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Annual Research Review: Resilience and mental health in children and adolescents living in areas of armed conflict – a systematic review of findings in low- and middle-income countries

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Background: Researchers focused on mental health of conflict-affected children are increasingly interested in the concept of resilience. Knowledge on resilience may assist in developing interventions aimed at improving positive outcomes or reducing negative outcomes, termed promotive or protective interventions. **Methods:** We performed a systematic review of peer-reviewed qualitative and quantitative studies focused on resilience and mental health in children and adolescents affected by armed conflict in low- and middle-income countries. **Results:** Altogether 53 studies were identified: 15 qualitative and mixed methods studies and 38 quantitative, mostly cross-sectional studies focused on school-aged children and adolescents. Qualitative studies identified variation across socio-cultural settings of relevant resilience outcomes, and report contextually unique processes contributing to such outcomes. Quantitative studies focused on promotive and protective factors at different socio-ecological levels (individual, family-, peer-, school-, and community-levels). Generally, promotive and protective factors showed gender-, symptom-, and phase of conflict-specific effects on mental health outcomes. **Conclusions:** Although limited by its predominantly cross-sectional nature and focus on protective outcomes, this body of knowledge supports a perspective of resilience as a complex dynamic process driven by time- and context-dependent variables, rather than the balance between risk- and protective factors with known impacts on mental health. Given the complexity of findings in this population, we conclude that resilience-focused interventions will need to be highly tailored to specific contexts, rather than the application of a universal model that may be expected to have similar effects on mental health across contexts. **Keywords:** Armed conflict, war, resilience, psychological resilience, developing countries.

Since the end of the Second World War, 248 armed conflicts have been recorded in 153 locations. Geographically, the majority of the 37 armed conflicts reported in 2011 took place in Africa (n = 15, 41%), Asia (n = 13, 35%), and the Middle East (n = 6, 16%) (Themner & Wallensteen, 2012). Armed conflicts have been associated with a wide array of negative impacts on the mental health and psychosocial wellbeing of conflict-affected populations, ranging from heightened transient (non-disordered) psychological distress and behavioral problems to increased prevalence rates of mental disorders, including mood, anxiety, and conduct disorders. Armed conflicts have been reported to seriously affect the social determinants of mental health and wellbeing, including family and community care networks; access to basic needs and education; morality and spirituality (Batniji, van Ommeren & Saraceno, 2006; Tol, Kohrt, Jordans, Thapa, Pettigrew, Upadhaya, and de Jong, 2010). Epidemiological studies, however, have generally focused on the more limited agenda of establishing a statistical relation between exposure to conflict-related potentially traumatic events and posttraumatic stress disorder (PTSD) and major depression. The most recent meta-analysis, involving 17 studies and 7,920 children, calculated pooled prevalence rates of 47% and 53% for these disorders respectively. Variation in prevalence rates was predicted by study location, method of measurement, and duration since exposure to conflict (Attanayake et al., 2009).

Despite these documented negative impacts, a number of studies have highlighted resilience in children and adolescents in areas of armed conflict. The study of resilience has its roots in the 1970s, when researchers noted high variation in outcomes in children exposed to parental psychopathology, poverty, and disaster, and interest was raised in what determines whether a child functions well despite exposure to adversity (Masten, 2011).

Conceptualizing resilience: promotive and protective factors

Broadly, definitions of resilience refer to (a) good mental health and developmental outcomes, despite (b) exposure to significant adversity (Luthar, Cicchetti & Becker, 2000; Rutter, 2006). Masten (2001) defines resilience as 'good outcomes in spite of serious threats

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to adaptation or development'. Reviews of studies on resilience are challenged by the various ways in which these definitions have been applied across studies. Figure 1 summarizes the theoretical framework underlying the current review. This figure builds on previous reviews of the literature on resilience in children affected by armed conflict (Betancourt & Kahn, 2008; McAdam-Crisp, 2006; Tol, Jordans, Reis & De Jong, 2009). These reviews highlighted the importance of studying resilience as a dynamic concept at multiple levels of the social ecology (e.g. predictors at individual, family-, peer-, school-, and community-levels), as well as the importance of differences in resilience across socio-cultural contexts.

In Figure 1, mental health outcomes at the individual level are predicted by variables at different levels of the social ecology in the context of adversity. First, a key definitional question for researchers in the mental health field is which types of mental health outcomes to include. We use the term 'mental health' here in accordance with the World Health Organization definition, which also stresses a positive dimension of psychological and social wellbeing rather than a sole focus on the absence of symptoms. We follow Patel & Goodman in naming predictors of higher levels of positive outcomes *promotive* factors, and predictors of lower levels of psychological symptoms *protective* factors. For example, if supportive parenting is associated with higher levels of self-esteem, we termed the relationship promotive. If supportive parenting is associated with lower levels of anxiety symptoms, we refer to the relationship as protective (Patel & Goodman, 2007). A second key definitional issue concerns how 'a lack of' psychological symptoms may best be operationalized, e.g. whether this requires relatively low scores on a symptom checklist or not attaining a psychiatric diagnosis. Given that most research with populations affected by armed conflict relies on symptom checklists with non-validated cut-off scores for the populations with which they are used (Kohrt et al., 2011), we decided on a more inclusive strategy that incorporated studies aimed at establishing (protective) relations between predictors and lower levels of psychological symptoms. Third, various opinions exist on at what level resilience outcomes can best be measured, e.g. if family or community outcomes should be included. Although researchers have examined outcomes in families and communities as units of interest (e.g. Farhood et al., 1993), this review focused only on outcomes measured at the individual level. We searched for predictors at multiple levels of the social ecology.

In conjunction with understanding risk factors and processes, studying resilience in children affected by armed conflict may provide crucial information for the development of mental health and psychosocial interventions. Knowledge on resilience could inform interventions aimed at improving positive outcomes in children (i.e. promotive interventions) or preventing psychological symptoms. The main aim of this systematic review was to examine what practitioners and policy makers can learn from what is currently known about resilience and mental health in the published peer-reviewed research literature.

Methods

Inclusion and exclusion criteria

Building on the above conceptualization of resilience, we applied a number of inclusion and exclusion criteria. First, we focused on armed conflicts in low- and middle-income countries (LMIC), because

