 and 8 included male dominated samples (study 7 100%); and studies 1, 6, and 9 included roughly proportionate samples of both male and female participants. The studies varied in country of origin, with four of the studies coming from the United States (studies 1, 2, 4, 5), two from Australia (studies 6, 7), and one each from Spain (study 3), Romania (study 8), and Canada (study 9). Collectively the studies included a range of ethnicities and cultural characteristics. Studies 1, 4, 5, and 7 included a majority of Caucasian participants, while study 2 included only African-American participants. Studies 3 and 8 were conducted in Spain and Romania; however, they did not provide any further specific ethnic or cultural data. Studies 6, 7 and 9 also do not provide specific ethnic or cultural data relating to their samples.

Identification of participants

Eight out of the nine studies included in this review involved participants with an anxiety related diagnosis (studies 1-7, 9); the remaining study, study 8, did not recruit participants based on any form of preliminary diagnosis and used a convenience sample.

The majority of studies identified the participants for their research through a form of diagnosis (studies 1, 2, 3, 4, 5) using psychological assessments: Anxiety Disorders Interview Schedule (ADIS) for the Diagnostic and Statistical Manual of Mental Disorders (DSM; Ginsburg & Drake, 2002; Masia et al., 2001; Masia-Warner et al., 2005; Masia-Warner et al., 2007; Olivares et al., 2002). For individuals to be included in the studies using the ADIS criteria, they were required to receive a primary diagnosis of moderate severity, which was a rating of 4 out of 8 on the 8-point severity scale (Masia-Warner et al., 2005). The other psychological measure used for diagnosis was the Screen for Child Anxiety Related Emotional Disorders (SCARED; Birmaher, Khetarpal, & Brent, 1997, as cited in Berry & Hunt) which was used in study 7.

Three studies did not include any anxiety diagnoses in their designs. Study 8 used a range of psychological inventories at pre and post-test (Attitude and Beliefs Scale II, State-Trait Anxiety Inventory, Hospital Anxiety Depression Scale, Lupu & Iftene, 2009) but did not undertake any formal diagnoses for anxiety when recruiting participants. Studies 6 and 9 relied upon staff and student nomination as a method for recruiting anxious participants, but again did not undertake any formal diagnoses.

Data collection

The studies in this review all used pre and post-test methodologies as a means of investigating the efficacy of their interventions. Pre-tests and post-tests alone were used in six of the studies (studies 1, 2, 6-9), while the remaining three studies also incorporated follow-up measures in their designs (studies 3, 4, 5).

All the studies used a form of participant self-report inventory as a method of data collection, with studies 6, 7, and 8 using this method alone. Other methods of data collection common across studies included clinical assessments (evaluator ratings / diagnostic interviews) which were used in five studies (studies 1, 2, 3, 4, 5) and parent programme efficacy ratings which were used in three studies (studies 4, 5, 6). Studies 4 and 5 used all three of the measures mentioned (self-report, clinical assessment, and parent ratings).

A diverse range of control conditions was utilised across the studies. Three of the studies were single group designs and did not include control groups (studies 1, 6, 9). Two of the studies that included control groups did not provide specific detail regarding the nature of the condition, suggesting that the groups were likely to be simple no-treatment comparison conditions (studies 3 and 8). A further two studies included wait-list comparison control groups in their designs (studies 4 and 7); and finally, the remaining two studies (2 and 5) included attention comparison control conditions in their designs.

Intervention methods

Eight of the nine studies included in this review investigated the efficacy of school-based cognitive-behavioural approaches in reducing anxiety, while the remaining study investigated the efficacy of school-based rational emotive behaviour education.

