Trauma exposure, post-traumatic stress disorder and safety-seeking behaviours in children and adolescents

Alice Alberici

Primary research supervisor: Dr Richard Meiser-Stedman

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University of East Anglia

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Table of Contents

List of Tables

List of Figures

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Alice Alberici, 2017

Abstract

Background: a significant portion of young people exposed to traumatic events (TEs) such as road traffic accidents or violence, develop post-traumatic stress disorder (PTSD). Most research focuses on trauma-exposed populations such as child victims of natural disasters. There has also been a trend to look at cognitive aspects of models of PTSD rather than behavioural. Although safety-seeking behaviours have been highlighted in PTSD models as an important mechanism in PTSD, no current child measure of safety-seeking behaviours exists.
Aims: the first aim was to provide a synthesis of population-based school-related studies and calculate pooled prevalence rates for TEs and PTSD. A further aim was to develop and explore the psychometric properties of a novel Child Safety Behaviour Scale (CSBS) in both school pupils and existing data from a sample of trauma-exposed young persons with or without a clinical diagnosis of PTSD.
Method: a systematic review conducted between 1980 and 2016 produced 687 studies, 14 of which met the inclusion criteria. In the empirical study a battery of questionnaires was administered to 391 school pupils (aged 12-15 years). This was combined with existing data of 68 (8-17 years) children who completed the CSBS previously.
Results: rates of cross-cultural TE exposure were 50.0% and 7.8% for PTSD. All studies were high quality but mostly US-based. The CSBS demonstrated good psychometric properties and a weak, possible two-factor structure. Safety-seeking behaviours, negative appraisals, number of trauma types, cognitive avoidance and rumination were significant predictors of post-traumatic stress symptoms.
Conclusions: the high rates of TE and PTSD observed in this review calls for more cross-cultural research within population-based school samples and necessitates the integration of mental health and education services. Further, the CSBS may be a useful tool both for clinical monitoring and within research to further examine the role of safety-seeking behaviours in PTSD.

Chapter 1. Systematic Review

Prepared for submission to the Journal of Child Psychiatry and Psychology (guidelines in Appendix A)

A meta-analytic systematic review of trauma exposure and post-traumatic stress disorder in school pupils

Alice Alberici[1]

Stephen Dewitt[2]

Richard Meiser-Stedman[1]

[1]Department of Clinical Psychology, Norwich Medical School, University of East Anglia, Norwich, NR4 7TJ.

[2] Department of Psychology, King's College London, Guy's campus, London, SE1 1UL

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Abstract

Background: Epidemiological studies indicate a majority of young people experience traumatic events (TEs) and a substantial portion of these develop post-traumatic stress disorder (PTSD). The extant trauma exposure literature predominantly focuses on young people rather than community samples and no current review on school samples exists. **Objective:** The paper therefore aims to obtain a pooled prevalence of trauma exposure and PTSD across school samples of pupils under 18 years. **Method:** A systematic literature review conducted between 1980 and 2016 produced 687 identified studies, 14 of which met the inclusion criteria. **Results:** We calculated meta-analytic pooled prevalence rates (n= 23,685) of exposure to TEs (50.0%; *k*=8) and PTSD (7.8%, *k*=12). Male and female exposure rates to at least one TE were 41.3% and 48.4% (*k*=6), respectively. Females had PTSD at approximately twice the rate of males (12.1% and 6.0% respectively, *k*=8). Moderator analysis revealed that assessment format (interview [1.8%] versus questionnaire [12.2%]), continent of origin and membership of the Organisation for Economic Co-operation and Development (OECD) were significantly associated with PTSD but not TE. Rates of overall PTSD differed across continents with the highest rate in Africa (16.0%) followed by Europe (6.0%) and the US (4.1%). No other significant moderators were found. **Conclusions:** TE and PTSD rates are high in school-recruited populations of young people, highlighting the need for more integration between educational and mental health services. Finding implications are discussed alongside critical reviews of the evidence base with recommendations for future research.

Key words: Trauma exposure; PTSD; pupils; school children; meta-analysis

Exposure to a DSM-defined traumatic event (TE) involves directly experiencing or witnessing “actual or threatened death, serious injury or sexual violence” (American Psychiatric Association, 2013). Youth exposure to both DSM-defined TEs and other definitions of traumatic events (TEs) have been reported within the literature, e.g. assault, violence, road traffic accidents, peer victimisation and natural disasters. Traditionally, there has been an emphasis in investigating young people already exposed to specific trauma (Hiller et al., 2016). However, epidemiological surveys representative of the general youth population, highlight trauma exposure as a wider issue. For example, within the UK alone, three studies have suggested high TE rates. The British Crime Survey estimated the risk of being a victim of personal crime for children aged 10-15 years in 2009 as 23.8% and identified 576 000 violent reported incidents (Millard & Flatley, 2010). Radford, Corral, Bradley, and Fisher (2011) conducted a UK NSPCC survey of 2275 11-17 year olds and found lifetime maltreatment rate by parents/guardians was 21.9% and 7.8% by non-parents/guardians. Furthermore, Fisher et al. (2015) found in a longitudinal survey of 1,116 twin pairs that one in three children had experienced a minimum of one form of severe victimisation (crime victimization, peer victimization, internet/mobile phone victimization, sexual victimization, familial violence, maltreatment, or neglect) between 12-18 years. Fisher and colleagues also found that most forms of victimisation were more prevalent amongst lower socioeconomic backgrounds.

These traumatic experiences in youth are associated with a range of negative outcomes. Singer, Anglin, Song and Lunghofer (1995) found that exposure to violence was significantly associated with higher rates of depression, anger, anxiety and dissociation in young people. The effects on psychological health can be enduring, persisting into adult life (Yule et al., 2000). A substantial minority of those exposed to traumatic events will also go on to develop post-traumatic stress disorder (PTSD; Fletcher, 1996) which has also been

associated with diminishing social and academic functioning, even for those below clinical thresholds (Giaconia, Reinherz, Silverman, Pakiz, Frost, & Cohen). A recent meta-analysis of 72 peer-reviewed articles with a pooled sample of 3563 young people found that 15.9% developed PTSD after exposure to a traumatic event (Alisic et al., 2014).

Epidemiological studies/surveys that screen for occurrences within the general population can be highly valuable in providing representative, generalizable results, and understanding the public health burden of a given condition. However, research on population-based representative samples of children and adolescents have yielded dramatically different prevalence rates in PTSD as well as in exposure to TEs. For example, Yule (2001) noted that prevalence rates of PTSD in young people reported in the literature varied from 0-100%. TE rates also appear to differ greatly according to sample and study characteristics (Breslau, 1991; Giaconia et al., 1995; Fisher et al., 2015).

Research examining PTSD rates in young people have reported prevalence differences due to gender and trauma type (Alisic et al., 2014), assessment format (Cohen, 1998), education, previous trauma, and general childhood adversity (Trickey, Siddaway, Meiser-Stedman, Serpell & Field, 2012). The wide-ranging prevalence rates for both PTSD and exposure to a TE could therefore be due to multiple factors. Such heterogeneity in reported rates warrants a thorough exploration of the moderating factors that may be impacting on both PTSD and TE prevalence.

To our knowledge there has been no systematic review of the extant literature and pooling of prevalence rates to identify overall levels of trauma exposure and PTSD in school pupils as well as their moderating factors. This will be crucial in raising awareness of these issues within this cohort and could provide important data on the exigency for mental health resources. Studies involving community samples of schools are particularly important as schools are involved in a child's global development, including their psychological wellbeing

and attainment (Fazel, Hoagwood, Stephen & Ford, 2014). Schools could be an important platform to assess, identify and address mental health issues and could benefit from clinical guidance in supporting this. The integration of education and mental health services has long been campaigned for on an international scale (Fazel et al., 2014; Hogan, 2003). A meta-analysis of potential moderators of trauma exposure and PTSD may identify sub-groups such as specific age groups or those exposed to multiple traumas who could be more at risk of developing mental health issues. This could lead to further clarification of high-risk groups who may benefit from targeted prevention/intervention within school in collaboration with mental health services. Furthermore, an examination of methodological differences across studies could provide insight into the design of future research within this area.

Based on the dearth of research examining these areas the aims of the current meta-analysis were twofold: 1) to estimate the pooled prevalence of TEs and PTSD within representative community school-based samples of young people for males and females as well as overall 2) to examine whether prevalence rates of TEs and PTSD are moderated by screening method used, age, country of origin or other potential moderators identified in a literature search.

Method

The Cochrane Library, which comprises the Cochrane Database of Systematic Reviews, the Health Technology Assessment Database and the Database of Abstracts of Reviews of Effects, was searched for similar reviews prior to commencing. The present review protocol was pre-registered on the international prospective register of systematic reviews (NIHR & University of York, 2015; CRD42016042691). Relevant studies were identified by systematic searches from key international electronic databases: EMBASE, MEDLINE, PsycINFO and PILOTS (Published International Literature on Traumatic Stress). The search engine ‘Google Scholar’ was searched for additional studies as well as reference

lists of major studies. Databases of peer-reviewed journals were searched from 1980 (when the DSM was created) to August 2016.

All search terms were 'exploded' within the databases to expand the inclusion criteria of relevant articles. Syntax of search terms were adapted in accordance with the specified individual databases. A combination of controlled vocabulary and free-text terms were used with the following combinations of search terms: ['PTSD OR Posttraumatic stress OR Post-traumatic stress OR Post-traumatic stress disorder OR Post traumatic stress OR Post traumatic stress symptoms OR Post-traumatic stress symptoms OR traumatic neurosis OR Traumatic events OR traumatic event OR frightening events OR frightening event'] and ['School pupils OR school children OR school adolescents OR local school OR school OR school kids OR young people OR children OR kids OR pupils OR college pupils OR school students OR students OR College or High school OR High school children OR High school adolescents OR High school pupils OR high school kids OR high school young people OR High schoolers OR Secondary school pupils OR Secondary school children OR Secondary school adolescents OR Secondary school kids OR Secondary school OR Secondary school young people OR Secondary school young persons OR secondary schoolers OR Sixth Form OR Sixth Form children OR Sixth Form pupils OR Sixth Form kids OR Sixth Form young people OR Sixth Form young persons OR school survey OR college survey OR Sixth Form survey'].

Inclusion and exclusion criteria were determined in line with PICOS (Patient Population or Problem, Intervention/treatment/test, Comparison [group or treatment], Outcomes, and Setting) criteria, outlined by the Centre for Reviews and Dissemination Guidelines (CRD, 2008). Inclusion criteria were:

a) measures used for mental health issues including PTSD must have been validated and reliable demonstrated by peer-reviewed publication of psychometric properties;

b) studies must be observational cohort designs. In the case of any potential treatment trials these could be included if the pre-treatment prevalence rates were available; and
c) Studies must include young people under 18 years old recruited via schools.

Exclusion criteria were as follows:

a) review articles, book chapters, case studies or research focused on post-trauma exposed populations of pupils (e.g. who have been exposed to war or natural disaster) where the research was undertaken because young people were exposed to a trauma/s;
b) articles not translated into English (and documented in accordance with the CRD Guidelines, 2008); and
c) studies not providing overall prevalence rates of either trauma exposure or current/recent PTSD (i.e. studies only reporting lifetime prevalence for PTSD were excluded).

When different articles presenting data drawn from the same sample were identified (as recognized by authorship, sample size and similarities in methodology) or declared, the study with the largest sample and number of relevant variables of interest were considered.

Article selection processes were mapped via the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Moher, Liberati, Tetzlaff, & Altman, 2009; see Figure 1). All study abstracts were screened and recorded by the first author using protocol criteria, excluded abstracts were reviewed by another author to agree protocol adherence. These authors separately screened the full articles with only one paper in disagreement which was discussed with all authors until consensus was unanimous.

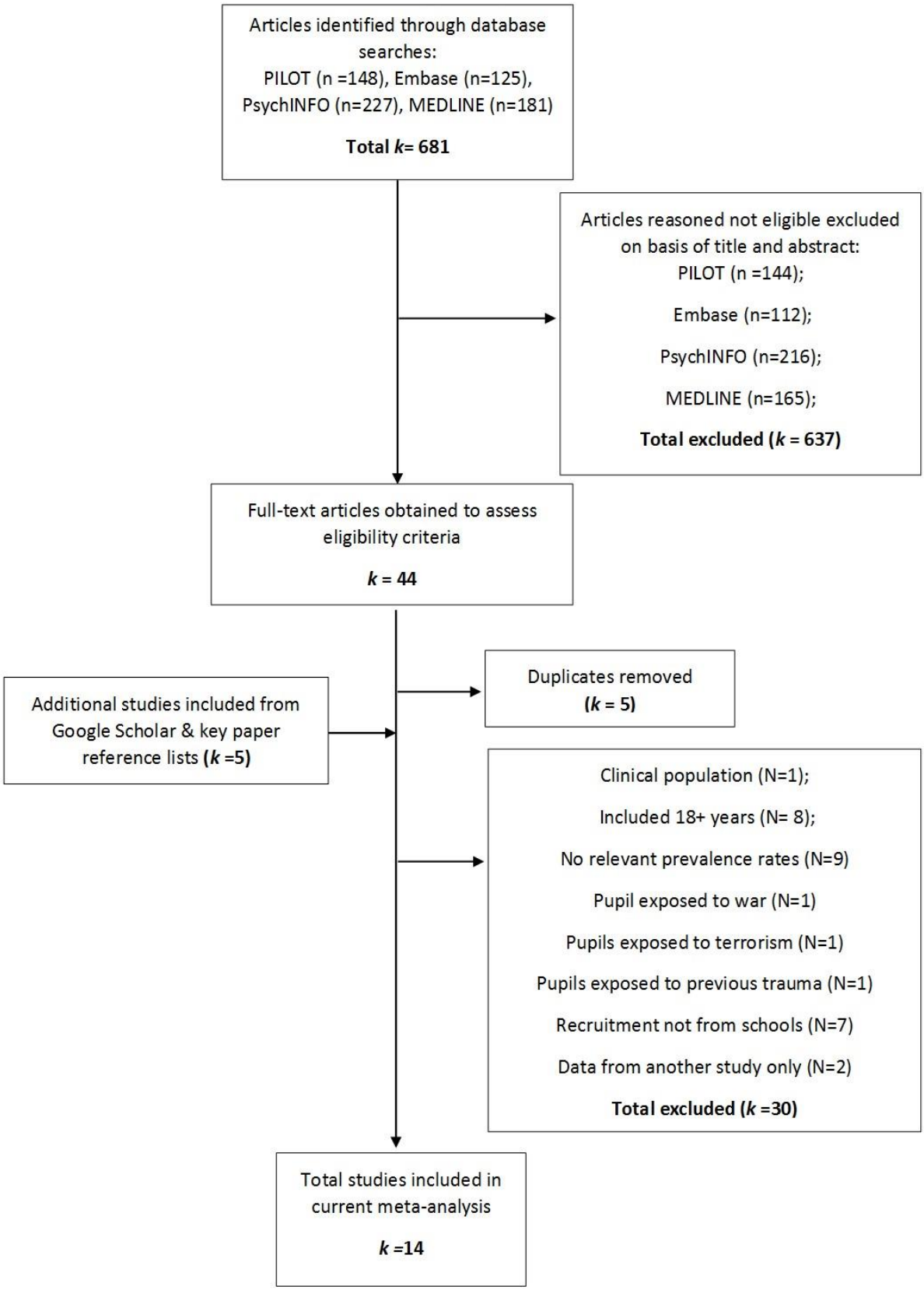

Figure 1. PRISMA diagram detailing study selection and exclusion process (k= number of studies/articles)

Coding and Data Extraction

Information extracted where possible included: publication details including date of publication and country and community type; sample size; mean age and range; gender percentage; most common trauma; single or multi-event trauma; study design; measure of PTSD and or/ measure of trauma exposure and assessment format; other mental health screening and diagnoses; prevalence and confidence intervals of trauma and PTSD and individual numbers of cases; associations between trauma exposure and/or PTSD with other factors. A cross-examination of all data extraction was performed by another author in order to check for errors. A TE was considered present if pupils endorsed items corresponding to having experienced an event from either a questionnaire or interview TE checklist. Similarly, PTSD was assumed to be present if pupils met clinical criteria thresholds for PTSD.

Quality assessment

In order to assess the quality of the included studies an adapted version of the Newcastle-Ottawa Scale (NOS) for assessment of cohort studies was utilised (Poobalan, Aucott, Gurung, Smith & Bhattacharya, 2008; adaptation available upon request from authors). All studies were given a star-based rating (out of 9 possible stars). The quality assessment examines the selection of the sample whether it is representative of the target population, sample size and whether information is available regarding non-responders (maximum 4 stars available). The comparability of the population based on study design and analyses (maximum 2 stars) is also examined as well as assessment methodology and validity of screening tools (maximum 3 stars). In addition to total number of stars, studies were also qualitatively graded based on previous research (Poobalan et al., 2008). The qualitative categories included rates of “high” quality for studies scoring 6 or more stars, “moderate” for scores of 4-5 and “weak” quality for scores of 3 or under. All quality ratings were rated

independently by two of the researchers with only two cases of discrepancy; corresponding to an inter-rater reliability of 87.5%.

Data Analysis

The statistical software package, OpenMeta-[analyst] (Wallace, Dahabreh, Trikalinos, Lau, Trow & Schmid, 2012) was used to carry out meta-analyses. A random effects model was used to compute pooled estimates with 95% confidence intervals with the assumption that the true estimate within the population is not fixed and therefore the average of the differing estimates within the distribution is sought, enabling generalizable conclusions (Riley, Higgins & Deeks, 2011). In order to avoid studies with small or large prevalence being given disproportionate weighting in prevalence calculations, the double arcsine transformation function was applied to even out variance (Barendregt, Doi, Lee, Norman & Vos, 2013). In order to test for heterogeneity, Cochran's Q statistic was calculated to determine whether any differences in the studies' estimates were more than expected by chance.

If significant heterogeneity was present, meta-regressions were conducted to examine whether pooled prevalence estimates were moderated by sample age, continent where the study was conducted, assessment format (questionnaire versus interview), US versus non-US studies and sample size (500+ versus <500). We also examined whether differences in rates might be apparent if samples were from high-income 'Western' countries. Samples were coded as deriving from a Western country by membership of the Organisation for Economic Cooperation and Development (OECD) (coding: 0 = no membership; 1 = membership), based on previous research that made this distinction (Bronstein & Montgomery, 2011). Members are also advocates of the UN Convention for the Rights of Children (UNCRC) and the Geneva Convention.

Moderator analyses were also planned for assessment location (inside of school or at home), assessment tool (e.g. CRIES versus UCLA), community type (rural or urban), confidentiality (anonymous or known), frequency of TE and ethnicity. However, this data was not recorded consistently enough for sufficiently powered analysis.

Results

The search strategy produced 681 results across journals (see Figure 1). The titles and abstract of studies were screened and excluded if not appropriate. The full-text was obtained for the remaining 44 study articles, 5 studies were added from other sources and 5 duplicates removed. The exclusion/inclusion criteria were applied to the remaining study articles as per the PROSPERO-registered protocol. This was carried out separately by two trained researchers; there was agreement for all but one study which was discussed with the full research team in order to reach agreement. This left 14 studies to be included in the current review.

The 14 articles (denoted as *k*) described 14 independent samples and totalled 23,685 young persons aged between 6-18 years (see Table 1 for study characteristics). The study samples ranged from 121 to 10,148 pupils. One study did not provide details on gender but the average gender ratio was approximately equal across the other 13 studies (49.6% female). Although one study included seven pupils of unknown age and one pupil over 20 years, this study had a large sample size (N=6787) which was deemed large enough to negate any impact this handful of pupils might have on results. The articles included one study that reported TEs only, 6 reporting PTSD prevalence alone and seven examining both TE exposure and PTSD rates. Most samples were from the US (*k*=6), followed by Europe (*k*=4), Africa (*k*=3) and Asia (*k*=1). Most studies were from urban community samples (*k*=6), followed by mixed urban and rural samples (*k*=3*)* and only one rural; four studies did not record community type.

Table 1. Summary characteristics of studies included in meta-analysis

Authors (year)	Country	Mean age (range)	Instrument (variable)	Questionnaire (Q) or Interview (I)	% female	Total Sample Size	Community Type	Quality score and qualitative rating
Atilola, Omigbodun & Bella-Awusah (2014)	Nigeria	15.8 (NR)	K-SADS (TE)	I	-	204	Urban	8 (High)
Copeland, Keeler, Angold & Costello (2007)	United States	NR (9-16)	CAPA (TE & PTSD)	I	44.4	1,420	-	8 (High)
Cortina, Stein, Kahn, Hlungwani, Holmes, & Fazel (2016)	South Africa	NR (10-12)	TSCCAF (TE) & PTSS (PTSD)	Q & Q	57.1	1,228	Rural	9 (High)
Elkilit (2002)	Denmark	NR (13-15)	HTQ (TE & PTSD)	Q	50	390	Urban & Rural	9 (High)
Ghanizadeh & Tavassoli (2007)	Iran	15.7 (NR)	DSM-IV (TE) & MSS (PTSD)	Q & Q	49.4	735	-	9 (High)
Karsberg, Armour & Elklit (2014)	Greenland	15.4 (12-18)	DSM-IV (TE) & HTQ (PTSD)	Q & Q	57	211	-	9 (High)
Kessler et al. (2012)	United States	NR (13 - 17)	WHOCIDI (TE & PTSD)	I	51.1	10,148	Urban & Rural	9 (High)

Landolt, Schnyder, Maier, Schoenbucher & Mohler-Kuo (2013)	Switzerland	15.5 (NR)	UCLA-RI (TE & PTSD)	Q	48	6,787	Urban & Rural	9 (High)
Saltzman, Layne, Pynoos, Steinberg & Aisenberg (2001)	United States	NR (11-14)	CVES (TE) & RI-R (PTSD)	Q & Q	39	812	Urban	9 (High)
Seedat, van Nood, Vythillngum, Stein & Kaminec (2000)	South Africa	16.43 (NR)	DSM-IV (TE & PTSD) & CTQ (TE)	Q & Q	57.5	307	Urban & Rural	8 (High)
Self-Brown, LeBlanc, Kelley, Hanson, Laslie & Wingate (2006)	United States	15.0 (13-16)	TSCC (TE) & PDS (PTSD)	Q & Q	49.6	121	Urban	8 (High)
Springer & Padgett (2000)	United States	12.8 (11-14)	EVC (TE) & IES (PTSD)	Q & Q	56	621	Urban	8 (High)
Taylor & Weems (2009)	United States	11.2 (6-17)	C-PTSD-C (TE & PTSD)	Q	49	200	Urban	8 (High)
Young (2010)	United Kingdom	15.5 (NR)	Voice-DISC (TE & PTSD)	Q	51.1	501	Urban	8 (High)

NR= not recorded; TE, Trauma Exposure; PTSD, Post-Traumatic Stress Disorder; WHOCIDI, World Health Organization Composite International Diagnostic Interview; TSCCAF, Trauma Symptom Checklist for Children Alternate Form; CAPA; Child and Adolescent Psychiatric Assessment; CVES; Community Violence Exposure Survey; EVC; Exposure to Violence Checklist; RI-R; UCLA PTSD Reaction Index – Adolescent Version; HTQ: Harvard Trauma Questionnaire; PTSS, Post-Traumatic Stress Scales; K-SADS, The trauma checklist of the Current and Lifetime Version of the Kiddies Schedule for Affective Disorders and Schizophrenia Questionnaire; TSCC, Trauma Symptom Checklist for Children; PDS, Posttraumatic Stress Diagnostic Scale; UCLA, UCLA PTSD Reaction Index—Adolescent version; C-PTSD-C, Child PTSD Checklist; IES: The Impact of Events Scale; Voice-DISC, Voice-Diagnostic Interview Schedule for Children; DSM-IV, Diagnostic and Statistical Manual Of Mental Disorder, 4th Edition; HTQ, The Harvard Trauma Questionnaire Part IV; UCLA-RI, University of California Los Angeles PTSD Reaction Index; MSS, Mississippi Scale score.

Pooled Incident Estimates TEs

For the overall sample of studies reporting a TE (*k*=8) we found that 50.0% (95% CI 36.5-63.4) of children and adolescents have been exposed to at least one traumatic event (Figure 2.). The Q-test for overall pooled estimates was significant (Q=511.99, df=7; *p*<001). Female exposure to a TE was 48.4% (95% CI 32.0-65.0; *k*=6), the Q-test was significant (Q= 222.44, df=5; *p*<.001). Male exposure to TEs was 41.3% (95% CI 22.3-61.7; *k*=6) and the Q-test was significant (Q= 334.30, df=5; p<.001).