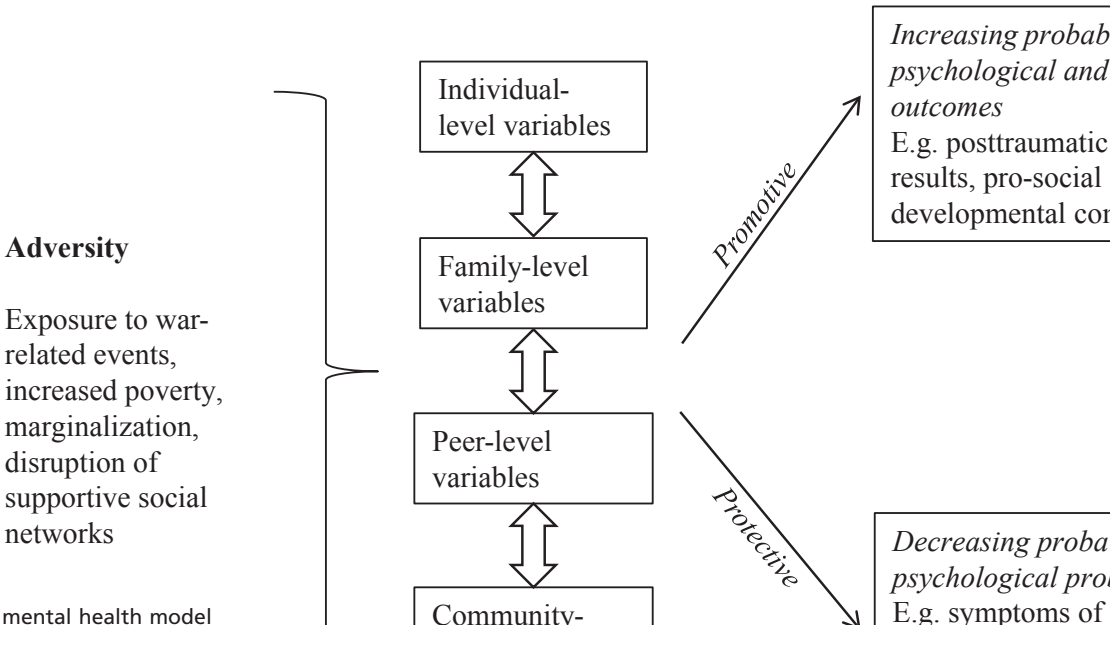

Figure 1 Resilience and mental health model

the largest populations of children affected by armed conflicts live in such settings. Knowledge on resilience of children affected by armed conflicts and terrorism in high-income (industrialized) countries (e.g. Israel, the United States of America), may not be generalizable to LMIC populations because of systematic differences in the types and distribution of adversity; available community and health support systems, and conceptualization of adversity, predictors and outcomes. Second, we were interested in qualitative, quantitative and mixed methods studies. Third, we did not include studies that directly tested the relationship between adversity and mental health outcomes, without attention to variables that determine these outcomes. For example, two studies have found higher levels of pro-social behavior in children exposed to armed conflicts, but did not assess predictors of this outcome (Macksoud & Aber, 1996; Raboteg-Šaric, Žužul & Keresteš, 1994). Fourth, we did not include studies that infer protective factors (e.g. female gender), on the basis of showing a relationship between an opposite risk factor (e.g. male gender) and higher mental health symptoms. Rather, we were interested in studies that were particularly aimed from the outset in testing resilience hypotheses. Fifth, we did not include studies that focused solely on predictors without studying how predictors are subsequently related to mental health outcomes. Sixth, we did not include studies that focused only on age and gender as potential predictors of mental health outcomes. Finally, we included a broad range of mental health outcomes (e.g. hostility, risk-taking tendencies, depression, anxiety, etc.), but not physical health or political outcomes.

In addition, we excluded book chapters, papers presented at conferences, dissertations, editorials, and commentaries. Furthermore, since our main aim was to summarize knowledge on resilience processes in 'normal' circumstances (i.e. non-treatment settings), we excluded studies that evaluated interventions aimed at strengthening resilience (for a review of this literature, see: Jordans, Tol, Komproe & de Jong, 2009; Tol et al., 2011). We also excluded studies solely focused on the construction of measures. All identified studies were initially screened based on abstract and title for relevance (see Figure 2) independently by two authors (WT, SS). Any differences were resolved through discussion. Subsequently, the full text of all potentially relevant studies was read by both authors independently to assess if they met inclusion (or exclusion) criteria.

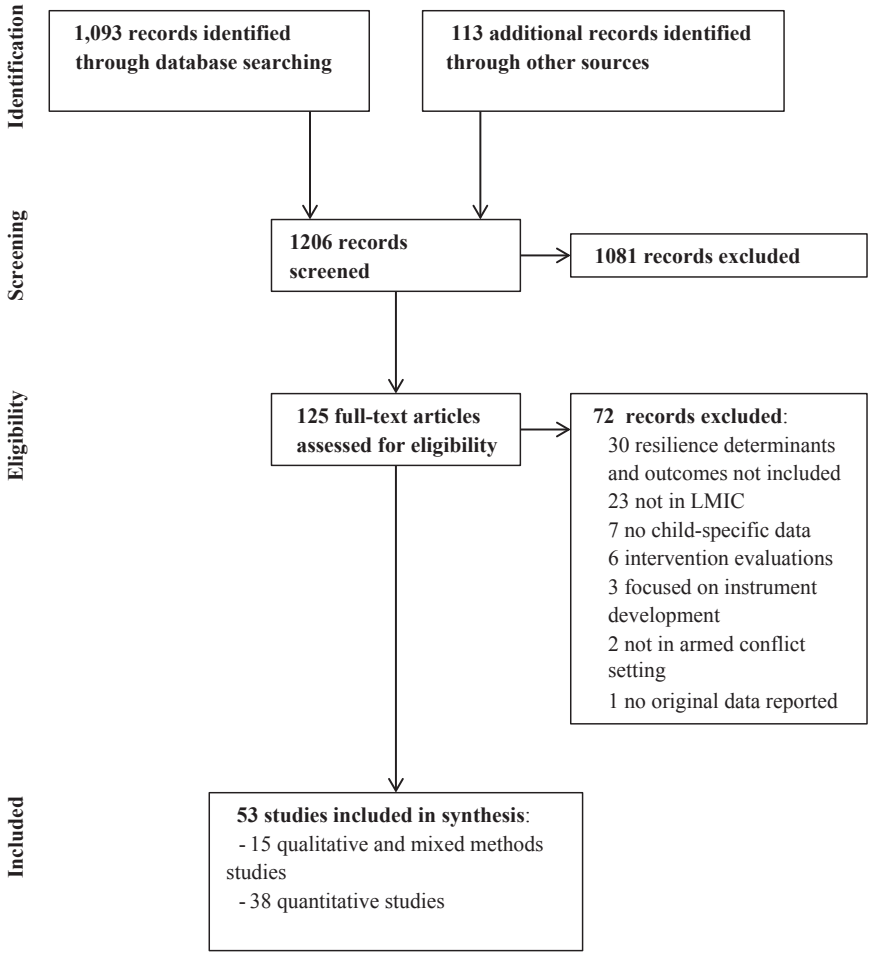

Figure 2 Systematic review flow chart

Search strategy

We searched Medline/Pubmed; PsycInfo; ERIC; PILOTS; JSTOR; and Anthrosource. We applied keywords to identify studies that contained original data of (a) populations under 18 years old ("child* or adolesc*"), (b) focused on resilience ("resilienc* or competenc* or adaptation or 'sense of coherence' or 'postraumatic growth' "); and (c) were exposed to armed conflict ("political violence or armed conflict or war"). In addition, we contacted authors of key publications and hand-searched a number of specialized journals (*Bio Med Central International Health and Human Rights*; *Conflict & Health*; *Disasters*; *Intervention*; *Journal of Traumatic Stress*). Reference sections of previous reviews were searched (Barber & Schlutermann, 2009; Betancourt & Kahn, 2008; McAdam-Crisp, 2006; Reed, Fazel, Jones, Panter-Brick & Stein, 2012; Sagi-Schwartz, 2008; Tol et al., 2009), and we searched the reference sections of all studies evaluated as relevant to our searches, in order to identify further relevant studies (see Figure 2). Searches were performed between August and September 2011, and repeated for Medline and PsycInfo in January 2012. We did not apply any language or date limitations in our searches.

