Introduction

The stressful experiences that many refugees and asylum-seekers are exposed to during forced migration, be that during persecution, flight and resettlement or in the changes they experience in their family, community and society make them vulnerable to a range of psychosocial problems [1]. As more is understood about the potential psychological sequelae of traumatic events experienced by refugees, research for effective interventions conducted in different settings has intensified [2]. These interventions can be delivered to individuals, families or groups and in either clinical or non-clinical/community settings. The intervention can either be focused on previous potentially traumatic events or can be multimodal and comprehensive in design, concurrently addressing a number of issues in the child’s environment and social networks as well as past experiences [3,4]. The choice of potential interventions can therefore be limitless and so developing a coherent evidence-base is crucial to ensure that those interventions that are effective can be replicated and those that are not effective, discontinued.

Mental Health Issues in Refugee Populations

The prevalence of psychological disorders varies amongst refugees across studies, although high rates of post-traumatic stress disorder (PTSD) appears to be a common finding. A study which compared rates of psychological problems among 300
school children living in the UK showed that refugee children scored significantly higher than two control groups on the teacher-rated Strengths and Difficulties Questionnaire with one quarter of refugee children scoring significantly higher [7]. Unaccompanied and separated children are often subject to increased risk not only of potentially traumatic events during their migration journey, but also of significant psychological difficulty after arrival [8]. In a recent study of war-exposed adult refugees resettled in Europe, high rates of mood disorders (43%), anxiety disorders (44%), and PTSD (33%) were reported. Stressful resettlement conditions were found to be significant contributing factors [9]. This suggests support is needed not only to tackle the traumatic events experienced pre-migration but also to address the on-going psychosocial stress in resettlement. When refugee and asylum-seeking children arrive in a resettlement country, they might have experienced a host of potentially traumatic events depending on the conflicts they have left and the manner in which they have travelled to their new home. These experiences can be further confounded by post-migration events, such as stringent border controls, discrimination and social isolation which can raise the risk of developing psychological disorders [10,11]. Furthermore, children have to negotiate a vast number of new challenges in a resettlement country such as learning a new language and understanding the educational and cultural environments of a new school. This process can be disrupted by changes in accommodation resulting in further school changes and low school attendance [12]. These stressors can be mirrored in their neighbourhoods and communities impacting on the natural resilience of families by further disrupting their environment. The post-migration environment, however, can play a crucial role in supporting refugee and asylum-seeking children and it is also an environment which is amenable to supportive interventions, such as those in the school or community-setting. It is for this reason that we conducted a systematic review to determine the evidence-base and possible effectiveness of such interventions.

Refugee Camps
The 2011 UNHCR Global Report highlighted that one third of all refugees are living in camps or camp-like settings, with many likely to remain in them for several years [13]. Refugee camps present challenging living conditions where basic survival needs can become the overriding focus for families delaying restoration of the community and social milieu needed for healthy development [14]. It is estimated that vast numbers of children living in camps have significant psychological difficulties, exacerbated by the numerous adversities they can potentially experience, such as on-going insecurity, malnutrition, limited access to education, lack of work for parents, poor health and exposure to further violence and abuse [15]. Needless to say, mental health services in such settings are poorly available. There is a movement towards developing multimodal approaches to address mental and emotional health problems in these settings. For example, artistic activities in refugee camps have been used to engage recipients into ‘constructive action’ [14].

The School Context for Mental Health Interventions
Schools could provide an ideal setting to implement interventions to address the mental health needs of refugee children. In disrupted environments, schools are often one of the earlier institutions to be introduced and, throughout the world, most children can attend school. Therefore the school is an environment that can potentially access children and their families. Schools can facilitate early identification and provide interventions to maximise cognitive, emotional and social development. Teachers and other school staff can identify children with difficulties as they observe children’s behaviour in a range of settings, both structured and unstructured; over a long period of time and with different peers and adults [16]. School-based interventions delivered in a safe and informal setting potentially offer non-stigmatizing services which families may be more likely to accept given the increased likelihood of building relationships with school staff and the relatively easy access to children within school [17].

Birman et al., noted the school context is where the process of acculturation develops and therefore providing support either on an individual basis or using a multimodal approach may serve to enhance socialization and support psychological adjustment and development [18,19]. Working with groups of children who have come together naturally in the school context can strengthen the child’s relationship to the group through shared responsibilities, non-competitive activities and team work while simultaneously providing practical support [12].

Drawing on the Literature
Investigation into successful mental health interventions for this population is warranted [1] as little is known about which theoretical models or implementation strategies are most appropriate [20–22]. Few programmes have been evaluated in the real-world setting of schools with even fewer designed for immigrant or refugee children [22–25]. Creative activities in the classroom that provide opportunities for children to construct personal accounts of their lives, interact with others and express emotion have consistently been found to have a beneficial effect on self-esteem, conflict resolution and problem solving [26,27]. However, a literature review of interventions for refugee adults with PTSD and depression found trauma-focused cognitive behaviour therapy (TF-CBT) to be superior to other treatments [3]. A review of mental health interventions for children affected by war reported that creative-expressive, psycho-educational and recreational activities were most studied. Only a few studies had targeted specific PTSD symptomology using either TF-CBT or narrative exposure therapy (NET) [28]. This review was therefore conducted to systematically gather data on tested interventions to guide the development and understanding of the field.

