The effects of child encounters during military deployments on the well-being of military personnel: a systematic review

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ABSTRACT

Background: Military members report higher instances of trauma exposure and subsequent posttraumatic stress disorder (PTSD) relative to civilians. Encounters with children in war and conflict settings may have particularly unsettling consequences. However, the nature of these consequences has yet to be systematically examined.

Objective: This systematic review sought to identify and document deployment-related encounters with children and associated outcomes reported by military personnel, as well as identify any current training programs, policies, or procedures in place regarding encountering children during deployment.

Method: A total of 17 studies with 86 independent samples were included. Analyses were based primarily on qualitative data.

Results: Based on the review, 77 military personnel samples documented their experiences encountering children during deployment. Most commonly, child encounters included armed children, porters/human shields, suicide bombers, and ambiguous interactions. Outcomes from encountering children during deployment were diverse, occurring both during the encounter, and described by many as persisting years following the exposure. Consequences of encounters as described by military personnel included: hesitation to complete mission objectives, mental health concerns, moral struggles, social isolation, and sleep disturbances. Of the 86 included reports, only nine provided information regarding training at any stage (pre-, during, or post-deployment) in relation to encountering children. Much of the available information underscored the lack of training, with six reports highlighting the lack of pre-deployment training and five reports describing the lack of policies, including rules of engagement, as they relate to encountering children during deployment. Only two reports described post-deployment procedures made available to military personnel following exposure to children while on deployment.

Conclusions: Results from this review will be used to identify available research, develop and support training initiatives, and increase awareness regarding implications of encountering children during deployment. We further provide recommendations regarding research needs, policy implementation, and current training gaps.

Los efectos de los encuentros con niños durante despliegues militares en el bienestar del personal militar: Una revisión sistemática

Antecedentes: Los miembros de las fuerzas militares reportan mayor exposición al trauma y posterior trastorno de estrés postraumático (TEPT), comparados con civiles. Los encuentros con niños en escenarios de guerra y conflictos pueden tener consecuencias particularmente inquietantes, sin embargo, la naturaleza de estas consecuencias aún no se ha examinado sistemáticamente.

Objetivo: Esta revisión sistemática buscó identificar y documentar los encuentros con niños relacionados con el despliegue militar, y los resultados asociados reportados por el personal militar, así como identificar cualquier programa de capacitación, política o procedimiento vigente en relación con el encuentro con niños durante el despliegue militar.

Método: Se incluyeron un total de 17 estudios con 86 muestras independientes. Los análisis se basaron principalmente en datos cualitativos.

Resultados: Según la revisión, 77 muestras de personal militar documentaron experiencias al encontrarse con niños durante el despliegue. Más comúnmente, los encuentros con niños...
incluyeron niños armados, portadores/escudos humanos, terroristas suicidas e interacciones ambiguas. Los resultados del encuentro con niños durante el despliegue fueron diversos, ocurriendo durante el encuentro, y siendo descritos por muchos como persistentes años después de la exposición. Las consecuencias de los encuentros descritas por el personal militar incluyeron: vacilación para completar los objetivos de la misión, problemas de salud mental, luchas morales, aislamiento social y trastornos del sueño. De los 86 informes incluidos, solo nueve proporcionaron información sobre la capacitación en cualquier etapa (antes, durante o después del despliegue militar) en relación con el encuentro con los niños. Gran parte de la información disponible subrayó la falta de capacitación, con seis informes que destacaron la falta de capacitación previa al despliegue y cinco informes que describieron la falta de políticas, incluidas las reglas de participación, en relación con el encuentro con niños durante el despliegue. Solo dos informes describieron los procedimientos posteriores al despliegue puestos a disposición del personal militar después de la exposición a los niños durante el despliegue militar.

**Conclusiones:** Los resultados de esta revisión se utilizarán para identificar la investigación disponible, desarrollar y apoyar iniciativas de capacitación y aumentar la conciencia sobre las implicaciones de encontrarse con niños durante el despliegue militar. Además, brindamos recomendaciones sobre las necesidades de investigación, la implementación de políticas y las brechas de capacitación actuales.

**军事部署期间儿童遭遇对军事人员幸福感的影响：一项系统综述**

**背景：**与平民相比，军人报告了更多例创伤暴露和随之而来的创伤后应激障碍（PTSD）。在战争和冲突环境中与儿童相遇可能会产生特别令人不安的后果，但这些后果的性质尚待系统研究。

**目的：**本系统综述旨在确定和记录军事人员报告的部署期间儿童遭遇和相关结果，以及确定在部署期间儿童遭遇相关的任何当前训练计划、政策或计划。

**方法：**共加入 17 项研究，86 个独立样本。分析主要基于定性数据。

**结果：**根据本综述，77 名军事人员样本记录了部署期间儿童遭遇的经历。最常见的儿童遭遇包括武装儿童、搬运工/人体盾牌、自杀式炸弹袭击者和模仿者的互动。在部署期间遭遇儿童的结果是多种多样的，既发生在遭遇期间，也被许多人描述为暴露后持续数年。军事人员遭遇的后果包括：犹豫完成任务目标、心理健康问题、道德斗争、社会孤立和睡眠障碍。纳入的 86 份报告中，仅有 9 份提供了与遭遇儿童有关的任何阶段（部署前、部署期间或部署后）的培训信息。大部分可用信息强调缺乏培训。六份报告强调缺乏部署前培训，五份报告描述缺乏政策，包括参与规则，因为它们与部署期间遭遇儿童有关。只有两份报告描述了军事人员在部署期间接触儿童后可用的部署后计划。