Cognitive-behavioural approaches are “based on the notion that the way an individual thinks about an event determines in part how he or she responds to that event, both in terms of effect and behaviour” (Beck, as cited in Hollon, 1998, p. 289). In CBT, subjects are encouraged to treat their perceptions as “hypotheses to be tested” (Hollon, 1998, p. 289), rather than concrete representations of reality, and to observe and engage in behaviour that challenges their existing beliefs and fears. Like scientists empirically testing their hypotheses, cognitive behavioural approaches require the subject to test and critically evaluate their psychological dispositions. Cognitive-behavioural approaches have generally been found to be an effective form of intervention for most non-psychotic disorders, with research suggesting that they are just as effective as traditional psychotherapies or drugs (Hollon, 1998).

Out of the eight studies that focused on CBT, four investigated the efficacy of one programme: Skills for Academic and Social Success (SASS; studies 1, 4, 5, 9). The SASS programme was developed specifically for the delivery of CBT in secondary schools, and therefore considers the nature of the schooling context in its design. The programme includes 12 weekly group sessions lasting about 40 minutes each (a typical class period), two group booster sessions used to address relapses, two individual meetings, and four additional social events to facilitate exposures. In addition, both parents and teachers each participate in two psychoeducational meetings focused on developing knowledge and understanding of adolescent anxiety. The

programme is said to be flexibly designed to effectively transport CBT into secondary schools and typically lasts about three months (Fisher, Masia-Warner, & Klein, 2004).

The four remaining studies that investigated interventions using cognitive-behavioural therapy delivered programmes similar to that of SASS. Study 2 delivered a CBT-based intervention of ten 45 minute sessions that included cognitive restructuring, exposures, and relapse prevention. Study 3 investigated three different interventions: the first being a traditional form of CBT (Cognitive-Behavioural Group Therapy for Adolescents, CBGT-A); the second, an adapted version of CBT for Spanish adolescents (Social Effectiveness Therapy for Adolescents – Spanish version, SET-A); and thirdly, an alternative version of SET-A, which adopted a shortened approach to delivery for cost effectiveness (Therapy for Adolescents with Generalised Social Phobia, IAFSG). Study 6 investigated a CBT-based intervention titled 'Worrybusters', which used adolescent tutoring of CBT-based therapies to younger subjects as a method of treatment. And lastly, study 7 investigated a CBT-based intervention titled 'Confident Kids', which included traditional CBT approaches such as psychoeducation, cognitive restructuring, exposure, social skills, and relapse prevention.

The one study that did not investigate the efficacy of a CBT-based intervention was study 8, which instead focussed on evaluating the efficacy of an approach titled 'Rational Emotive Behaviour Education' (REE). REE has some similarities to CBT in that it focuses on addressing irrational beliefs but, unlike CBT, it places minimal emphasis on the applied behavioural component of therapy. The two-week intervention included multiple 50 minute REE lessons focusing on addressing irrational beliefs and anxiety, which were then followed by a daily reading of a rationality text intended to facilitate change in participants' beliefs and attitudes (Lupu & Iftene, 2009).

Main findings and recommendations

Each of the studies included in this review present evidence for the efficacy of school-based interventions in reducing adolescent anxiety. The internal validity across the nine studies is of varying nature. Several studies embody a high degree of internal validity due to their robust experimental designs and clarity, while others are relatively low due to significant limitations and shortcomings.

Studies 1, 4, 5, and 9 investigated the efficacy of the SASS programme. Three of these studies (studies 1, 4, 5) were led by the same researcher, with studies 4 and 5 developing their methodologies based upon the findings and suggestions of their previous study. Study 1 was a pilot study and used a single group design methodology; study 4 added a wait-list control condition for greater experimental rigour; and study 5 implemented an attention control condition to more accurately investigate the effective components of the intervention. Study 9, which was conducted by different researchers, strived to investigate the transportability of the SASS programme to different cultural contexts. Each study presented quantitative evidence for the efficacy of the SASS programme (refer to table 1 for further evidence), as well as providing more generalised conclusions. Collectively the studies indicate that school-based interventions are powerful, viable, and suitable for treating adolescent anxiety. They indicate that specific social skills training and exposure-based

exercises are the key components in providing effective treatment. Study 9 further concludes that the SASS programme can be effective when delivered by trained peer tutors, and that it can be transported and disseminated beyond the United States.