Aims of the Study
To conduct a systematic review of mental health interventions that had been evaluated in school or community-settings for refugee and asylum-seeking children.

Methods
Search Strategy
Seven databases were systematically searched: CINAHL; Embase; ERIC; PsycINFO; Scopus; Sociological Abstracts and Web of Science. Studies of mental health interventions in school and community-settings for asylum-seeking and refugee children reported from January 1987 to December 2012 were identified. The search was completed in January 2013. Searches of similar terms were combined such as “refugee”, “asylum-seeker”, “migrant”, “immigrant”, “displaced” with “school” “community” and “intervention” or “treatment”. The searches were limited to participants aged 2 to 17 years inclusive, and adaptations to the search terms were made in accordance with the requirements of each database. Additionally, grey literature was searched (WHO...
database), article reference lists and the authors of significant papers were checked for other relevant articles and experts in the field were consulted. There were no language restrictions.

Criteria for Inclusion
Studies selected for inclusion were based on the following criteria:

1. Evaluation of a mental health intervention programme that addressed emotional, social or behavioural difficulties of the sample using a controlled or within-subjects experimental design
2. The population was inclusive of IDPs, asylum-seekers and refugees
3. Target age: 2 to 17 years inclusive
4. Intervention delivered in schools, refugee camps or the community as opposed to clinic and hospital-based settings
5. Intervention outcome was evaluated with a clinical psychometric measure

Studies for exclusion
Studies selected for exclusion were Interventions that:

1. Evaluated educational performance or language acquisition
2. Aimed to change the overall school environment without specific measures taken on the asylum-seeking and refugee children
3. Evaluated non-displaced children and adolescents in areas of on-going conflict
4. Reported single case studies

Quality of Ratings Scale
Following a broad review of quality rating scales [29] the Yates Scale was chosen to evaluate the quality of the studies as it was comprehensive and has been used in similar reviews [30]. As a quality rating scale it has face, content and construct validity with good reliability however, its criterion validity and internal consistency are not strong [29]. The Yates scale focuses on the quality of two main areas: Quality of design and methods and Treatment quality. The quality rating of each study was assessed independently by each author (RT and MF) and any discrepancies in results discussed.

In the Yates Scale, the evaluation of quality of design and methods includes questions on study sampling, minimisation of bias, outcome measures, control groups and statistical analyses. Scores range from 0 to 26 and cut-offs determined in another study were used (0–8: ‘not fulfilled’; 9–17: ‘partially fulfilled’; 18–26: ‘fulfilled’) [31]. The evaluation of treatment quality includes questions on the rationale and explanation of the treatment, whether it is manualised, therapist training and patient engagement. Scores range from 0 to 9 (0–3: ‘not fulfilled’; 4–6: ‘partially fulfilled’; 7–9: ‘fulfilled’).

Effect Size
Effect sizes of the study interventions were either obtained from the publications when provided or calculated for this review using a procedure outlined by Thalheimer and Cook [32] and cross-checked against a web-based calculator [33]. Cohen’s $d$ effect sizes were computed for symptom change to try and present data in a manner that could be compared across studies, given the high clinical heterogeneity of the sample [34]. The calculations were conducted using the average standard deviations between two

Figure 1. Flow Diagram to show the process of Study Selection.
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Table 1. Summary of included studies.