**结论：**本综述的结果将用于确定可研究、开发和支持培训计划，并提高对在部署期间遭遇儿童影响的认识。我们进一步提供有关研究需求、政策实施和当前培训差距的建议。

Military members report higher instances of trauma exposure and subsequent development of psychological difficulties, including posttraumatic stress disorder (PTSD), relative to civilians (Brunet et al., 2015; Lehavot et al., 2018; Thompson et al., 2016). During deployments, military personnel can encounter a plethora of challenging situations, including entering hostile environments, facing combat, or experiencing loss or death (U.S. Department of Veterans Affairs, 2015). In the context of such challenges, encounters with children in conflict settings may have particularly unsettling consequences. According to the Paris Principles,

a child associated with an armed force or armed group refers to any person below 18 years of age who is or who has been recruited or used by an armed force or armed group in any capacity, including but not limited to children, boys and girls, used as fighters, cooks, porters, messengers, spies or for sexual purposes. It does not only refer to a child who is taking or has taken a direct part in hostilities. (UNICEF, 2007)

These encounters can place military personnel in challenging moral dilemmas when they are torn between rules of engagement that may protect themselves and their peers, and risking harm to children who may seemingly pose as threats.

To date, the consequences of encountering children in deployment settings are unclear. While anecdotal evidence underscoring the severity of consequences following these encounters has been noted in news media (Human Factors and Medicine Panel-159/Research and Technology Organization Task Group, 2011; Jones, 2018; Kassam, 2017), there is a dearth of research documenting challenges military personnel experience in response to these encounters. This includes a lack of information regarding details of encounters with children (e.g. armed child soldiers), as well as short- and long-term impacts of such experiences.

Accumulating evidence in the field of psychotraumatology has revealed particular qualities of highly stressful and traumatic experiences are associated with severity and type of outcomes experienced by military members and Veterans (Litz et al., 2018; Maguen et al., 2010; Stein et al., 2012). For example, research has consistently demonstrated that
deployment experiences posing a significant challenge to a person’s moral values (e.g. witnessing atrocities/massacres) are associated with psychological difficulties such as PTSD and suicidality (Griffin et al., 2019; Nazarov et al., 2018), in some cases even after accounting for combat exposure (Beckham et al., 1998; Currier et al., 2014). Though not yet systematically studied, it is likely that encountering children in conflict settings could similarly lead to internal moral conflict and distress understood to be driving these associations. Indeed, children in most societies are characterised as representing such virtues as innocence and hope, with societal rules and political policies underscoring the value of protecting and nurturing children (Weisberg, 1978). Thus, experiences that, in addition to occurring in the context of high-stakes military operations, shatter this perception of children may be particularly psychologically harmful. Though research is lacking, this notion is being increasingly recognised by military organisations and advocacy groups, as for instance, the Canadian Armed Forces (CAF) has recently developed a doctrine specific to the challenges military personnel face when encountering children in conflict settings, and particularly children recruited and used in violence (Government of Canada, 2020). Additionally, the Canadian Government led the creation of the Vancouver Principles on Peacekeeping and the Prevention of the Recruitment and Use of Child Soldiers (Government of Canada, 2017). One of the 17 principles focuses on 'research on the trauma experienced by personnel confronting child soldiers and interacting with children affected by armed conflict' in order to enhance training and care for personnel (Government of Canada, 2017).

Though evidence remains scarce, preliminary findings support the notion that encounters with children in military settings can have particularly adverse consequences. A study by Nazarov et al. (2018) demonstrated that previously deployed CAF personnel who endorsed seeing ill or injured 'women or children' whom they were unable to help were at increased odds of experiencing PTSD or major depressive disorder relative to previously deployed individuals who had not been exposed to such an experience. A recent qualitative investigation of moral distress in British military Veterans similarly underscored that encounters involving children can have particularly adverse impacts on mental health (Williamson et al., 2019). Still, the lack of available research hinders any conclusions as to the impact of these events, and a better understanding of the psychological consequences of military events involving children is sorely needed.