As all Q-tests were significant (indicating significant heterogeneity), between studies moderator analysis were conducted. Meta-regressions revealed non-significant associations between rates of exposure to TEs and age (*p*=.926), assessment format (interview versus questionnaire, *p*=.674), continent or membership of the OECD (*p*=.828). These non-significant associations were found for both female and male sub-samples and the total sample. No further moderator analysis was possible due to inconsistent reporting of other potential moderators (such as sample size), meaning such analyses would be underpowered.

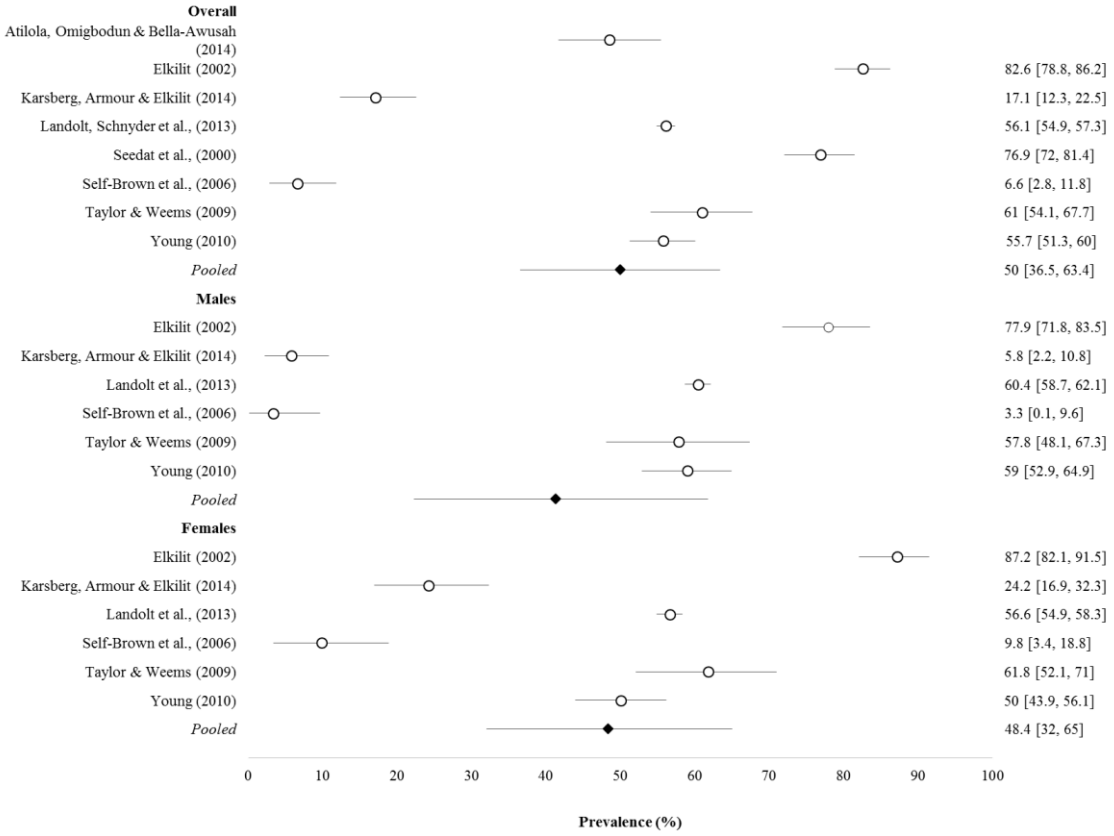

Figure 2. Prevalence (in percentage) of trauma exposure within samples overall and for males and females (percentage, 95% CI)

Pooled Incident Estimates PTSD

An outlier was removed from all PTSD analysis following inspection of the funnel plot (see supplementary material 1) which was derived from an area with very high rates of poverty, unemployment and crime. For the overall sample of studies reporting current prevalence rates of PTSD (*k*=12) we found 7.8% (95% CI 4.1-12.6; Q=1235.92, df=11; *p*<.001) of children and adolescents sampled had PTSD (see Figure 3). The pooled prevalence for females was 12.1% (95% CI 5.2-21.3; *k*=8; Q= 319.55, df=7; *p*<.001). The PTSD rate in males was 6.0% (95% CI 1.8-12.4; *k*=8; Q= 262.79, df=7; *p*<.001).

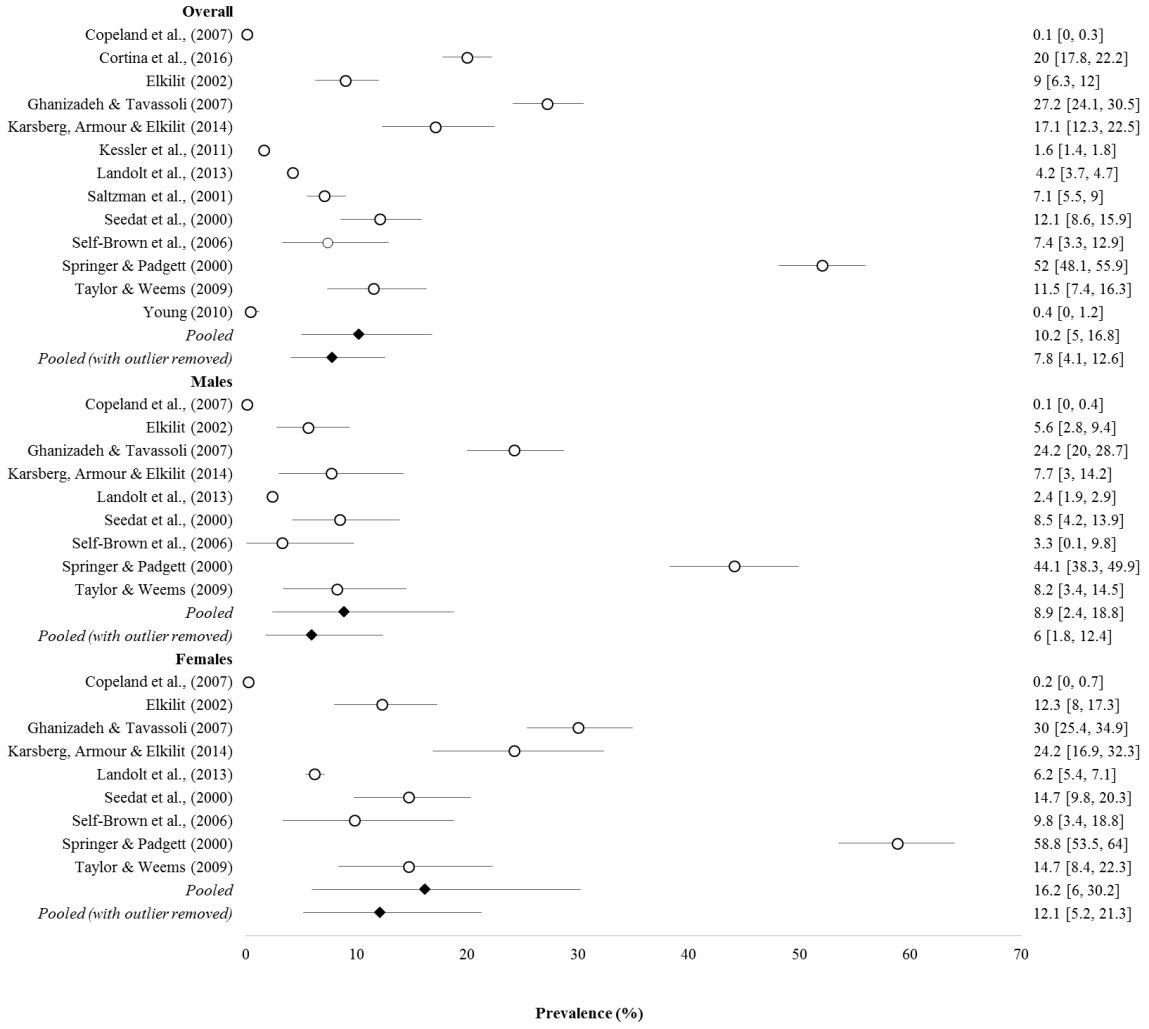

Figure 3. Prevalence (in percentage) of PTSD within samples overall and for males and females (percentage, 95% CI)

All Q-tests were significant, indicating significant heterogeneity between studies and so potential associations with other variables were examined. Meta-regressions showed non-significant overall differences between PTSD rates and age (p=.948) or studies in the US (k=2) versus non-US (k=5) countries (p=.108). Significant moderators are shown in Figure 4. Questionnaire assessment yielded significantly higher rates of PTSD (12.2%, 95% CI 6.1-20.0, standard error [SE]=5.4; k=8) relative to interview

assessments (1.8%, 95% CI 0.3-4.5, SE=4.0; *k*=4), *p*=0.02. There were significant (*p*<.008) continental differences amongst rates of PTSD between the five US studies (PTSD rate 4.1%, 95% CI 1.2-8.3%, SE= 4.5), four European (rate 6.0%, 95% CI 1.9-12.1, SE=5.5), two African (16.0%, 95% CI 9.1-24.4, SE=5.3) and one Asian (27.2%, 95% CI 18.1-36.3, SE=4.6). Samples from countries (*k*=8) who have OECD membership found significantly (*p*<.000) lower PTSD prevalence rates (3.8%, 95% CI 1.9-6.3, SE= 2.9) than non-OECD members (19.0%, 95% CI 13.5-25.2, SE=3.8; *k*=4).

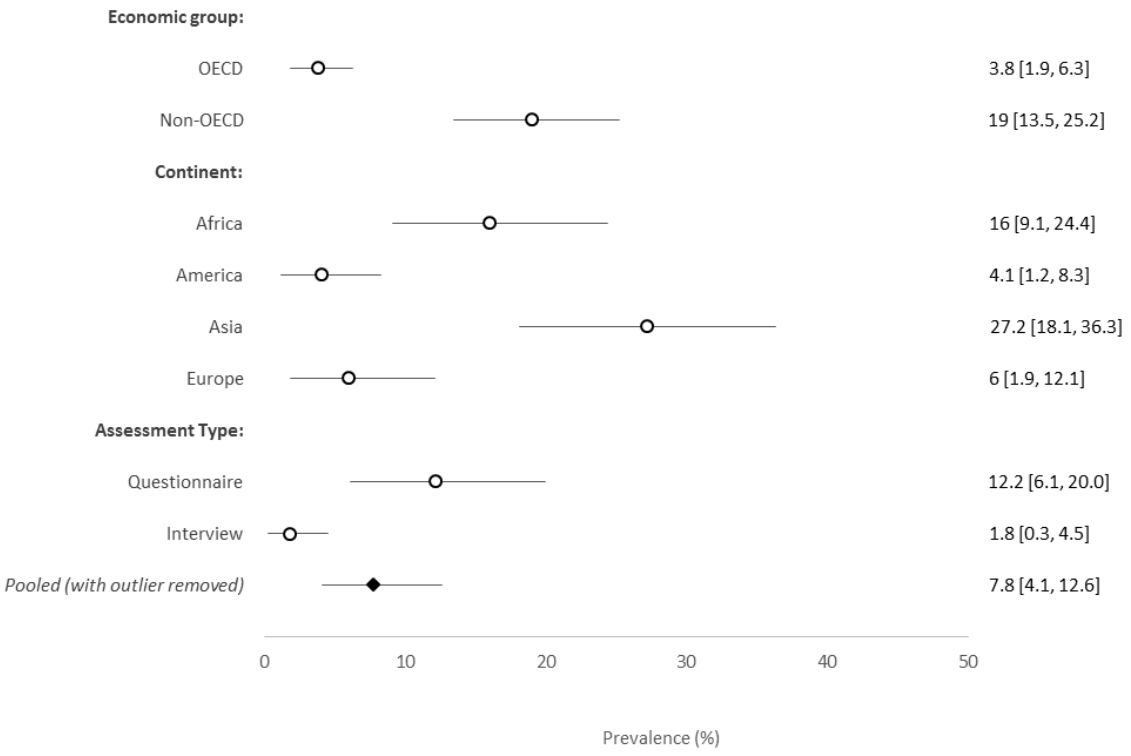

Figure 4. Prevalence (in percentage) of PTSD across economic group, continent (including Africa, America, Asia, Europe within samples and overall) and assessment formats (percentage, 95% CI).

Meta-regressions were also conducted separately for males and females to determine potential gender-specific moderators of PTSD rates where sufficient number of studies were within each category (at least one study per variable/category). For females, there was also a significant association between PTSD and OECD membership with higher rates amongst non-member countries (22.8%, 95% CI 13.8-33.2, SE=5.9; *k*=3) than members (7.0%, 95% CI 2.0-14.4, SE=6.1; *k*=5), *p*<.001). This was also the case for males only, with higher rates of PTSD in non-OECD members (13.0%, 95% CI 3.9-26.0, SE=8.4; *k*=3) than members (2.8%, 95% CI 0.6-6.3, SE=4.4; *k*=5), *p*=0.006. For female and male pupils separately, there was no significant association between PTSD and age (*p*=0.949 and *p*=0.879, respectively) or assessment format (*p*=0.074 and *p*=.194, respectively).

Publication bias and sensitivity analysis

Funnel plots were created to examine the possibility that more outstanding findings may be more likely to be published and therefore may result in higher rates of reported TE and PTSD (i.e. publication bias). Examination of these funnel plots displaying the standard errors of prevalence for both papers with PTSD and TE rates were undertaken (see supplementary material 1). The TE plot was asymmetrical but not indicative of publication bias, as studies with smaller sample sizes produced lower levels of prevalence rates for exposure to TEs. In order to conduct further sensitivity analyses, the impact of each remaining individual study (*k*=8) on the overall estimates of TE rates was examined by recalculating the pooled prevalence estimates with the removal of each study excluded in turn. This resulted in TE exposure ranging from 44.9% (95% CI 31.5-58.6) to 57.1% (95% CI 43.9-69.8).

Examination of the funnel plot for PTSD prevalence studies indicated the Springer and Padgett (2000) study with a relative small sample size (n=621) has greater prevalence

rates of PTSD (n=323; over half the sample) than studies with larger sample sizes. This outlier was removed from all analyses which impacted on the overall prevalence rates of PTSD dropping from 10.2% (95% CI 5.0-16.8%, *k*=13) to 7.8% (95% CI 4.1-12.6%, *k*=12). The remaining studies' (*k*=12) pooled prevalence estimates, utilising an "excluding one study in turn" procedure, resulted in PTSD estimates ranging from 7.2% (95% CI 3.5 -12.0) to 9.2% (95% CI 5.0-14.5).

Discussion

There has been a lack of cross-cultural synthesis in the literature of representative community school surveys of young people and their exposure to trauma and current PTSD rates. Extant studies report varying prevalence levels of TE and PTSD without conclusive evidence of what moderates these rates. Meta-analytical statistical methods allowed us to pool together 14 studies achieving a sample size of 23,685. Half of pupils had experienced at least one TE (50.0%) and approximately one in eleven had clinical levels of PTSD (7.8%).

The high pooled rates of TE exposure, although variable across studies (17.1-82.6%), demonstrate the commonness of adverse events in the general youth population, in line with previous research (e.g. UK-focused studies; Fisher et al., 2015; Radford et al., 2011; Millard & Flatley, 2010). The report highlights the need for early identification and monitoring of these young people who are at risk of developing PTSS (Copeland, Keeler, Angold & Costello 2007). It is important to identify those at risk early to prevent a chronic developmental trajectory (Yule et al., 2000; Morgan, Scourfield, Williams, Jasper & Lewis, 2003), especially given the potential impact on education (Delaney-Black et al., 2002; Hurt, Malmud, Brodsky & Giannetta, 2001). Examination of resiliency factors in those exposed to TEs may provide valuable insight into the complex factors affecting vulnerability in other young people. This may also provide a focus for interventions with

trauma-exposed pupils. School-based interventions including groups have shown clinically significant effects (Layne et al., 2001; Tyrer & Fazel, 2014).

None of the putative moderating factors examined were significantly associated with rates of TE. This finding should be interpreted cautiously as the number of studies included was low (k=8) and the two US studies included very small sample sizes (N=121 and N=200). Further, these were not representative of the other US studies which had larger samples and reported higher TE frequencies. It is therefore possible that the analysis was underpowered and does not contain enough representative studies to conclude that age, assessment format, continent or OECD membership definitively do not moderate TE prevalence. The heterogeneity of TE prevalence also stresses the need for further research to understand the significant between study variance.

A recent meta-analysis of the rates of PTSD within trauma-exposed youth populations also found high prevalence of PTSD (15.9%; Alisic, 2014) however, the current meta-analysis demonstrates that rates of PTSD are also high in *community samples* of young people. This suggests that educational establishments may need to be more aware of the frequency of post-trauma sequelae within this population. The gender differences in PTSD rates established in samples of young people exposed to a TE appear to remain cross-culturally (Alisic et al., 2014; Landolt et al., 2013) and are also apparent in the current meta-analysis. We found that PTSD prevalence was double for females (approximately one in eight pupils; 12.1%) in comparison to males (approximately one in seventeen; 6.0%), suggesting this could be a robust moderator of PTSD prevalence. Gender differences were also apparent in reports of exposure to at least one TE with females (48.4%) experiencing more in comparison to males (41.3%). Research into sexual abuse has found that boys are less likely than girls to report incidences of sexual abuse at the time (O'Leary & Barber, 2008). It is therefore possible that males may also be less

likely to report on certain traumatic events. This could account for some of the gender discrepancy, however further research including qualitative interviews may provide greater insight. This finding should also be incorporated into the development of mental health prevention/intervention and health programs (Ghanizadeh & Tavassoli, 2007).

Interestingly, we did not find that samples comprising younger pupils had significantly higher rates of PTSD. This may suggest that age may not be a risk factor for developing PTSD, however this must be interpreted cautiously as the selected samples include predominantly adolescents. This finding supports results from a meta-analysis of risk factors for PTSD showing age was unrelated to PTSD (Trickey et al. 2012) but is discrepant with some of the post-disaster literature of PTSD (Bokszczanin, 2007; Chen, Lin, Tseng & Wu, 2002) and school studies (Copleand et al., 2007; Alisic, Van der Schoot, van Ginkel, & Kleber, 2008) which have found that younger children display more PTSD. Considering that the current paper and other recent meta-analysis (Trickey et al., 2012) have pooled research together across studies with a joint sample size of 55,098, this provides a strong case that age may not be a universal risk factor for the development of PTSD. Further research with a range of age groups would be beneficial as there may still be specific age-related symptoms that are clinically relevant.

Continent of the research origin and OECD membership were significantly associated with rates of PTSD. Pupils report lower levels of PTSD in high- income Western countries, with the US and Europe having significantly lower rates than Africa and Asia. This should be interpreted cautiously as only one study was included within the Asian category and we cannot conclude that all continent rates differ as only four were represented. The variation of rates should also be interpreted with caution as in the Asian study in Iran they reported the area had experienced in the past some devastating earthquakes, and therefore PTSD rates may not be generalizable or comparable to other

Asian countries (Ghanizadeh & Tavassoli, 2007). Similarly, another paper noted the African study sample was from an area in which there was high frequency of parental HIV/AIDS and socioeconomic disadvantage, which may limit its generalisability (Cortina et al., 2016). However, this finding highlights that PTSD can vary between high-income Western and non-Western countries and more importantly it emphasises the urgent need for cross-cultural PTSD research. Given the higher rates of PTSD outside the US and Europe, the current review encourages the vital need for further research outside of these countries where PTSD may be an even greater public-health issue. It is apparent that epidemiological surveys within this field remain dominated by US samples despite this being noted by Landolt et al., in 2013 as a pressing issue. This lack of diversity could limit the generalisability of current findings to other countries. It would also be valuable to compare different environments such as urban versus rural communities, at it is likely that there will be important, relevant differences.

Assessment format also significantly predicted PTSD with questionnaire methodologies reporting higher PTSD rates than interviews. All studies included were rated high quality and included validated measures (as defined by the Newcastle-Ottawa Quality Assessment Scale for cohort studies), suggesting the rating system might not have been stringent enough. Interestingly, few clinical interviews (the gold standard for a diagnosis of PTSD; Ghanizadeh & Tavossili, 2007) were found amongst the included studies. Questionnaires may produce higher rates due to pupils feeling more able to disclose sensitive information. It is unclear whether young people will always report a TE, especially those involving greater stigma such as bullying or sexual abuse (Paine & Hansen, 2002). There may also be more error in self-reports due to more room for misinterpretation which could inflate prevalence rates. Given the time-efficiency and lower cost of questionnaires compared to clinical interviews, allowing clinicians to focus

resources on other areas than assessment, questionnaires might be a more valuable screening tool (Foa, Johnson, Feeny & Treadwell, 2010). As a variety of different measures were identified differences between formats could also be due to threshold inclusion criteria, with some assessments including criteria from different versions of the DSM. Further research will be required to understand the discrepancy in rates between questionnaire and interviews and researchers should be aware that this methodological difference may impact on findings.

Limitations

Rates of TEs and PTSD may be inaccurate due to pupils' attrition rates and low recall of retrospective TEs (Depue, Curran & Banich, 2007). Unfortunately, due to limited information on study methodologies we were unable to explore the effect of anonymous reports relative to those in which young people were identifiable in some way (e.g. by school teachers). We were also unable to undertake sub-group analysis as too few articles were included. A less-stringent criterion may allow inclusion of more studies and adequately-powered sub-group analysis. This could include comparisons for specific traumas such as interpersonal versus non-interpersonal and single versus multiple trauma which have been found to be significant predictors in single-study samples (Alisic et al., 2014; Cloitre et al., 2009).

This review did not examine pupils approaching thresholds for caseness with high levels of post-traumatic stress symptoms (PTSS) but not full-blown DSM-defined PTSD as only a few studies reported this. Rates of subclinical PTSS in pupils have been reported as much as 3% in a community sample and are at risk of developing numerous mental health disorders (Copeland et al., 2007). This group is therefore also an important portion of trauma-exposed community samples who may benefit from screening and potential intervention. Further, this review includes few studies of children of younger ages from

primary schools; this underlines the need for more research with younger community samples, especially given that we know little about the developmental trajectory from experiencing trauma to PTSS. Longitudinal studies would also be helpful to examine this especially as we cannot infer cause and effect from cross-sectional data.

Clinical Implications and conclusions

Overall, the large proportions of trauma and PTSD found in community samples highlight this as a public health issue and urge more open discussions of these issues within schools and specifically between mental health and school services. Significant moderators of PTSD accounting for some of the variance in prevalence rates reported have been highlighted including whether the sample is from a high-income Western population, assessment format and gender. Further research with larger samples are required to identify variation in TE. This review suggests that educational establishments having such frequent contact with pupils, could provide extra support for pupils who may be at risk of developing a range of emotional, behavioural, relational and psychological difficulties. Population-based solutions that focus on children at risk of such problems could enable vital prevention strategies and earlier engagement of mental health professionals. Having staff within schools more aware of these issues may be integral to providing the appropriate support for these children. Rolfsnes and Idsoe (2011) conducted a meta-analysis of school-based interventions and found that school professionals can be successfully utilized in implementing post-trauma interventions and these are significantly more attended when in schools rather than clinics. This highlights that the role of schools is critical for providing easily accessible and efficacious support for trauma exposed populations. In conclusion, a more collaborative approach between educational and mental health establishments with staff trained in mental health issues within schools would enable pupils to obtain the support they may need.

Key points

- Research shows a significant proportion of trauma-exposed children develop a range of mental health issues however we know little about rates of trauma exposure and PTSD in *school-based community* samples
- A systematic review of school samples resulted in 14 studies and found meta-analytic pooled prevalence rates of exposure to traumatic events of 50.0% and PTSD rates of 7.8% with a higher rate for females (12.1%) than males (6.0%)
- Significant moderators of PTSD included: assessment format, continent and OECD membership
- High rates of trauma exposure and PTSD in the general population emphasise the need for more integration of mental health and educational services
- Cross-cultural and methodological variances in rates highlight that more tailored clinical and research approaches may be warranted

Correspondence to: Alice Alberici, Trainee Clinical Psychologist, Department of Clinical Psychology, Norwich Medical School, University of East Anglia, Norwich, UK, NR4 7TJ.