| First Author | Setting | Country | Intervention focus | Intervention | Instrument used | Study type | Target population | Selection criteria | Sample size* | Age yrs | Quality of design and methods | Treatment quality |
|--------------|---------|---------|--------------------|--------------|-----------------|------------|-------------------|--------------------|---------------|---------|-------------------------------|------------------|
| **STUDIES from High-income settings** | | | | | | | | | | | |
| Baker 2006 [52] | School | Australia | Creative arts (music therapy) | Group | BASC | CCT: Cross-over design | Newly arrived refugees | Present at school for following two terms | 31 (31) | 11–16 | Partially fulfilled | Not fulfilled |
| Barrett 2003 [56] | School | Australia | CBT (FRIENDS) | Group | SEL, RS, RCMAS, TSCL, BHS, KHS | Case-control study: classes grouped together | Mixed migrant population, approx. half refugees | ESL class | 166 | 6–19 | Partially fulfilled | Fulfilled |
| Beehler 2012 [17] | School | USA | CBT, TF-CBT, comprehensive (CATS) | Individual, Group | CAFAS, PTSD-RI | Cohort study: two school districts | Mixed migrant population, small proportion refugees | Referred by staff, nurses or parents | 149 | 6–21 | Not fulfilled | Partially fulfilled |
| Birman 2008 [40] | Community | USA | Comprehensive (FACES), Counselling, therapy, creative arts | Individual, Family & Group | CAFAS, HTQ | Cohort study: attending specialist service | 57% Refugees and asylum seekers, 43% other types of migrant | Needing further intervention | 97 (68) | 6–18 | Not fulfilled | Not fulfilled |
| Dura-Vila 2013 [36] | School | UK | Individual, family & supportive therapy. | Individual, Family | SDQ | Cohort study: referred to specialist service | Refugees and asylum seekers | Referred by teachers & social workers | 92 (74) | 3–17 | Not fulfilled | Not fulfilled |
| Ehntholt 2005 [12] | School | UK | CBT | Group | R-IES, DSRS, RCMAS, WTS, SDQ | CCT | Asylum-seekers | Referred by teachers | 15 | 11–15 | Not fulfilled | Fulfilled |
| Ellis 2013 [35] | Community | USA | Comprehensive, Skill-based groups +/-TST | Individual, Group | WTS, PWA, PTSD-RI, DSRS | Cohort study: attending a school | Somali refugees | All Somali ESL children | 30 (26) | 11–15 | Fulfilled | Partially fulfilled |
| Fazel 2009 [41] | School | UK | Supportive therapy & creative arts | Individual, Family & Group | SDQ | Cohort study: referred to specialist service | Refugees and asylum seekers | Referred by teachers | 69 (47) | 5–17 | Partially fulfilled | Not fulfilled |
| Fox 2005 [54] | School | USA | CBT | Group | CDI | Cohort Study | South-East Asian refugees | All those attending a school | 58 | 6–15 | Not fulfilled | Not fulfilled |
| Kalantari 2012 [44] | School | Iran | Exposure through writing | Group | TGIC | RCT | Afghan refugees | High score on traumatic grief measure | 29 (29) | 12–18 | Partially fulfilled | Partially fulfilled |
| Möhlen 2005 [33] | Community | Germany | Trauma-focus therapy and Creative arts | Individual, Family & Group | HTQ, K-SADS, DYSIPS, CGAS | Cohort study | Kosovo-Albanian refugees | In refugee accommodation. | 10 (10) | 10–16 | Not fulfilled | Partially fulfilled |
| Rousseau 2005 [40] | School | Canada | Creative arts (CEW) | Group | TRF, CS, CDS, Interactive | RCT: whole classes randomly assigned | Mixed migrant, mainly Asian & South American | Students in special integration and normal classes | 73 (73) | 7–13 | Partially fulfilled | Not fulfilled |
## Table 1. Cont.

| First Author | Setting | Country | Intervention focus | Intervention | Instrument used | Study type | Target population | Selection criteria | Sample size* | Age yrs | Quality of design and methods | Treatment quality |
|--------------|---------|---------|--------------------|--------------|----------------|------------|-------------------|-------------------|--------------|---------|-------------------------------|------------------|
| Rousseau 2009 [46] | School | Canada | Creative arts (CEW-sandplay) | Group | SDQ | RCT: whole classes randomly assigned | Predominantly South Asian (28% refugees) | All students | 52 | 4–6 | Fulfilled | Partially fulfilled |
| Schottelkorb 2012 [47] | School | USA | TF-CBT vs. creative arts (CCPT) | Individual vs. group | UPID, PRPS | RCT | Refugees | Referred by teachers | 31 (26) | 6–13 | Partially fulfilled | Fulfilled |
| Ager 2011 [48] | School in IDP camp area | Uganda | Creative arts (PSSA) | Classroom | Modified BEI | RCT: schools randomly assigned | Ugandan IDPs | Referred by teachers | 203 (191) | 7–12 | Partially fulfilled | Partially fulfilled |
| Bolton 2007 [49] | Camp | Uganda | IPT vs. creative arts (CP) | Group | APAI | RCT | Ugandan IDPs | High score on depression scale | 210 (210) | 14–17 | Partially fulfilled | Fulfilled |
| Catani 2009 [50] | Camp | Sri Lanka | KIDNET vs. meditation relaxation | Individual vs. group | UPID, authors’ functioning scale | RCT | Sri Lankan IDPs | Children in new camps with preliminary PTSD diagnosis | 31 (31) | 8–14 | Partially fulfilled | Fulfilled |
| Ertl 2011 [51] | Camps | Uganda | NET vs. academic catch-up and counselling | Individual | CAPS, MINI, WVAES, adapted stigma scale | RCT | Ugandan former child soldiers | PTSD diagnosis | 57 (57) | 12–25 | Fulfilled | Fulfilled |
| Gupta 2008 [43] | Camp | Sierra Leone | Creative arts (Rapid-Ed) | Group | IES | Cohort study | Sierra Leonean IDPs | Randomly selected from school registration lists | 315 (306) | 8–17 | Not fulfilled | Partially fulfilled |
| Onyut 2005 [42] | Camp | Uganda | KIDNET | Individual | PDS, HSCL, CIDI | Cohort study (pilot) | Somali | PTSD diagnosis | 6 | 13–17 | Partially fulfilled | Fulfilled |
| Thabet 2005 [53] | Schools in camp area | Gaza | Creative arts (modified CSSM) vs. teacher psycho-education | Group | CPTSD-R, CDI | CCT | Palestinians residing in camps | High PTSD symptom scores | 69 | 9–15 | Fulfilled | Partially fulfilled |

*Sample size calculated excluding non-active controls; brackets indicate final number used in evaluation, if reported.