Data extraction

To extract relevant data, all studies were independently read and data was entered into spreadsheets. These spreadsheets listed details on the conflict setting, study population (size, type, age and gender distribution), study methods (sampling and selection, applied instruments and measures, analysis approach), summary of main results, study limitations, and any recommendations. Any differences in extraction of data were resolved through discussion. Subsequently, all quantitative studies were entered into two tables: one focused on positive outcomes (e.g. pro-social behavior, self-esteem) and one on psychological symptom outcomes. These tables summarize (a) study hypotheses on the specific relationship between predictors and outcomes; (b) the socio-ecological level of the predictor; (c) quality of the study (with higher quality studies using longitudinal designs, sample sizes over 200 participants, and random sampling), and (d) context of violence, in order to systematically identify studies supporting and not supporting these resilience hypotheses (available upon request).

Results

Identified studies

Altogether, we identified 53 articles (15 qualitative and mixed methods, 38 quantitative – summarized in Web-appendices 1 and 2 respectively) that met our inclusion criteria and that did not meet any of the exclusion criteria. A majority of the quantitative studies took place in the Middle East [65.8%, mainly the occupied Palestinian territories (oPt)] and Central and Eastern Europe (18.4%, mainly in the former Yugoslavia), whereas a larger share of qualitative studies were implemented in Eastern and Southern Africa (n = 6, 40.0%%) (see Table 1). Most studies focused on school-aged children and adolescents, with very few studies (n = 2, 3.7%) focused on the early childhood period. Two thirds of the qualitative and mixed methods studies were conducted while the armed conflict was ongoing (n = 15, 66.7%), whereas roughly half of the quantitative studies were implemented in ongoing and

Table 1 Overview of included studies (N = 53)

	Qualitative and mixed methods (Total N = 15)	N	%	Quantitative (Total N = 38)	N	%
Region	Central and Eastern Europe/CIS	1	6.7	Central and Eastern Europe/CIS	7	18.4
	Middle East and North Africa	2	13.3	Middle East and North Africa	25	65.8
	Eastern and Southern Africa	6	40.0	Eastern and Southern Africa	1	2.6
	West and Central Africa	1	6.7	West and Central Africa	2	5.3
	South Asia	3	20.0	South Asia	2	5.3
	East Asia and the Pacific	1	6.7	East Asia and the Pacific	0	0.0
	Latin America and the Caribbean	1	6.7	Latin America and the Caribbean	1	2.6
Population	General population	4	26.7	General population	4	10.5
	Mixed (non-refugees/refugees)	3	20.0	Mixed (non-refugees/refugees)	26	68.4
	Former child soldiers	4	26.7	Former child soldiers	4	10.5
	Refugees/IDPs	1	6.7	Refugees/IDPs	2	5.3
	School-going	3	20.0	School-going	2	5.3
Sample size	<10	2	13.3	<10	0	0.0
	11–50	3	20.0	11–50	1	2.6
	51–100	3	20.0	51–100	6	15.8
	101–200	1	6.7	101–200	13	34.2
	201–500	4	26.7	201–500	11	28.9
	501–1000	1	6.7	501–1000	4	10.5
	1000>	1	6.7	1000>	3	7.9
Sample selection	Convenience	11	73.3	Convenience	14	36.8
	Purposive	3	20.0	Purposive	7	18.4
	(stratified) Random	1	6.7	(stratified) Random	15	39.5
	Not reported	0	0.0	Not reported	2	5.3
Conflict period	Pre-conflict	0	0.0	Pre-conflict	2	5.3
	While conflict was ongoing	10	66.7	While conflict was ongoing	17	44.7
	Post-conflict	5	33.3	Post-conflict	19	50.0

CIS, Commonwealth of Independent States; IDPs, Internally Displaced Person(s).

post-conflict settings (n = 17, 44.7% and n = 19, 50.0% respectively). With regard to study methodology, the majority of quantitative papers discussed cross-sectional studies (n = 28, 73.7%), around half (n = 20, 52.6%) relied on relatively small sample sizes (N = 200 or less), and 3 studies (7.9%) included more than 1,000 participants. The majority of the qualitative studies included populations selected through convenience sampling (n = 11, 73.3%), while in quantitative studies both random sampling (n = 15, 39.6%) and convenience sampling (n = 14, 36.8%) were equally applied.

In the next sections, we first provide a narrative synthesis of qualitative studies and mixed methods studies. Second, we summarize findings of the quantitative studies. The narrative synthesis of quantitative studies is structured in accordance with the types of hypotheses tested. That is, if a predictor was expected to be associated with higher levels of a positive outcome we included it in the promotive category. If lower levels of psychological symptoms were hypothesized we grouped it as protective (Patel & Goodman, 2007). While this categorization allows for a systematic comparison of outcomes of studies that had similar aims, a variable may be tested in the same study both as a promotive and protective factor. In these cases we describe the study in both sections (e.g. political activity has been studied both as promotive and protective factor). In each subsection, the synthesis starts with a summary of findings from higher quality studies (longitudinal designs, sample sizes over 200 participants, and random sampling) where available, before discussing other studies. Longitudinal studies are summarized in Table 2. Furthermore, findings are grouped within the socio-ecological levels of the predictors under study. Given the multitude of protective factors studied at the individual- and family-level, we only discuss these variables if they were evaluated in more than one study.

Qualitative and mixed methods studies: resilience across socio-cultural contexts

Overall, the 15 identified qualitative and mixed methods studies present diverse perceptions on what constitute adaptive outcomes across diverse socio-cultural settings and point to contextually unique processes that may support (or obstruct) resilience in different armed conflict settings. For example, two large studies applying different qualitative methodologies in Afghanistan (de Berry et al., 2003; Eggerman & Panter-Brick, 2010) point to the importance of concepts such as *tarbia* (a strong sense of morality, correct behavior) and *wahdad* (family unity and honor), as indicators of positive wellbeing. Qualitative and mixed methods studies in the oPt describe the concept of *sumud*, i.e. adherence to ideology, connection to the land, steadfastness and struggle to persist, as being key to wellbeing (Kostelny & Garbarino, 1994; Nguyen-Gillham, Giacaman, Naser & Boyce, 2008). A study applying free listing and key informant interviews (n = 134) with children affected both by the genocide and by HIV/AIDS in Rwanda identified *kwihangana* (perseverance), *kwigirira ikizere* (self-esteem/confidence), *kurera neza* (good parenting), *kwizerana* (family unity/trust), and *ubufasha abaturage batanga* (collective/communal support) as critical aspects of resilience functioning (Betancourt et al., 2011). The observation that different resilience outcomes are emphasized by participants across socio-cultural contexts implies that researchers applying predefined indicators of positive developmental outcomes and mental health in transcultural settings will likely fail to identify contextually important resilience outcomes and their predictors. For example, Stark (2006) reported that cleansing ceremonies contributed to wellbeing and reintegration in a qualitative study in Sierra Leone with 25 female former child soldiers who survived sexual violence and 17 traditional healers. Such failure to identify contextually important outcomes may translate to designing resilience-focused interventions that are not maximally relevant to children and their families in conflict-affected settings.