Email: a.alberici@uea.ac.uk, telephone: 07784307288

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Supplementary material 1: Funnel plots of TE and PTSD prevalence papers

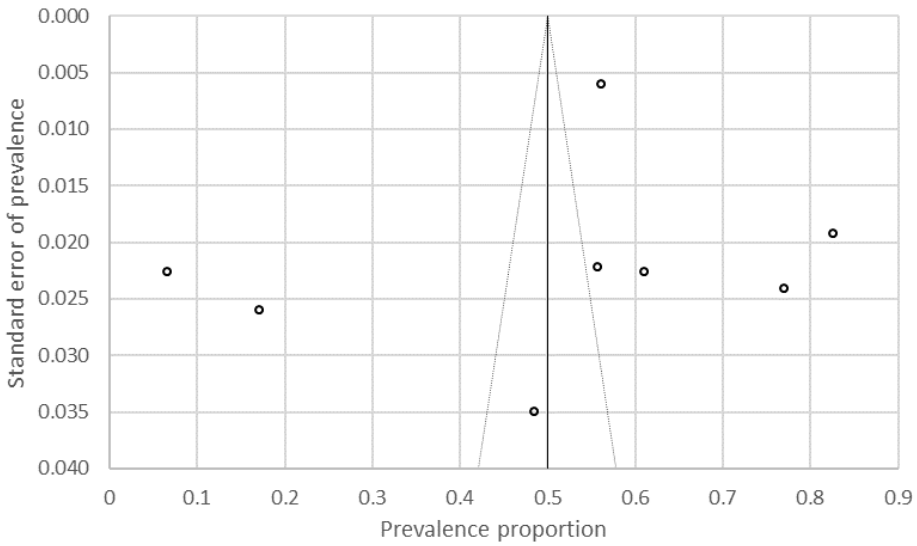

Figure 5. Funnel plot of standard errors of the prevalence proportions of articles looking at TE exposure rates.

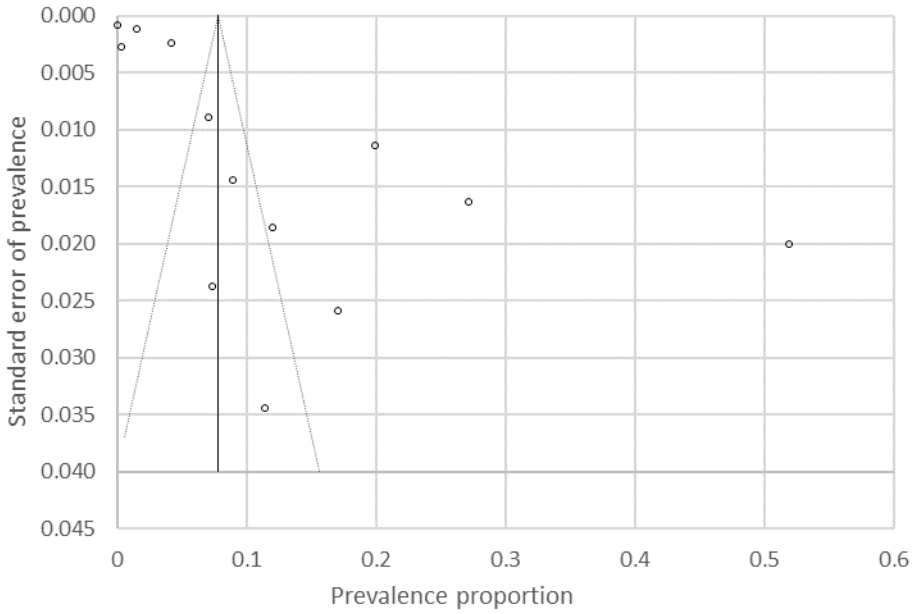

Figure 6. Funnel plot of standard errors of the prevalence proportions of articles looking at PTSD rates.

Supplementary material 2: List of references for studies not cited but included in meta-analyses

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Chapter 2. Extended methodology

2.1. Background and aims

Unlike trauma-related cognitions, there is very little research looking at maladaptive coping strategies or 'safety behaviours' (e.g. carrying around a knife for protection) in PTSD, despite their being integral to theories of the development and maintenance of PTSD and other psychopathologies including depression (Ehlers & Clark, 2000; Moulds, Kadris, Williams & Lang, 2008; Sharp, 2001), and their important role in treatment (Salkovkis, 1991; Smith et al., 2007). This dearth of literature is especially apparent in the paediatric population. In a recent trial with children 8-17 years (Meiser-Stedman, Smith et al., in press) a novel 22-item CSBS was devised based on an adult equivalent (Ehring, Ehlers & Glucksman, 2008) and found that safety behaviours are important to treatment responsiveness for PTSD. This emphasizes the need for an empirically validated measure of safety behaviours with satisfactory psychometric properties in younger populations for use in clinical psychological formulation and intervention and to aid our understanding of this important mechanism.

The current empirical study had the following research aims: 1) to examine the psychometric properties of the CSBS, exploring its factor structure and reducing any redundant items to create a concise and reliable clinically useful measure; 2) to examine safety-seeking behaviours within a community sample of school aged- pupils and population of youth with clear trauma exposure using this novel questionnaire and 3) to examine whether safety-seeking behaviours predict the severity of PTSD, over and above the effect of other potential moderators such as demographic variables. We hypothesized in line with the cognitive model of PTSD (Ehlers & Clark, 2000) that children and adolescents with PTSD would display more usage of safety-seeking behaviours compared

to those without PTSD, and that safety-seeking behaviours would be a significant predictor of PTSS.

The design of the empirical study included a quantitative cross-sectional research design in which a self-report questionnaire battery was administered to two UK secondary school pupils which included the CSBS. Some pupils filled out the CSBS and PTSD measure again to examine test-retest reliability. Data from a previous study which administered the CSBS to children who had been exposed to a recent traumatic event and were recruited through the NHS were also examined to elucidate the psychometric properties of the CSBS. The research design and data collection was conducted jointly with another trainee clinical psychologist with separate research aims who looked at the comorbidity of depression and PTSD (see Appendix B for joint work details). This chapter details an extension of the empirical paper methodology including design, participants, ethical considerations, measuring tools and analyses.

2.2. Design

The current study predominantly employed a cross-sectional design, following other prominent research in this area (Meiser-Stedman, Dalgleish, Yule & Smith, 2012; Landolt, Schnyder, Maier, Schoenbucher & Mohler-Kuo, 2013). The design included the administration of a quantitative questionnaire booklet (see Appendix C). A small subset of pupils repeated the Child and Adolescent Trauma Screen (CATS) and Child Safety Behaviour Scale (CSBS) to obtain test-retest reliability. A three-month minimum period between first and second administration of questionnaires for this subset was planned in line with recommendations by Clark-Carter (2009, pp.210).

Data from a former study was also combined with the current sample. The design of the former study was a longitudinal project and randomised controlled trial (RCT) with

young people who had experienced a recent traumatic event (further details of this study can be found in Meiser-Stedman, McKinnon, Dixon, Boyle, Smith, & Dalgleish, in press).

2.3. Participants

Participants in the empirical study were obtained through two sources. Sample 1 (S1) contained pupils recruited from two rural secondary schools in the East Anglian region. A total of 391 children and adolescents took part, aged between 12.6-15.9 years. From the first school, 259/387 (66.9%) year 8 and 9 pupils took part with two guardian opt-outs and 132/168 (78.0%) year 8 only pupils took part from the second school with also two opt-outs.

Details of the full procedure and recruitment for sample 2 (S2) are presented in Meiser-Stedman, McKinnon et al. (in press). To summarise, S2 consisted of 68 young people (aged between 8.21-17.97 years) who were recruited for a RCT from a variety of settings including; community mental health teams, GPs, schools, adverts in health clinics, and emergency departments (EDs). Twenty-nine of these children had a diagnosis of PTSD which was established by an assessment interview with a clinical psychologist using either DSM-5 (APA, 2013) or ICD-10 (WHO, 1992) criterion. Thirty-nine of the 68 from S2 were enlisted into the research project from one of four East of England EDs to examine the trajectories of recovery in young people. All 39 participants without PTSD confirmed they had been exposed to a single traumatic event (Meiser-Stedman, McKinnon et al., in press).

The inclusion criteria for both studies included:

a) Participants must be fluent in English such that they can fill out the questionnaire battery without any unusual additional support.

b) Participants must not have a severe learning disability or other cognitive or functional impairment that would inhibit their ability to fill out the questionnaires independently.

For S1 further specific inclusion criteria were:

c) Participants were currently pupils in attendance at local secondary schools within East Anglian region.

d) Pupils were under 18 years of age.

Researchers liaised closely with the relevant school staff to ascertain young people in S1 who would not meet the criterion.

For S2 specific criteria included:

c) Participants must be between ages 8-17 years and have experienced in the preceding 2-6 months a singular trauma (defined by the DSM-5 [APA, 2013] as involving threat of death or serious injury).

d) For those with a diagnosis of PTSD, this diagnosis must have been their main presenting mental health problem.

2.4. Ethical Approval

Ethical approval was granted by the Derby Research Ethics Committee (see Appendix D for confirmation letter) for recruitment within secondary schools in East Anglia. Two major ethical amendments were sought following issues around recruitment. The first approved amendment (see Appendix E for confirmation letter) applied to have the sample size limit increased from 400 pupils to 1000. This change was requested because we were unable to control how many participants in large secondary schools took part and therefore believed we might over recruit. Having a potential sample size of 1000 allowed us to approach large secondary schools and include any classes that might want to partake rather than trying to apply restrictions. The second approved amendment (see

Appendix F for confirmation letter) requested to narrow the timeframe between notifying guardians about the study and recruitment from one month to two weeks. This amendment followed feedback from the first school informing that two weeks would be sufficient for guardians to be aware of the study and opt-out if they wanted. It also enabled us to approach schools and get started with them swiftly as the first school noted this would be more flexible.

2.5. Ethical Considerations

Consent, withdrawal and coercion. An information sheet (Appendix G) concerning the research, the school's involvement and consent process was sent directly to guardians stating that unless they opt-out it would be assumed that they consented for the child in their care to participate (provided on the day that the child also assented to taking part). Both schools opted to do this via email as this was the preferred and established method of contact with guardians. To make the process of opting out straightforward and flexible for guardians they were able to return the opt-out consent slip in multiple ways; to the school or contact the school or the researchers via email or telephone. All documents that would be viewed by participants and/or guardians received prior review by the Norfolk and Suffolk Patient and Public Involvement in Research review panel prior to submission to the ethics committee.

The young person information sheet (Appendix H) was provided to pupils along with the assent form and questionnaire battery. All versions of the information sheets stated that the research was entirely voluntary, and this was reiterated by researchers or form tutors/teachers prior to handing out the study documents. Participants were also assured that they could change their mind about participating at any time and that they could withdraw at any stage without consequences and without giving a reason (British Psychological Society [BPS], 2009).

Opt-out sampling strategies could be viewed as contentious as they have led to discussion of potential ethical issues regarding whether participants have freely provided consent without coercion and so its use must be clearly justified ("Opt-in and Opt-out Sampling", n.d.). Therefore, to ensure freely given consent, parents/guardians and participants were made aware at multiple time points through the information sheets, consent forms and the study reminder as well as verbally before participating, that the study was entirely voluntary. To ensure that pupils did not feel coerced, it was made explicit on the information sheet that not participating or withdrawing from the research would not affect how they are treated by their school or the University of East Anglia (UEA) in any way. Pupils were told they could do other work or read quietly if they did not wish to take part in the study whilst the survey was conducted.

An opt-out sampling strategy was carefully considered and chosen with the intention of obtaining both a representative and sufficient sample. The alternative opt-in method (in which guardians would have had to provide a consent form in order to allow the child in their care to take part) have demonstrated substantially lower response rates and can produce biased samples displaying lower levels of difficulties than the true population (Hewison & Haines, 2006). For example, Junghans, Feder, Hemingway, Timmis, and Jones (2005) compared both consent strategies and found that opt-in methods obtained a smaller sample size and consisted of significantly healthier participants, resulting in a poorer, unrepresentative data set. Using opt-in strategies could thus be seen as potentially compromising the quality of research and therefore itself be viewed as unethical (Hewison & Haines, 2006). An opt-out parental consent strategy was selected to allow for a more accurate estimation of safety behaviour prevalence. This method also helps to ensure participants are included who may benefit from identification of psychological difficulties and potentially obtain support through the well-being screen

plan. Research using the opt-in strategy has also been observed to produce greater non-response biases (Angus, Entwistle, Emslie, Walker & Andrew, 2003; Hewison & Haines, 2006). In a similar trauma-related school study (Meiser-Stedman, 2004) that initially used an opt-in procedure, a large non-response bias (80% of guardians did not respond) was found which resulted in a substantial amendment via the research ethics board to change the procedures to include opt-out (Meiser-Stedman., 2004). The change of methods resulted in higher response rates with no resulting reported detriments (Meiser-Stedman, 2004). This supports the use of opt-out procedures in producing high response rates and in an attempt to help negate potential biases found in opt-in methodology (Hewison & Haines, 2006).

Distress. It was considered highly improbable for pupils to come to any serious harm in participating in this research however as the study entails questioning on a frightening event, the potential impact of this on participants was carefully considered.

To address the potential issue of participants becoming distressed, the following procedures were arranged. Firstly, parents/guardians and participants were alerted that involvement in the research would require the recollection and questioning of potentially upsetting events, at all stages of contact. Secondly, the researchers involved in the study also received specific training on dealing with potential distress in pupils from the project research supervisor (a trained Clinical Psychologist) who has significant clinical and research-related experience working with distressed or upset children. Furthermore, there was a pre-planned procedure in place for participants who might become distressed during, or because of, the research. This was created in collaboration with each school and included closely liaising with school staff and agreeing on a designated named school staff member that pupils were made aware they could contact at any point as needed. An aftercare sheet (Appendix I) was provided to all pupils which provided clear details of

what pupils could do if they felt upset or distressed and how they could seek support from a range of listed sources including external services. It was also highlighted on the information sheet that the researchers were available via telephone or email during working hours (9-5pm Monday-Friday) on the questionnaire administration days, should they require this support or sign-posting to appropriate sources of support.

Although potential distress was of course considered, it is also worth noting that a cumulative amount of trauma research evidences that participating people are not placed at risk of emotional distress (Cromer, Freyd, Binder, DePrince, & Becker-Blease, 2006). In addition, individuals experiencing trauma who have participated in related research have commonly rated the advantages of taking part to offset any associated costs (Chu & DePrince, 2013) including children (Chu, Deprince & Weinzierl, 2008) and community samples (DePrince & Chu, 2008). For example, a longitudinal study with young females (aged 12-19 years) were interviewed about interpersonal trauma exposure and sequelae throughout a year and found participants consistently regarded positive features of completing the research as more prominent than any negative-related experiences (Chu & DePrince, 2013). Furthermore, in Landolt et al.'s (2013) national survey screening 6,787 adolescents, only two people were too upset to complete the trauma-related questionnaire. In a trauma-related survey with UK based school pupils (n=254) no child became obviously distressed or reported any upset in completing the research (Meiser-Stedman, 2004).

Confidentiality and safeguarding. Confidentiality was ensured by providing each pupil a unique participant number which was recorded with their data instead of identifiable information. This was conducted after the initial wellbeing screen was completed which highlighted any pupils who met clinical threshold criteria on any of the questionnaires (including for anxiety, depression or PTSD) or for any pupils who had

noted anything of concern indicating potential harm to themselves or others. Once a unique participant number was assigned, any assent forms and codes were stored separately. All data was stored in line with the UEA confidentiality code of practice and the Data Protection Act (1998). Confidentiality was only broken if any young person disclosed or indicated that they or other persons might be in any harm or danger in which case the school's safeguarding procedures were adhered to and appropriate staff members were consulted.

In the cases where pupils approached or reached caseness criteria on measures for anxiety, depression or PTSD (or recorded anything of concern), this was discussed with the point of contact within the school. A list of these pupils was provided to the head teacher/lead so that these pupils were then followed up within the school. A letter was also provided to send to parents (Appendix J) alerting them to any caseness and providing signposting advice, alerting that they may want to consider visiting their child's GP/local mental health services. Participants and parents/guardians were informed of all these points on the parent/guardian and/or pupil information sheets.

2.6. Procedure

For S1, secondary schools and colleges within the East Anglian area were contacted by email and telephone to inform them of the research project and those expressing interest were sent further details. Two secondary schools were interested and able to take part within the timeframe between July 2016-December 2016. The recruitment method was based on previous successful study methodology (e.g. Meiser-Stedman Dalgleish, Glucksman, Yule & Smith, 2009; Meiser-Stedman et al., 2012). Information sheets detailing the opt-out procedure addressed to guardians were sent out via the school's preferred and usual method (in all cases this was sent out via email communication) a month (for the first school) or two weeks (in the second school

following an ethical amendment) before survey administration. This communication informed about the school's involvement in the research and stated that unless the guardians actively opted-out it would be assumed they consented for their child to participate but that children would also need to assent (see Appendix K for under 16 years' assent form) if they wanted to complete the questionnaires.

In the first school form tutors were briefed on how to administer the study documents by the study researchers and informed of the assent process. Information sheets and consent forms were handed out during form-time to all pupils in years 8 and 9 and each form tutor had a copy of the list of pupils whose guardians had opted-out of the research. All pupils took part simultaneously during morning form time and the researchers collected the questionnaires afterwards. In the second school, PSHE (personal, social and health education) teachers were informed on how to administer the study documents via the point of contact within the school who was the mental health lead. Pupils in year 9 only were then given the option of taking part in the research or doing some quiet reading during the beginning of PSHE lessons that week. Questionnaires were then locked away in a secured filling cabinet and collected in bulk at the end of the school week. Researchers were on hand via email and the study mobile phone (as noted in the information sheets and aftercare sheets) to pupils who wished to contact about the research throughout the week.

All schools were provided a list of pupils who met caseness criteria on any of the measures and these pupils were followed up by the school within their own procedures. We remained in touch with the school to offer support and guidance as appropriate.

S2 comprised of data collected for a previous research project (details of the project and recruitment procedure are published in Meiser-Stedman, McKinnon et al, in press) and were combined with the current data. In short, the guardians of children

meeting the inclusion criterion were approached by letter 2-4 days after they had attended an ED in the East of England and they were contacted by telephone after 7-8 days and if interested in the study assessments were booked for 2 weeks after. Written informed consent and assent were obtained from guardian and child before participation. Assessments including a range of questionnaires (only the CSBS data was used for the current empirical study) completed over the telephone with researchers and the guardian and child. A diagnosis of PTSD was established by blind ratings conducted by clinical psychologists with trauma-exposed children.

2.7. Measures

The questionnaire booklet (Appendix C) was administered to all pupils in S1. Measures are discussed below in the order they appeared in the booklet. The booklet was developed to be approximately the same length as a previous study with similar design (Meiser-Stedman et al., 2012) to ensure pupils could complete the battery within a reasonable timeframe of around 10 minutes.

Demographic information. Information was collected by means of a questionnaire at the beginning of the survey booklet asking for: age, sex and ethnic background.

The Child and Adolescent Trauma Screen (CATS; Berliner & Goldbeck, 2015). To measure exposure to traumatic events and PTSD, the CATS (Sachser et al., 2017) was administered. The CATS was created in 2015 in line with the Diagnostic and Statistical Manual of mental disorders 5th edition (DSM-5; APA, 2013) by experienced clinicians and trauma researchers to provide a free measure of post-traumatic stress symptom (PTSS) severity. This measure has internationally demonstrated excellent internal consistency (between α=.90-.92, n=475) and good convergent-discriminant ability (Sachser et al., 2017). The CATS self-report measure for young people contains three

parts. Firstly, a yes/no 15-item checklist of traumatic events which asks if any other stressful event has been experienced and whether any of the events are currently bothering them. The second part is scored on a 4-point Likert scale (rated from 0=Never - 3=Always) and enquires about whether the respondent experiences any distressing memories, thoughts or consequences because of the upsetting event. The last part asks whether any interference has been experienced in regards to getting along with others, hobbies/fun, school/work, family relationship and/or general happiness (due to the upsetting event). The minimum score is zero and the maximum score is 80. This recently developed questionnaire was chosen as it has the advantage of including the latest DSM-5 (APA, 2013) PTSD criterion and is also freely accessible.

To identify pupils in S1 who may require further support for PTSS via the wellbeing screen a DSM-5 (APA, 2013) algorithm was applied; pupils with at least 1 of 5 re-experiencing symptoms, 1 of 2 avoidance symptoms, 2 of 7 symptoms of negative alterations in cognitions and mood and 2 of 6 hyperarousal symptoms were deemed to meet criterion in accordance with a DSM-5 (APA, 2013) diagnosis of PTSD.

Child Safety Behaviour Scale (CSBS). To measure the prevalence of safety behaviors and develop and examine the psychometric properties of the CSBS, this measure was employed. The 22-item CSBS has evidenced good internal consistency (Cronbach's alpha= .96, n=535; Meiser-Stedman, McKinnon et al., in press). It should be noted that the original CSBS contained an extra item "I carry an object (e.g., special toy, sharp object) to make myself feel safer" which was excluded in the current study following recommendations by the ethics committee around the legal implications of pupils endorsing this item and this potentially turning out to be a dangerous weapon. As we would be unable to follow-up every pupil who endorsed this item we agreed it was easiest to exclude this item. This resulted in a 21 item CSBS.

The Children's Post-traumatic Cognitions Inventory Short Form (CPTCI-S; Meiser-Stedman et al., 2009). The CPTCI-S was utilised to provide a measure of trauma-related appraisals. The 10-item CPTCI-S has high internal consistency (Cronbach's alpha > .92, n=535), good construct validity and moderate/high test-retest reliability (r=.78; McKinnon et al., 2016). Respondents are required to rate their agreement with each item on a 4 point Likert scale ranging from "Don't agree at all" to "Agree a lot". This measure was chosen as it is very concise and has been validated in multiple samples (McKinnon et al., 2016).

The Short Version of the Revised Child Anxiety and Depression Scale (RCADS-25; Ebesutani, Reise, Chorpita, Ale, Regan, Young, Weisz, 2012). To provide information on symptoms of depression and anxiety, the RCADS-25 was used. This measure has demonstrated good psychometric properties including reliability, internal consistency (α=.96, n=667; Esbjørn, Sømhovd, Turnstedt, & Reinholdt-Dunne, 2012), validity and a clear-cut factor structure (Ebesutani et al., 2012). This measure consists of 25 items scored in terms of frequency ranging from "Never" to "Always". Fourteen of these items relate to anxiety and 11 relate to depression. The minimum score is zero whilst the maximum is 75. For the well-being screen males scoring 15 or above and females scoring 17 or above on the depression subscale were highlighted to the school to be followed up. Likewise, on the anxiety subscale males and females with totals of 21 and 25 or above, respectively, were followed up. Pupils scoring an overall total of 34 or above for males and 40 for females were also hypothesised to be experiencing clinical levels of anxiety and/or depression and so were also followed up. These normative clinical cut-offs for the subscales have been evidenced as demonstrating good specificity and reliability (Ebesutani, et al., 2012**).** This measure was selected due to the convenience of

combining both depression and overall anxiety symptoms into a brief measure and its robust psychometric properties.

Cognitive Avoidance Questionnaire (CAQ; Sexton & Dugas, 2008). Cognitive avoidance strategies were assessed using the CAQ. This 20-item questionnaire is rated on a 5-point Likert scale where items are rated ranging from "Not at all typical" (1) to "Completely typical" (5). The English version of this measure has evidenced good to excellent internal consistency (α =0.83– 0.95, n=456) and test–retest reliability (r =0.70–0.85) in young populations (Sexton & Dugas, 2008). The minimum score is 20 whilst the maximum is 100. This scale was chosen as unlike others it evaluates a fuller range of cognitive avoidance strategies including, distraction, thought suppression and substitution, avoidance of threatening stimuli and transforming of mental images and/or thoughts (Sexton & Dugas, 2008).

Children's Response Styles Questionnaire (CRSQ). The 13-item CRSQ rumination sub-scale **(**Abela, Rochon and Vanderbilt, 2000) was employed to measure rumination. The items are rated on a 4-point scale from "Almost never" (0) to "Almost always" (3), with a minimum score of zero and maximum of 39. The scale has demonstrated good internal consistency (α = 0.78- 0.84, n=214; Abela, Brozina & Haigh, 2002) and test-retest reliability (r =0.78; Abela, Aydin and Auerbach, 2007).

Cognitive Triad Inventory for Children (CTI-C). The 36-item CTI-C (Kaslow, Stark, Printz, Livingston, & Ling Tsai, 1992) was administered to measure depression-related negative appraisals. This measure consists of 3 subscales reflecting Beck's cognitive triad: views of self, world and the future. The items are rated on a 3-point scale from "Yes" to "No". The scale has "good to excellent" internal consistency for all the subscales (α =0.80– 0.94) and overall (α =0.96) as well as good test-retest reliability

(*r*=.70) and discriminant validity (Wolff, Frazier, Esposito-Smythers, Burke, Sloan, & Spirito, 2013).