APAI: Acholi Psychosocial Assessment Instrument; BASC: Behaviour Assessment System for Children; BEI: Brief Ethnographic Interviewing; BHS: Beck Hopelessness Scale; CAFAS: Child and Adolescent Functional Assessment Scale; CAPS: Clinical-Administered PTSD Scale; CATS: Cultural Adjustment and Trauma Services; CBT: Cognitive Behaviour Therapy; CCPT: Child-Centered Play Therapy; CCT: Controlled Clinical Trial; CDI: Children’s Depression Inventory; CEW: Creative Expression Workshops; CGAS: Child Global Assessment Scale; CIDI: Composite International Diagnostic Interview; CISM: Critical Incident Stress Management; CP: Creative Play as developed by War Child Holland; CPTSD-R: Child Post Traumatic Stress Reaction Index; CSCL: Piers-Harris Children’s Self-Concept Scale; DRS: Depression Self-Rating Scale; DYSIPS: Diagnostic Symptom for Psychological Disorders; ESL: English as a Second Language; FACES: Family, Adult and Child Enhancement Services; HSCL: Hopkins Symptom Checklist-25; HTQ: Harvard Trauma Questionnaire; IDP: Internally displaced person; IES: Impact of Events Scale; IPT: Interpersonal therapy; KHS: Kazdin Hopelessness Scale; KIDNET: Narrative Exposure Therapy adapted for children; KSADS: Kids Schedule for Affective Disorders and Schizophrenia; MINI: Mini International Neuropsychiatric Interview; NET: Narrative Exposure Therapy; PDS: Posttraumatic Diagnostic Scale; PRPS: Parent Report of Posttraumatic Symptoms; PSSA: Psychosocial Structured Activities Program; PTSD-R: PTSD Reaction Index; R-IES: Revised Impact of Events Scale; RCT: Randomised Clinical Trial; RCMAS: Revised Children’s Manifest Anxiety Scale; RSET: Rosenberg Self-Esteem Scale; SEI: Self-Esteem Inventory; SDQ: Strengths and Difficulties Questionnaire; TF-CBT: Trauma-Focused Cognitive Behaviour Therapy; TGIC: Trauma Grief Inventory for Children; TRF: Achenbach’s Teacher’s Report Form; TSCC: Trauma Symptom Checklist for Children; TSCL: Trauma Symptom Checklist for Children; TST: Trauma Systems Therapy; UPID: UCLA PTSD Index for DSM-IV-PTSD; VWAES: Violence, War and Abduction Exposure Scale; War Trauma Questionnaire; WTSS: War Trauma Screening Scale.

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Table 2. Summary of significant findings in studies.