The current systematic review seeks to report the state of evidence on this important topic by identifying incidences of deployment-related encounters with children and documenting the diverse consequences of these encounters in order to support policy and training initiatives. Specifically, the objectives of this review are to: (1) substantiate encounters with children during deployment and their associated consequences, (2) evaluate the multidimensional outcomes associated with encountering children during deployment, and (3) identify types of training programs, policies, and post-deployment interventions that are documented in the literature related to encountering children during deployment.

1. Methods

This systematic review followed Cochrane's guidelines for preparing, managing, and executing a review. Sciome SWIFT-Active Screener, a web-based, collaborative review software was used for the screening processes (Howard et al., 2020).

1.1. Search terms

The literature search was conducted on 14 February 2022 with no date restriction. The following databases were used to identify relevant citations: PsycINFO (OVID), ProQuest Dissertations & Theses, and the U.S. Department of Defense Technical Reports Citations and National Defense Industrial Association Conference Proceedings (through the U.S. Defense Technical Information Centre; https://discover.dtic.mil/). The terms used for PsycINFO and ProQuest databases were: 'military,' 'combat or soldier*,' 'veteran*,' 'armed force*,' 'special force*,' 'air force*,' 'navy,' 'army,' 'marine*,' 'militia*,' 'child*,' 'adolescence*,' 'boy*,' 'girl*,' 'kid*,' 'teen*,' 'youth*,' 'expos*,' 'encounter*,' 'kill*,' 'interact*,' and 'engage*' (see supplementary material for search string). The term 'child soldiers' was used to search for relevant reports through the Department of Defense Technical Reports Citations and National Defense Industrial Association Conference Proceedings. A librarian was consulted in the process of constructing our search strategy and identifying potential databases.

1.2. Inclusion and exclusion

The inclusion criteria were: any documents (e.g. academic studies, technical reports) and study types (e.g. experimental, observational) that report military personnel encountering children during deployment and any documents and study design that report policies, training or programs for deployed military personnel when encountering children. Exclusion criteria were non-human studies, studies related to non-military personnel, studies or reports that focused on being a former child soldier, and studies or reports about children of military parents.
1.3. Study selection
At each screening level (title and abstract and full-text review), each article was reviewed by two independent screeners against inclusion and exclusion criteria. All screeners worked in military research settings and received training from the study leads prior to each screening level about the project and the inclusion and exclusion criteria. Interrater reliability (IRR; calculated as percent agreement) for each level was very high: title and abstract at 99% and full-text review at 95%. Conflicts were resolved at each stage by the study leads through group consensus with all screeners. Four screeners were used for the screening process.

1.4. Data extraction
The following information was extracted from each study: article information; military personnel characteristics; characteristics about the encounter with the child(ren); outcomes of encountering children during deployment, as reported by military personnel (or session notes written by a health care professional regarding their meetings with the military personnel); and information about training, policies, or treatment for military personnel encountering children in armed conflict settings.

For article information, the following data were extracted: type of article (i.e. academic journal, thesis/dissertation, or report), type of data (i.e. qualitative, quantitative, or mixed), and the context of the encounter (i.e. exposure [i.e. describing their experience when encountering a child], training [i.e. programs used to address encounters with children], policies [i.e. policies in place to protect encounters with children], and post-deployment interventions [i.e. programs to help military personnel following encounters with children]).

For characteristics of military personnel, the following data were extracted: war/deployment when the encounter occurred, citizenship (i.e. Canadian, American, United Kingdom, Dutch, Indian, Israeli, unknown/unsure), gender (i.e. male, female, mixed, other, unknown/unsure), age, ethnicity (i.e. Black/African/Caribbean, East and Southeast Asian, Indigenous Peoples, Latin American/Hispanic, South Asian, West Asian, White, unknown/unsure), marital status (i.e. yes, no, unknown/unsure), military status when reporting the incident (i.e. active-duty, Veteran [i.e. any individual who has completed basic military training and no longer serves in the military; (i.e. released)], unknown/unsure), and any additional characteristics information of the military member(s) (i.e. service type, language, religious/spiritual background, contexts of upbringing, education, social network).

For characteristics of the encounter with the child (ren), the following data were extracted: context of the account (i.e. single-person [e.g. interview of one person], multi-person [e.g. individual interviews of multiple people], group-based [e.g. amalgamation of multiple observations], unknown/unsure), gender of child(ren) (i.e. boy, girl, mixed, unknown/unsure), role of the child(ren) (i.e. armed child, informant, porter/human shield, sex-related, suicide bomber, abductions by armed groups, loitering, delivery/munitions, ambiguous [e.g. bystander]), and outcome of the child(ren) (i.e. killed in combat, killed by accident, wounded, detained, unharmed, unknown/unsure).