2.8. Statistical analysis and sample size

In order to explore the factor structure of the CSBS, principal components analysis was planned for which the recommended sample size is 10 participants per questionnaire item (Osborne & Costello, 2004). Therefore, for the 21-item questionnaire 210 pupils were needed. Confirmatory Factor Analysis was planned to confirm the factor structure found in the PCA with half the sample as a recommended methodology to reduce the likelihood of detecting chance characteristics in the data (Reis & Judd, 2000). To test the internal consistency of the CSBS, a calculation of Cronbach's alpha coefficient was planned for which Nunnally and Bernstein (1994) suggest a minimum of 300 participants.

For further analyses, sample size requirements were calculated using G*Power (Erdfelder, Faul & Buchner, 1996). To determine the test-retest reliability of the CSBS, pearsons's correlations between time points one and two were planned. Power calculations revealed that based on assumptions of a medium effect size (r =.5), an alpha level of 0.05 and power of 0.8, a sample size minimum of 30 participants is recommended. In order to determine significant predictors of PTSS, bi-variate correlations were planned to determine which independent variables significantly correlated with PTSS. With a possibility of a maximum of 9 predictors (number of traumas, trauma-related appraisals, cognitive avoidance, cognitive rumination, depressive cognitions, safety-seeking behaviours, age, gender and ethnicity), multiple-regressions were planned. No comparable studies have explored the psychometric properties of the CSBS with this population, therefore the most conservative effect size was assumed for the power calculations. Power calculations revealed a sample size minimum of 366 pupils is needed based on a small effect size ($f^2 = 0.04$), an alpha level of 0.05 and power of 0.8. To find out whether the

CSBS can discriminate between pupils with and without PTSD, two group comparison analyses were planned (including for comparing genders of CSBS scores). For a small effect size ($f = 0.15$; $\alpha = 0.05$) and power of 0.8, 352 pupils were required (176 per comparison group).

Sample size aims (of around 300-400 plus) were also considered allowing for attrition and sufficient rates of PTSD based on prevalence rates in previous community samples (Meiser-Stedman et al., 2012; Landolt et al., 2013).

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Chapter 3. Empirical Paper

Prepared for submission to Journal of Traumatic Stress (guidelines in Appendix L)

The Development and Validation of a trauma-related safety-seeking-seeking behaviour measure for youth: the Child Safety Behaviour Scale (CSBS)

Alice Alberici, Trainee Clinical Psychologist, University of East Anglia (UEA)

Jade Claxton, Trainee Clinical Psychologist, UEA

Dr Richard Meiser-Stedman, Clinical Reader, UEA

Abstract

Safety-seeking behaviours may be employed after exposure to a traumatic event to prevent a feared outcome for example, sleeping with the lights on following being attacked at night. It is proposed that safety-seeking behaviours contribute to the maintenance of posttraumatic stress symptoms (PTSS) within cognitive models by preventing disconfirmation of maladaptive beliefs and maintaining anxiety. Recent research has found that safety-seeking behaviours impact on children's PTSS and their recovery. This paper sought to develop and validate a novel 22 -item Child Safety Behaviour Scale (CSBS) in a school-based sample of 391 secondary school pupils (12-15 years) who completed a battery of questionnaires and 68 young people (8-17 years) recently exposed to a trauma. The sample was split (n=213) and principal components analysis was utilized alongside parallel analysis which revealed that 13-items loaded well onto a two-factor structure. This structure received partial support from confirmatory factory analysis with the other half of the sample. The CSBS showed excellent internal consistency (r=.90), good test-retest reliability (r=.64) and good discriminant validity and specificity. In a step-wise regression safety-seeking behaviours, negative appraisals, number of trauma types, cognitive avoidance and rumination were retained in a model of posttraumatic stress symptoms, accounting for 77.5% of variance ($F_{4, 258} = 218.443$, $p<.001$, $R^2 = .775$). This provides initial support for the use of the CSBS in trauma-exposed youth as a clinically valuable tool for both assessment and targeted cognitive intervention. The CSBS could also prove a useful research tool to further explicate the role of safety-seeking behaviours in PTSD.

There has been over 30 years of research looking at the psychological impacts of exposure to traumatic events in children and adolescents, with the most common reaction studied being post-traumatic stress disorder (PTSD) (Trickey, Siddaway, Meiser-Stedman, Serpell & Field, 2012). Prevalence rates of PTSD following exposure to trauma have been found to vary between samples (from 0-100%; Yule, 2001). A recent meta-analysis of 72 peer reviewed articles with 3,563 children and adolescents found PTSD prevalence rates of 15.9% after exposure to trauma (Alisic et al., 2014). Community samples also yield high rates; a national population-based survey in Switzerland found 4.3% of 6787 adolescents met criteria for PTSD (Landolt, Schnyder, Maier, Schoenbucher, and Mohler-Kuo 2013). PTSD can have a devastating impact on a young person's social, emotional, behavioural wellbeing including educational attainment and can continue into adulthood (Yule, Bolton, Udwin, Boyle, O'Ryan, & Nurrish, 2000).

There is a wealth of supporting literature for aetiological cognitive models of PTSD (Brewin & Holmes, 2003) and successful treatments have been devised (Ehlers, Clark, Hackmann, McManus & Fennell, 2005). Ehlers and Clark's (2000) model has received considerable attention with substantive evidence (Brewin & Holmes, 2003). This model theorizes that the cognitive strategies and behaviours employed by an individual attempting to reduce a sense of current threat, paradoxically maintains their problems by preventing any cognitive change in the appraisals of the trauma memory and trauma-sequelae. Treatment under this model involves Cognitive therapy for PTSD (CT-PTSD) which targets maintaining factors by focusing on the characteristics of trauma memories, trauma-related appraisals and maladaptive behavioural coping strategies known as safety behaviours (Ehlers et al., 2013). This therapeutic model has been found efficacious in ameliorating symptoms of PTSD in both adults (Ehlers et al., 2005) and young people (Smith, Yule, Perrin, Tranah, Dalgleish & Clark, 2007).

Safety behaviours, more specifically known as ‘safety-seeking behaviours ’are discrete or hidden strategies employed in order to prevent a dreaded outcome (Ree & Harvey, 2004). Safety-seeking behaviours maintain symptomatology by thwarting cognitive modification of anxiety-provoking beliefs, as individuals attribute any avoidance of catastrophe as resulting from their behaviours and prevents cognitive change. Moreover, in some situations safety-seeking behaviours may actually increase the likelihood of feared outcomes happening, therefore safety is sought but not necessarily guaranteed (Salkovskis, 1989, 1991; Salkovskis, 1999). Safety-seeking behaviours are an important clinical concept within cognitive models and have been applied to a range of clinical presentations; anxiety disorders including Panic disorder with agoraphobia (Salkovskis, Clark, Hackmann, Wells & Gelder, 1999), phobia (Ehring, Ehlers & Glucksman, 2008) and PTSD (Moulds, Kadris, Williams & Lang, 2008; Ehlers & Clark, 2000), depression (Moulds et al., 2008), persecutory delusions (Freeman, Garety, Kuipers, Fowler, Bebbington, & Dunn, 2007), psychosis (Morrison, 2001) and further psychopathologies (Sharp, 2001; Harvey 2002a, 2002b). Therapeutic intervention which targets refraining from using safety-seeking behaviours as opposed to intervention without this goal has shown to be more effective in reducing clinical levels of anxiety and decreases catastrophizing beliefs surrounding the feared outcome (e.g. obsessive compulsive disorder; Salkovkis et al., 1999).

Although Ehlers and Clark’s (2000) model has received considerable supportive evidence and safety-seeking behaviours have been highlighted as a pertinent maintaining mechanism for PTSD within the adult clinical literature, research has focused more on cognitive appraisals across the lifespan. Therefore, there remains a gap in the literature in examining the use of maladaptive coping strategies in children and adolescents. In order to screen for safety-seeking behaviours Meiser-Stedman, Smith et al. (in press) developed a

novel 22-item age-appropriate Child Safety Behaviour Scale (CSBS) for a randomised controlled trial (RCT) with 8-17-year-old children and adolescents with PTSD two to six months post-trauma. This scale was based on the adult Safety Behaviour Scale (Ehring et al., 2008). Mediation analysis revealed that safety-seeking behaviours (and trauma-related appraisals) significantly partially mediated the relationship between treatment allocation (receiving a child-appropriate CT-PTSD package or being in a waiting list control group) and differences in child post-traumatic stress scale scores. This underscores the importance of cognitive mechanisms and specifically safety-seeking behaviours in responsiveness to treatment and further highlights their potential underlying role in the maintenance of PTSD symptomatology. However, it should be noted this was a small randomized controlled trial with just 29 participants; conclusions regarding the safety-seeking-seeking mechanism are tentative and warrant further investigation.

Within research and clinical settings, the development of a concise, psychometrically valid, paediatric self-report tool that screens for the use of safety-seeking behaviours would be valuable. Within research, a validated measure of safety-seeking behaviours could be employed to further examine theoretical models of PTSD. This tool could be useful in exploring this cognitive mechanism and its relationship and predictive power with PTSD and maladaptive appraisals, to enable a more thorough understanding of Ehlers' and Clark's (2000) cognitive model. This could inform our understanding of an integral mechanism in the maintenance and development of childhood post-traumatic stress symptoms (PTSS). It could also contribute to elucidating any differences in safety-seeking behaviours usage between age groups, gender and exposure to differing types of trauma that could support in developing and targeting idiosyncratic preventative methods and intervention approaches. If a safety-seeking-seeking measure were found to be useful it could be an important tool in identifying potentially maladaptive safety-seeking

behaviours that maintain PTSS for clinicians. This would also be useful in the identification of children who might be responsive to cognitive therapeutic treatment. Information obtained from patients about safety-seeking behaviours could contribute to psychological formulation and provide areas of focus for intervention work. Thus, the current study seeks to develop and validate the utility of the CSBS, exploring its psychometric properties and to establish what strategies young people employ to feel safe following trauma exposure.

Research has found that the adult posttraumatic cognitions inventory (PTCI) correlated significantly with PTSD after controlling for depression and general anxiety, demonstrating its specificity (Foa, Ehlers, Clark, Tolin & Orsillo, 1999). As depression and anxiety often accompany PTSS, the specificity of the relationship between safety-seeking behaviours with PTSS was also investigated. To further examine the role of safety-seeking behaviours in PTSD, the predictive power of safety-seeking behaviours was investigated alongside other identified risk factors identified in adult and/or young person populations including: age, gender and number of types of trauma exposure, negative appraisals, rumination and cognitive avoidance (Trickey et al., 2012; Landolt et al., 2013; Meiser-Stedman, Smith et al., in press; Dunmore, Clark, & Ehlers, 1997). The current study sought to: 1) to examine the psychometric properties of the CSBS, exploring its factor structure and reducing any redundant items to create a more valid and clinically useful measure; 2) investigate safety-seeking behaviours within a community sample of school aged- pupils and population of youth with clear trauma exposure using this novel questionnaire and 3) to examine whether safety-seeking behaviours predict the severity of PTSD, over and above the effect of other potential moderators. We hypothesized that children and adolescents with PTSD would display more usage of safety-seeking behaviours compared to those without PTSD, and that safety-seeking

behaviours would be a significant predictor of PTSS alongside aforementioned predictors (Alisic et al., 2014; Trickey et al., 2012; Meiser-Stedman, Smith et al., in press).

Method

Design

A cross-sectional design, following other prominent research in this area (Meiser-Stedman, 2012; Landolt et al., 2013) was approved by the UK National Research Ethics Service, Derby Research Ethics Committee (16/EM/0009) for the current study. The former study was a prospective longitudinal project and RCT with young people who had experienced a recent traumatic event.

Participants

Participants in the current study were recruited from two sources. Sample 1 (S1) comprised of participants recruited through the two rural secondary schools in East Anglia. A total of 391 children and adolescents took part, aged 12.6-15.9 years (see Table 1 for sample overview). From both schools 391/555 (70.5%) pupils took part with four guardian opt-outs.

Full details of the recruitment and procedure for sample 2 (S2) are presented in Meiser-Stedman, McKinnon et al. (in press). In summary, S2 consisted of 68 young people aged between 8.21-17.97 years, 29 of whom had PTSD and were recruited for a randomized control trial (RCT) from a range of sources including; community mental health teams, GPs, schools, adverts in health clinics, and emergency departments (EDs). PTSD was ascertained by interview with a clinical psychologist using DSM-5 (American Psychiatric Association [APA], 2013) or ICD-10 (World Health Organization [WHO], 1992) diagnostic criteria. The remaining 39 from S2 were recruited as part of a project looking at the recovery trajectories of young people from four East of England EDs. All 39 participants had been exposed to a single traumatic event but did not meet diagnostic

criteria for PTSD. The inclusion criteria for both samples were that participants must be fluent in English and without an intellectual or neurodevelopmental disability. For S1, the inclusion criteria were that participants were pupils in East Anglian secondary schools under 18 years old; the authors liaised with school staff to ascertain young people who would not meet criteria. For S2, participants must have experienced a single trauma in the previous 2–6 months and be aged 8–17 years. For the subset of S2 with PTSD, their main presenting problem must have been PTSD.

Measures

A questionnaire booklet containing the following measures was administered to S1:

The Child and Adolescent Trauma Screen (CATS). To measure traumatic event exposure and PTSS the CATS, based on DSM-5 (APA, 2013) PTSD criteria, was employed (Sachser et al., 2017). Exposure to traumatic events is established on a 15-item checklist (CATSP1) followed by 20 items measuring PTSS rated on a scale of "Never" to "almost always", and five questions pertaining to psychosocial functioning. The CATS has demonstrated good internal consistency in multiple samples (α=.88-.94) and good discriminant validity (Sachser et al., 2017). For the present sample, the presence of likely PTSD was determined using the DSM-5 (APA, 2013) criteria; at least 1/5 re-experiencing symptoms, 1/2 avoidance symptoms, 2/7 symptoms of negative alterations in cognitions and mood and 2/6 hyperarousal symptoms, plus impairment in at least one area of functioning.

The Child Safety Behaviour Scale (CSBS). An initial pool of 22-items was developed by clinicians with years of experience within trauma and research based on the adult CSBS (Ehring et al., 2008). The full 22-item scale was administered in S2. However, for S1 the relevant ethics committee expressed concern over administering the item: 'I

carry an object (e.g., special toy, sharp object) to make myself feel safer', given potential legal issues that might arise around whether such objects might be dangerous within schools. This item was therefore removed before administration to S1 and this item was removed from all analysis of S2. Participants from S2 also completed the CSBS pre-treatment (if they had PTSD) or at an experimental session (if they did not have PTSD). These data were used to ascertain the psychometric properties of the CSBS in combination with findings from S1.

The Children's Post-Traumatic Cognitions Inventory Short Form (CPTCI-S). Negative trauma-related appraisals were measured using the CPTCI-S (Mckinnon et al., 2016). The CPTCI-S consists of 10-items adapted from the original CPTCI (Meiser-Stedman et al., 2009) and items are rated on a 4-point scale from "Don't agree at all" to "Agree a lot". The CPTCI-S has demonstrated excellent internal consistency (α=.92), good construct validity and "moderate-to-high" test-retest reliability (*r*= .78; McKinnon et al., 2016).

The Revised Child Anxiety and Depression Scale (RCADS-25). The short version of this scale was used to measure depression and anxiety (Ebesutani et al., 2012). The RCADS-25 has 25 items, 15 of which relate to the anxiety subscale and 10 to the depression subscale. Items are scored on a 4-point scale ranging from "Never" to "Always". The RCADS-25 is a reliable measure demonstrating a clear-cut factor structure, satisfactory internal consistency (α=.65 and .83) and validity (Muris, Meesters & Schouten, 2002). The cut-offs for depression and anxiety for males and females are 15, 17 and 21, 25, respectively.

Cognitive Triad Inventory for Children (CTI-C). Depression-related negative appraisals were determined using the CTI-C, a 36-item measure consisting of 3 subscales mapping on to Beck's cognitive triad: views of self, world and the future (Kaslow, Stark,

Printz, Livingston, & Ling Tsai, 1992). Items are rated on a 3-point scale from "Yes" to "No". Internal consistency has been established as "good to excellent" for the subscales (α =0.80– 0.94) and overall (α =0.96) alongside good test-retest reliability (*r*=.70) and discriminant validity (Wolff, Frazier, Esposito-Smythers, Burke, Sloan, & Spirito, 2013).

Cognitive Avoidance Questionnaire (CAQ). Cognitive avoidance strategies were assessed using the CAQ (Sexton & Dugas 2008). This measure comprises of 20 items split into five 5-item sub-scales; cognitive avoidance strategies, thought suppression, distraction, thought substitution, avoidance of threatening stimuli and transformation of thoughts. Items are rated on a 5-point Likert scale from "Not at all typical" to "Completely typical". The questionnaire has evidenced "good to excellent" internal consistency (α=.83– .95) and test–retest reliability (*r* =.70– .85) in both adolescent and adult samples (Sexton & Dugas 2008).

Children's Response Styles Questionnaire (CRSQ). To measure ruminative thinking the CRSQ rumination sub-scale consisting of 13 items was employed **(**Abela, Rochon and Vanderbilt, 2000). Items are rated on a 4-point scale from "Almost never" to "Almost always". The rumination sub-scale has demonstrated good internal consistency (α = .78-.84) and test-retest reliability (*r*=.78; Abela, Brozina & Haigh 2002; Abela, Aydin & Auerbach, 2007).

Procedure

For S1, secondary schools and colleges within the East Anglian region were contacted and those expressing interest were sent further information. Two Secondary schools were able to take part within the timeframe of recruitment. The recruitment method was based on previous successful study methods for questionnaire administration within schools (e.g. Meiser-Stedman et al., 2012). The study used an opt-out consent procedure whereby study details including regarding the opt-out procedure were sent out

to pupil's guardians and if no opt-out was received, consent was presumed so long as pupils also assented. Age appropriate information sheets, assent forms and the questionnaire packs were provided to pupils either during their morning form-time (for the first school) or during the beginning of a session (in the second school). Questionnaires took approximately 10 minutes to complete and required pupils to fill out the information with the most frightening thing they have experienced in mind. All participants received an aftercare sheet detailing how they could obtain mental health support including self-help and information web links, helplines and a point of contact within their school. A wellbeing screen was completed and all pupils who were borderline/reached clinical thresholds on any of the measures were highlighted to the school contact and followed up by usual school procedures. Four form groups (out of the top responding 10 forms) were then randomly chosen from the first school and 40 pupils were invited to fill out two of the questionnaires again (CATS & CSBS) after approximately five months to obtain test-retest reliability.

Table 1. Summary of sample characteristics.

Variable	S1 (n=391)	S2 (n= 68)
Sex, n (%)		
Female	197 (50.1)	41 (60.3)
Unknown, n (%)	8 (2.0)	-
Ethnicity, n (%)		
White British	331 (84.6)	59 (86.8)
Minority ethnicity	8 (2.1)	9 (13.2)
Unknown	52 (13.3)	-
Age (in years), mean (STD)	13.73 (0.59)	13.49 (2.85)
Unknown, n (%)	32 (8.2)	-
Trauma exposure, n (%)	323 (82.8)	68 (100.0)
Unknown, n (%)	1 (0.3)	-

Statistical analysis

The Statistical Package for Social Sciences (SPSS) was utilised for computing all descriptive statistics and analysis, other than Confirmatory Factor Analysis (CFA) which was conducted in R 3.3.2 with the Lavaan package. Examination of the data in both groups using the Shapiro-Wilk test found all CSBS items were skewed with a large number of participants never endorsing the items (p<.001). Therefore, natural log transformations were conducted on all the data to reduce the positive skew prior to CFA. The standard maximum likelihood estimation with robust standard errors and a Satorra-Bentler scaled test statistic were employed for non-normal distributed data (Rosseel, 2012). As the data was skewed non-parametric tests were employed.

In order to establish item redundancy on the CSBS and determine its factor structure exploratory factor analysis was performed on half of the sample using principal components analysis with oblimin rotation, allowing for factors that are intercorrelated. The established items and factor structure found in the PCA was then tested in the other half of the sample using CFA. To further explore the psychometric properties of the CSBS Cronbach's alpha was calculated to measure internal consistency. Test-retest reliability was assessed using a sub-sample from S1. A total of forty pupils were given the opportunity to fill out the questionnaires again and in total 28 pupils signed the assent form and provided data. The discriminant validity of the CSBS (i.e. its ability distinguish between individuals with and without PTSD) was examined in both samples, as were potential age and gender differences in CSBS scores (using Mann-Whitney U tests). To examine the validity of the CSBS and whether any relationship with PTSS is artifactual, Pearson's bivariate and partial correlations were conducted with the other outcome measures. Predictors of PTSS were explored using multiple linear regression modelling. Pupils with more than 20% missing data on a measure were excluded from any analysis of that measure.

Results

Descriptive statistics for all measures from S1, excluding the CSBS which is discussed below, are displayed in Table 2. Varying numbers of pupils from S1 filled in each measure with the CTI-C and the RCADS-25 being filled out the least, possibly due to their positioning in the booklet and because the CTI-C had a reversed scale (from positive to negative rather than vice versa) which may have led to some confusion.

Table 2. S1 descriptive statistics including the mean observed score, standard deviation (SD), possible range and observed scores and Cronbach's alpha coefficient of each measure.

Measure	n	M	SD	Possible range	Observed range	α
CATS	344	12.78	12.46	0-80	0-53.00	.93
RCADS-25	253	14.64	14.02	0-75	0-68.00	.95
Anxiety		9.38	8.89	0-45	0-42.47	.92
Depression		5.69	6.27	0-30	0-29.63	.91
CPTCI-S	336	5.50	6.86	0-30	0-30.00	.94
CTIC	295	36.30	6.59	0-72	0-72.00	.63
CAQ	337	38.63	18.63	20-100	20-98.00	.97
CRSQ	322	10.02	10.12	0-39	0-39.00	.96

Note: CATS= Child and Adolescent Trauma Screen, RCADS-25= Revised Child Anxiety and Depression Scale, CPTCI-S= Children's Post-Traumatic Cognitions Inventory Short-Form, CTIC= Cognitive Triad Inventory for Children, CAQ= Cognitive Avoidance Questionnaire and CRSQ= Children's Response Styles Questionnaire.

Exploratory factor analysis

In total 426 pupils completed the CSBS across samples. All participants were individually (from schools one and two and from the ASPECTS trial) randomly assigned to two groups in SPSS to ensure each sample contributed 50% of cases to each group. Therefore, both groups consisted of 213 children comprised of equal contributions from each sample (32 participants from the ASPECTS trial and 181 participants from the schools).

Preliminary analysis of group one (n=213) found the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was .940 which is in the "superb range" (Hutcheson & Sofroniou, 1999), suggesting the patterns of correlations between variables are compact and therefore factor analysis is appropriate and should yield distinct factors. All KMO individual values on the anti-image correlation matrix were above the accepted limit of .05 (Field, 2009), indicating the sample size was sufficient for factor analysis. Bartlett's test of sphericity (χ^2 (210) = 2775.82, p<.001) demonstrated that correlations between items were adequate for PCA. PCA was run on the 21-item CSBS within group one. Examination of the scree plot showed an inflexion at three factors suggesting a three-factor solution that accounted for 61.98% of the variance. Using the Monte Carlo Parallel Analysis program (MCPA: Watkins, 2000), 100 random data sets were produced each with 21 variables and 213 participants for each PCA. The first six observed eigenvalues were 10.115, 1.825, 1.077 and .890 whilst the first 4 randomly generated eigenvalues from the MCPA program were 1.6045, 1.4944, 1.4149 and 1.3402. Only factors with observed eigenvalues higher than the random eigenvalues are retained in parallel analysis (Hayton, Allen & Scarpello, 2004). Factors with fewer than three loading items are considered weak and unstable (Costello & Osborne, 2005). Factor three was loaded onto by question 19 only, and so by this criterion, both factor and question were considered redundant and removed, leaving an overall two-factor solution. Items loading at least .32 on one factor and .1 greater than loadings on the other factor were retained (Tabachnik & Fidell, 2007). Implementing this criterion resulted in the removal of a further seven items which were also endorsed less frequently than other items and so were also considered redundant. Two factors were selected with the 13 items and rotated using direct oblimin rotation. Factor loadings are presented in table 3. The items that congregate on the same components suggest factor one were labelled "strategic hypervigilance" and factor two, "affective suppression".