| First author | Intervention | Significance | Effect size Cohen’s d (data permitting) |
|--------------|--------------|--------------|-----------------------------------------|
| **Depression** | | | |
| Barrett, 2003[56] | CBT | Decrease in hopelessness symptoms in high school students as measured by the BHS \(p<.01\) | 0.93 |
| Bolton, 2007[49] | IPT | Group IPT reduced depressive symptoms \(p=.02\) | 0.57 |
| Ellis, 2013[35] | TST | Decrease in depression symptoms \(p=0.011\) as measured by the DSRS | |
| Fox, 2005[54] | CBT | CBT reduced depressive symptoms \(p<.001\) | |
| Möhlen, 2005[55] | Creative arts | Range of creative art techniques reduced depressive symptoms \(p=.014\) | |
| **Anxiety** | | | |
| Barrett, 2003[56] | CBT | Anxiety symptoms decreased following group based CBT for elementary school \(p<.001\) and high school students \(p<.05\) as measured by the RCMAS | 0.93 (elementary) 0.67 (high) |
| Ehntholt, 2005[12] | CBT | Decrease in anxiety symptoms \(p=0.018\) as measured by the RCMAS | 0.64 |
| Möhlen, 2005[55] | Creative arts | Range of creative art techniques reduced anxiety symptoms \(p=0.006\) | |
| **PTSD** | | | |
| Barrett, 2003[56] | CBT | Decrease in PTSD symptoms for high school students with group based CBT \(p<0.001\) on the TSCC PTSD subscale | 0.92 |
| Beehler, 2012[17] | CBT, TF-CBT, comprehensive | Decrease in PTSD symptoms with TF-CBT \(p<0.05\), supportive therapy \(p<0.04\) and a decreasing trend was found with CBT \(p<0.07\). | |
| Catani, 2009[50] | KIDNET & meditation-relaxation | NET and meditation-relaxation reduced PTSD symptoms, sustained at follow-up \(p<0.001\) | |
| Ehntholt, 2005[12] | CBT | Decrease in PTSD symptoms \(p=0.011\) as measured by the IES | 0.88 |
| Ellis, 2013[35] | TST | Decrease in PTSD symptoms \(p=0.016\) as measured by the PTSD-R | 0.31 |
| Ertl, 2011[51] | NET | Decrease in PTSD symptoms with NET, as measured by the CAPS, compared to supportive counselling \(p=0.02\) and waiting list controls \(p=0.02\) | |
| Gupta, 2008[43] | Creative arts: Rapid-Ed | Decrease in PTSD symptoms in 96% of participants following intervention. | |
| Möhlen, 2005[55] | Creative arts | Decrease in PTSD symptoms with a range of creative art techniques \(p=0.018\) | |
| Onyut, 2005[42] | KIDNET | Decrease in PTSD symptoms with KIDNET \(p=0.039\) | |
| Schottelkorb 2012[47] | TF-CBT & CCPT | Both interventions significantly decreased PTSD symptoms in those with symptom scores in the clinical range (child and parent-reported measures) | |
| **Functional impairment** | | | |
| Beehler, 2012[17] | CBT, TF-CBT, & supportive therapy | Decrease in functional impairment with TF-CBT \(p<0.01\), supportive therapy \(p<0.001\) and CBT \(p<0.03\). | |
| Birman, 2008[40] | Comprehensive service, counselling, therapy, creative arts | Decrease in functional impairment following a mixed intervention of cognitive therapy and creative arts \(p<0.001\). | |
| Catani, 2009[50] | KIDNET & meditation-relaxation | Decrease in functional impairment sustained at follow-up with both KIDNET and meditation-relaxation \(p<0.001\). | |
| Ertl, 2011[51] | NET | Decrease in functional impairment with NET compared to supportive counselling \(p=0.008\) and waiting list controls \(p<0.001\) | 0.64 |
| **Other** | | | |
| Barrett, 2003[56] | CBT | Anger: Decrease in levels of anger \(p<0.001\) in high school students as measured by the TSCC Anger scale | 0.79 |
| Ehntholt, 2005[12] | CBT | Behavioural problems: Decrease in behavioural problems \(p=0.027\) as measured by the SDQ | |
| Ehntholt, 2005[12] | CBT | Emotional problems: Decrease in emotional problems \(p=0.010\) as measured by the SDQ | 0.32 |
| Rousseau, 2009[46] | Sandplay | Emotional problems: Decrease in parent-rated SDQ emotional problems \(p=0.002\) and Relational problems: Decrease in parent-rated relational problems \(p=0.001\) | 0.43 0.48 |
| Ellis, 2013[35] | TST | Resource hardship: Decrease in resource hardship \(p=0.027\) | |
| Durá-Vila, 2013[36] | Individual, family & supportive therapy | Conduct problems: Decrease in parent-rated conduct problems \(p=0.043\), Hyperactivity: Decrease in teacher-rated \(p=0.015\) and parent-rated \(p=0.001\) hyperactivity Peer Problems: Decrease in teacher-rated peer problems \(p=0.017\) as measured by the SDQ | |
means, therefore calculations could only be conducted for studies with a control group. Cohen proposed $d = 0.2$ as a small effect size, $d = 0.5$ as a moderate effect size, and $d = 0.8$ as a large effect size [34]. As limited follow-up data were available, the effect sizes were calculated from end of treatment scores.

**Results**

The database search identified 2,237 potentially relevant papers, of which over 500 were duplicates and the majority were not describing an intervention. 36 full papers were reviewed of which 23 met inclusion criteria reporting on 21 studies (refer to Figure 1 for the process of study selection). Two online publications were subsequently published in print [35,36]. The majority of papers were excluded on initial screening because they did not report on an intervention or the intervention reported was conducted on adults, non-refugee populations, or in hospital settings. Two papers reported on subsamples of larger included studies [37,38]. The studies were undertaken in ten different countries on either specific refugee populations or mixed groups of migrant children, including refugees. Four authors provided further information on their studies [A. Ager, 2011; D. Birman, personal communication, November, 24, 2013; M. Hodes, personal communication, December, 24, 2012; E. Nevinham, personal communication, May, 20, 2013]. Through searching article reference lists one unpublished study was identified which could not be obtained [39].