For outcomes reported by military personnel as a result of encountering children during deployment, the following data were extracted: whether any outcomes of the encounter were mentioned (i.e. yes or no), type of outcomes the military personnel reported (i.e. during the encounter [failure to engage, taken hostage, casualties of military member(s), and/or physical injury to military member(s)], well-being [e.g. general well-being, negative emotions], psychological consequences (e.g. mental health, [e.g. military personnel presenting with PTSD as a result of the encounter, suicidality, substance use], social consequences [e.g. friend and family relationship related [e.g. marital problems], professional related [e.g. discharge from service]], and/or moral/religious consequences [e.g. reorientation of values]).

For information about any training, policies, or treatment for military personnel when encountering children in armed conflict settings, the following data were extracted: whether training was received before exposure (i.e. yes, no, or unknown/unsure), whether military personnel sought treatment following the encounter (i.e. yes, no, unknown/unsure), reported recommendations and/or suggestions on programs (i.e. pre-deployment training, post-deployment intervention, guidelines for engagement, mental health support services/treatment programs, international/national laws/foreign policies), and type of information reported regarding lack of infrastructure (i.e. lack of policies [foreign or domestic], lack of training [pre-deployment], lack of mental health support/intervention [post-deployment], lack of published studies on outcomes and/or consequences of exposure to children during deployment).

1.5. Data analytic plan
To document the nature and impact of instances of exposure to children during deployment and canvas the breadth of these encounters as documented in the literature, data were extracted and categorised based on an existing understanding that exposure to children during deployment is likely to influence military members’ well-being across multiple dimensions.
Potential dimensions of impact were identified and refined throughout analysis to provide a framework for interpreting the results. Analyses of contextual information surrounding encounters with children were combined with types of outcomes reported by the military personnel, such that trends of exposures were identified. Given the exploratory and descriptive nature of this review, multiple data sources were used; as such, evaluations of the quality of included articles and reports via study rigour were not relevant to the purpose of this review and thus not conducted.

2. Results

This review included 17 studies with 86 independent recorded encounters with children (see Figure 1). The type of articles included were theses/dissertations \((n = 7)\), academic journals \((n = 6)\), reports \((n = 3)\), and book \((n = 1)\). The type of data included were primarily qualitative \((n = 15)\) followed by mixed \((n = 2)\). Of note, each recorded encounter may have resulted in more than one documented category (e.g. reporting encountering an armed child and ambiguous child), therefore, the total number of data points could exceed the total number of samples.

2.1. Characteristics of the military personnel

Of the 86 records, this review uncovered 77 documented encounters with children during deployment. Of these 77 cases, data included were gathered from the following deployment environments: Afghanistan \((n = 21, 27\%)\); Iraq \((n = 17, 22\%)\); Iraq and/or Afghanistan \((n = 7, 9\%)\); Sierra Leone \((n = 6, 8\%)\), Palestinian War \((n = 5, 6\%)\); World War II \((WW-II; n = 5, 6\%)\); Bosnia \((n = 4, 5\%)\); Vietnam \((n = 4, 5\%)\); unknown/unsure \((n = 4, 5\%)\); West Africa \((n = 1, 1\%)\); Kosovo \((n = 1, 1\%)\); Persian Gulf \((n = 1, 1\%)\); Sri Lankan Civil War \((n = 1, 1\%)\); and Second Gulf War \((n = 1, 1\%)\). Commonly observed citizenship of military members included the United Kingdom \((n = 34, 44\%)\), followed by American \((n = 32, 42\%)\), Israeli \((n = 5, 6\%)\), Dutch \((n = 3, 4\%)\), unknown/unsure \((n = 2, 3\%)\), Canadian \((n = 1, 1\%)\), and Indian \((n = 1, 1\%)\). Of the 77 cases, 49 encounters contained information about the impact of the encounter on the military personnel (i.e. outcomes). Of the types of encounters with children, encounters with an armed child, porter/human shield, suicide bomber, and those of an ambiguous nature were most noted and will be discussed in detail in relation to their observed impact below.

Of the 49 encounters with documented outcomes, 24 of these were with an armed child. In these 24 encounters with armed children, nearly half of the reported outcomes \((n = 11; 46\%)\) were moral consequences (e.g. demoralisation, guilt). This is followed by consequences to one’s well-being \((n = 10; 42\%\); e.g. difficulty sleeping), mental health \((n = 7; 29\%\); e.g. PTSD, depression), and failure to engage in the moment of encounter \((n = 5; 21\%\); e.g. hesitation in the course of operational actions). Other reported outcomes of encountering an armed child included casualties, physical injuries, being taken hostage, hostility towards children/people, social isolation/withdrawal, substance abuse, and suicidal ideation.

The second most frequently reported encounters with documented outcomes were those categorised as ambiguous \((n = 14)\), meaning that the nature of the encounter is relatively uncertain. Examples of this include seeing children holding objects that may or may not be weapons (e.g. a rock), and providing medical help to children harmed in the conflict. Of the 14 encounters with documented outcomes, the most frequently reported were negative impacts on well-being \((n = 10; 71\%\); e.g. rumination, 'heartache'),
followed by moral distress \((n = 9; 64\%); \text{e.g. guilt}\), mental health \((n = 8; 57\%); \text{e.g. PTSD}\), social consequences \((n = 6; 43\%); \text{e.g. withdrawing from others}\), and substance use \((n = 4; 29\%)\). In addition to these outcomes, others include hostility towards children/people, suicidal ideation, and death of the military member.