Four further studies investigated the efficacy of other cognitive behavioural-based programmes. Study 2, which looked at the efficacy of a group CBT, presented relatively strong evidence for programme efficacy (refer to table 1 for statistical data), and made several conclusions and recommendations for the provision of effective programmes. Like that of the SASS programme, the authors suggested that effective interventions must provide anxiety specific treatments targeted at developing cognitive and behavioural strategies by way of education, exposure, and relapse prevention. The salient finding of study 2, however, and perhaps of most interest to New Zealand practitioners, was that school-based CBT can be an effective treatment for adolescents of diverse cultural backgrounds who suffer from high anxiety (100% African-American sample).

Study 3, which investigated the efficacy of three programmes, focused more on providing generalised conclusions than relative efficacies of the programmes. Again the studies provided moderate to strong evidence for programme efficacy, with the authors concluding that cognitive restructuring, exposure, and public speaking were the critical affective components of the programmes. The study had the longest follow-up period of all the studies included in this review, at 5 years, with follow-up results showing significant improvement between post-test and follow-up for two of the interventions (SET-A & IAFSG), and maintained, consolidated post-test results for the third intervention (CBGT-A).

Study 4 investigated a programme called ‘Worrybusters’, which adopted a cross-age peer tutoring approach whereby adolescents suffering from anxiety would teach younger subjects skills for coping with anxiety. The study found some preliminary evidence for efficacy but failed to provide robust conclusions due to significant study limitations. The authors suggested that cross-age peer tutoring may be an effective approach to delivering treatment; however, further controlled studies will need to be undertaken in order to validate their claim.

The remaining study that investigated a CBT approach was study 7 which investigated a programme called ‘Confident Kids’. ‘Confident Kids’ was targeted at adolescents who were victims of bullying and who suffer from anxiety as a result. The programme showed high levels of efficacy in reducing anxiety, but did not show efficacy in altering adolescents’ coping strategies as the researchers had hoped. The main conclusions from the study were that the programme was effective in reducing bullying related anxiety, which therefore decreased bullying related incidences. The findings highlight the relationship between anxiety and victimisation.

Study 8 is the only study in this systematic review that did not investigate a CBT intervention. The study investigated an intervention titled ‘Rational Emotive Behaviour Education’, which focused primarily on cognitive restructuring and placed little emphasis on applied behavioural approaches to treatment (like that of CBT). The study had a variety of methodological and experimental limitations (discussed in more depth later in the paper), which makes arriving at any real conclusions regarding efficacy challenging. However, the results showed an effect for the treatment group compared to the control

group which led the authors to conclude that the programme was effective and that rational emotive behaviour education can be an effective treatment for adolescent anxiety.

Eight of the nine studies included in this review provide evidence for CBT as an effective form of intervention. While there is substantial variation in internal validity across these studies, the pooling of evidence suggests that CBT is an effective method of school-based intervention for reducing adolescent anxiety. Furthermore, the CBT-based programme SASS is advocated by four of the studies in this review as a particularly effective form of cognitive-behavioural intervention. Collectively, these four studies present particularly strong evidence for the efficacy of the SASS programme as they adopted a scientific method of investigation whereby each study built upon the findings and recommendations of the last (i.e., pilot, wait-list control, attention control, dissemination / transportation).

DISCUSSION

Findings

The current review found nine studies that assessed the efficacy of school-based treatment for adolescents suffering from high anxiety levels. The studies are important in understanding whether CBT is effective in developing school-based interventions for young people experiencing anxiety and also for developing an understanding of the critical elements in the effective interventions that contribute to positive outcomes. The quality of research across the nine studies is variable. Several studies displayed strong robust experimental designs that included waitlist control and attention control conditions to maximise internal validity (studies 2, 4, 5, 7); while others used only single group designs with small, often homogenous, samples (studies 1, 6, 9). However, eight of the nine studies concluded that CBT-based approaches are an effective intervention, and four of those advocated the SASS programme in particular. Although the internal validity of some of the studies is questionable, collectively the studies provide enough evidence to suggest that CBT is an effective approach to treating adolescent anxiety in schools.