Table 3. Factor loadings for the 13-item CSBS on a two-factor structure in both exploratory confirmatory analyses.

Scale / Item	PCA (group 1)		CFA (group 2)
	1	2	
Factor 1: Strategic hypervigilance			
(2) I always check that my friends and family are safe	**0.739**	0.422	0.656
(3) I am always thinking about ways to make myself safer	**0.811**	0.491	0.728
(4) I am really careful to stay away from unsafe situations	**0.855**	0.302	0.810
(5) I am careful not to do dangerous things	**0.810**	0.239	0.794
(6) I often do things to try and make myself feel safer	**0.837**	0.580	0.827
(7) I always check that doors and windows are locked or I ask my parents to	**0.665**	0.460	0.565
(16) I do extra things to make sure the places I am are safe	**0.756**	0.602	0.663
Factor 2: Affective suppression			
(9) I do not like to try new things	0.268	**0.774**	0.462
(10) I try to stop my feelings about it	0.519	**0.838**	0.771
(12) I do not like changing the way I do things	0.484	**0.774**	0.602
(13) I try really hard to stop my thoughts about it	0.498	**0.825**	0.842
(14) I try not to let other people see how I am feeling	0.355	**0.795**	0.698
(17) I do not like making choices	0.367	**0.738**	0.576

Note. Bold values indicate the factor on which the item has the highest loading.

Confirmatory Factor Analysis

Factor loadings from the CFA showed similarly high factor loadings on the corresponding factors found in the PCA (at least .32), with at least the recommended .10 difference between factors (Tabachnik & Fidell, 2007), when compared to the factor loadings on the other factor found in the PCA. This two-factor solution found in the PCA was tested via CFA in group 2 (n=213) with several indices used to examine the model's value including chi squared (χ^2), comparative fit index (CFI), root mean square residual (RMR) and the root mean square error of approximation (RMSEA). The chi-square tests if the proposed model does not fit significantly worse than a model where the variables correlate freely. The χ^2 was significant (χ^2 (64) = 170.79, p<.001) indicating the proposed model is discrepant from the data's true structure (Matsunaga, 2010). However, this test is notoriously difficult to obtain a non-significant χ^2 when using self-report data (Bentler, 1990; Byrne, 1994), is very sensitive to sample size (Bandalos, 1993) and violations of the multivariate normality assumption (Curran, West & Finch, 1996; Hu, Bentler & Kano, 1992), even when the model may be adequate (McIntosh, 2007). Therefore, the fit of the model is better determined through other descriptive fit indices such as the CFI (Van Prooijen & Van Der Kloot, 2001; McDonald & Marsh, 1990). The CFI was above 0.9 (CFI=0.914), indicating the model is a good fit. The RMR is the mean of the squared residuals examining the discrepancies between the observed versus predicted covariances. The observed RMR= 0.068 which is over the 0.05 recommended value is indicative of a good fitting model. The RMSEA is a measure of how well fitted the model is in the population given the number of estimated free parameters (Hooper, Coughlan & Mullen, 2008). The observed RMSEA was 0.097 (CI 90% 0.080-0.115): according to Hooper et al., (2008) ≤0.08 is "good". The two-factor model was compared to a one factor model to compare whether the apparent subscales explain the underlying factor structure of the

CSBS. The one factor model was a mediocre fit of the data; χ^2 (65) = 336.16, *p*<.001, CFI= 0.78, RMR=0.97 and RMSEA= 0.155 (CI 90% 0.139-0.172). Therefore, the two-factor model showed mixed results but was superior to a one-factor model.

Internal consistency

The internal consistency of the 13 item CSBS was explored for the total scale with S1 and S2 combined (n=431; 28 participants were excluded by SPSS due to missing values). Cronbach's alpha was .90 for the full scale, indicating the overall scale has excellent internal consistency (George & Mallery, 2003). The subscales, strategic hypervigilance (CSBS-SH) and affective suppression (CSBS-AS), had alpha levels of .89 (n=437) and .85 (n=438), respectively, demonstrating good internal consistency (George & Mallery, 2003).

Test-retest reliability

The CATS had good test-retest reliability (n=28; *r*=.70, *p*<.001, *two-tailed*). The CSBS (total) was significantly correlated between time points (*r*=.41, *p*=.03, *two-tailed*). As there were two clear outliers on the CSBS with scores dramatically changing between time points, these were removed from the analysis which resulted in a stronger correlation of r=.64, *p*<.0.01, *two-tailed*, n=26.

Discriminant validity

The ability of the CSBS to discriminate between children diagnosed with PTSD from S2 and pupils without PTSD from S1 as well as those meeting threshold criteria for PTSD from S1 was examined using Mann-Whitney U tests. Significantly higher scores on the CSBS were found in pupils in S1 meeting threshold for PTSD (n=35, M=21.69 [SD=8.13]) than for non-PTSD pupils (n=270, M=11.90 [SD=7.19]: U=1735.50, *p*<.001, Cohen's d= 1.28). Significantly higher scores on the CSBS were also found in the S2 between clinically diagnosed young people with PTSD (n=29, M=22.90 [SD=8.76]):

U=67.000, p<.001) in comparison to trauma-exposed non-PTSD youth (M=6.90, SD=5.99, Cohen's d=2.13).

Age and gender comparisons

A Mann-Whitney U test was employed to determine any gender differences in CSBS scores from combining S1 and S2. Females had significantly higher scores on the CSBS (n=224, M=14.76 STD=8.46) than males (n=209, M=10.84 STD=8.17: U=16123.50, p<.001; Cohen's d=0.47). In order to examine the effects of age on the CSBS a spearman's correlation was conducted between age and the CSBS which found a non-significant correlation (r =.04, p=.943).

It was not possible to look at significant differences relating to ethnicity as there were not enough participant groupings.

Specificity

The CSBS and its subscales significantly positively correlated with the CATS (PTSD severity scale) and the RCADS-25 and its subscales (see Table 4). CATS scores significantly correlated with RCADS-25 depression (n=211, r=.71, p<.001) and anxiety (n=211, r=.73, p<.001*)* subscales. This is expected given the common comorbidity between depression and anxiety with PTSD in young people (Kar & Bastia, 2006). To ensure that the relationship between the CSBS and CATS was not an artifact of the relationship between anxiety or depression and the CATS, partial correlations were conducted. The CSBS remained significantly correlated with the CATS when controlling for depression, anxiety and total RCADS-25 scores (for all three analyses, r=.536, p<.001; n=202).

Table 4. Pearson's correlations of the safety-seeking behaviours (CSBS) and its' subscales with anxiety and depression (RCADS-25), PTSD (CATS), rumination (CRSQ), negative appraisals (CPTCI-S), depressive cognitions (CTI-C) and cognitive avoidance (CAQ).

Measure	CSBS – SH	CSBS – AS	CSBS Total
Safety behaviours (CSBS)			
"Affective suppression" (CSBS-AS)	.504**	-	-
Total	.889**	.845**	-
Depression & anxiety (RCADS-25)			
Depression	-.132*	-.130*	-.150*
Anxiety	-.146*	-.143*	-.165**
Total	-.141*	-.139*	-.160*
PTSS (CATS)			
Total	.265**	.691**	.528**
Rumination (CRSQ)			
Total	.261**	.614**	.488*
Trauma-related appraisals (CPTCI-S)			
Total	.212**	.645**	.485**
Depression-related appraisals (CTI-C)			
Total	-.121*	-.601**	-.398**
Cognitive avoidance (CAQ)			
Total	.381**	.628**	.565**

*p=.05, **p=.01 *Note. CSBS= Child Safety Behaviour Scale, CSBS-SH= Child Safety Behaviour Scale- Strategic Hypervigilance, CSBS-AS= Child Safety Behaviour Scale- Affective Suppression, RCADS-25= Revised Child Anxiety and Depression Scale, CATS= Child and Adolescent Trauma Screen, CRSQ= Children's Response Styles Questionnaire,*

CPTCI-S= Children's Post-Traumatic Cognitions Inventory Short-Form, CTI-C= Cognitive Triad Inventory for Children and CAQ= Cognitive Avoidance Questionnaire

Predictors of PTSS

Bivariate correlations of S1 revealed significant zero-order relationships between total CATS score and number of trauma types (CATSP1; n=344, r=.452, p<.001), trauma-related appraisals (CPTCI-S; n=320, r=.82, p<.001), cognitive avoidance (CAQ; n=307, r= .73, p<.001), cognitive rumination (CRSQ; n=295, r=.73, p<.001), depressive cognitions (CTI-C; n=270, r=-.70, p<.001) and safety-seeking behaviours (CSBS; n=324, r=.54, p<.001). The relationship between CATS score and age (n=317, r=.034, p=.543) was not significant. In a linear regression with CATS score as dependent variable, gender was also a significant zero-order predictor (β =.292, p<.001).

In order to determine the unique predictive power of non-outcome variables, the number of traumas, trauma-related appraisals (CPTCI-S), depressive cognitions (CTIC), cognitive avoidance (CAQ), rumination (CRSQ) and safety-seeking behaviours (CSBS) were entered into stepwise linear regression with CATS score (i.e. PTSS) as the dependent variable. The CRSQ (β =-.066, p=.244), and CTI-C (β=.087, p=.055) did not account for unique variance in the model and were therefore not retained. However, number of traumas (β =.154, p<.001), CPTCI-S (β =.599, p<.001), CAQ (β =.184, p<.001), and the CSBS (β =.101, p=.012) were all significant predictors. The overall optimum model with these four predictors was significant, accounting for 77.5% of variance in CATS scores ($F_{4,258}$ = 218.443, p<.001, R^2 = .775).

Discussion

The current study sought to develop a measure of safety-seeking behaviours suitable for children and adolescents, and to examine its relationship with PTSS. The

psychometric properties of the CSBS were explored in this study across two samples; one with school pupils and one with a trauma-exposed sample (comprising youth with and without PTSD).

PCA in the first half of the sample supported a reduced 13-item CSBS with a two-factor underlying structure. The items loaded onto two factors which were labelled strategic hyper-vigilance and affective suppression. The overall scale and subscales showed good internal consistency.

There were some potential weaknesses in the factor structure of the CSBS in that some CFA indices (chi-square and RMSEA) were not supportive of a two-factor model. This may be expected given that both indices are affected by sample size and non-normally distributed data (Bandalos, 1993; Curran, et al., 1996; Kenny, Kaniskan, & McCoach, 2015). This model proved a better fit than a one-factor model, suggesting the scale is not unidimensional. The factor loadings and the finding that the two factors and overall scale correlated significantly with PTSS, provide some support for a two-factor model. Despite its potentially weak factor structure, the CSBS was found to have good discriminant validity in distinguishing between both PTSD and non-PTSD pupils (in line with our hypothesis) and also between trauma-exposed children without PTSD and children with clinically diagnosed PTSD.

The full 13-item scale validated in the current study may provide valuable clinical insight into this coping strategy, and inform psychological intervention for youth with PTSD. It would be useful however for further research to examine the two factor-structure in another sample. The fact that the CSBS can detect a difference between clinically diagnosed PTSD and trauma-exposed children without PTSD suggests safety-seeking behaviours are an important mechanism in PTSD.

The CSBS also showed good test-retest reliability, although slightly less than the CATS, suggesting safety-seeking behaviour usage may change over time. The unplanned elongated intermission of 5 months over the school holidays instead of the recommended minimum of a 3-month gap (Clark-Carter, 2009) and slightly underpowered sample (power calculations recommended a minimum of 30) may have resulted in a diminished correlation on the CSBS. The initial test-retest reliability results for the CSBS are promising, suggesting the scale shows some stability over time and may be useful in assessing individual differences in safety-seeking behaviour use. The test-retest for the CATS provides a useful contribution to the validity of this scale and in corroboration with other studies (e.g. Sachser et al., 2017), promotes its wider use in providing an accurate measure of PTSS severity.

Females across the samples used safety-seeking behaviours following trauma significantly more so than males. This gender difference also mirrors the significantly higher levels of PTSS in females than males which has been noted in other surveys (e.g. Landolt et al., 2013). Differences in the use of safety-seeking behaviours across genders highlight the need for idiosyncratic psychological assessment and intervention in the treatment of PTSD. Although age was not significantly correlated with the CSBS, the majority of the participants were of secondary school age so it remains to be established whether there might be age differences between younger children or older adolescents.

The CSBS was significantly correlated with anxiety and depression as would be predicted given their comorbidity with PTSS (Kar & Bastia, 2006). The CSBS showed good specificity in its association with PTSS, remaining significantly correlated when controlling for overall levels of anxiety and depression. This evidences the potential clinical use of the CSBS as an outcome measure and the particular importance of safety-seeking behaviours for assessing and treating PTSS.

A further aim of the study was to establish predictors of PTSS, and to investigate whether, compared to other putative predictors, CSBS might account for unique variance in PTSS. Regression modelling found appraisals, safety behaviours (as indexed by the CSBS), cognitive avoidance and number of trauma types significantly accounted for 77.5% of variance in PTSS, in line with our hypothesis. Rumination and negative beliefs more commonly associated with depression were not predictive of PTSS. This is in contrast to previous research that found rumination (albeit, trauma-focused rumination) did predict PTSD severity at 3-6 months after a road traffic accident in children (Ehlers, Mayou & Byrant, 2003). The conflicting results between previous research and the current study could potentially be due to the use of different measures to evaluate rumination used between the current study and previous work, inadequate power, or a lack of strength of association to other relevant psychological mechanisms (i.e. negative trauma-related appraisals, safety-seeking behaviours and cognitive avoidance). Although depression is often comorbid with PTSD (Blevins, Weathers, Davis, Witte, & Domino, 2015) the cognitive triad of negative cognitions associated with the self, world and future did not account for unique variance in PTSS here. The findings of this regression model are in line with the cognitive model of PTSD (Ehlers & Clark, 2000) and other research demonstrating the importance of cognitive mechanisms in PTSD (Ehlers et al., 2003), demonstrating that cognitive constructs including negative appraisals, safety-seeking behaviours and cognitive avoidance predict PTSS severity in youth.

It could be argued that these cognitive constructs are simply a description of PTSD symptoms and that the CSBS portrays symptoms of hypervigilance and withdrawal. Although, perhaps if this were the case we would expect there to be more overlap with anxiety and depression which was not supported.

The high levels of endorsement of safety-seeking behaviours overall, highlights that even within school-based samples, children and young people are using such strategies to prevent feared outcomes (i.e. future physical harm or they fear emotions could overwhelm them or cause another catastrophe). Targeting safety-seeking behaviours may therefore be important to include in school-based interventions for trauma-exposed pupils.

The current study has notable strengths including that the main study recruited a large UK school-based sample size which makes the findings regarding prevalence of trauma exposure, safety-seeking behaviours and PTSD more reliable and generalizable. The low opt-out rates amongst the schools also means the sample should be relatively unbiased in terms of high or low rates of trauma exposure and psychopathology.

This research also had limitations, including the relative homogeneity of each sample (e.g. in terms of age, ethnicity or trauma events). With larger and more heterogenous samples it would be useful to determine whether certain safety-seeking behaviours are associated with specific traumas (e.g. interpersonal trauma compared to natural disasters). The sample had mostly older children therefore the finding that age was not a significant predictor of PTSS requires further investigation in younger samples (e.g. 7-11 year olds).

It could also be argued that the use of self-report measures to categorize pupils with and without PTSD may not be clinically valid, however this format also may have enabled an anonymity enabling pupils to feel more able to answer truthfully and disclose sensitive information. Having the second sample (which included clinician-diagnosed PTSD) also enabled a thorough comparison group.

Further research on the CSBS would be beneficial. Although this study supports a potential two-factor structure which could provide a deeper clinical understanding of

safety-seeking behavioural presentations, the structure validation requires further investigation. It would be useful to look at different translations of the CSBS and whether these can be validated in non-UK samples to further knowledge of safety-seeking behaviour usage and whether it is a universally important sequela of PTSD. Larger samples of younger children (<12 years) and older children (14+) will be important in exploring whether safety-seeking behaviour usage is as prevalent and relevant to these age groups.

Conclusions

This paper presents a 13-item measure of safety-seeking behaviours for trauma-exposed youth, which is a brief, reliable and psychometrically valid. Therefore, the adult Safety Behaviour Scale (Ehring et al., 2008) has been adapted for young people and may be helpful in detecting an important sequela of PTSD. The measure may be used in both research and clinical settings to inform the assessment, treatment and aetiology of PTSS in this age group.

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Chapter 4. General Discussion and Critical Appraisal

The two articles presented within this thesis share a focus on trauma exposure and PTSD within child and adolescent predominantly school-based samples, yet they are distinct in their contributions to this field, each providing unique insights. This chapter discusses the findings of both papers and reflects on the entire research process as a whole including its rationale, design, methodology, strengths and limitations and research contributions.

4.1. Summary of findings

This thesis presented a systematic literature review and pooled prevalence rates from 14 population-based school-related samples (n=23,685). It highlighted high overall rates of exposures to traumatic events (TEs; 50.0%) and found PTSD rates (7.8%) comparable to the general community (e.g. Alisic et al., 2014). Rates of TE and PTSD were higher for females (12.1%) than males (6.0%). Questionnaire methodology found significantly higher rates of PTSD (12.2%) than interviews (1.8%). Finally, continent of origin and membership of the Organisation for Economic Co-operation and Development (OECD) were both significant predictors of PTSD rates but not of TE.

The empirical study developed and validated a 13-item CSBS which was found to have good psychometric properties including; internal consistency, test-retest reliability, discriminant validity and specificity. Some evidence was found for a 2-factor structure which sub-divided the scale into items measuring ‘Affective Withdrawal’ and items measuring ‘Strategic Hypervigilance’. Further, the study found safety-seeking behaviours, negative appraisals, number of trauma types, cognitive avoidance and rumination to be significant predictors of PTSS.

4.2. Topic rationale

The topic area for this thesis developed from the identification of an absence of research into general population child and adolescent trauma exposure (TE) and PTSD. The existing research has often focused on children who have been exposed to a specific trauma, for example road traffic accidents or environmental disasters. However, many other traumas such as interpersonal violence, conflict, abuse or bereavement are frequently experienced by children in the community (Landolt, Schnyder, Maier, Schoenbucher & Mohler-Kuo, 2013; Alisic, Van der Schoot, van Ginkel, & Kleber, 2008; Meiser-Stedman Dalgleish, Glucksman, Yule & Smith, 2009). This project therefore sought to add to this literature by firstly providing a synthesis of studies that have investigated TE and PTSD within school-based population samples. Secondly it sought to contribute to the few extant UK studies by conducting a battery of questionnaires within schools to create and test the psychometric properties of a novel measure which may be valuable as a clinical tool for PTSD in youth. The increasing attention on the high prevalence of mental health issues in school aged young people and the lack of mental health screening within schools (Romer & McIntosh, 2005) increased my interest for this research topic within this population. Focusing predominantly on school-based populations for trauma exposure and PTSD provides a unique opportunity to access a population-based sample of children, including those who may not yet display behavioural, emotional or educational issues. The process of completing a thorough literature review and meta-analysis in the same field as the empirical study enabled a comprehensive understanding of the evidence, allowing identification of gaps in the literature.

An absence of research was identified in the prevalence and role of safety-seeking behaviours in post-traumatic stress symptoms (PTSS) in young people. Although an adult measure existed to record safety-seeking behaviour, no validated child measure was

available. Evaluating a potentially beneficial and practical tool for use with young people that would be valuable both for clinicians for monitoring safety-seeking behaviours as well as for researchers examining safety-seeking mechanisms further, was a primary motivation for this project. As discussed in the empirical paper, a randomised controlled trial (RCT) found that safety-seeking behaviours partly mediate pre-post and pre-mid therapy changes in the relationship between treatment allocation (waiting list control versus therapy group) and young people's PTSS (Meiser-Stedman, Smith et al., in press). This provided a clear rationale for examining safety-seeking behaviours further but as the RCT was a modest sample size (n=29) and findings hadn't been replicated, there was no certainty this mechanism would be endorsed in population-based school samples. Given that the role of safety-seeking behaviours in child PTSS is largely unknown a different line of enquiry could have been examination of other cognitive mechanisms identified as important in this population, such as rumination or avoidance. However, safety-seeking behaviours are important in a range of anxiety disorders yet they are understudied in PTSD and have had no focus in populations of young people despite their potential for being addressed in psychological therapy. Given its theorised causal role in PTSD maintenance (Ehlers & Clark, 2000), a valid and reliable measure of trauma-specific safety-seeking behaviours could also help to advance our theoretical understanding of PTSD and in delineating its mechanisms.

4.3. Design and methodology

The meta-analysis included school-based studies but could have alternatively involved community-based surveys to provide a wider generalisation of TE and PTSD prevalence amongst children. The decision to exclude purely community-based surveys was made in part as there already exists a recent meta-analysis of pooled PTSD prevalence within this population (see Alisic et al., 2014). Further, many of the community-based

samples have focused on populations who have experienced specific TEs such as war or natural disaster. To obtain a realistic estimate of prevalence from other forms of traumas that are more generalizable to general populations, school-based studies were chosen. In one sense this limited the inclusion criteria, however it also made the systematic review specific enough to provide an informative analysis of a subset of the child trauma literature that is useful to distinguish from purely trauma-exposed populations. As 14 studies were identified as matching the criterion, pooled prevalence and quality assessments of studies in the field was possible despite the narrow search terms.

Self-report. Many of the studies in this field, including those in the meta-analysis, utilised self-report and this was also the method of recruitment that was chosen for the empirical study. This methodology has several limitations including that self-report questionnaires may be potentially unreliable due to susceptibility to memory or attributional biases and the inability to monitor engagement, comprehension and interpretation (Ackroyd, 1992). It also relies on participants to consciously identify their emotions and cognitions which may be particularly problematic in younger populations. Some evidence was found against this however, as the internal consistency of all measures was good, suggesting the young people in the study were reliably reporting internalised perceptions. It would have been possible instead to interview the young people, perhaps in collaboration with a parental interview. This could in addition to quantitative semi-structured questions, have provided valuable qualitative data which could have enabled richer details regarding young people's reactions and idiosyncratic safety-behaviour usage following trauma. However, using interviews may have also lost some of the anonymity which may have enabled young people to answer truthfully. Alternatively, interviews could in fact have helped young people to be more open by first developing interpersonal trust. However, due to the longer collection time required, interviews would have also

resulted in a much smaller sample size or a substantially greater time commitment which would likely have been unfeasible within the thesis timeframe. Having a smaller sample size would also not have provided sufficient power for the regression analyses which revealed important findings on predictors of PTSS. It would also not have been possible to split the sample and conduct both PCA and CFA to explore and validate the structure of the CSBS which has been recommended as the optimal strategy for psychometric exploration (Van Prooijen & Van der Kloot, 2001). The rates of TE and PTSD were also comparable to some other studies that used interviews (e.g. Copeland, Keeler, Angold & Costello, 2007) which may in part suggest this methodology was appropriate. The results of the current meta-analysis also suggest that questionnaire methods detect higher prevalence of PTSD than interviews and so their use may ensure less participants with PTSS are missed. Further to this point, diagnostic-based systems don't necessarily capture all subsyndromal cases who may still have clinically significant traumatic stress symptoms (Meiser-Stedman, Smith et al., in press).

Paper questionnaire surveys. Both schools within the current empirical study had the option of doing the surveys online via Qualtrics (www.qualtrics.com) in their IT suite, but chose to do paper versions. The feedback was that this would be logistically easier due to a limited number of computers, allowing more pupils to complete the questionnaires simultaneously. However, this might be an avenue for future research to explore as there are other benefits to doing online surveys in this area. It would be a large cost saving for researchers and allow for more efficient data collection (Schmidt, 1997) that could automatically be transferred into a dataset, reducing human transcribing error. It may also increase response rates in older populations of adolescents (16+) who could complete the survey at home or in their own time, allowing greater anonymity. In the design of the current empirical study pupils completed the questionnaires simultaneously without

individual guidance/monitoring. There was therefore a portion of data that was lost due to missing items or illegibility. In using an online survey this would have been prevented as respondents could be prompted if they missed a question or inputted an unacceptable response. There were however also benefits of using paper versions, including allowing flexibility to suit school preferences and non-reliance on computers and potential technical issues. Due to these differences between the methods, and given the present thesis finding that differing methods can have a large impact on reported rates, it is possible that differences may be seen in TE, PTSS and safety-seeking behaviour prevalence rates when obtained from computerised versus paper questionnaires, which could be a valuable avenue for future studies. If online surveys were found to be an equally valuable methodology for this area of research, it may be a useful future method for the reasons outlined above. This could also help in administering batteries of questionnaires cross-culturally, if schools in other countries were approached and able to access surveys without UK researchers present. Given that the meta-analysis highlighted the lack of studies outside of the US this could be a potential way of addressing this issue.