The third most frequently reported type of encounter with documented outcomes was the use of children as suicide bombers. Of the five encounters with documented outcomes, four \((80\%)\) encounters resulted in mental health difficulties \((\text{e.g. PTSD})\), moral distress \((\text{e.g. disgust})\), social \((\text{e.g. difficulty being around children})\), and well-being \((\text{e.g. feeling overwhelmed})\) consequences. In addition, encounters with a suicide bomber were also associated with substance use \((n = 2; 40\%); \text{death} (n = 1; 20\%); \text{professional related consequences} (n = 1; 20\%; \text{e.g. job loss}) \text{and suicide attempt} (n = 1; 20\%).

Finally, the use of children as porters and/or human shields was also associated with reported consequences. Of the four encounters with documented outcomes, the most frequently reported consequence was failure to engage in the moment of combat \((n = 2; 50\%); \text{physical injury to the military member} (n = 2; 50\%); \text{and death} (n = 1; 25\%).

2.3. Consequences during the encounter with children

Of the encounters documented, 18 instances discussed consequences which occurred during the encounter. These encounters describe the moments during an engagement and often include decision-making steps, as well as immediate effects of these decisions. Specifically, these include failure to engage according to mission objectives \((\text{e.g. failing to shoot or hesitation to act})\), being taken hostage, and physical injury during combat \((\text{e.g. being shot})\).

When we breached the door, the last thing I expected to see was a boy holding an AK-47. He was terrified. His eyes were so big, and I just froze. I let that kid shoot LCpl. Smith right in front of me. Then LCpl. Howe fired at him, and I watched him die. (Currier et al., 2020)

In the above instances, four encounters involved the death of the child, while two cases resulted in the detention of the child, and one with injury to the child. Over half \((n = 11)\) of these encounters occurred during deployments in Iraq and/or Afghanistan, while three occurred in Sierra Leone, and two during the Palestinian War. Over half \((n = 12)\) were described by military personnel from the United Kingdom, while three were American, two Israeli, and one Canadian. Details of encounters were provided by three active-duty personnel and one Veteran. No ethnicities of members were disclosed.

2.4. Psychological consequences associated with encountering children

Twenty encounters reported psychological consequences of encountering children, including
Table 1. Overall characteristics of variables for military personnel encountering children during deployment.

| Variable                                      | N  | %  |
|-----------------------------------------------|----|----|
| Context of encounter (k = 86)*               |    |    |
| Exposure                                      | 77 | 90 |
| Training                                      | 9  | 10 |
| Policy                                        | 5  | 6  |
| Post-deployment intervention                  | 2  | 2  |
| Exposure: encountering children during deployment (k = 77) |
| Context of the account                        |    |    |
| Single-person account                         | 55 | 71 |
| Multi-person account                          | 12 | 16 |
| Group-based account                           | 9  | 12 |
| Unknown/Unsure                                | 1  | 1  |
| Gender of Child(ren)*                         |    |    |
| Boy                                           | 35 | 45 |
| Unknown/Unsure                                | 23 | 30 |
| Girl                                          | 10 | 13 |
| Mixed                                         | 9  | 12 |
| Type of Child(ren)*                           |    |    |
| Armed Child                                    | 37 | 48 |
| Ambiguous                                     | 23 | 30 |
| Porter/human shield                           | 8  | 10 |
| Suicide bomber                                 | 6  | 8  |
| Sex-related                                    | 4  | 5  |
| Delivery/Munitions                            | 3  | 4  |
| Informant                                      | 2  | 3  |
| Loitering                                      | 1  | 1  |
| Abductions by armed groups                    | 1  | 1  |
| Outcome of Child(ren)*                        |    |    |
| Killed (in combat)                             | 28 | 36 |
| Unknown/Unsure                                | 18 | 23 |
| Unharmed                                      | 13 | 17 |
| Wounded                                       | 10 | 13 |
| Detained                                      | 7  | 9  |
| Killed (by accident)                          | 5  | 6  |
| Exposure: outcome as a result of encountering children during deployment (k = 77) |
| Whether outcomes of encounter were mentioned  |    |    |
| Yes                                           | 49 | 64 |
| No                                            | 28 | 36 |
| Type of outcomes*                             |    |    |
| During the encounter                          | 20 | 26 |
| Failure to engage                              | 8  | 10 |
| Physical injury(ies) to soldier(s)            | 5  | 6  |
| Casualties of soldier(s)                      | 4  | 10 |
| Taken hostage                                 | 2  | 3  |
| Psychological consequences                    | 35 | 45 |
| Mental health                                  | 20 | 25 |
| Substance use                                  | 7  | 10 |
| Hostility/Aggression                           | 4  | 6  |
| Suicidal ideation(s)                          | 3  | 4  |
| Suicide attempt                                | 1  | 1  |
| Moral/religious consequences                   | 25 | 32 |
| Well-being                                     | 25 | 32 |
| Social consequences                            | 16 | 21 |
| Relationship related                          | 15 | 19 |
| Professional related                          | 1  | 1  |
| Training or treatment information (k = 86)    |    |    |
| Training received in preparation of exposure*  |    |    |
| Unknown/Unsure                                | 81 | 94 |
| No                                            | 3  | 3  |
| Yes                                           | 2  | 2  |
| Sought treatment                              | 61 | 79 |
| Unknown/Unsure                                | 16 | 21 |
| Yes                                           | 0  | 0  |
| No                                            | 9  | 9  |
| Recommendations/policy suggestions*           |    |    |
| Pre-deployment training                        | 6  | 7  |
| Guidelines for engagement                     | 5  | 6  |
| International/National Laws/Foreign Policies   | 4  | 5  |
| Post-deployment intervention                  | 3  | 3  |
| Mental health support services/Treatment programs | 2 | 2 |
| No mention                                     | 80 | 93 |
| Notation of lack of infrastructure*            |    |    |
| Lack of training                              | 7  | 8  |