Despite this documented variation, the qualitative studies taken together suggest that resilience predictors *per se* may be expected regardless of socio-cultural context. In these studies across 10 countries, research participants were able to identify variables that may contribute to wellbeing in situations of significant adversity. Furthermore, in all of the identified qualitative studies, participants perceived resilience to be based on a combination of personal strengths and supportive contexts (e.g. family and community supports). Five (33.3%) of the qualitative and mixed methods studies, however, point to the complexity and limitations of resilience and challenge the notion of a simple 'shopping list' of predictors. For example, in a qualitative study with 321 adolescents in the oPT, Nguyen-Gillham et al. (2008), highlight the 'fluidity' of resilience. They show that the constellation of predictors changes over time and varies across contexts. Similarly, Akello, Reis and Richters (2010) and Eggerman and Panter-Brick (2010) discuss how cultural values that may contribute to resilience, e.g. hiding distress out of compassion for others and family unity and service, may at the same time serve as sources of vulnerability.

Quantitative studies: individual-level predictors

Promotive. A variety of individual-level predictors for positive outcomes in the context of armed conflicts have been studied, albeit no promotive resilience hypothesis has been tested in more than one study. The most commonly studied individual-level promotive factor is political activity. Political

Table 2 Longitudinal quantitative studies on resilience and mental health

Authors, year	Conflict setting	Sample selection	Type	Size	Age (years), gender (% female)	Resilience hypotheses	Outcomes
Betancourt, Borisova, et al., 2010; Betancourt, Brennan, et al., 2010	Sierra Leone, post-conflict	Convenience (through NGO program)	Former child soldiers	2002: $N = 260$; 2004: $N = 147$; 2008 $N = 179$	10–17 at baseline, 12%	*Positive outcomes*: ucodep>School retention, community acceptance (Betancourt, Borisova, et al., 2010; Betancourt, Brennan, et al., 2010) associated with higher confidence and prosocial attitudes *Psychological symptoms:* School retention, family acceptance and community acceptance associated with lower depression, anxiety (internalizing) and hostility (externalizing)	In the **second wave**: *Positive outcomes*: school retention associated with prosocial attitudes but not confidence; family acceptance not associated; change in community acceptance associated with prosocial attitudes and confidence *Psychological symptoms*: school retention and family acceptance not associated with depression, anxiety, hostility; change in community acceptance associated with lower depression, but not anxiety and hostilityIn the **third wave**: *Positive outcomes*: social support and community acceptance associated with adaptive outcome (prosocial behavior and confidence lumped), but not for child soldiers who injured/killed. School retention not associated *Psychological symptoms*: social support, employment, school retention not associated. Change in community acceptance associated with lower externalizing and internalizing symptoms
Kuterovic-Jagodic, 2003;	Croatia, ongoing and post-conflict	Convenience	Displaced and nonrefugees	1994 $N = 450$; 1997 $N = 252$	Grades 3–6 (mean 10), 50.8%	*Psychological symptoms*: Both in 1994 and in 1997, coping strategies, internal locus of control and perceived social support are associated with lower rates of PTSD symptoms	Psychological symptoms: Children using less emotion expression coping, lower external locus of control, and receive more instrumental social support have lower PTSD symptoms over timeThese variables did not predict mental health during conflict (1994), but did predict longer-term changes (1997)
Panter-Brick et al., 2011;	Afghanistan, ongoing	Stratified random	School-going children	2006 $N = 364$; 2007 $N = 234$ (PTSD: $N = 79$)	11–16, 50.9%	*Psychological symptoms*: Improved family life, household financial circumstances, living conditions in neighborhood are associated with lower levels of total psychological difficulties, depression and PTSD	*Psychological symptoms*: In addition to family-level risk factors, improved family life predicts reduced self-reported total difficulties. Past trauma exposure is the main predictor for changes in PTSD symptoms.

(continued)

Table 2 (continued)

Authors, year	Conflict setting	Sample selection	Type	Size	Age (years), gender (% female)	Resilience hypotheses	Outcomes
T1 (1993): Qouta et al., 1995a; Punamäki, Qouta, and El Sarraj, 1997a,b T2A (1994): Qouta et al., 1995b; T2B (1996): Punamäki et al., 2001; Qouta et al., 2001; T3 (2000): Qouta et al., 2007; (T3)	oPT (Gaza), ongoing and post-Intifada	High and low-trauma exposed children from a larger random school-based sample	Mostly (71%) refugees	1993: *N* = 108, 1994: *N* = 64,1996: *N* = 86, 2000: *N* = 65	11–12, 49.1% (T1)	*Positive outcomes*: Political activity moderates the relationship between exposure and cognitive ability (general intelligence, coding, digit span, creativity)/self-esteem (T1 – QPE, 1995a) *Psychological symptoms*: Political activity moderates the relationship between exposure and emotional responses (neuroticism, risk-taking tendencies) (T1 – QPE, 1995a) *Psychological symptoms*: Good perceived parenting and political activity moderate the relation between exposure and psychological maladjustment (high neuroticism and low self-esteem) (T1 – PQE, 1997) *Positive outcomes*: Participation in flag raising moderates relation between exposure and self-esteem (T2A – QPE, 1995b) *Psychological symptoms*: Participation in flag raising moderates relation between exposure and neuroticism (T2A – QPE, 1995b) *Psychological symptoms:* Children with higher intellectual and creative capacities, active responses to the Intifada, and good perceived parenting (child-reported at T1) have lower levels of PTSD, neurotic symptoms (child-reported) and emotional disorders (child-, mother-, teacher-reported) (T2B – PQE, 2001) Cognitive capacity and active response to Intifada are only protective in the context of good perceived parenting (T2B – PQE, 2001) *Psychological symptoms*: During the Intifada, mental flexibility moderates relationship between traumatic events and self-esteem (T2B – QEP, 2001) *Psychological symptoms*: During the Intifada, mental flexibility moderates relationship between traumatic events and neuroticism (T2B – QEP, 2001) At follow-up, mental flexibility moderates relationship between traumatic events and emotional problems/PTSD symptoms (T2B – QEP, 2001) *Psychological symptoms*: Higher intelligence (T1), cognitive capacity (T1), political activity (T1) are associated with lower PTSD and depressive symptoms (T3 – Q et al., 2007) *Positive outcomes*: Higher intelligence (T1), cognitive capacity (T1), political activity (T1) are associated with higher resilient attitudes and quality of life (T3 – Q et al., 2007)	*Positive outcomes*: In highly exposed children, political activity moderated relationship between exposure and digit span. No moderation found for general intelligence, coding, creativity, and self-esteem. Rather, political activity formed a risk factor (T1 – QPE, 1995a) *Psychological symptoms*: Political activity did not moderate relationship between exposure and neuroticism/risk-taking (T1 – QPE, 1995a) *Psychological symptoms*: Good perceived parenting did not moderate the relationship between exposure and psychological maladjustment, but perceived parenting did moderate the relationship between political activity and psychological maladjustment. Political activity itself did not moderate the relation between exposure and psychological maladjustment (T1, PQE, 1997) *Positive outcomes*: Exposure only associated with low self-esteem in those who did not raise flags (T2A – QPE, 1995b) *Psychological symptoms*: Exposure only associated with high neuroticism in those who did not raise flags (T2A – QPE, 1995b) *Psychological symptoms*: Active responses to military violence, creativity and good and consistent (between parents) parenting was associated with lower levels of post-Intifada PTSD symptoms. Intifada activity predicts good psychological adjustment only in children reporting loving and caring mothering. Intelligence was associated with higher emotional disorders (child-reported), but not other mental health outcomes. Creativity was associated with lower child-reported emotional disorders, but not other outcomes (T2B – PQE, 2001) *Psychological symptoms*: Mental flexibility moderated the relationship between traumatic exposure and psychological symptoms at follow-up, but not between traumatic events and neuroticism during the Intifada (T2B – QEP, 2001) *Positive outcomes*: during the Intifada, mental flexibility did not moderate relation between war exposure and self-esteem (T2B – QEP, 2001) *Psychological symptoms*: Intelligence and cognitive capacity, political activity (measured at T1) are not associated with lower PTSD and depressive symptoms (measured at T3) (T3 – Q et al., 2007) *Positive outcomes*: Intelligence and cognitive capacity, political activity (measured at T1) are not associated with higher resilient attitudes and quality of life (measured at T3) (T3 – Q et al., 2007) PTSD was most likely in children exposed to high levels of traumatic events, poor cognitive capacity and high neuroticism in middle childhood. Only exposure to traumatic events was associated with depressive symptoms and low satisfaction with quality of life (T3 – Q et al., 2007)