Opt-out consent. The design of the current study involved the use of opt-out consent to obtain unbiased, representative data with high response rates. This procedure resulted in a 66.9% response rate from the first school and 78.0% from the second. In a previous thesis, response rates from an opt-in method were as low as 20% in a similar designed study administering questionnaires in UK schools (Meiser-Stedman, 2004). This clearly demonstrates that the opt-out procedure can be a powerful method for increasing response rates, providing a more representative sample. It should be noted that there were some logistical difficulties in ensuring all opt-out requests were received due to the numerous available methods of communication (study mobile, email or paper form sent or handed into school). On reflection, it would have been useful to assign one opt-out

consent contact who took responsibility for all methods of opt-out communication. Future research using an opt-out consent methodology may want to consider how to simultaneously provide flexible methods of communication for guardians whilst ensuring ease of communicating opt-out requests to the school staff and researchers.

4.4. Joint work

The systematic review results (all papers) were double-checked for accuracy and adherence to the exclusion/inclusion criteria by an experienced researcher who is second author on the paper (Stephen Dewitt; see paper for details). The empirical research was completed jointly with fellow trainee clinical trainee Jade Claxton in terms of research design and data collection (see Appendix B for details), however there were separate research focuses (and theses). Whilst the current thesis focus was on trauma exposure and safety-seeking behaviours in PTSD, Jade's examined the comorbidity of depression and PTSD.

There were numerous benefits of sharing the empirical research process with another trainee. Primarily this enabled the process of recruitment to be divided which allowed us to obtain more participants within the limited timeframe. This worked successfully in terms of organising the logistics of recruitment within schools and with sharing the data input which was very time consuming. Furthermore, if we had recruited separately from schools we would have been competing for the finite amount of schools in the East Anglian region which could have caused unnecessary opposition for the same participants who could be recruited under one study. Working in collaboration also enabled us to pool together our knowledge and resources and to be more flexible in responding to school's requests. Personally, it also provided valuable experience in collaborating closely on a research project with a colleague and modifying ideas to encompass multiple perspectives. At times, working in a team in this manner also

provided mutual support in the face of research related challenges and a motivating environment for completing shared goals and research aims.

4.5. Theoretical implications

The significantly higher safety-seeking behaviour usage found amongst pupils with higher levels of PTSS and within the clinical sample is in line with the cognitive model of PTSD (Ehlers & Clark, 2000). This extensive model has been identified as the most developed and supported account of the maintenance and treatment of PTSD (Brewin & Holmes, 2003). Under this model, PTSD develops when the individual processes a TE in a way that leads to a current sense of serious threat despite the event being over. This is explained by disturbances in autobiographical memory due to poor contextualization or elaboration during the TE and excessively negative misappraisals of the trauma and sequelae. Safety-seeking behaviours are therefore utilised as a measure against the sense of impending threat which ultimately inhibits the traumatic memory and negative appraisals and their effects being updated. The current thesis adds to the child and adolescent PTSD literature in providing support for the Ehlers and Clark (2000) cognitive model, demonstrating that safety-seeking behaviours are indeed a significant predictor of PTSS which furthers our understanding of the development of PTSD. The exploration of the CSBS in this thesis suggested a probable (albeit weak) two factor structure. This may suggest that the two underlying facets of safety-seeking behaviours are centred around repressing affective-inducing states and/or using strategies to remain alert to potential threats, which may help us to have a more thorough understanding of the cognitive model of PTSD.

4.6. Clinical implications

There are important clinical implications from this thesis. Firstly, it has highlighted that even within school-based samples of children TE rates and levels of PTSD are high.

This has important implications for the way in which we assess/identify PTSD as it suggests that a public health approach to school-based screening procedures may enable more young people to receive psychological support than standard referral routes. Early identification of these young people exposed to a TE who are at risk of developing PTSD may help to inhibit risk for any potential future detriment in psychological, social, behavioural and educational functioning (Gonzalez, Monzon, Solis, Jaycox, & Langley, 2015). The thesis highlights the need for mental health professionals to work more closely with educational establishments and calls for more integration between mental health services and schools.

The meta-analytic review highlighted that within the current trauma exposure and PTSD literature with population-based school related samples, few are from outside the US (and only two schools published were found in the UK). This is important clinically, as it warrants caution in interpreting much of the relevant literature in this area as PTSD may differ cross-culturally and findings therefore may not be generalizable. Some evidence for this was in fact found within the present thesis where the meta-analysis found a relationship between OECD membership and PTSD rates.

The empirical paper adds to the current clinical literature by providing a brief, reliable, valid and free measure that can be used within mental health services to identify the use of safety-seeking behaviours in young people. It also highlights that potentially modifiable behaviours (via the CSBS) could be a useful target in post-trauma clinical interventions.

4.7. Other strengths and limitations

The systematic review is in part limited by including only published studies and those written in English as pooled rates may suffer from publication bias which is a common limitation of such reviews (Parekh-Bhurke et al., 2011). However, the current

review did include several high-quality papers (see Appendix M for the Newcastle-Ottawa adapted quality assessment scale) that reported non-significant findings, which can sometimes be underreported by authors (Dickersin, 1990). After inspecting the funnel plots displaying the standard errors of prevalence for both papers with PTSD and TE rates (see supplementary material 1) an outlier was removed from all PTSD analyses. Following this there was no indication of publication bias as the plots were not skewed and so no further publication bias analysis was run (Field & Gillet, 2010). The thesis was restricted in its timeframe and therefore it was not possible to source unpublished or grey literature for the systematic review which means relevant findings that are not in mainstream journals are not represented in the current systematic review. The timeframe pressure also meant that two schools could participate in the empirical study with just years 8 and 9, therefore it was difficult to obtain a variety of age groups as intended (i.e. from 11-17 years) and so developmental interpretations of TE and PTSD may be limited. Another limitation touched upon above, is that the inclusion/ exclusion criteria, which sought to reduce potential heterogeneity between studies and allow for comparisons between them, may have led to the exclusion of other useful papers.

Both papers within the thesis used large sample sizes which enabled several research questions to be explored. The strength of the questionnaire battery used in the empirical paper ensured that multiple participants could be tested simultaneously.

4.8. Other future research

In the adult literature, a world-wide survey of traumatic events exposure in the general population of 24 countries with a total of 68894 adults found that 70% had experienced a TE and 30.5% had experienced four or more (Benjet et al., 2016). It would be interesting to examine the developmental trajectory from childhood to adulthood and determine whether the adolescent population investigated in the empirical paper within

this thesis are more likely than younger children to be exposed to various trauma types. Further research on the amount of young people who go on to develop PTSD in population-based communities and how prevalence rates compare to other disorders, would be highly valuable. This could help in understanding the extent of this public health burden and in the allocation of provisions and services.

There is some extant literature which has found that population-based responses can be efficacious. For example, Rolfnes and Idhoe (2011) conducted a meta-analysis and found 19 studies (including RCT's) that provided school-based interventions for young people led to reductions in PTSD (with 11 showing medium-large effect sizes). Within this review one study found that 95% of children attended school-based intervention compared to 15% when it was in a clinical setting, suggesting accessibility and convenience are imperative for therapeutic engagement (Jaycox et al., 2010). Therefore, population-based responses to young people following trauma exposure may be a helpful strategy in preventing future mental health deterioration and in providing accessible care outside of traditional clinician-based settings.

Future research with a more heterogeneous sample (in terms of ethnic background, country of origin etc.) would also help with more sub-group comparisons in determining idiosyncratic differences in cross-cultural PTSS. Additional research on what determines the use of safety-seeking behaviours including its antecedents would help to both understand the theoretical underpinnings of cognitive models of PTSD further and also to aid clinicians with a deeper understanding of this presentation and trauma-related sequelae. It would be useful to examine further the efficacy of therapeutically targeting safety-seeking behaviours with young people with PTSS, and specifically whether safety-seeking behaviours could also be targeted in low intensity interventions including in group formats (which may be more pragmatic within schools).

4.9. Conclusions

The findings therefore demonstrate that even within population-based school samples, TE and PTSD prevalence are comparable to general populations. The thesis highlights the potential importance of mental health screenings within educational establishments following trauma exposure which could help young people obtain psychological support. The thesis presents the development and psychometric validation of a brief measure of safety-seeking behaviours for use with young people which can be used within psychological research and clinical settings. Additionally, the current work presented here provides support for the Ehlers and Clark (2000) model of PTSD and helps to shed some light on aspects of safety-seeking behaviours, an important mechanism of PTSD, previously not investigated within this population.

Future study in this area could focus on cross-cultural research including with younger and older children than those observed here. Further population based-research including epidemiological studies into PTSD in youth and in establishing population-based treatments such as low-intensity interventions that target safety-seeking behaviours would be beneficial.

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Appendix A

Author Guidelines for the Journal of Child Psychiatry and Psychology

Notes for Contributors

General

Contributions from any discipline that further knowledge of the mental health and behaviour of children and adolescents are welcomed. Papers are published in English, but submissions are welcomed from any country. Contributions should be of a standard that merits presentation before an international readership.
Papers may assume either of the following forms:

- *Original articles*
  These should make an original contribution to empirical knowledge, to the theoretical understanding of the subject, or to the development of clinical research and practice. Adult data are not usually accepted for publication unless they bear directly on developmental issues in childhood and adolescence. Original articles should not exceed 6000 words, including title page, abstract, references, tables, and figures; the total word count should be given on the title page of the manuscript. Limit tables and figures to 5 or fewer double-spaced manuscript pages. It is possible to submit additional tables or figures as an Appendix for an online-only version. Manuscripts exceeding the word limit will not be accepted without permission from the Editor.
- *Review articles*
  These should survey an important area of interest within the general field. These include papers in the Annual Research Review, Research Review and Practitioner Review sections, which are usually commissioned. Word limits for review papers are stated at the time of commissioning.

Authors' professional and ethical responsibilities

Submission of a paper to JCPP will be held to imply that it represents an original contribution not previously published (except in the form of an abstract or preliminary report); that it is not being considered for publication elsewhere; and that, if accepted by the Journal, it will not be published elsewhere in the same form, in any language, without the consent of the Editors. When submitting a manuscript, authors should state in a covering letter whether they have currently in press, submitted or in preparation any other papers that are based on the same data set, and, if so, provide details for the Editors.

Ethics

Authors are reminded that the *Journal* adheres to the ethics of scientific publication as detailed in the *Ethical principles of psychologists and code of conduct* (American Psychological Association, 2010). These principles also imply that the piecemeal, or fragmented publication of small amounts of data from the same study is not acceptable. The Journal also generally conforms to the Uniform Requirements for Manuscripts of the International Committee of Medical Journal Editors (ICJME) and is also a member and subscribes to the principles of the Committee on Publication Ethics (COPE).

Authorship
Authorship credit should be given only if substantial contribution has been made to the following:
Conception and design, or collection, analysis and interpretation of data
Drafting the article or revising it critically for important intellectual content, and final approval of the version to be published
The corresponding author must ensure that there is no one else who fulfils the criteria who is not included as an author. Each author is required to have participated sufficiently in the work to take public responsibility for the content.
Conflict of interest
All submissions to JCPP require a declaration of interest. This should list fees and grants from, employment by, consultancy for, shared ownership in, or any close relationship with, an organisation whose interests, financial or otherwise, may be affected by the publication of the paper. This pertains to all authors, and all conflict of interest should be noted on page 1 of the submitted manuscript. Where there is no conflict of interest, this should also be stated. The JCPP Editor Conflict of Interest Statement can be found by clicking here. The JCPP Editor Conflicts of Interest Statement is published annually in issue 1 of each volume.

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Authors must ensure that all research meets these ethical guidelines and affirm that the research has received permission from a stated Research Ethics Committee (REC) or Institutional Review Board (IRB), including adherence to the legal requirements of the study county. Within the Methods section, authors should indicate that 'informed consent' has been appropriately obtained and state the name of the REC, IRB or other body that provided ethical approval. When submitting a manuscript, the manuscript page number where these statements appear should be given.

Recommended guidelines and standards
The Journal requires authors to conform to CONSORT 2010 (see CONSORT Statement) in relation to the reporting of randomised controlled clinical trials; also recommended is the Extensions of the CONSORT Statement with regard to cluster randomised controlled trials). In particular, authors must include in their paper a flow chart illustrating the progress of subjects through the trial (CONSORT diagram) and the CONSORT checklist. The flow diagram should appear in the main paper, the checklist in the online Appendix. Trial registry name, registration identification number, and the URL for the registry should also be included at the end of the methods section of the Abstract and again in the Methods section of the main text, and in the online manuscript submission. Trials should be registered in one of the ICJME-recognised trial registries:

Australian Clinical Trials Registry http://actr.ctc.usyd.edu.au
Clinical Trials http://www.clinicaltrials.gov

ISRCTN Register http://isrctn.org
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Manuscripts reporting systematic reviews or meta-analyses should conform to the PRISMA Statement. The Equator Network is recommended as a resource on the above and other reporting guidelines.

Access to data

If the study includes original data, at least one author must confirm that he or she had full access to all the data in the study, and takes responsibility for the integrity of the data and the accuracy of the data analysis.

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Layout

Title: The first page of the manuscript should give the title, name(s) and short address(es) of author(s), and an abbreviated title (for use as a running head) of up to 80 characters.

Abstract: The abstract should not exceed 300 words and should be structured in the following way with bold marked headings: Background; Methods; Results; Conclusions; Keywords; Abbreviations. The abbreviations will apply where authors are using acronyms for tests or abbreviations not in common usage.

Key points: All papers should include a text box at the end of the manuscript outlining the four to five Key (bullet) points of the paper. These should briefly (80-120 words) outline what's known, what's new, and what's clinically relevant.
Headings: Articles and research reports should be set out in the conventional format: Methods, Results, Discussion and Conclusion. Descriptions of techniques and methods should only be given in detail when they are unfamiliar. There should be no more than three (clearly marked) levels of subheadings used in the text.

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The *JCPP* follows the text referencing style and reference list style detailed in the *Publication manual of the American Psychological Association* (5th edn.)i.
References in text: References in running text should be quoted as follows: Smith and Brown (1990), or (Smith, 1990), or (Smith, 1980, 1981a, b), or (Smith & Brown, 1982), or (Brown & Green, 1983; Smith, 1982).
For up to five authors, all surnames should be cited in the first instance, with subsequent occurrences cited as et al., e.g. Smith et al. (1981) or (Smith et al., 1981). For six or more authors, cite only the surname of the first author followed by et al. However, all authors should be listed in the Reference List. Join the names in a multiple author citation in running text by the word 'and'. In parenthetical material, in tables, and in the References List, join the names by an ampersand (&). References to unpublished material should be avoided.
Reference list: Full references should be given at the end of the article in alphabetical order, and not in footnotes. Double spacing must be used.
References to journals should include the authors' surnames and initials, the year of publication, the full title of the paper, the full name of the journal, the volume number, and inclusive page numbers. Titles of journals must not be abbreviated and should be italicised.
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References to articles, chapters and symposia contributions should be cited as per the examples below:
Kiernan, C. (1981). Sign language in autistic children. *Journal of Child Psychology and Psychiatry*, *22*, 215-220.
Thompson, A. (1981). *Early experience: The new evidence*. Oxford: Pergamon Press.
Jones, C.C., & Brown, A. (1981). Disorders of perception. In K. Thompson (Ed.), *Problems in early childhood* (pp. 23-84). Oxford: Pergamon Press.

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Tables and Figures
All Tables and Figures should appear at the end of main text and references, but

have their intended position clearly indicated in the manuscript. They should be constructed so as to be intelligible without reference to the text. Any lettering or line work should be able to sustain reduction to the final size of reproduction. Tints and complex shading should be avoided and colour should not be used unless essential. Figures should be originated in a drawing package and saved as TIFF, EPS, or PDF files. Further information about supplying electronic artwork can be found in the Wiley-Blackwell electronic artwork guidelines at http://authorservices.wiley.com/prep_illust.asp

Nomenclature and symbols
Each paper should be consistent within itself as to nomenclature, symbols and units. When referring to drugs, give generic names, not trade names. Greek characters should be clearly indicated.

Appendix B

Details on joint working

This study was conducted jointly with Jade Claxton (trainee clinical psychologist). We both recruited participants of the same age from secondary schools, therefore we combined our efforts into a single research project looking at differing research questions and aims. We jointly searched for schools, taking different geographical areas each and we recruited pupils from the two schools together. We also split all tasks such as ethics application, documents and protocol creation as well as data input. This meant that some of the data input for each of our studies was completed by the other trainee as we split the amount of pupil data to input rather than dividing it up by the specific questionnaires. I used data from all questionnaires whereas Jade did not use the CSBS or RCADS-25 anxiety subscale in her project. We managed this by ensuring an equal workload over the course of the research project, closely supervised by our primary supervisor.

Appendix C

Questionnaire Booklet

ID_____

Young Person's Questionnaire Pack

Name _____

Class _____

Date _____

Thank you very much for agreeing to take part in this study.

In this survey we will be asking you some questions about how you think, feel and act.

We are especially interested in how young people think, feel and act after experiencing frightening events. A frightening event might be a situation that you found particularly scary, stressful or worrying.

We know that some young people will have experienced frightening events and some will not. It is equally as important for us to have young people fill in our survey whether they have experienced a frightening event or not.

These questions will take 20-30 minutes to complete.

We know that young people think, feel and act differently to each other, so we are interested in your own individual answers. **There are no right or wrong answers to these questions** so try and answer these questions as honestly as you can.

Thank you

ID_____

Demographic questions

Date of Birth _____

Sex _____

Ethnicity _____

Stressful or scary events happen to many people. Below is a list of stressful and scary events that sometimes happen. Mark YES if it has ever happened to you. Mark NO if it hasn't ever happened to you.

1. Serious natural disaster like a flood, tornado, hurricane, or fire.	☐ Yes ☐ No
2. Serious accident or injury like a car/bike crash, dog bite, sports injury.	☐ Yes ☐ No
3. Robbed by threat, force or weapon.	☐ Yes ☐ No
4. Slapped, punched, or beat up in your family.	☐ Yes ☐ No
5. Slapped, punched, or beat up by someone not in your family.	☐ Yes ☐ No
6. Seeing someone in your family get slapped, punched or beat up.	☐ Yes ☐ No
7. Seeing someone in the community get slapped, punched or beat up.	☐ Yes ☐ No
8. Someone older touching your private parts when they shouldn't.	☐ Yes ☐ No
9. Someone forcing or pressuring sex, or when you couldn't say no.	☐ Yes ☐ No
10. Someone close to you dying suddenly or violently.	☐ Yes ☐ No
11. Attacked, stabbed, shot at or hurt badly.	☐ Yes ☐ No
12. Seeing someone attacked, stabbed, shot at, hurt badly or killed.	☐ Yes ☐ No
13. Stressful or scary medical procedure.	☐ Yes ☐ No
14. Being around war.	☐ Yes ☐ No
15. Other stressful or scary event? Describe: _____	☐ Yes ☐ No

_____

Which one is bothering you most now? _____

For next few pages think about the most scary or upsetting event that has happened to you, *even if it wasn't listed above*.

Thinking about the most scary or upsetting event that has happened to you:
Mark 0, 1, 2 or 3 for how often the following things have bothered you in the last two weeks:

0 Never / 1 Once in a while / 2 Half the time / 3 Almost always

		Never	*Once in a while*	*Half the time*	*Almost always*
1	Upsetting thoughts or pictures about what happened that pop into your head.	0	1	2	3
2	Bad dreams reminding you of what happened.	0	1	2	3
3	Feeling as if what happened is happening all over again.	0	1	2	3
4	Feeling very upset when you are reminded of what happened.	0	1	2	3
5	Strong feelings in your body when you are reminded of what happened (sweating, heart beating fast, upset stomach).	0	1	2	3
6	Trying not to think about what happened. Or to not have feelings about it.	0	1	2	3
7	Staying away from people, places, things, or situations that remind you of what happened.	0	1	2	3
8	Not being able to remember part of what happened.	0	1	2	3
9	Negative thoughts about yourself or others. Thoughts like I won't have a good life, no one can be trusted, the whole world is unsafe.	0	1	2	3
10	Blaming yourself for what happened. Or blaming someone else when it isn't their fault	0	1	2	3
11	Bad feelings (afraid, angry, guilty, ashamed) a lot of the time.	0	1	2	3
12	Not wanting to do things you used to do.	0	1	2	3
13	Not feeling close to people.	0	1	2	3
14	Not being able to have good or happy feelings.	0	1	2	3
15	Feeling mad. Having fits of anger and taking it out on others.	0	1	2	3
16	Doing unsafe things.	0	1	2	3
17	Being overly careful (checking to see who is around you).	0	1	2	3
18	Being jumpy.	0	1	2	3
19	Problems paying attention.	0	1	2	3
20	Trouble falling or staying asleep.	0	1	2	3

Please mark YES or NO if the problems you marked interfered with:

1. Getting along with others ☐ Yes ☐ No
2. Hobbies/Fun ☐ Yes ☐ No
3. School or work ☐ Yes ☐ No
4. Family Relationship ☐ Yes ☐ No
5. General happiness ☐ Yes ☐ No

Thinking about the most scary or upsetting event that has happened to you:

We would like to find out about things you have been doing in the past two weeks.

Please read this list and then tell us how much you AGREE or DISAGREE with each sentence, by ticking the box that best matches you.

Remember, there are no right or wrong answers to these questions.

	Never	*Some-times*	*Often*	*Always*
1. I do not like being away from adults that I trust (e.g., teachers, parents)	[ ]	[ ]	[ ]	[ ]
2. I always check that my friends and family are safe	[ ]	[ ]	[ ]	[ ]
3. I am always thinking about ways to make myself safer	[ ]	[ ]	[ ]	[ ]
4. I am really careful to stay away from unsafe situations	[ ]	[ ]	[ ]	[ ]
5. I am careful not to do dangerous things	[ ]	[ ]	[ ]	[ ]
6. I often do things to try and make myself feel safer	[ ]	[ ]	[ ]	[ ]
7. I always check that doors and windows are locked or I ask my parents to	[ ]	[ ]	[ ]	[ ]
8. When I go somewhere now I always check for the quickest way to leave in case something goes wrong	[ ]	[ ]	[ ]	[ ]
9. I do not like to try new things	[ ]	[ ]	[ ]	[ ]
10. I try to stop my feelings about it	[ ]	[ ]	[ ]	[ ]
11. I always check my body is okay	[ ]	[ ]	[ ]	[ ]
12. I do not like changing the way I do things	[ ]	[ ]	[ ]	[ ]
13. I try really hard to stop my thoughts about it	[ ]	[ ]	[ ]	[ ]
14. I try not to let other people see how I am feeling	[ ]	[ ]	[ ]	[ ]
15. I like to know exactly what is happening around me	[ ]	[ ]	[ ]	[ ]
16. I do extra things to make sure the places I am are safe	[ ]	[ ]	[ ]	[ ]
17. I do not like making choices	[ ]	[ ]	[ ]	[ ]
18. I always like to make sure that the people around me are not dangerous (e.g., by asking mum, staring at people)	[ ]	[ ]	[ ]	[ ]
19. I sleep with the lights on so that I feel safer	[ ]	[ ]	[ ]	[ ]
20. I like to be near a telephone, or, I like my parents to be near a telephone so they or I can quickly call for help	[ ]	[ ]	[ ]	[ ]
21. I have a plan of what I should do if things go wrong	[ ]	[ ]	[ ]	[ ]

Thinking about the most scary or upsetting event that has happened to you:

We would like to know what kinds of thoughts and feelings you've been having.
Below is a list of statements. Please read each statement carefully and tell us how much you AGREE or DISAGREE with each statement by ticking one box.
People react to frightening events in many different ways.
There are no right or wrong answers.

		Don't agree at all	*Don't agree a bit*	*Agree a bit*	*Agree a lot*
1.	My reactions since the frightening event meant I have changed for the worse.	[ ]	[ ]	[ ]	[ ]
2.	I don't trust people.	[ ]	[ ]	[ ]	[ ]
3.	My reactions since the frightening event mean something is seriously wrong with me.	[ ]	[ ]	[ ]	[ ]
4.	I am no good.	[ ]	[ ]	[ ]	[ ]
5.	I can't cope when things get tough.	[ ]	[ ]	[ ]	[ ]
6.	I used to be a happy person but now I am always sad.	[ ]	[ ]	[ ]	[ ]
7.	Bad things always happen.	[ ]	[ ]	[ ]	[ ]
8.	I will never be able to have normal feelings again	[ ]	[ ]	[ ]	[ ]
9.	My life has been destroyed by the frightening event.	[ ]	[ ]	[ ]	[ ]
10.	My reactions since the frightening event show that I must be going crazy.	[ ]	[ ]	[ ]	[ ]

For the rest of the questionnaires we are interested in how you think, feel and act <u>more generally</u>.