Table 1. Continued.

| Variable                                      | N  | %  |
|-----------------------------------------------|----|----|
| Lack of policies                              | 5  | 6  |
| Lack of mental health support/intervention    | 2  | 2  |
| Lack of published studies/ consequences of exposure | 2 | 2 |
| No mention                                    | 79 | 92 |

*For the variables identified, data were extracted and were not mutually exclusive (e.g. one case could report encountering an armed child and ambiguous child); therefore, the total number of data points could exceed the total number of samples.

Emotional distress and mental health symptoms (e.g., hopelessness), suicidal ideation, suicide attempts, hostility/aggression (e.g., lashing out at others), and substance use.

Martin was a 27-year-old Iraq War veteran referred for treatment for PTSD … According to Martin, one of the most disturbing events of his combat experience involved finding the mutilated body of a 12-year-old boy who had been tortured and killed because his father had collaborated with the Americans against the insurgents. (Fredman et al., 2011)

Of these encounters, 14 cases involved the death of a child (12 directly in combat), while three cases resulted in the child being wounded. Where reported, encounters associated with mental health outcomes were primarily observed during deployments in Iraq and/or Afghanistan (n = 10), with some noting older deployments (e.g., Vietnam, WW-II, Persian Gulf, Kosovo). Most military personnel were American (n = 16), while two were from the United Kingdom and Netherlands. All individuals recalled encounters as Veterans except one who was active-duty. A large majority were reported to be White/ Caucasian (n = 10), while four identified as Latin American/Hispanic.

2.5. Moral/Religious consequences associated with encountering children

Of the reported encounters, 25 individuals reported moral consequences associated with encountering children. These include consequences associated with infringements upon one’s moral or ethical code, including the loss of faith and reorientation of values.

I think the country’s broken, the people are broken, for them to want to blow up their own children, you know, sending in a suicide bomber into their own schools because they don’t want their children educated. Who does [that]? Why would you do that? These are babies! The country itself is broken and it made me question every reason why we were there[…]. I’m still so angry at the system, at our Pre-ident, at everybody, because I don’t know that it meant anything, like that being there was all for nothing, because I don’t see the good yet. I don’t see what was accomplished to be able to let some of them [both the Americans and the locals who were killed] go or
be at peace with them, but I don’t feel at peace with their losses. (Ruffle, 2014)

Of these encounters, 17 cases involved the death of the child (16 directly in combat), and five cases resulted in injuries to the child. All described encounters took place during deployments in Iraq and/or Afghanistan and were reported by American military personnel. All military personnel were Veterans at the time of report with the exception of one active-duty member. Military personnel were White/Caucasian \((n = 8)\) and Latin American/Hispanic \((n = 7)\).

2.6. Consequences to general well-being associated with encountering children

Twenty-five encounters reported consequences to the military members’ general well-being. These include reports of changes in general functionality such as feeling sad, ‘disturbed’ and losing sleep.

I remember them getting ready to approach the little girl. I remember the little girl exploding. I remember screaming a second time. I remember cursing and swearing and being very upset. I remember being relieved of duty. I remember going to the safe house. I took a hot shower and I laid in bed and fell asleep. When I woke up, I thought I had a bad dream that that happened. (Held et al., 2018)

Of these encounters, 18 cases involved the death of a child (15 directly in combat), while five cases resulted in injuries to the child. Encounters associated with well-being outcomes were observed during deployments in Iraq and/or Afghanistan. Most military personnel were Americans \((n = 17)\), while the remaining military personnel were from the United Kingdom \((n = 5)\), and Dutch \((n = 2)\). These encounters were documented largely from Veterans \((n = 17)\) as opposed to active-duty members \((n = 2)\). Over half of the responding military members were White/Caucasian \((n = 10)\), while others were identified to be Latin American/Hispanic \((n = 6)\).