The pertinent question following such findings is what then, are the effective elements of CBT in treating adolescent anxiety? Across the eight CBT-based studies a pattern of researcher inferences and research evidence potentially answers this question. Put simply, interventions that conform to the maxims of CBT for treating anxiety, such as actively testing cognitive hypotheses in exposed environments, cognitive restructuring, and social skill development and monitoring (Hollon, 1998), are the likely effective ingredients. Studies 1, 2, 3, and 4 all make reference to these themes in their discussions and infer from their results that interventions must be targeted specifically at anxiety and must provide social skills training and realistic exposure exercises that target cognitive and behavioural change. Study 5 delved deeper into investigating the effective components of intervention by using an attention control condition which experimentally investigated whether the CBT treatment was the affective component rather than simply the attention and support provided to the subjects during intervention. The results of this study showed that attention, support, relaxation, and social events alone were ineffective

forms of intervention and that for interventions to be effective they must be specific and targeted at reducing anxiety. Masia-Warner et al. (2007) advocated the SASS programme as an effective, targeted treatment. The authors' inferential discussions in studies 1-4, coupled with the experimental findings of study 5, suggest that anxiety specific, targeted CBT approaches that include social skills education and training, exposure exercises, and cognitive restructuring are the affective programme components in effective interventions for adolescent anxiety.

Perhaps of equal importance to the findings on efficacy are those findings that suggest that school-based CBT-based interventions can be effectively used across diverse cultural contexts. Studies 2 (African-American), 4 (Spanish), 6 (Australia), 7 (Australia), and 9 (Canada) provide particularly strong evidence for the potential transportability of school-based anxiety intervention to varying cultural contexts. Given the highly multicultural nature of the New Zealand population, these findings of efficacy in varying cultural contexts suggest that school-based CBT could be transported effectively to the New Zealand context, inclusive of minority groups such as Māori, Pasifika, and Asians. Furthermore, studies 4 and 6 provide more evidence for the transportability of school-based CBT to New Zealand as these studies provide evidence for school-based CBT in an Australian context, which is a highly familiar culture and in many ways similar to that of New Zealand.

Limitations

There are various limitations associated with each study included in this review. As mentioned earlier, some of the studies have many limitations and threats to their validity while others are relatively strong and robust. The most common limitation discussed in the literature was that of issues regarding sample selection and external validity. Studies 1, 2, 5, 6, and 9 all discussed the lack of generalisability of their studies due to their small sample sizes, while studies 4, 5, 6, and 7 discussed the homogeneity of their samples and the subsequent negative effect this had on external validity. Several studies did not include control conditions in their designs (studies 1, 6, and 9), which severely limited their internal validity; however, other more robust studies that displayed intervention efficacy somewhat validated the findings of these single group studies. There was substantial variation in data measures which presented a limitation for some of the studies. Studies 1-5 used both independent evaluation and self-report evaluation measures for programme efficacy which was a relatively strong design as it controlled for participant biases; however, studies 6-9 primarily used only participant self-report evaluations as a measure of programme efficacy which did not control for these potential threats. Studies 6, 8, and 9 included no clinical diagnoses of participants prior to their participation in the study, which created a threat to their internal validity as the true nature of the participants' dispositions prior to treatment remained unclear. Six of the studies did not include follow-up measures (studies 1, 2, 6, 7, 8, 9); however, the three studies that did (studies 3, 4, 5) showed evidence of maintained and consolidated effect for up to 5 years (study 3). While the limitations are numerous and diverse, collectively the studies provide a robust pool of evidence for the efficacy of school-based treatments for adolescent anxiety. Further studies are still required, however, to confirm, and consolidate these findings.