**Intervention features**

All twenty one studies meeting inclusion criteria were published since 2000 and included data from approximately 1,800 children (some studies included other migrant children). These reported school and community-based interventions aimed at the mental health, psychosocial development and functioning of asylum-seeking and refugee children. Table 1 presents a summary of the studies included with information on the intervention used, the population targeted and the assessment of study quality. Given the marked difference of refugee camp settings, the interventions that were provided in these camps are presented separately.

| First author | Intervention | Significance | Effect size Cohen’s $d$ (data permitting) |
|--------------|--------------|--------------|-----------------------------------------|
| Fazel, 2009[41] | Supportive therapy & creative arts | Peer Problems: Decrease in teacher-rated peer problems for both CBT and creative arts therapy ($p = .005$) | |
| Kalantari, 2012[44] | Exposure through writing | Traumatic grief: Decrease in children’s traumatic grief symptoms ($p < .001$) as measured by the TGIC | 0.67 |
| Rousseau, 2005[45] | Creative expression | Mental health symptoms: Decrease in self-reported mental health symptoms | |
| Ager, 2011[48] | Creative arts | Well-being: Improved well-being at 12 months according to self-rated ($p < .001$), and parent-rated ($p = .01$) measures but not teacher ratings ($p > .1$) | 0.75 (self-rated); 0.5 (parent-rated) |

Italicized studies indicate those conducted in refugee and IDP camps.

CAPS: Clinical-Administered PTSD Scale; CBT: Cognitive Behaviour Therapy; CCPT: Child-Centered Play Therapy; IPT: Interpersonal therapy; KIDNET: Narrative Exposure Therapy adapted for children; NET: Narrative Exposure Therapy; PSSA: Psychosocial Structured Activities program; PTSD-Ri: PTSD Reaction Index; RCMAS: Revised Children’s Manifest Anxiety Scale; SDQ: Strengths and Difficulties Questionnaire; TF-CBT: Trauma-Focused Cognitive Behaviour Therapy; TGIC: Trauma Grief Inventory for Recovery; TSCC: Trauma Symptom Checklist for Children; TST: Trauma Systems Therapy.

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Study Quality

**Quality of design and methods.** In assessing overall quality of design and methods in the studies, four studies scored ‘fulfilled’, ten ‘partially fulfilled’ and seven ‘not fulfilled’. For example, information on attrition rates (participants lost at follow-up) was only reported in six studies and minimising biases reported in 18 studies (four ‘fulfilling’ criteria and 14 partially fulfilling criteria). All 21 studies fulfilled the criteria for statistical reporting.

The sample sizes of included studies ranged from 6 participants [42] to 315 participants [43]. Eight studies used random allocation to determine groups [44–51]. Four studies were controlled clinical trials [12,35,52,53], eight were cohort designs [17,36,40–43,54,55] and one was a case control study [56]. Recruitment strategies differed across studies; in six studies children were selected to receive an intervention based on meeting specific criteria [42,44,49–51,53]. In five studies a whole class received the intervention [35,45,46,54,56]. Seven studies used referrals from school staff [12,17,36,40,41,47,48]. In three studies children were either selected on the basis of their refugee status [52], their residence in refugee accommodation [53], or randomly selected from a school register [43].

**Treatment quality.** In assessing treatment quality, seven studies scored ‘fulfilled’, eight ‘partially fulfilled’ and six ‘not fulfilled’. Interventions typically lasted 10–12 weeks although there was a range from a fortnight [50] to 16 weeks [49]. The number of sessions varied between 6 and 17, most commonly lasting one hour. In three studies, interventions were conducted over the course of a school year [35,36,41]. A further two studies enlisted a range of individual and group therapies and longitudinal data were collected and analysed [17,40]. Bechler et al., collected data over a 3 year period (the number of sessions cannot be inferred).
[17], and Birman et al., engaged participants in services for 1 month to 7 years [40]. Parents were involved in six interventions [17,36,40,41,48,55]. Three studies involved family therapy sessions [17,36,40], one involved individual parental support [48] and two studies incorporated both family sessions and individual parental sessions [41,55]. In one study, school staff also received weekly consultation with mental health professionals at the schools [41].

Two studies, both fulfilling most of the quality criteria, are described in the text boxes. Text Box 1 describes a CBT-based intervention in schools [56] and Text Box 2 describes a NET trial conducted in a refugee camp [51].

Effectiveness of the interventions

The intervention programmes reviewed addressed a range of difficulties experienced by asylum-seeking and refugee children. The studies reporting significant changes in psychological symptoms are summarised in Table 2. Cohen’s $d$ effect sizes are reported for the seven studies that provided sufficient data for these to be calculated, five of which were for therapies based on verbal processing of previous traumatic events [12,44,49,51,56]. The effect sizes ranged from 0.31 to 0.93 and six of the studies had effect sizes in the medium to large range.

Both the verbal processing-based and creative art-based interventions led to significant reductions in symptoms of depression, anxiety, PTSD, functional impairment and peer problems. Verbal processing therapies were also effective in treating anger [56], traumatic grief [44], resource hardship [35], behavioural and emotional problems [12], and hyperactivity, peer and conduct problems [36]. Creative arts were also effective in treating well-being [48], and emotional and relational problems [46].