2.7. Social consequences associated with encountering children

There are 15 encounters reporting social consequences associated with encountering children during deployment. These include relationship (e.g. distancing from family and friends) and professional (e.g. inability to work) related challenges.

... who had to shoot a child. One who was laden and strapped with explosives, approaching the gates of Bastion and ... the issue was being high-fived by his colleagues for taking the shot ... for this particular chap, [his] wife wants to have a child and ... he couldn’t consider that as [he thought] ’how could I possibly be a father to a child, I’m a murderer.’ (Williamson et al., 2019)

Of these encounters, 11 cases involved the death of a child (nine directly in combat), while three cases resulted in injuries. Reported encounters took place during deployments in Iraq and/or Afghanistan, Vietnam, Bosnia, and Persian Gulf wars. All encounters were reported by American military personnel with the exception of one from the Netherlands. Military personnel were identified as largely White/Caucasian \((n = 9)\), with four identifying as Latin American/Hispanic. All cases were reported by Veterans \((n = 14)\) with the exception of one active-duty member.

2.8. Training, policies, and interventions for encountering children

This review also sought to substantiate the availability of training, policies, and post-deployment interventions as documented in various sources. Of the 86 reports reviewed and included in the current review, only nine included information about pre-deployment training aimed at preparing military personnel for encountering children during deployments. Only two accounts discussed the reception of relevant prior training. Specifically, one source reported training in preparation of military personnel and one discussed training in an exposure context where there was an encounter with a child. Both accounts of training were reported by active-duty members, specifically, American military members deployed to Iraq. Of the remaining sources that discussed training, six specifically highlighted a lack of available training to prepare military personnel for encountering children during deployments. With regards to policies surrounding encountering children, only five accounts were found across sources, with four of the five specifically underscoring the lack of available policies governing rules of engagement during encounters. Lastly, only two discussed post-deployment interventions available to military personnel following encountering children during deployment (see supplementary material for raw data and reference list of included articles).

3. Discussion

The current review sought to: (1) substantiate encounters with children during deployment and their associated consequences, (2) evaluate the multidimensional outcomes associated with encountering children during deployment, and (3) identify types of training programs, policies, and post-deployment interventions that are documented in the literature when encountering children during deployment. The review highlights the lack of documentation on encounters with children in armed conflict settings. Despite anecdotal evidence that suggests the otherwise common nature of these encounters (Human Factors and
which likely contains more active-duty members the lack of access to military deployment reports, dimensional longstanding consequences of an subject to bias. Second, given the complex and multi-
accounts, and are also inaccessible to civilian search
overrepresentation of Veterans may be re
more than doubled that of active-duty members. The
Veterans compared to active-duty members. Of the
accounts is the relative frequency of reports from
Veterans as being associated with significant short- and long-
term consequences across many domains. Given the
lack of available evidence, the extent to which such
consequences are unique in their impact compared with
other deployment-related experiences remains to be understood (see Table 2 for key findings found in this review).

An important observation made regarding these accounts is the relative frequency of reports from Veterans compared to active-duty members. Of the number of encounters reviewed, Veterans’ accounts more than doubled that of active-duty members. The overrepresentation of Veterans may be reflective of the lack of access to military deployment reports, which likely contains more active-duty members’ accounts, and are also inaccessible to civilian search engines. This may be problematic in several ways. First, retrospective recall of events may be unclear or subject to bias. Second, given the complex and multi-
dimensional longstanding consequences of an

| Table 2. Key findings from the systematic review of available literature. |
|---|---|
| **Topic** | **Key findings** |
| **Type of Child(ren)** | Most common child encounters reported by military personnel |
| | • Armed Child |
| | • Ambiguous |
| | • Suicide Bomber |
| | • Porters and/or Human Shields |
| **Consequences** | As described by military personnel following encountering children during deployment |
| | • During the Encounter* |
| | • Psychological |
| | • Moral/Religious |
| | • General Well-Being |
| | • Social |
| **Training, Policies, Intervention** | Highlighted the lack of training and policies currently available to military personnel when encountering children during deployment |
| | Limited research on post-deployment interventions available to military personnel following exposure to children during deployment |

Note. The systematic review included primarily qualitative data. *Includes failure to engage according to mission objectives, being taken hostage, and physical injury during combat.