RCADS-25

Below is a list of sentences of things that happen to people. Please put a circle around the word that shows how often each of these things happen to you. There are no right or wrong answers.

1. I feel sad or empty	Never	Sometimes	Often	Always
2. I worry when I think I have done poorly at something	Never	Sometimes	Often	Always
3. I would feel afraid of being on my own at home	Never	Sometimes	Often	Always
4. Nothing is much fun anymore	Never	Sometimes	Often	Always
5. I worry that something awful will happen to someone in my family	Never	Sometimes	Often	Always
6. I am afraid of being in crowded places (like shopping centres, the movies, buses, busy playgrounds)	Never	Sometimes	Often	Always
7. I worry what other people think of me	Never	Sometimes	Often	Always
8. I have trouble sleeping	Never	Sometimes	Often	Always
9. I feel scared if I have to sleep on my own	Never	Sometimes	Often	Always
10. I have problems with my appetite	Never	Sometimes	Often	Always
11. I suddenly become dizzy or faint when there is no reason for this	Never	Sometimes	Often	Always
12. I have to do some things over and over again (like washing my hands, cleaning or putting things in a certain order)	Never	Sometimes	Often	Always
13. I have no energy for things	Never	Sometimes	Often	Always
14. I suddenly start to tremble or shake when there is no reason for this	Never	Sometimes	Often	Always
15. I cannot think clearly	Never	Sometimes	Often	Always
16. I feel worthless	Never	Sometimes	Often	Always
17. I have to think of special thoughts (like numbers or words) to stop bad things from happening	Never	Sometimes	Often	Always
18. I think about death	Never	Sometimes	Often	Always
19. I feel like I don't want to move	Never	Sometimes	Often	Always
20. I worry that I will suddenly get a scared feeling when there is nothing to be afraid of	Never	Sometimes	Often	Always
21. I am tired a lot	Never	Sometimes	Often	Always
22. I feel afraid that I will make a fool of myself in front of people	Never	Sometimes	Often	Always
23. I have to do some things in just the right way to stop bad things from happening	Never	Sometimes	Often	Always
24. I feel restless	Never	Sometimes	Often	Always
25. I worry that something bad will happen to me	Never	Sometimes	Often	Always

CAQ

People react differently to certain types of thoughts. Here is a list of things people might think or do about certain thoughts.
Please read each statement and circle the number (1, 2, 3, 4 or 5) that best describes how much it is like you. Remember there are no right or wrong answers.

1 Not at all like me / 2 A little like me / 3 Sometimes like me /
4 A lot like me / 5 Always like me

1	There are things that I would rather not think about.	1	2	3	4	5
2	I avoid certain situations that make me pay attention to things don't want to think about.	1	2	3	4	5
3	I think about things that concern me as if they were happening to someone else.	1	2	3	4	5
4	I have thoughts that I try to avoid.	1	2	3	4	5
5	I try not to think about the most upsetting parts of some situations so as not to be too afraid.	1	2	3	4	5
6	I sometimes avoid objects that can trigger upsetting thoughts.	1	2	3	4	5
7	I distract myself to avoid thinking about certain upsetting subjects.	1	2	3	4	5
8	I avoid people who make me think about things that I do not want to think about.	1	2	3	4	5
9	I often do things to distract myself from my thoughts.	1	2	3	4	5
10	I try to think about boring and unimportant things instead of things that worry me.	1	2	3	4	5
11	Sometimes I throw myself into an activity to avoid thinking about certain things.	1	2	3	4	5
12	To avoid thinking about things that upset me, I force myself to think about something else	1	2	3	4	5
13	There are things I try not to think about.	1	2	3	4	5
14	Sometimes I avoid places that make me think about things I would prefer not to think about.	1	2	3	4	5
15	I try to think about happy things that have happened to me instead of scary things that might happen	1	2	3	4	5
16	I avoid actions that remind me of things I do not want to think about.	1	2	3	4	5
17	I think about many little things so I don't think about more important matters	1	2	3	4	5
18	Sometimes I keep myself occupied just to stop thoughts from popping up in my mind.	1	2	3	4	5
19	I avoid situations that involve people who make me think about unpleasant things.	1	2	3	4	5
20	I think about things that are worrying other people rather than thinking about my own worries.	1	2	3	4	5

CRSQ

We are interested in what you are like. The following items ask you questions about how you feel. This is a survey, not a test. There are no right or wrong answers. Some young people are very different from one another; each young person filling in this questionnaire will be putting down something different.

When young people feel sad, they do and think different things. What about you? What do you do and think when you feel sad? For each question, it is very important that you mark what you **usually** do, not what you think you should do.

1. When I am sad, I think about how alone I feel.	Almost never	Sometimes	Often	Always
2. When I am sad, I go away by myself and think about why I feel this way.	Almost never	Sometimes	Often	Always
3. When I am sad, I think, “I’m ruining everything.”	Almost never	Sometimes	Often	Always
4. When I am sad, I think about how sad I feel.	Almost never	Sometimes	Often	Always
5. When I am sad, I go some place alone to think about my feelings.	Almost never	Sometimes	Often	Always
6. When I am sad, I think about how angry I am with myself.	Almost never	Sometimes	Often	Always
7. When I am sad, I think about other times when I have felt sad.	Almost never	Sometimes	Often	Always
8. When I am sad, I think about a recent situation wishing it had gone better.	Almost never	Sometimes	Often	Always
9. When I am sad, I think, “there must be something wrong with me or I wouldn’t feel this way.”	Almost never	Sometimes	Often	Always
10. When I am sad, I think, “I am disappointing my friends, family, or teachers.”	Almost never	Sometimes	Often	Always
11. When I am sad, I think about all of my failures, faults, and mistakes.	Almost never	Sometimes	Often	Always
12. When I am sad, I think, “why can’t I handle things better?”	Almost never	Sometimes	Often	Always
13. When I am sad, I think about how I don’t feel like doing anything.	Almost never	Sometimes	Often	Always

CTI-C

Circle the answer which best describes your opinion. Choose only one answer for each idea.
Answer the items with what you are thinking **right now.** Remember to fill this out for how you feel today. There are no right or wrong answers.

		Yes	*Maybe*	*No*
1.	I do well at many different things.	[ ]	[ ]	[ ]
2.	Schoolwork is no fun.	[ ]	[ ]	[ ]
3.	Most people are friendly and helpful.	[ ]	[ ]	[ ]
4.	Nothing is likely to work out for me.	[ ]	[ ]	[ ]
5.	I am a failure.	[ ]	[ ]	[ ]
6.	I like to think about the good things that will happen for me in the future.	[ ]	[ ]	[ ]
7.	I do my schoolwork okay.	[ ]	[ ]	[ ]
8.	The people I know help me when I need it.	[ ]	[ ]	[ ]
9.	I think that things will be going very well for me a few years from now.	[ ]	[ ]	[ ]
10.	I have messed up almost all the best friendships I have ever had.	[ ]	[ ]	[ ]
11.	Lots of fun things I do every day are fun.	[ ]	[ ]	[ ]
12.	The things I do every day are fun.	[ ]	[ ]	[ ]
13.	I can't do anything right.	[ ]	[ ]	[ ]
14.	People like me.	[ ]	[ ]	[ ]
15.	There is nothing left in my life to look forward to.	[ ]	[ ]	[ ]
16.	My problems and worries will never go away.	[ ]	[ ]	[ ]
17.	I am as good as other people I know.	[ ]	[ ]	[ ]
18.	The world is a very mean place.	[ ]	[ ]	[ ]
19.	There is no reason for me to think that things will get better for me.	[ ]	[ ]	[ ]

Continues on next page, please turn over.

	Yes	*Maybe*	*No*
20. The important people in my life are helpful and nice to me.	[ ]	[ ]	[ ]
21. I hate myself.	[ ]	[ ]	[ ]
22. I will solve my problems.	[ ]	[ ]	[ ]
23. Bad things happen to me a lot.	[ ]	[ ]	[ ]
24. I have a friend who is nice and helpful.	[ ]	[ ]	[ ]
25. I can so a lot of things well.	[ ]	[ ]	[ ]
26. My future is too bad to think about.	[ ]	[ ]	[ ]
27. My family doesn't care what happens to me.	[ ]	[ ]	[ ]
28. Things will work out okay for me in the future.	[ ]	[ ]	[ ]
29. I feel guilt for a lot of things.	[ ]	[ ]	[ ]
30. No matter what I do, other people make it hard for me to get what I need.	[ ]	[ ]	[ ]
31. I am a good person.	[ ]	[ ]	[ ]
32. There is nothing to look forward to as I get older.	[ ]	[ ]	[ ]
33. I like myself	[ ]	[ ]	[ ]
34. I am faced with many difficulties.	[ ]	[ ]	[ ]
35. I have problems with my personality.	[ ]	[ ]	[ ]
36. I am as good as other people I know.	[ ]	[ ]	[ ]

END OF SURVEY

Well Done!

Thank you very much for participating in our study.

If you have any questions regarding this survey please contact the research team on 07538399761.

Appendix D

Ethical approval letter confirmation

NHS
Health Research Authority

East Midlands - Derby Research Ethics Committee

The Old Chapel

Royal Standard Place

Nottingham

NG1 6FS

Telephone: 0115 8839521

08 February 2016

Ms Alice Alberici
Trainee clinical psychologist
University of East Anglia
Norwich Research Park
Norwich, NR4 7TJ

Dear Ms Alberici,

Study title:	**Cognitive processes in posttraumatic stress disorder (PTSD) and depression following trauma: a cross-sectional study of secondary school pupils**
REC reference:	**16/EM/0009**
Protocol number:	**1**
IRAS project ID:	**188569**

Thank you for your letter, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by the Chair.

We plan to publish your research summary wording for the above study on the HRA website, together with your contact details. Publication will be no earlier than three

months from the date of this opinion letter. Should you wish to provide a substitute contact point, require further information, or wish to make a request to postpone publication, please contact the REC Manager, Miss Vic Strutt, NRESCommittee.EastMidlands-Derby@nhs.net.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

Conditions of the favourable opinion:

Management permission must be obtained from each host organisation prior to the start of the study at the site concerned.

Management permission should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements. Each NHS organisation must confirm through the signing of agreements and/or other documents that it has given permission for the research to proceed (except where explicitly specified otherwise).
Guidance on applying for NHS permission for research is available in the Integrated Research Application System, www.hra.nhs.uk or at http://www.rdforum.nhs.uk.

Where a NHS organisation's role in the study is limited to identifying and referring potential participants to research sites ("participant identification centre"), guidance should be sought from the R&D office on the information it requires to give permission for this activity.
For non-NHS sites, site management permission should be obtained in accordance with the procedures of the relevant host organisation.
Sponsors are not required to notify the Committee of management permissions from host organisations

Registration of Clinical Trials

All clinical trials (defined as the first four categories on the IRAS filter page) must be registered on a publically accessible database within 6 weeks of recruitment of

the first participant (for medical device studies, within the timeline determined by the current registration and publication trees).

There is no requirement to separately notify the REC but you should do so at the earliest opportunity e.g. when submitting an amendment. We will audit the registration details as part of the annual progress reporting process.

To ensure transparency in research, we strongly recommend that all research is registered but for non-clinical trials this is not currently mandatory.

If a sponsor wishes to contest the need for registration they should contact Catherine Blewett (catherineblewett@nhs.net), the HRA does not, however, expect exceptions to be made. Guidance on where to register is provided within IRAS.

It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

Ethical review of research sites

NHS sites

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" below).

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

Document	*Version*	*Date*
Copies of advertisement materials for research participants [Advert Stream 2 guardians]	V2.1	25 January 2016
Copies of advertisement materials for research participants [New Document. Advert Stream 2 16-17 years]	V1	29 January 2016
Covering letter on headed paper [Cover letter]	V2.0	25 January 2016
Evidence of Sponsor insurance or indemnity (non NHS Sponsors only) [Indemnity letter]	1	10 December 2015
IRAS Checklist XML [Checklist_29012016]		29 January 2016
Letter from sponsor [Letter from sponsor]	1	10 December 2015
Other [School letter of support to REC]	1	10 December 2015
Other [GCP Jade Claxton]	1	10 December 2015
Other [GCP AA Chief investigator]	1	10 December 2015
Other [Aftercare sheet stream 1]	1	14 December 2015
Other [Aftercare sheet stream 2]	1	14 December 2015
Other [caseness letter]	1	14 December 2015
Other [Info sheet guardians stream 2]	1	14 December 2015
Other [Opt-out info school invite guardians]	1	14 December 2015
Other [Opt-out school invite 16+]	1	14 December 2015
Participant consent form [Assent form under 16 years stream 1]	V2.0	25 January 2016
Participant consent form [Consent form guardian stream 2]	V2.0	25 January 2016
Participant consent form [Consent form over 16 years stream 1]	V2.0	25 January 2016
Participant consent form [Assent form under 16 years stream 2]	V2.0	25 January 2016
Participant consent form [Consent form over 16 years stream 2]	V2.0	25 January 2016
Participant information sheet (PIS) [Opt0out school invitation guardian stream 1]	V2.0	25 January 2016
Participant information sheet (PIS) [Opt-out school invitation over 16 years]	V2.0	25 January 2016
Participant information sheet (PIS) [Information sheet guardians Stream 2]	V2.0	25 January 2016
Participant information sheet (PIS) [Information sheet under 16 years stream 2 V2.0]	V2.0	25 January 2016
Participant information sheet (PIS) [Info sheet under 16 years stream 1]	V2.0	25 January 2016
Participant information sheet (PIS) [Information sheet over 16 years stream 2]	V2.0	25 January 2016
REC Application Form [REC_Form_02122015]		02 December 2015
Research protocol or project proposal [Research Protocol]	V2.1	25 January 2016
Summary CV for Chief Investigator (CI) [CI CV AA]	1	10 December 2015
Summary CV for student [CV JC]	1	10 December 2015
Summary CV for supervisor (student research) [CV RMS]	1	14 December 2015

Summary, synopsis or diagram (flowchart) of protocol in non technical language [Thesis recruitment diagram]	1	10 December 2015
Validated questionnaire [Questionnaire Battery]	V2.0	

Statement of compliance
The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review

Reporting requirements

The attached document *"After ethical review – guidance for researchers"* gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Notification of serious breaches of the protocol
- Progress and safety reports
- Notifying the end of the study

The HRA website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

User Feedback

The Health Research Authority is continually striving to provide a high quality service to all applicants and sponsors. You are invited to give your view of the service you have received and the application procedure. If you wish to make your views known please use the feedback form available on the HRA website:

http://www.hra.nhs.uk/about-the-hra/governance/quality-assurance/

HRA Training

We are pleased to welcome researchers and R&D staff at our training days – see details at http://www.hra.nhs.uk/hra-training/

16/EM/0009	**Please quote this number on all correspondence**

With the Committee's best wishes for the success of this project.

Yours sincerely

pp. V. Swift

Mr Peter Korczak (Chair) Chair

Email:	NRESCommittee.EastMidlands-Derby@nhs.net
Enclosures:	"After ethical review – guidance for researchers
Copy to:	*Mrs Sue Steel*

Appendix E

Written research ethics committee confirmation of first substantial amendment approval

NHS
Health Research Authority

East Midlands - Derby Research Ethics Committee

The Old Chapel

Royal Standard Place

Nottingham

NG1 6FS

27 April 2016

Ms Alice Alberici
Trainee clinical psychologist
University of East Anglia
Norwich Research Park
Norwich
NR4 7TJ

Dear Ms Alberici

Study title:	**Cognitive processes in posttraumatic stress disorder (PTSD) and depression following trauma: a cross-sectional study of secondary school pupils**
REC reference:	**16/EM/0009**
Protocol number:	**1**
Amendment number:	**Amendment 1**
Amendment date:	**05 April 2016**
IRAS project ID:	**188569**

The above amendment was reviewed on 21 April 2016 by the Sub-Committee in correspondence.

Ethical opinion

The members of the Committee taking part in the review gave a favourable ethical opinion of the amendment on the basis described in the notice of amendment form and supporting documentation.

Approved documents

The documents reviewed and approved at the meeting were:

Document	*Version*	*Date*
Notice of Substantial Amendment (non-CTIMP)	Amendment 1	05 April 2016
Research protocol or project proposal	3	01 April 2016

Membership of the Committee

The members of the Committee who took part in the review are listed on the attached sheet.

R&D approval

All investigators and research collaborators in the NHS should notify the R&D office for the relevant NHS care organisation of this amendment and check whether it affects R&D approval of the research.

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

We are pleased to welcome researchers and R & D staff at our NRES committee members' training days – see details at http://www.hra.nhs.uk/hra-training/

16/EM/0009:	**Please quote this number on all correspondence**

Yours sincerely

pp

Mr Peter Korczak (Chair) Chair

E-mail: NRESCommittee.EastMidlands-Derby@nhs.net

Enclosures: *List of names and professions of members who took part in the review*

Copy to: *Sponsor - Mrs Sue Steel*
East Midlands - Derby Research Ethics Committee

Attendance of Sub-Committee of the REC meeting on 21 April 2016

Committee Members:

Name	*Profession*	*Present*	*Notes*
Dr John S Fenlon	Statistical Consultant	Yes	
Mr Peter Korczak (Chair)	Consultant Maxillofacial Surgeon	Yes	

Also in attendance:

Name	*Position (or reason for attending)*
Miss Victoria Strutt	REC Assistant

Appendix F

Written research ethics committee confirmation of second substantial amendment approval

Health Research Authority
East Midlands - Derby Research Ethics Committee
The Old Chapel
Royal Standard Place
Nottingham
NG1 6FS

02 November 2016

Ms Alice Alberici
Trainee clinical psychologist
University of East Anglia
Norwich Research Park
Norwich
NR4 7TJ

Dear Ms Alice Alberici

Study title:	**Cognitive processes in posttraumatic stress disorder (PTSD) and depression following trauma: a cross-sectional study of secondary school pupils**
REC reference:	**16/EM/0009**
Protocol number:	**1**
Amendment number:	**SA2**
Amendment date:	**06 October 2016**
IRAS project ID:	**188569**

The above amendment was reviewed on 20 October 2016 by the Sub-Committee in correspondence.

Ethical opinion

The members of the Committee taking part in the review gave a favourable ethical opinion of the amendment on the basis described in the notice of amendment form and supporting documentation.

Approved documents

The documents reviewed and approved at the meeting were:

Document	*Version*	*Date*
Notice of Substantial Amendment (non-CTIMP)	SA2	06 October 2016
Research protocol or project proposal	3.1	28 September 2016

Membership of the Committee

The members of the Committee who took part in the review are listed on the attached sheet.

Working with NHS Care Organisations

Sponsors should ensure that they notify the R&D office for the relevant NHS care organisation of this amendment in line with the terms detailed in the categorisation email issued by the lead nation for the study.

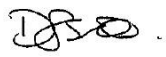
Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

We are pleased to welcome researchers and R & D staff at our NRES committee members' training days – see details at http://www.hra.nhs.uk/hra-training/

16/EM/0009:	**Please quote this number on all correspondence**

Yours sincerely



PP

Mr Peter Korczak (Chair) Chair

E-mail: NRESCommittee.EastMidlands-Derby@nhs.net

Enclosures: *List of names and professions of members who took part in the review*

Copy to:

Mrs Sue Steel

East Midlands - Derby Research Ethics Committee

Attendance at Sub-Committee of the REC meeting on 20 October 2016

Committee Members:

Name	*Profession*	*Present*	*Notes*
Dr John S Fenlon	Statistical Consultant	Yes	
Mr Peter Korczak (Chair)	Consultant Maxillofacial Surgeon	Yes	

Also in attendance:

Name	*Position (or reason for attending)*
Miss Victoria Strutt	REC Manager

Appendix G

Guardian information sheet and opt-out consent form

University of East Anglia

Version 2.0
25th January 2016

Dear parent/guardian,

R.e. Research project entitled: How do young people respond to frightening events?

INFORMATION SHEET

Researchers: Alice Alberici, Jade Claxton and Dr. Richard Meiser-Stedman

We are researchers at the University of East Anglia and we would like to invite your child/children to take part in our study looking at what children do to make themselves feel safe and how they react after a frightening event. Responses from children who may or may not have experienced a frightening event are equally important. This research is being undertaken as part of an educational qualification (Doctorate in Clinical Psychology).

Why are we doing this study?

Exposure to frightening events e.g. seeing someone get slapped or punched or being in a car accident is very common in children and young people. This is important as it has been associated with a range of negative outcomes including emotional problems, disruption of important relationships, physical health problems and difficulties at school. However we don't know about what strategies young people utilise to cope with difficult life events and what factors predict resilience to such potentially negative outcomes. This information would enable us to consider appropriate targets for prevention and interventions and to develop a screening measure to detect what strategies young people are employing.

What will the study involve?

The study involves your child/children completing some short questionnaires online at school. This should take about 20 minutes. Firstly, they will be asked to recall the most frightening thing that has happened to them in the past two months. Then they will be asked to fill out some questionnaires about how they have been since the frightening event, how they are feeling and what things they may have tried to alleviate any distress. A small number of randomly selected pupils who take part may be asked in three months' time to fill out the questionnaires again to check that our measures are accurate. Young people will be provided with an aftercare sheet with lists of options for support services and further places they can obtain information. The major findings will be written up and sent to parents by the end of the course in 2017.

Is the study mandatory?

No. This study is voluntary; it is up to you and your child whether he or she takes part. Your child will be given an information sheet about the study at school, telling them this. In order to make it easier for children to participate in the study, we are writing to each child's parent to inform them about this study. ***If you would not like your child to participate in the study, then please would you return the slip below to your child's school indicating your wishes by the ……..***. You can also email the researchers on [*insert email address*] or email them [*insert email address*] or call your child's school on *[insert number*] to let them know you do not wish for your child to take part. If you are happy for your child to participate in this study, then you do not have to return the slip; ***if we do not hear from you we will assume that you are happy for your child to participate***.
If you do not wish your child to take part, or if you later change your mind and decide to withdraw your child from the study, then you are free to do so and we will not ask why, this will *not* affect how you or your child are treated.

University of East Anglia

Version 2.0
25th January 2016

Who has reviewed this study?

This research has been checked by [insert ethics committee]

What are the possible risks in taking part?

There is no known major risk in filling out the questionnaires however we are asking young people to think about a frightening event which some may find upsetting. Previous research conducted with young people has found none to a very small amount of participants became upset and chose to stop. Therefore it is anticipated there will be no significant adverse effects from partaking. We will ensure that participants understand they can stop at any point for any reason. We will ensure that a trained researcher is available at all times in the unlikely event that a child does become upset. Information will also be provided with other ways in which participants can seek emotional support.

Is the study confidential?

Questionnaires will be anonymised once collected using numbers so no child will be identifiable after we have done a wellbeing screen. Any information that your child tells us will be kept confidential, *unless* your child or someone else is thought to be at risk of harm or if they approach thresholds for symptoms of depression or anxiety. If we do identify that your child might benefit from some support we would get in touch with you and signpost you to appropriate support services. Only the researchers listed on this information sheet will have authorised access to the data which will be secured in accordance with the Data Protection Act 1998.

What if there is a problem?
If you have any concern about any aspect of this study please contact Dr. Richard Meiser-Stedman [insert contact] or if you would like to make a complaint please contact [insert UEA contact].

If you have any questions or would like some more information, please contact……..on …….
Thank you for your time.

Yours Sincerely,

Alice Alberici, Jade Claxton, Dr. Richard Meiser-Stedman

University of East Anglia

……

I *DO NOT* give permission for my child to take part in the "How do young people respond to frightening events" study.

Child's name: ..... Class: .....

Parent or guardian's name: .....

Parent's signature: ..... Date: .....

Appendix H

Young person's information sheet

University of East Anglia

Version 2.0
25th January 2016

INFORMATION SHEET FOR UNDER 16 YEARS

Study title: How do young people respond to frightening events?

Researchers: Alice Alberici, Jade Claxton and Dr. Richard Meiser-Stedman

We are researchers at the University of East Anglia and we are inviting you to take part in our research study. Before you decide to take part it is important that you understand why we are doing this study and what we will ask you do to if you take part. Please read the information carefully so that you can decide if you want to take part or not. Feel free to ask us if there is anything you do not understand.

What is this study about?