All but one study conducted in refugee and IDP camps found significant findings [53]. Two of these studies reported a significant decrease in functional impairment following NET [50,51]. Two studies found a decrease in PTSD symptoms following a creative arts intervention [43] and KIDNET (an adapted version of NET for children and adolescents) [42]. Bolton found interpersonal therapy (IPT) reduced symptoms of depression [49] and Ager found improvements in well-being following a psychosocial activities programme [48].

Five studies reported significant reductions in symptoms of depression [35,49,54–56]. Two of these studies used CBT, Bolton found IPT superior to an activity-based intervention in treating symptoms of depression ($p = .02$). Furthermore, the activity-based intervention was no more effective than waiting list controls in

![Figure 2. Diagram to show the range of mental health interventions included in the selected studies.](doi:10.1371/journal.pone.0089359.g002)
treating depression [49]. Although these results point towards the importance of the cognitive behavioural approach in treating depression in refugee children it should be noted that Möhlen found a range of creative art techniques significantly reduced symptoms of depression ($p = .014$) [53].

Three studies reported a significant improvement in symptoms of anxiety. Group-based CBT and a creative art-based intervention incorporating psycho-education, creative techniques and relaxation activities in individual, family and group sessions were found to decrease levels of anxiety [12,53,56].

Nine studies reported a decrease in symptoms of PTSD among asylum-seeking and refugee children [12,17,35,42,43,50,51,53,56]. All but one of these treatments was grounded in the verbal processing of past experiences. Four of the studies were undertaken in low-income countries [42,43,50,51].

Only four studies reported improvements in functional impairment [17,40,50,51] incorporating a range of interventions. Catani found no significant difference in functional impairment following KIDNET or meditation-relaxation although at six month follow up recovery rates for KIDNET were higher at 81% as opposed to 71% [50]. Ertl, however, found functional impairment improved significantly with NET compared to supportive counselling ($p = .008$) and waiting list controls ($P < .001$) [31]. In the Birman study, participants received tailored services to meet their individual needs; it is therefore difficult to evaluate which elements of the intervention had the greatest impact on improvements in functioning [40]. Similarly, Bechler utilised a variety of interventions including TF-CBT, supportive counselling and other CBT approaches [17].

**Discussion**

Despite millions of children affected by forced migration only limited evidence is available as to possible school and community interventions to support the mental health of this group. Overall, 21 studies were identified, most conducted in schools with a variety of therapeutic tools and modalities utilised. Of the eight studies from LMICs, seven were conducted in refugee camps. Many of the interventions focused on past traumatic events, either using verbal processing, for which there is the strongest evidence-base, or by using an array of creative arts techniques. Significant improvements were seen for depression, anxiety, PTSD, functional disturbances and peer problems in both types of interventions. Individual as well as group interventions were effective; as were both short and long-term treatments. CBT or TF-CBT and NET both have evidence to support their use. Some services developed comprehensive interventions. Effect sizes calculated to compute symptom change in disorders were, however, primarily available for interventions based on the verbal processing of past experiences.

Six out of the seven studies conducted in refugee camp settings showed a significant reduction in psychological symptoms. The success of these interventions are noteworthy given that one third of all refugees will spend some time in a refugee camp, either in their own country or a neighbouring low and middle-income country (LMIC) [13]. NET was used in three of these studies and is an example of how complex interventions can be delivered in resource-poor settings.

Recent studies have highlighted the importance of offering comprehensive or multi-modal services to refugees and their families. Multimodal interventions aim to concurrently address issues of psychological functioning, social and cultural adaptation, physical health and ongoing psychosocial difficulties [3]. These multimodal interventions are thus integrated into other systems of care, such as women’s health or primary care and might play a particularly important role in contexts where mental health resources are scarce. Although the evidence supporting their use is limited, these services try to address the complex array of difficulties refugee and asylum seeking families might encounter. At the societal level, they might try to influence the wider environment through advocating for more services and stable housing, promoting language proficiency, improving immigration applications and employment opportunities. The restoration of a supportive environment for the young person and their family is likely to be key to stabilising their psychological health [28,57]. This ensures that all the needs identified by the individual or family are addressed and the focus is not entirely on their mental health [4,58]. Restoration of social support networks for children and their families is another important aspect of multimodal interventions and have been demonstrated in post-conflict settings [59]. The importance of harnessing cultural resources and extended kin networks are likely to also be important [60] and some of the studies included in this review included ‘cultural brokers’ in the mental health teams. In this systematic review, only three of the included studies were comprehensive and multimodal in design [17,35,40].

These studies therefore highlight the importance of addressing previous traumatic experiences utilising approaches that focus on exposure to the event in question through verbal processing. The studies that used CBT had the largest effect sizes. The evidence supporting the many different creative arts techniques is, at present, not as robust, however, interesting evidence is emerging in both post-conflict and post-migration environments on the importance of multimodal treatments. Many questions regarding treatments, therefore, remain unanswered and warrant further exploration. Collecting variables on educational attendance and attainment, future aspirations of individuals and the overall school climate from the perspective of students and staff would be important to determine the impact of services located within schools. Only five of the 21 included studies had more than 100 participants and so larger controlled studies with longitudinal collection of data will provide much needed evidence of effectiveness. Studies could elucidate the differential impact of effective treatments, such as a comparison of TF-CBT and NET; or determine whom to include in treatment by exploring interventions incorporating families, peers and school staff; as well as exploring the influence of different community locations for treatment such as working within the school compared to a local health clinic or within the family home. Answering some of these questions could enable a better appreciation of factors influencing therapeutic effectiveness, acceptability of treatment and engagement for these populations who are difficult to access in traditional services.