MH, mental health; NR, not reported; SES, socio-economic status.

activity was not supported as predictor on five of the six promotive outcomes for which it was tested, including resilience attitudes, quality of life (both tested in a longitudinal study in oPt, $n = 65$) (Qouta, Punamäki, Montgomery & El Sarraj, 2007), general intelligence, specific aspects of intelligence (coding), and creativity (Qouta, Punamäki, & El Sarraj, 1995b). The latter relations were tested in the first (cross-sectional) wave during ongoing violence. Political activity, however, was related to digit span (a memory test) in the same study (Qouta, Punamäki, et al., 1995b). Intelligence itself was not associated in a longer-term follow-up of the same sample ($n = 65$) with neither resilience attitudes nor quality of life before the second Intifada (Qouta et al., 2007). In the third wave ($n = 179$) of a longitudinal study with child soldiers in Sierra Leone, employment was also not promotive of prosocial behavior (Betancourt, Brennan, Rubin-Smith, Fitzmaurice, and Gilman, 2010).

A resilience *outcome* that was addressed in multiple studies concerns self-esteem. Higher self-esteem was predicted by participating in peace celebrations (flag raising) in a longitudinal study in the oPt ($n = 64$) (Qouta, Punamäki & El Sarraj, 1995a), as well as mental flexibility in a follow-up of the same sample ($n = 86$) (Qouta, El Sarraj & Punamäki, 2001), but only during times of relative stability. Self-esteem was not related to political activity in the context of ongoing violence in the first wave ($n = 108$) of this longitudinal study (Qouta et al., 1995b).

Finally, frequency and satisfaction with self-reported coping methods was associated with a general measure of psychosocial adaptation in a small cross-sectional study ($n = 105$) in post-conflict Croatia (Kocijan-Hercigonja, Rijavec, Marusic & Hercigonja, 1998). Generalizability of these findings are unknown as sampling strategy was not reported.

Protective. Coping was also assessed as a protective factor for various psychological symptoms in five quantitative studies. These studies show partial support for applied coping styles on some psychological symptoms, but three cross-sectional studies did not support overall coping repertoire (i.e., number of strategies endorsed), frequency of applying coping methods or perceived effectiveness with coping methods to be protective (Kocijan-Hercigonja et al., 1998; Punamäki, Muhammed & Abdulrahman, 2004; Punamäki & Puhakka, 1997). In the only longitudinal study that addresses this, distinct coping styles derived through factor analysis were associated with lower PTSD symptoms in Croatian children ($n = 252$) during post-conflict assessment but not during ongoing violence. Some of the assessed coping strategies were also protective for PTSD symptoms in cross-sectional studies in post-conflict Bosnia and Herzegovina ($n = 393$) (Durakovic-Belko, Kulenovic & Dapic, 2003), and Kurdish children in Iraq exposed to ongoing violence ($n = 153$) (Punamäki et al., 2004). One of four coping styles was also protective for aggressive symptoms and sleeping difficulties in the latter study (Punamäki et al., 2004). However, coping methods were not found to be protective in cross-sectional studies for depressive symptoms (Durakovic-Belko et al., 2003; Punamäki et al., 2004), cognitive difficulties, somatic symptoms (Punamäki et al., 2004), anxiety, and overall psychological difficulties (Punamäki & Suleiman, 1990). Further emphasizing the likely context- and symptom-specific protective effects of coping styles, Punamäki and Puhakka (1997) found that different types of coping styles were protective for overall psychological difficulties during different phases of armed conflict.

Second, political activity was also assessed as a protective factor in several waves of a longitudinal study with school-aged children in the oPt. As with coping styles, political activity's protective effects were symptom specific and dependent on phase of conflict. That is, protective effects were found for overall psychological difficulties and PTSD (Punamäki, Qouta & El Sarraj, 2001), but not for depressive symptoms (Qouta et al., 2007), neuroticism, and risk-taking tendencies (Qouta et al., 1995b). Moreover, political activity's protective effect on psychological difficulties was only found in a period of relative stability and not in the first wave of the study during active conflict (Punamäki, Qouta, & El Sarraj, 1997b). At the last follow-up in this study, the protective effect for PTSD was no longer identified, but this could be a power issue, given high loss to follow-up (from $n = 108$ to $n = 65$) (Qouta et al., 2007).

A third category of protective variables tested concerns personal strength and agency. There was only one longitudinal study that assessed agency, using internal locus of control as a measure. Kuterovic-Jagodic (2003) found protective effects for PTSD symptoms in the post-conflict phase, but not during ongoing violence. Similarly, if a protective effect was identified in cross-sectional studies, this was only observed in post-conflict settings. Optimism was associated with lower PTSD and depressive symptoms in a study in post-conflict Bosnia and Herzegovina ($n = 395$) (Durakovic-Belko et al., 2003), self-efficacy with not being diagnosed with PTSD in post-conflict Lebanon ($n = 30$) (Saigh, Mroueh, Zimmerman & Fairbank, 1995), and lower depressive symptoms (Durakovic-Belko et al., 2003). However, optimism was not associated with having none of several psychological symptoms in former child soldiers during ongoing violence in Uganda ($n = 330$) (Klasen et al., 2010). A protective effect for self-efficacy was also not substantiated with regard to PTSD and depressive symptoms in two other cross-sectional studies (Durakovic-Belko et al., 2003; Ferren, 1999). Appraisal of control over an event and hardiness were not found to be protective in three cross-sectional studies (Durakovic-Belko

et al., 2003; Klasen et al., 2010; Walton, Nuttall & Nuttall, 1997).