Ethics

Most of the studies reported their screening and consent processes. Many of the studies used the self-report inventory method of data collection as a way of testing participant satisfaction, with one study (study 9) incorporating a specific programme evaluation inventory into its data measures. Overall, participant satisfaction with the interventions was high, which suggests that the fundamental ethical issue of participant treatment was generally considered and controlled for by the researchers. Ethical issues surrounding paternalism and parental involvement were also considered. A common trend across the studies was to involve caregivers as well as adolescents wherever possible in the consent process. In many of the studies this was not legally required as the participants were of legal age to consent. However, the researchers followed good professional practice and chose to include parents in decision making wherever practicable (Raines, 2008).

One final ethical issue present in several of the studies remains a concern and that is the degree to which studies have explicitly reported potential ethical threats. As a reader, it was often unclear if interventions that proved to be effective were offered to those participants in the control conditions. Studies 4 and 7 clearly stated that their control conditions were waitlisted; however, it was often unclear whether the other studies made this provision available. Several studies were especially vague in their descriptions of a variety of ethical and methodological aspects, particularly studies 6 and 8. Screening and sample selection, intervention particulars, testing and diagnoses, and general discussion of ethics and limitations were substandard in these studies. Often the reader was left to assume that ethical issues had been considered and accounted for which suggests more attention needs to be given to the reporting on ethics in research. While many of the studies appeared ethically sound and most likely took into consideration their ethical obligations, more explicit explanations of ethical issues are needed in the research publications to ensure that those consuming the literature are informed of the ethical considerations and actions of the researchers.

Implications for teachers

Eight of the nine studies included in this review present evidence to suggest that CBT-based approaches are an effective intervention for reducing adolescent anxiety. This finding, therefore, presents a need for teachers to understand the foundations of CBT (i.e., Hollon, 1998) and subsequently develop teaching initiatives that allow for the implementation of CBT principles in their classroom practices. It must be recognised, however, that while teachers can contribute to reducing adolescent anxiety in their classroom practice, specific, targeted intervention programmes as described by Masia-Warner et al. (2007) remain the most effective form of intervention. With this in mind, school leaders may wish to develop targeted interventions (such as the SASS programme) that operate as extra-curricular activities in schools.

The bullets below present feasible ideas and strategies that teachers may wish to adopt in order to include the principles of CBT in their teaching.

- Work to establish a learning environment where students feel safe and supported.
- Design learning situations where students have the opportunity to test their perceptions, beliefs and fears.
- Reward students for going out of their comfort zone.
- Accentuate positivity, positive thinking and success.
- Design learning situations that require students to think alternatively about a situation.
- Design learning situations that require students to evaluate their thinking.
- Design learning situations where students have the opportunity to learn and develop social skills.

CONCLUSION

This systematic review sourced nine studies that examined the efficacy of school-based treatment for adolescents suffering from high anxiety levels. These studies suggest that school-based treatment for adolescent anxiety can be effective in reducing high anxiety. Predominantly, school-based cognitive-behavioural therapy as an intervention was the most effective approach. Five studies that included control conditions found that the experimental condition showed a significant treatment effect compared to that of a control group (Berry & Hunt, 2009; Garcia-Lopez et al., 2002; Garcia-Lopez et al., 2006; Ginsburg & Drake, 2002; Masia-Warner et al., 2005; Masia-Warner et al., 2007; Olivares et al., 2002;). One CBT programme, SASS, was deemed highly effective (Masia et al., 2001; Masia-Warner et al., 2005; Masia-Warner et al., 2007; Miller et al., 2011). Collectively the evidence suggests that effective school-based programmes for reducing adolescent anxiety must be specific and targeted at anxiety, and include social skills training, cognitive restructuring, and exposure. Furthermore, the results of several of the studies suggest that school-based cognitive-behavioural therapy is transportable to diverse social and cultural contexts.

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