Our study is looking at how young people think, feel and act after a frightening event and what they do to make themselves feel safe. It is just as important for us to hear from young people who have not experienced a frightening event as those that have. So even if you have not experienced a frightening event we would still like you to take part.

Why are we doing this study?

Experiencing frightening events e.g. seeing someone get slapped or punched or being in a car accident is very common in children and young people. This is important because sometimes young people can be affected by difficulties with their emotions, relationships, schooling and health after they have experienced a frightening event. We would really like to find out about the strategies young people use to cope with frightening events and which strategies seem most helpful. This information could help us to think about what might be most helpful for children who have experienced a frightening event to avoid these difficulties.

What will the study involve if I take part?

We will ask you to complete some short questionnaires online or on paper at school. This should take about 10-15 minutes. Firstly, you will be asked to remember the most frightening thing that has ever happened to you. Then you will be asked to fill out some questionnaires about how you have been thinking, feeling and acting since the frightening event. We will write up our findings and send them to schools at the end of the study (summer 2017).

Do I have to take part?

No. This study is voluntary; it is up to you whether you take part or not. Once you have finished reading the information sheet you can decide whether you would like to take part and if you do you can fill in the assent/consent form and then complete the questionnaires. If you do not want to take part, or if you later change your mind and decide to withdraw from the study, then you are free to do so up until December 2016- we will not ask why and this will *not* affect how are treated by us, the university or your school.

Who has reviewed this study?

This research has been checked by Derby Research Ethics Committee.

What are the possible risks in taking part?

University of East Anglia

Version 2.0
25th January 2016

There is no known major risk in filling out the questionnaires. We are however asking young people to think about a frightening event which some may find upsetting. We have looked at other studies that have been done with young people also asking about frightening events, and found that usually no participants or only a very small amount became upset and chose to stop. It is important for you to know that you can stop at any point for any reason and do not need to tell anyone why. If you do find anything upsetting about taking part in the study, the researchers are trained in working with distress in young people and will be available from 9-5pm via the number below for you to talk to on the day if you require. You can also speak to [*insert school contact*] or another member of staff or at a later point to your family. There is also an aftercare sheet at the after the questionnaire booklet with a list of different services and places you can get more information and support.

Is the study confidential?

Questionnaires will be anonymised once collected using numbers so no participant will be identifiable after we have done a wellbeing screen that will tell us if you are experiencing a lot of anxiety or depression symptoms. If we find that this is the case then we will contact your parent(s)/guardians and let them know about support services which might help you. Any information that you tell us will be kept private and only shared with the research team, *unless* you or someone else is thought to be at risk of harm. If this happens then the researchers will need to share the information with others such as parents or school. Only the researchers listed on this information sheet will have authorised access to the data which will be kept in line with the Data Protection Act 1998.

What if there is a problem?

If you have any concern about any aspect of this study, you can speak to the research supervisor, Dr. Richard Meiser-Stedman on 01603 593601 (email r.mesier-stedman@uea.ac.uk). If you remain unhappy and would like to make a complaint please contact Professor Ken Laidlaw on 01603 593600.

How do I take part?

If you decide you want to take part when we do the study you can sign the consent form and fill in the questionnaires.

If you have any questions or would like some more information, please call Jade or Alice on 07538399761 or email jade.claxton@uea.ac.uk or a.alberici@uea.ac.uk.

Thank you for your time.

Yours Sincerely,

Alice Alberici, Jade Claxton, Dr. Richard Meiser-Stedman

Appendix I

Aftercare sheet

Looking after yourself

Thank you for taking part in in this study. If after the study you feel you need to talk to someone about any problems you may have or if you have experienced something you need to share, there are people to support you.

If you feel comfortable to do so we would recommend you talk to your parent or guardian. We also encourage you to get in contact with the school's named contact for the study [*insert school contact*], if you don't feel you can go to this person please let another school member of staff know. You can also visit your school nurse, head of year or pastoral care with any concerns you might have.

If you feel you are suffering from any serious problems we would urge you to contact your local General Practitioner (G.P) who can discuss this with you and refer you to other services if necessary.

Helplines

If you are struggling with how you are feeling and need to talk please do not suffer in silence. The following organisations are there to listen in confidence and provide advice without judging:

- The Samaritans helpline is available 24 hours 7 days a weeks on: 08457 909090 or visit www.samaritans.org
- Childline is a free helpline also available anytime on: 0800 1111 or visit www.childline.org.uk

Online support and information

www.rethink.org/living-with-mental-illness/young-people

www.thesite.org/healthandwellbeing/mentalhealth

www.mindfull.org

www.youngminds.org.uk/for_children_young_people

www.getconnected.org.uk

Visit www.youthaccess.org.uk to search their directory of services for help in your area.

Visit www.docready.org for a digital tool that helps to prepare young people for meeting with a GP or health professional

Appendix J

Wellbeing screen letter to guardians

Norwich Medical School
University of East Anglia
Norwich Research Park
Norwich
Norfolk
NR4 7TJ

Dear Parent,

We would like to thank you and your child for their participation in our research study. We are very grateful for your contribution to an important research field; the development of which would not be possible without help from young people like your child.

As part of our commitment to the wellbeing of young people undertaking our research, we take steps to inform parents where any child scores above the cut-off on any of our measures of mental health symptoms.

This means that on the day your child filled in our survey, the responses they gave on the Child and Adolescent trauma questionnaire which looks at symptoms of post-traumatic stress disorder resulted in a score higher than we might expect the "normal" range to lie in, and may reflect difficulties in this area.

However, as the responses to the questions on this measure only gives us a snapshot picture, with little other information, this may not reflect clinical significance and may just have been due to factors on the day, or it could reflect short-term difficulties such as recent stress caused by exams, schoolwork or a bereavement.

However we feel it may be worthwhile reviewing with your child and their GP, for further consideration and to look at any options available, even as a precautionary measure.

Should you wish to discuss this further with the research team please contact us on 07538399761 or by email (a.alberici@uea.ac.uk) alternatively you may wish to contact [*insert school contact*].

Yours Sincerely,

Jade Claxton
Trainee Clinical Psychologist

Alice Alberici
Trainee Clinical Psychologist

Appendix K

Assent form under 16 years

University of East Anglia

Version 2.0
25th January 2016

Participant Identification Number for this trial:

CONSENT FORM FOR UNDER 16 YEARS

Study title: How do young people respond to frightening events?

Names of Researchers: Alice Alberici & Jade Claxton

Thank you for thinking about taking part in our research project. If you have any more questions about the project please ask the researcher before you decide whether you want to take part or not. If you do decide you would like to take part please read the following:

Please initial boxes

1. I confirm that I have read and understand the information sheet dated 25th January 2016 (version 2.0) for the above study. I have had the time to think about the information, understand any risk involved with taking part and been able to ask questions about the study. ☐

2. I understand that taking part is voluntary (I can choose whether I want to take part or not) and that I can stop taking part at any time without giving a reason and I won't be treated any differently by my school or by the University of East Anglia. ☐

3. I understand that any information I give will only be shared with the research team **except if I say something which makes the researchers think that I or someone else is at risk of being harmed. If this happens the researchers will need to share this information with other people.** ☐

4. I understand if my answers suggest I am experiencing lots of anxiety or depression the researchers will talk to my parent(s)/guardian(s) or school to suggest what support might help me. ☐

5. I confirm that I know how to contact the research team about the study if I need to, and how to get information about the results. ☐

6. I agree to take part in the above study. ☐

Name: **Date:**

Date of Birth: **[*Class if applicable:*]**

Appendix L

Author Guidelines for the Journal of Traumatic Stress

Author Guidelines

1. **Online Submissions:** The *Journal of Traumatic Stress* accepts submission of manuscripts online at:
   http://mc.manuscriptcentral.com/jots
   Information about how to create an account or submit a manuscript may be found online on the Manuscript Central homepage in the "User Tutorials" section or, on the Author Dashboard, via the "Help" menu in the upper right corner of the screen. Personal assistance also is available by calling 434-964-4100.
2. **Article Formats:** Three article formats are accepted for consideration by JTS. All page counts should include references, tables, and figures. *Regular articles* (30 pages maximum, inclusive of all text, abstract, references, tables, and figures) include research studies, quantitative systematic reviews, and theoretical articles. Purely descriptive articles or narrative-based literature reviews are rarely accepted. In extraordinary circumstances, the editors may consider longer manuscripts that describe highly complex designs or statistical procedures but authors should seek approval prior to submitting manuscripts longer than 30 pages. *Brief reports* (18 pages maximum) are appropriate for pilot studies or uncontrolled trials of an intervention, preliminary data on a new problem or population, condensed findings from a study that does not merit a full article, or methodologically oriented papers that replicate findings in new populations or report preliminary data on new instruments. *Commentaries* (1,000 words or less) involve responses to previously published articles or, occasionally, invited essays on a professional or scientific topic of general interest. Response commentaries, submitted no later than 8 weeks after the original article is published (12 weeks if outside the U.S.), must be content-directed and use tactful language. The original author is given the opportunity to respond to accepted commentaries.
3. **Double-Blind Review:** As of January 1, 2017, the Journal of Traumatic Stress utilizes a double-blind review process in which reviewers receive manuscripts with no authors' names or affiliations listed in order to ensure unbiased review. To facilitate blinded review, the title page should be uploaded as a separate document from the body of the manuscript, identified as "Title Page," and should include the title of the article, the running head (maximum 50 characters) in uppercase flush left, author(s) byline and institutional affiliation, and author note (see pp. 23-25 of the APA 6th ed. manual). Within the main body of the manuscript, tables, and figures, authors should ensure that any identifying information (i.e., author names, affiliations, institutions where the work was performed, university whose ethics committee approved the project) is blinded; a simple way to accomplish this is by replacing the identifying text with the phrase "[edited out for blind review]". In addition, language should be used that avoids revealing the identity of the authors; e.g., rather than stating, "In other research by our lab (Bennett & Kerig, 2014), we found …" use phrases such as, "In a previous study, Bennett and Kerig (2014) found …" Please note that if you have uploaded the files correctly, you will **not** be able to view the title page in the PDF and HTML proofs of your manuscript; however, the Editor and JTS editorial office staff can view this information.
4. **Preferred and Non-Preferred Reviewers:** During the submission process, authors may suggest the names of preferred reviewers; authors also may request that specific individuals not be selected as reviewers.

5. **Publication Style:** JTS follows the style recommendations of the 2010 *Publication Manual of the American Psychological Association* (APA; 6th edition) and submitted manuscripts must conform to these formatting guidelines. Manuscripts should use non-sexist language. Manuscripts must be formatted using letter or A4 page size, with 1 inch (2.54 cm) margins on all sides, Times New Roman 12 point font (except for figures, which should be in 12 point Arial font), and double-spacing for text, tables, references, and figures. Submit your manuscript in DOC or RTF format.

   For assistance with APA style, in addition to consulting the manual itself, please note these helpful online sources that are freely available: http://www.apastyle.org/learn/tutorials/basicstutorial.aspx and https://owl.english.purdue.edu/owl/section/2/10/ .
6. **APA and JTS Style Pointers:** In addition to consulting the APA 6th edition Publication Manual, the resources indexed above, and the JTS Style Sheet posted online, please consider these pointers when formatting each section of the manuscript:
   a. **Tense:** Throughout the manuscript, please use past tense for everything that has already happened, including the collection and analyses of the data being reported.
   b. **Abstract:** The Main Document of the manuscript should begin with an abstract no longer than 250 words, placed on a separate page. In addition, JTS house style requires the reporting of an effect size for each finding discussed in the abstract; if there are many findings, present the range.
   c. **Participants:** Please include in this subsection of the Method section information on sample characteristics, subsample comparisons, and analyses that describe the sample but are not focused on testing the hypotheses that are the aims of your manuscript.
   d. **Procedure:** Please describe the procedure in sufficient detail so that it could be comprehended and replicated by another investigator. Identify by name the IRB or ethics committee (edited out for blind review in the submitted manuscript) that approved the research, and the manner in which consent was obtained.
   e. **Measures:** In addition to providing citations, psychometric, and validation data for each measure administered, please provide coefficient alpha from your data for each measure for which this is appropriate.
   f. **Data Analysis:** Include a separate subsection with this header in the Method section in which you describe the analyses performed, the software program(s) used, and make an explicit statement about missing data in your data set. If there are no missing data, so state; otherwise describe the extent of missing data and how they were handled in the data analyses.
   g. **Results** (and throughout): Please present percentages to 1 decimal place, means and *SD*s to 2 decimal places, and exact *p* values to 3 decimal places except for < .001. Include leading zeros (e.g., 0.92) when reporting any statistic that can be greater than 1.00 (or less than -1.00). For example, there is no leading zero used when reporting correlations, coefficient alphas, standardized betas, *p* values, or fit indices (e.g., $r = .47$, not 0.47).
   h. **References:** Format the references using APA 6th edition style: (a) begin the reference list on a new page following the text, (b) double-space, (c) use hanging indent format, (d) italicize the journal name or book title, and (e) list alphabetically by last name of first author. Do not include journal issue

numbers unless each volume begins with page 1. If a reference has a Digital Object Identifier (doi), it must be included as the last element of the reference.

(1) ***Journal Article:***

Kraemer, H. C. (2009). Events per person-time (incidence rate): A misleading statistic? *Statistics in Medicine, 28*, 1028–1039. doi: 10.1002/sim.3525

(2) ***Book:***

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.

(3) ***Book Chapter:***

Meehl, P. E. (2006). The power of quantitative thinking. In N. G. Waller, L. J. Yonce, W.

M. Grove, D. Faust, & M. F. Lenzenweger (Eds.), *Essays on the practice of scientific psychology* (pp. 433–444). Mahwah, NJ: Erlbaum.

i. **Footnotes:** Footnotes should be avoided. When their use is absolutely necessary, footnotes should be formatted in APA style and placed on a separate page after the reference list and before any tables.

j. **Tables:** Tables should be formatted in APA 6th edition style and should be placed after the references in the body of the manuscript. Please use Word's Table function to construct tables, not tabs and spacing. Tables should be numbered (with Arabic numerals) and referred to by number in the text. Each table should begin on a separate page. Please make tables double-spaced, decimal align all numeric columns, and use sentence case for labels. Each datum should appear in its own cell (e.g., do not include *SD*s in parentheses following *M*s but instead create a separate column for *SD*s). When reporting a table of intercorrelations, fill the rows first and then the columns such that any empty cells are in the lower left-hand quadrant of the table; use dashes in any redundant cells indicating the correlation of a variable with itself. Please use asterisks to indicate significance levels in tables, not *p* values.

Color in tables: Color can be included in the online version of a manuscript at no charge; however use of color in the print version of the journal will incur additional charges (currently $600 per figure or table). If you wish to include color in only the online version, please ensure that each table will be legible in greyscale when it is published in the print version; for example, lines of different colors may be discriminable from one another when viewed in color but may not appear to be different from one another in greyscale.

k. **Figures:** All figures (graphs, photographs, drawings, and charts) should be numbered (with Arabic numerals) and referred to by number in the text. Each figure should begin on a separate page. Place figures captions at the bottom of the figure itself, not on a separate page. Include a separate legend to explain symbols if needed. Please use Arial font throughout except for the caption, which should remain as Times New Roman. Use sentence case for titles and labels. Figures should be in Word, TIF, or EPS format.

Color in figures: Color can be included in the online version of a manuscript at no charge; however use of color in the print version of the journal will incur additional charges (currently $600 per figure or table). If you wish to include color in only the online version, please ensure that each figure will be legible in

greyscale when it is published in the print version; for example, lines of different colors may be discriminable from one another when viewed in color but may not appear to be different from one another in greyscale.

7. **Uploading Files:** After the separate Title Page has been uploaded, the remaining text (abstract, main body of the manuscript, references, and tables) should be uploaded as a **single** file designated as "Main Document." Figures may be either included in the main document or uploaded as separate files if in a non-Word format.
8. **Supplementary Materials.** Authors may wish to place some material in the separate designation of "Supplementary file not for review," which will be made available online for optional access by interested readers. This material will not be seen by reviewers and will not be taken into consideration in their evaluation of the scientific merits of the work, and will not be included in the published article. Material appropriate for such a designation includes information that is not essential to the reader's comprehension of the study design or findings, but which might be of interest to some scholars; examples might include descriptions of a series of non-significant posthoc analyses that were not central to the main hypotheses of the study, detailed information about the content of coding system categories, and CONSORT flow diagrams for randomized controlled trials (see below). Note well that the manuscript must stand on its own without this material; consequently, critical information reviewers and readers need to evaluate or replicate the study, such as the provenance and psychometric properties of the measures administered, is not appropriate for placement into Supplementary Materials.
9. **Statement of Ethical Standards:** In the conduct of their research, author(s) are required to adhere to the "Ethical Principles of Psychologists and Code of Conduct" of the American Psychological Association (visit http://www.apa.org/science/leadership/research/ethical-conduct-humans.aspx for human research or http://www.apa.org/science/leadership/care/guidelines.aspx for animal research) or equivalent guidelines in the study's country of origin. If the author(s) were unable to comply when conducting the research being presented, an explanation is required.
   All work submitted to the *Journal of Traumatic Stress* must conform to applicable governmental regulations and discipline-appropriate ethical standards. Responsibility for meeting these requirements rests with all authors. Human and animal research studies typically require prior approval by an institutional research or ethics committee that has been established to protect the welfare of human or animal participants.

   Data collection for the purposes of providing clinical services or conducting an internal program evaluation generally does not require approval by an institutional research committee. However, analysis and presentation of such data outside the program setting may qualify as research (which is defined as an effort to produce generalizable knowledge) and thus may require approval by an institutional committee. Those who submit manuscripts to the *Journal of Traumatic Stress* based on data from these sources are encouraged to consult with a representative of the applicable institutional committee to determine whether approval is needed. Presentations that report on a particular person (e.g., a clinical case) also usually require written permission from that person to allow public disclosure for educational purposes, and involve alteration or withholding of information that might directly or indirectly reveal identity and breach confidentiality.

To document how these guidelines have been followed, authors are asked to identify in the online submission process the name of the authorized institution, committee, body, entity, or agency that reviewed and approved the research or that deemed it to be exempt from ethical or Internal Review Board review. Although blinded at the time of submission, the name of the IRB or ethics committee that approved the research, and the manner in which consent was obtained, also should appear in the Procedure subsection of the Method in the body of the report.

10. **Randomized Clinical Trials:** Reports of randomized clinical trials should include a flow diagram and a completed CONSORT checklist (available at http://www.consort-statement.org) indicating how the manuscript follows CONSORT Guidelines for the reporting of randomized clinical trials. The flow diagram should be included as a figure in the manuscript whereas the checklist should be designated as a "Supplementary file not for review" during the online submission process. Please visit http://consort-statement.org for information about the consort standards and to download necessary forms.
11. **Systematic Reviews:** Reports of systematic reviews follow the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (http://www.prismastatement.org/documents/PRISMA%202009%20checklist.pdf) and should be accompanied by a flow diagram (http://www.prisma-statement.org/PRISMAStatement/FlowDiagram.aspx) mapping out the number of records identified, included, and excluded, and the reasons for exclusions.
12. **Writing for an International Readership:** As an international journal, the *Journal of Traumatic Stress* avoids the use of operational code names or nicknames to describe military actions, wars, or conflicts, given that these may not be equally familiar or meaningful to readers from other nations. Helpful guides for clear and neutral language for reporting on military-based research can be found at the following webpages: the ISTSS newsletter *StressPoints* (http://www.istss.org/educationresearch/traumatic-stresspoints/2015-march-(1)/media-matters-what%E2%80%99s-in-a-nameusing-military-code.aspx), the *International Press Institute* (http://ethicaljournalismnetwork.org/assets/docs/197/150/4d96ac5-55a3396.pdf) and the *Associated Press Stylebook and Briefing on Media Law* (http://www.apstylebook.com/?do=help&q=48/). In addition, authors are encouraged to give consideration to whether particular research findings might be culturally-specific rather than universally established; e.g., prevalence rates derived from samples consisting of all-US participants should be identified as such.
13. **Originality and Uniqueness of Submissions.** Submission is a representation that neither the manuscript nor substantive content within in it has been published previously nor is currently under consideration for publication elsewhere. A statement transferring copyright from the authors (or their employers, if they hold the copyright) to the International Society for Traumatic Stress Studies will be required after the manuscript has been accepted for publication. Authors will be prompted to complete the appropriate Copyright Transfer Agreement through their Author Services account. Such a written transfer of copyright is necessary under U.S. Copyright Law in order for the publisher to carry through the dissemination of research results and reviews as widely and effectively as possible.
14. **Pre-Submission English-Language Editing:** Authors for whom English is a second language may choose to have their manuscript professionally edited before submission

to improve the English. Japanese authors can find a list of local English improvement services at
http://www.wiley.co.jp/journals/editcontribute.html. All services are paid for and arranged by the author, and use of one of these services does not guarantee acceptance or preference for publication.

15. **Page Charges:** The journal makes no page charges. The only exception to this, as noted above, is if authors wish tables or figures to be printed in color.
16. **Author Services:** Online production tracking is available for your article through Wiley-Blackwell's Author Services. Author Services enables authors to track their article—once it has been accepted— through the production process to publication online and in print. Authors can check the status of their articles online and choose to receive automated emails at key stages of production. Authors will receive an email with a unique link that enables them to register and have their article automatically added to the system. Please ensure that a complete email address is provided when submitting the manuscript. Visit http://authorservices.wiley.com/ for more details on online production tracking and for a wealth of resources including FAQs and tips on article preparation, submission, and more. Corresponding authors: In lieu of a complimentary copy free access to the final PDF offprint of your article will be available via Author Services only. Please therefore sign up for Author Services if you would like to access your article PDF offprint and enjoy the many other benefits the service offers. Should you wish to purchase reprints of your article, please click on the link and follow the instructions
provided: https://caesar.sheridan.com/reprints/redir.php?pub=10089&acro=JTS
17. **OnlineOpen** : The *Journal of Traumatic Stress* accepts articles for Open Access publication. Please visit http://olabout.wiley.com/WileyCDA/Section/id-828081.html for further information about OnlineOpen.
18. **NIH Public Access Mandate:** For those interested in the Wiley-Blackwell policy on the NIH Public Access Mandate, please visit our policy statement at www.wiley.com/go/nihmandate

Appendix M

Adapted quality assessment rating scale for cross-sectional studies
Newcastle-Ottawa Scale adapted for cross-sectional studies

Selection: (Maximum 5 stars)
1) Representativeness of the sample:
a) Truly representative of the average in the target population. * (all subjects or random sampling)
b) Somewhat representative of the average in the target population. * (non-random sampling)
c) Selected group of users.
d) No description of the sampling strategy.
2) Sample size:
a) Justified and satisfactory. *
b) Not justified.
3) Non-respondents:
a) Comparability between respondents and non-respondents characteristics is established, and the response rate is satisfactory. *
b) The response rate is unsatisfactory, or the comparability between respondents and non-respondents is unsatisfactory.
c) No description of the response rate or the characteristics of the responders and the non-responders.
4) Ascertainment of the exposure (risk factor):
a) Validated measurement tool. **
b) Non-validated measurement tool, but the tool is available or described.*
c) No description of the measurement tool.
Comparability: (Maximum 1 star)
5) The subjects in any different grouping are comparable, based on the study design or analysis. Any potential confounding factors are either controlled for or identified and explored in analysis.
a) The study identifies/controls for key important factors that may impact on results or uses moderator analysis to explore this. *
b) The study control for any additional factor. *
c) The study makes no attempt to identify/control or examine any moderators
Outcome: (Maximum 3 stars)
6) Assessment of the outcome:
a) Independent blind assessment. **
b) Self-report corroborated by another source **
c) Anonymous self-report or interview. **
d) Self-report *
d) No description.
7) Statistical test:
a) The statistical test used to analyze the data is clearly described and appropriate, and the measurement of the association is presented, including confidence intervals and the probability level (p value). *
b) The statistical test is not appropriate, not described or incomplete.
This scale was adapted originally from the Newcastle-Ottawa Quality Assessment Scale for cohort studies in order to undertake a quality assessment of cross-sectional studies (Poobalan, Aucott, Gurung, Smith & Bhattacharya, 2008). We have then adapted in

slightly further to fit in with the current systematic review entitled “A meta-analytic systematic review of trauma exposure and post-traumatic stress disorder in school pupils”. In our scale, we have assigned one star for self-reported outcomes, because our study measures the rates of exposure to a TE and PTSD rates. Two stars are given to the studies that anonymously assess exposure to TE and PTSD as these are the specific rates of interest and young people might be more likely to answer truthfully.