Fourth, cognitive resources including intelligence, creativity and mental flexibility have been assessed as protective factors. Overall, evidence of a protective effect was found for indices of overall psychological difficulties (with one exception), but not for specific symptom measures. Creativity and mental flexibility were found to be protective for overall psychological difficulties in two small longitudinal (post-conflict) samples in the oPt (Punamäki et al., 2001; Qouta et al., 2001), as was intelligence in a small cross-sectional study with 12-year olds (n = 54) living in repopulated villages in post-conflict El Salvador (Walton et al., 1997). Scoring higher on a measure combining cognitive and emotional-behavioral functioning was also associated without having any diagnosis in a large random sample of 6–16 year olds during ongoing violence in the oPt (n = 660) (Punamäki, Qouta, Miller & El Sarraj, 2011). Cognitive resources, however, were not associated with separate indices for PTSD, depressive symptoms, and neuroticism (Punamäki et al., 2001; Qouta et al., 2001, 2007).

Fifth, religious beliefs and practices have been assessed as protective factor in cross-sectional studies with mixed evidence. Religiosity was associated with lower levels of anti-social behavior and depressive symptoms (girls only) in a very large purposive sample of adolescents in the oPt (n = 6,923) (Barber, 2001), as well as for PTSD symptoms (but not depressive symptoms) in Bosnian and Croatian adolescents (Durakovic-Belko et al., 2003) and any psychological symptoms in former Ugandan child soldiers (Klasen et al., 2010).

Sixth, Punamäki and colleagues have studied dreaming as a cognitive-emotional processing mechanism that may be associated with better outcomes in two cross-sectional studies. Different systematic coding of dream diaries collected with 6–16 year olds (n = 345) in an active conflict situation in oPt, show protective effects of dreaming on both general psychological symptoms (Punamäki, 1998), as well as four out of five specific symptom groups (PTSD, anxiety, aggression, depressive symptoms) (Helminen & Punamäki, 2008). Similarly, a study with Kurdish 9–17 year olds (n = 122) found that pleasant dreams with complete narratives and happy endings moderated the relationship between exposure to traumatic events and overall psychological symptoms (Punamäki, Ali, Ismahil & Nuutinen, 2005).

Finally, extraversion has been studied as a protective factor in two larger cross-sectional school-based purposive samples of adolescents in the former Yugoslavia. Extraversion was associated with lower depressive symptoms in a study with Bosnian adolescents, but not with lower PTSD symptoms (n = 393) (Durakovic-Belko et al., 2003), and not with lower depressive symptoms in Croatian adolescents (n = 583) (Brajsa-Zganec, 2005).

Family-level predictors

Promotive. A number of family-level predictors of positive outcomes have been studied in one longitudinal and four cross-sectional studies. Of these, parental support and parental monitoring shows somewhat consist promotive effects across studies. Parental support and parental monitoring were associated with higher valuing of education and higher school grades in a large cross-sectional study with 14–15 year olds in the oPt (n = 6,923) (Barber, 1999), as well as with positive perceptions of health and life and life satisfaction in a particularly large study with 11–15 year olds in the oPt (n = 7,439 West Bank, n = 7,217 Gaza) (Harel-Fisch et al., 2010). Parental support and monitoring were not related to the value that youth placed on family (Barber, 1999). Perceived parenting was also related to prosocial behavior in a large cross-sectional study with adolescents in post-conflict Croatia (n = 694) (Keresteš, 2006). Family acceptance, socio-economic status and mother's education, however, were not found to be related to positive outcomes in aforementioned study with former child soldiers in Sierra Leone (Betancourt, Borisova, et al., 2010; Betancourt, Brennan, et al., 2010) and in a cross-sectional study with a stratified random sample of 224 10–16 year old children during ongoing violence in Lebanon (Macksoud & Aber, 1996).

Protective. First, parental monitoring and support also were commonly observed to have protective effects, although not consistently across all symptom groups and gender. Parental support was a protective factor for depressive symptoms (Barber, 1999; Durakovic-Belko et al., 2003), anti-social behavior, aggression in post-conflict settings (Barber, 1999), and overall psychological difficulties during ongoing violence (Punamäki et al., 2011). Findings for PTSD showed mixed evidence: one cross-sectional study with a convenience sample of 6–12 year olds in the oPt showed a protective relationship (Thabet, Ibraheem, Shivram, Winter & Vostanis, 2009), but two other cross-sectional studies failed to support this (Durakovic-Belko et al., 2003; Khamis, 2005). Parental monitoring was associated with lower levels of depressive symptoms and anti-social behavior in girls only (Barber, 1999, 2001), and aggression (Barber, 1999). Perceived parenting was found to be protective for PTSD symptoms in a longitudinal follow-up (Punamäki et al., 2001) and aggression in a cross-sectional study (Keresteš, 2006), but not for overall psychological difficulties in the first wave of a longitudinal study (Punamäki, Qouta, & El Sarraj, 1997a).

Second, overall quality of the home environment and family life have been found to be protective in a longitudinal study with a randomly selected sample of 11–16 year olds in Afghanistan (n = 234) (Panter-Brick, Goodman, Tol & Eggerman, 2011), as well as

in one of the few (cross-sectional) studies with preschool children ($n = 200$) in Lebanon (Zahr, 1996). However, two cross-sectional studies failed to find evidence for this relationship (Punamäki, 1989; Walton et al., 1997). Also, these variables were not predictive of improvements on specific symptom groups, including depressive and PTSD symptoms (Panter-Brick et al., 2011), nor anxiety and fears (Punamäki, 1989).

Third, variables related to socio-economic status and education level of parents do not seem to be consistently related to lower levels of psychological symptoms. Although these variables were associated with lower levels of overall psychological difficulties, depressive and PTSD symptoms, and interpersonal difficulties in four cross-sectional studies with diverse populations in El Salvador, Lebanon, Nepal, and Uganda (Farhood et al., 1993; Klasen et al., 2010; Kohrt et al., 2010; Walton et al., 1997), in the only longitudinal study that assessed this relationship (Panter-Brick et al., 2011) and across six cross-sectional studies (Durakovic-Belko et al., 2003; Farhood et al., 1993; Kohrt et al., 2010; Macksoud & Aber, 1996; Punamäki, 1989; Punamäki et al., 2011), socio-economic status and parental education level were not associated with psychological difficulties, PTSD, depressive, anxiety, somatic symptoms, aggression, fear, and function impairment

Fourth, various aspects of parental mental health were found to inconsistently relate to measures of psychological symptoms in cross-sectional studies. Mother's coping style was protective for psychological difficulties (but not anxiety nor fear) and mother's internal locus of control for anxiety (but not psychological difficulties nor fear) in a small cross-sectional study with 8–14 year olds during ongoing violence in the oPt (Punamäki, 1989). Mother's and father's good mental health were reported to be protective for overall psychological difficulties in a large cross-sectional study with a similar population ($n = 660$) (Punamäki et al., 2011), but maternal mental health was not protective for overall psychological difficulties nor PTSD symptoms in two other cross-sectional studies (Qouta, Punamäki & El Sarraj, 2005; Walton et al., 1997).

Finally, family composition and size were not found to be associated with PTSD, depressive symptoms and function impairment in two cross-sectional studies in post-conflict settings in Nepal (former child soldiers, $n = 142$) (Kohrt et al., 2010) and school-going children in Bosnia and Herzegovina ($n = 393$) (Durakovic-Belko et al., 2003).