**Limitations**

Several limitations of this review should be highlighted. Of the 21 studies included, only eight monitored treatment fidelity and eight conducted a follow-up assessment. In combination with small sample sizes, lack of blind assessment, and inactive or no control groups the overall quality of studies reviewed was a limitation and highlights the areas needed to be addressed by further work. Participant eligibility varied across studies; in the majority of cases refugees and asylum-seekers were enrolled in treatment irrespective of whether they met clinically significant rates of psychological problems prior to the commencement of the intervention.

The studies were varied in their scope, environment and target population and so limited conclusions can be drawn on what is most effective for these settings. The interventions adopting the
most multimodal approaches attempting to address both systemic and individual needs were those with the lower quality ratings. This could reflect the difficulty of evaluating more complex interventions trying to address potential difficulties in community, school and refugee camp settings [17,36,40]. Studies of interventions for children living within current conflict conditions were excluded but could have provided some important examples of interventions. There have, however, been two recent comprehensive systematic reviews on mental health interventions for children living in conflict and post-conflict environments [28,57].

Conclusion

Refugee children arriving in a new country, either with or without their families, are likely to benefit from schools and services that can enable them to settle in their new environment. For those arriving in high-income countries, for example, accessing services can be fraught with difficulties due to linguistic, social, and historical reasons [61]. Cultural and family beliefs about psychological difficulties can also prevent parents or carers seeking professional help [37]. Furthermore, caregivers might not recognise some difficulties in children as being a manifestation of psychological problems. Past experiences faced by refugees can also make it difficult to establish a sense of trust necessary for a therapeutic relationship [62]. As a result, mental health services can experience difficulties in reaching these children and it is therefore important to determine the value of offering services in other settings [60,63-66]. These problems are overshadowed by the many larger difficulties faced in providing services in LMICs [1], however, some studies included in the review have been able to demonstrate impressive results in low-resource settings.

Adolescents derive psychological benefit from feeling they belong to a school yet this task can be particularly difficult if one arrives with limited knowledge of the local language and culture. This can be further complicated if they are more conspicuous at school and bullied as a result [67]. Schools are often recommended as a location for interventions because they can be familiar, non-stigmatising environments that offer broad access to children and families [20,59,68]. Developing sustainable and accessible interventions are essential and training local non-mental health professionals to deliver interventions could address this need [69]. Some studies utilised lay therapists successfully, a model that needs replication in other settings and with other therapeutic modalities. To this end, within schools, teachers or other members of school staff could be trained to promote mental health by creating a supportive and caring environment and through implementation of preventative and efficacious psychological interventions [12].

Parents and other primary caregivers can be compromised in the context of societal violence and subsequent migration and therefore families need to be supported in the community [60,63–65]. Interventions to try and address the overall environment of refugee children are therefore important, not only for unaccompanied minors [8] but all refugee children attending schools and living in new places. Longitudinal studies underline the importance of addressing these issues, as a study of refugees two decades after settlement in America showed how persistent later psychological problems are, especially if the refugees are unemployed and living in poverty [66].

The different contextual factors, environments and socio-cultural political contexts that refugees come from and find themselves in cannot be ignored [70] and services need to try and address the heterogeneity of difficulties, both past and present, that refugees experience [3]. This is the rationale for offering a broad range of services to refugee children [36] yet the evidence-base remains weak to support this approach over individualised trauma-focused work. For adult refugee populations and other traumatised children, CBT is the most studied and effective intervention [3,71]. There is, however, probably a need to also address current daily stressors [4] although interventions should not undermine natural recovery processes [69].

Achieving in school, with regards to both education and peer relationships, is a key determinant of success and future mental health [72]. War and conflict disrupt social, educational and economic systems and these exert effects on psychological well-being in complex ways [4]. These disruptions disproportionately affect the young and their transitions into adult life [72]. In particular, for younger populations the importance of family, peer and educational domains are crucial to help them fulfil their potential [72] and examples of effective mental health interventions are highlighted in this review.

Supporting Information

Diagram S1  (DOC)
Checklist S1  (DOC)
Text Box S1  FRIENDS programme delivered in a school setting.  (TIF)
Text Box S2  Narrative Exposure Therapy delivered in refugee camp setting.  (TIF)

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Author Contributions

Conceived and designed the experiments: MF. Performed the experiments: RT. Analyzed the data: RT MF. Contributed reagents/materials/analysis tools: RT MF. Wrote the paper: RT MF.

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