Peer- and school-level predictors

Promotive. One study addressed potential promotive effects at this level, i.e. the aforementioned longitudinal study with former child soldiers in Sierra Leone. In the second wave, this study found that school retention was associated with higher levels of prosocial behavior, but not with higher levels of confidence (Betancourt et al., 2013). In the third wave this relationship was maintained for a combined measure of adaptive functioning (Betancourt, Brennan, Rubin-Smith, Fitzmaurice, and Gilman, 2010).

Protective. The same study did not show evidence for school retention to be protective for depressive symptoms, anxiety, and hostility (Betancourt et al., 2013), also at the third wave of the study for internalizing and externalizing symptoms (Betancourt, Brennan, Rubin-Smith, Fitzmaurice, and Gilman, 2010). Further cross-sectional studies show a complex gender and symptom specific set of relations. Value placed on education, for example, was associated with lower levels of depression for boys, but not for either gender with regard to anti-social behavior during relatively stable conditions in the oPt (Barber, 2001). Similarly, peer social support was associated with lower levels of depression, but not PTSD in adolescents in post-conflict Bosnia and Herzegovina (Durakovic-Belko et al., 2003). Teacher social support and peer friendships were not protective for PTSD, depressive symptoms, and overall psychological difficulties in two cross-sectional studies (Durakovic-Belko et al., 2003; Peltonen, Qouta, El Sarraj & Punamäki, 2010). Children who did not have any psychiatric diagnoses, however, were found to have higher school grades in a recent study with 660 randomly selected school-going children in the oPt (Punamäki et al., 2011).

Community- and multi-level predictors

Promotive. Betancourt and colleagues found that community acceptance of former child soldiers was associated with higher levels of prosocial behavior and confidence at the second wave of their study in Sierra Leone (Betancourt et al., 2013). In the third wave, community acceptance and social support were associated with adaptive functioning (Betancourt, Brennan, Rubin-Smith, Fitzmaurice, and Gilman, 2010).

Protective. Protective effects of community-level variables have been observed in child soldiers, but not in generally conflict-affected children. In the aforementioned study, community acceptance was associated with lower levels of depressive symptoms (not anxiety and hostility) in the second wave, and lower levels of internalizing and externalizing symptoms in the third wave (Betancourt, Brennan, Rubin-Smith, Fitzmaurice, and Gilman, 2010; Betancourt et al., 2013). Continued association with an armed group was related to lower levels of PTSD and depressive symptoms, but not function impairment, in a cross-sectional study with adolescent former child soldiers in Nepal ($n = 142$). However, higher

female literacy and a higher proportion of higher caste residents were not associated with these symptoms in the same study (Kohrt et al., 2010). In a longitudinal school-based sample with Afghan 11–16 year-olds, neighborhood living conditions were not associated with lower overall psychological difficulties, depressive, and PTSD symptoms (Panter-Brick et al., 2011).

Studies on protective effects of multi-level (or non-specified level) indices of social support have produced mixed findings. A general measure of social support was found to be associated with lower levels of depressive symptoms and interpersonal difficulties in one cross-sectional study in post-conflict Lebanon (Farhood et al., 1993), but not with externalizing and internalizing symptoms in a longitudinal study (Betancourt, Brennan, Rubin-Smith, Fitzmaurice, and Gilman, 2010), nor with somatic symptoms and overall or any psychological symptoms in three cross-sectional studies (Farhood et al., 1993; Klasen et al., 2010; Walton et al., 1997). Specific types of social support show a similarly inconsistent picture: instrumental social support was related to lower levels of depressive symptoms for adolescent girls in Croatia (Brajsa-Zganec, 2005), and for PTSD symptoms in a post-conflict but not ongoing violence phase also in Croatia (Kuterovic-Jagodic, 2003). Support to self-esteem was associated with lower depressive symptoms in both boys and girls (Brajsa-Zganec, 2005), but support to self-esteem and emotional social support were not protective for PTSD symptoms in neither conflict and post-conflict periods (Kuterovic-Jagodic, 2003). Finally, belonging and acceptance as a form of social support was protective for depressive symptoms in boys, but not girls (Brajsa-Zganec, 2005).

Discussion

The aim of this systematic review was to synthesize the body of knowledge on resilience and mental health in children affected by armed conflicts, and to distill lessons learned that may be useful in designing interventions aimed at strengthening resilience in this population. In this discussion section, we start with a description of the limitations of this review, our current knowledge in this area, and research recommendations to fill these gaps. We conclude with recommendations for practice around three broad summary statements.

Conclusions from this systematic review should be interpreted in light of three main limitations. First, we did not attempt a meta-analysis of findings, given the lack of consistency across studies in types of relationships assessed and employed research approaches. Second, we applied a more flexible definition of resilience that allowed inclusion of studies assessing protective factors for lower levels of symptoms rather than not having *any* symptoms. Application of the latter conceptualization would have resulted in the inclusion of six studies only (Ferren, 1999; Khamis, 2005; Klasen et al., 2010; Punamäki et al., 2011; Saigh et al., 1995; Thabet et al., 2009), an issue which requires attention in future research on resilience in this area. Third, although we highlighted longitudinal and higher quality studies in our synthesis, we did not employ strict inclusion criteria for quality of studies. We felt this is justified given the exploratory state of the research with this particular group of children and adolescents. However, we did not identify a clear pattern in results for higher vs. lower quality studies. This requires replication in future reviews as the field develops.

Altogether, we identified 53 studies that assessed resilience in children affected by armed conflict. In our opinion, our current knowledge is limited by three major factors. First, although a number of researchers successfully conducted longitudinal studies (seven papers representing three groups of studies) in challenging circumstances, the large majority of identified studies were cross-sectional in nature thereby prohibiting any firm conclusions on causality and direction of associations. These longitudinal studies understandably show shortcomings with regard to sample size, ability to retain participants at follow-up, consistency of measures at different time points, and length of follow-up. The importance of these limitations are underscored by the findings of the identified studies overall, which indicate that resilience is a complex process with outcomes determined by a dynamic interaction between gender, developmental stage, phase of conflict, and other intra-individual and contextual variables (cf. Reed et al., 2012). For example, two longitudinal studies indicate that the same coping methods and mental flexibility had different associations with mental health in the conflict vs. the post-conflict phase (Kuterovic-Jagodic, 2003; Qouta et al., 2001). Similarly, Barber showed that family monitoring was associated with lower levels of depressive symptoms in girls, but not in boys and that family functioning itself was affected by neighborhood disorganization (Barber, 2001). In the same vein, Panter-Brick and colleagues showed that psychological difficulties other than PTSD were best predicted by family-level variables, whereas PTSD symptoms were best predicted by exposure to traumatic events (Panter-Brick et al., 2011). Collectively, such findings indicate that resilience may more aptly be defined and measured as the interaction between time-variant and context-dependent variables than as a simple mathematical addition of risk and protective factors with known impacts for mental health and wellbeing (Rutter, 2012). To improve our basic understanding of the complex dynamic processes involved in resilience, longitudinal studies with larger sample sizes are required. Such studies should target specific hypotheses on resilience processes that have been identified – e.g. by previous

ethnographic research – as contextually and developmentally relevant, and ideally apply advanced (multilevel) statistical modeling techniques to examine the relationships between variables at diverse levels of the socio-ecological system. The need for developmentally and ecologically embedded longitudinal research was also a conclusion from a recent systematic review of research on child soldiers (Betancourt et al., 2013).

Second, an important shortcoming of current knowledge concerns the indicators applied in examining resilience. The majority of studies have studied resilience by assessing if putative protective variables are associated with lower rates of symptomatology, particularly PTSD, depressive and externalizing symptoms. Symptomatology only covers part of the definition of resilience, i.e. good *functioning* despite exposure to adversity. Very few studies have examined promotive relations, even though research shows that processes determining such outcomes may differ from the processes determining psychological symptoms (Tol, Komproe, Jordans, Gross, Susanty, Macy, and de Jong, 2010). None of these studies showed overlap in the promotive relations of interest. Replication of findings is therefore a major research priority in this area. Also, as noted above, we feel the current body of knowledge could be strengthened by a stronger emphasis on using indicators with socio-cultural sensitivity (Betancourt, 2011). The qualitative body of studies clearly shows socio-cultural variation regarding which outcomes are considered adaptive and which psychological symptoms may be considered most problematic. We recommend that future research on resilience with children in armed conflict starts with qualitative research to identify appropriate resilience indicators, and more systematically includes both symptom-measures and adaptive outcomes.

Third, the study of resilience in children exposed to adversity in industrialized countries is moving to a multi-systems approach including biological levels of analysis (Masten, 2011). A quickly expanding literature on allostatic load, for example, has examined how adversity may 'get under the skin' through repeated wear and tear on diverse biological systems (McEwen & Gianaros, 2011). However, we did not find any studies that included biomarkers, even though a limited number of studies with children and adolescents in LMIC and with adults in armed conflict-affected settings have shown that this is feasible (Panter-Brick, Eggerman, Mojadidi & McDade, 2008). Such studies show that the stress response system is particularly vulnerable to adversity in the early childhood period (Shonkoff, Boyce & McEwen, 2009), a period which has received very little attention from scholars working in areas of armed conflict even though one third of all conflict-affected children are younger than five years (Machel, 2009).

Despite these limitations, we feel there are three important lessons that may be learned from research with children in areas of armed conflict for effective promotion of resilience. First, despite resilience being observed in a multitude of socio-cultural settings, understanding how resilience outcomes are defined and shaped across socio-cultural contexts should be at the heart and not periphery of efforts to promote resilience. Developers of interventions may build on the findings summarized here, especially the broadly consistent findings on the protective nature of parental support and monitoring. However, developing interventions on the basis of a pre-existing set of attributes that may contribute to resilience will likely lead to missing contextually unique processes, and may inadvertently contribute to doing harm. For example, an ethnographic study in northern Uganda initially observed that many children did not seem to suffer psychological complaints. This apparent resilience (i.e. children not talking about conflict-related distress) was in fact related to cultural values regarding respect for others who suffered in silence and not wanting to hurt others who suffered. Complaints were more freely expressed in the form of somatic symptoms, for which tranquilizers were used. In this situation, the authors argue that resilience may best be promoted by uncovering the links between somatic complaints and psychological distress through a deeper appreciation of children's explanations of how context shapes distress (Akello et al., 2010). Another example concerns the role of political ideology: political affiliation appeared protective among Nepali former child soldiers (Kohrt et al., 2010), but the reverse was observed in Bosnian adolescents (Jones, 2002). In our opinion, these findings support the emphasis that is given in recent best practice guidelines on pre-intervention participatory assessment of resources that may contribute to resilience [Inter-Agency Standing Committee [IASC], 2007; the Sphere Project, 2011].

Second, research shows that a supportive socio-ecological context is at least as an important - if not more important - determinant of resilience as intra-individual variables, and should thus be a central focus for interventions promoting resilience. Individual predictors appeared to be most protective in the post-conflict phase. However, research findings also caution against over-idealizing cultural resources. Eggerman and Panter-Brick (2010), for example, refer to the risk of children becoming 'entrapped' by cultural values: while 'family unity' promotes resilience, it also negates personal aspirations, and while 'honor' confers dignity, it also entails social obligations that are difficult to meet under conditions of chronic poverty. We recommend that interventionists carefully assess both the potential protective as well as negative impacts that resilience resources in the socio-ecological context may have.

Third, we feel it is important to also emphasize the limitations of resilience in the situations of extreme adversity that participants faced across the studies summarized here. In the longitudinal study by Betancourt and colleagues, being a victim of sexual assault and daily hardships had stronger impacts on internalizing outcomes than community acceptance (Betancourt, Borisova, Williams, Brennan, Whitfield, de la Soudiere, and Gilman, 2010). Qouta et al.'s follow-up (2007) shows consistent relations between trauma exposure and PTSD, depression, and satisfaction with life, but not with mothering style, child coping and cognitive resources. Such findings warn against implementing interventions focused solely on promoting resilience, but advocate for integrating such interventions in multi-layered care systems in which referral to treatment interventions is safe guarded (Jordans et al., 2010).

To conclude, based on the findings presented here we emphasize the following considerations in the development of resilience-focused interventions. Development of interventions in areas of armed conflict should start with a detailed contextual (qualitative) assessment to select appropriate resilience outcomes that may be targeted. Intervention development should focus on how to augment the possible family-level predictors that may contribute to promotion of these outcomes, particularly parental support and monitoring. In addition, practitioners may build on peer-, school- and community-level resources (e.g. school retention, community acceptance for child soldiers) where assessments identifies these as important, but should be mindful of possibly harmful impacts by ensuring ongoing monitoring and evaluation of interventions. Given the complexity of findings in this population, we conclude that resilience-focused interventions will need to be highly tailored to specific contexts, rather than the application of a universal model that may be expected to have similar effects on mental health across contexts.

Supporting information

Additional Supporting Information may be found in the online version of this article.

Appendix S1 Characteristics of qualitative and mixed methods studies (n = 15).

Appendix S2 Characteristics of quantitative studies (n = 38).

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Key points

- This systematic review identified 53 studies (15 qualitative and mixed methods, 38 quantitative studies) focused on resilience in children and adolescents affected by armed conflict in low- and middle-income countries.
- Studies show significant variation across socio-cultural contexts both in (a) how desired mental health outcomes are defined, and (b) the processes that determine these outcomes.
- Research converges on the importance of supports across the socio-ecological context for resilience in children and adolescents affected by armed conflict, of which parental support and parental monitoring are most consistently associated with desired mental health outcomes.
- This body of research supports the notion of resilience as determined by a complex interaction between development-, gender, and context-dependent variables, rather than a mathematical balance between risk- and protective factors with known effects on mental health. This complexity requires careful attention to assessment of both salutogenic and pathogenic effects of candidate predictors before attempting their promotion in new socio-cultural settings.
- Research in this area can be improved in five ways: (a) through more longitudinal (multi-level) studies with larger sample sizes; (b) better interaction between qualitative and quantitative methodology to improve the selection and adaptation of resilience predictors and outcomes; (c) more attention to positive mental health outcomes (e.g. prosocial behavior, self-esteem); (d) studies focusing on the early childhood period; and (e) the integration of a biological level of analysis.

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