3.1. Contextual factors

While all consequences reported following encounters with children involved multidimensional impacts (i.e. consequences observed in more than one of the identified domains), experiences with children acting as suicide bombers appeared most impactful on mental health. Given the scarcity of available evidence, the true severity of impact and reasons for this cannot be known, however a possible explanation may be that the sensory experiences involved in the aftermath of a suicide bombing, coupled with the loss of innocence and virtues associated with the bomber being a child makes for a particularly impactful experience. Indeed, exposure to the sights, sounds, and smells associated with the aftermath of violence has been shown to be a predictor in the development of PTSD (Polusny et al., 2011), as have morally troubling experiences (Griffin et al., 2019). For example, literature on the subject of moral injury, a term used to describe the psycho-behavioural distress associated with events that deeply transgress an individual’s core moral beliefs and values, has shown that high-stakes events that contain such moral disruptions have strong associations with PTSD, depression, and suicidality, among other problems (Griffin et al., 2019), with the most research and strongest associations so far demonstrated for PTSD. According to current conceptualizations of moral injury, an event does not have to be traumatic in nature (e.g. involve threat to one’s life or physical integrity) to be morally injurious, prompting consequences such as guilt, anger, loss of trust in oneself and institutions, and existential conflict (Griffin et al., 2019). An important limitation of this literature, however, is that most events studied empirically in relation to moral injury are indeed traumatic in nature (e.g. killing, military sexual assault). Thus, it is possible that the compounding of particularly traumatic features of the event may intensify the moral implications of the event and thus amplify distress; however, more research is needed to understand these mechanisms.

Indeed, a large majority of encounters with children extracted here involved the death and/or injury to the child. Given that most data were collected in the context of investigations and reports on the psychological impact of encountering children in armed conflict settings, and that witnessing death, injury and violence are key features of trauma, this is not entirely surprising. To better understand the
true prevalence of encounters with children in deployment settings and their relative impact on psychological well-being, efforts to collect population-level data are needed.

The second most common type of encounter documented in the review were those ambiguous in nature. While military deployments are regularly fraught with ambiguous, high-stakes situations, the involvement of children in such experiences can add a layer of moral and ethical complexity which can be difficult to reconcile with mission objectives (Thompson et al., 2008), thereby amplifying the traumatic nature of these encounters. Indeed, as shown in this review, military personnel often feel morally torn in their decision-making. While inaction may resolve internal discomfort of engaging with children, these actions may also result in the injury or deaths of themselves and others around them. On the other hand, if opting to engage and neutralise a threatening situation involving child (ren), it may be difficult to reconcile these actions with one’s moral and ethical code. Despite the expanded definitions from the Paris Principles covering the range of roles children may voluntarily or involuntarily engage in (UNICEF, 2007), during fast-paced conflict settings, it is often difficult to pinpoint the exact nature and intent of children when they are encountered (Fredman et al., 2011). Our findings therefore highlight the need for a more detailed understanding of encounters with children in conflict settings, in order to better inform training and guidance for military personnel.

The lack of documentation and availability of training and appropriate responses following exposures to and encounters with children was underscored in this review. There appears to be a significant gap between challenges associated with experiencing these encounters and training that is offered to military personnel to prepare them for these encounters. Further, of the records reviewed, there is little evidence on the availability of post-deployment intervention and/or policies in place to protect military personnel and mitigate against both short-term and long-term consequences. For example, as noted above, exposure to potentially morally injurious military events has shown strong associations with serious mental health outcomes such as PTSD, depression, and suicidality (Griffin et al., 2019). A better understanding of the nature and impacts of child encounters during military deployments, including the traumatic and potentially morally injurious aspects of these experiences, are likely to support the development of screening and intervention efforts aimed at identifying and addressing clinical problems in the aftermath of such encounters. Taken together, the multidimensional consequences, potentially morally injurious nature of these encounters, and lack of training and intervention surrounding these encounters clearly underscore the need for urgent attention to the research, training, and policies around encountering children in armed conflict settings.

### 3.2. Recommendations

Based on the available literature and gaps found in our review, we make the following recommendations with regard to research, knowledge transfer, policy, and training. Under research: (1) Engage relevant agencies in the documentation of encounters with children in armed conflict/deployment settings. Given that much of the available evidence comes from accounts of Veterans, increased efforts should be allocated to the relevant agencies to discuss these encounters with active-duty members. These efforts are likely to collectively de-stigmatize encounters, provide timely insights, and offer more comprehensive and structured documentation of the frequency and severity of these encounters; and (2) Develop and improve exposure measures used in research to capture encounters with children. In conjunction with the above and in light of the fact that no quantitative reports were identified in this review, research instruments aimed at assessing the degree and type of exposure to children during deployment experiences are needed.

Under knowledge transfer: (1) Integrate knowledge translation to increase awareness associated with these encounters. Closely tied to the first recommendation, more effort should be allocated to increase awareness of these interactions, especially as it relates to disclosure during active-duty. These efforts can support intervention building and solutions tailored to military members and Veterans; and (2) Guide media narratives regarding encounters with children. The media plays a significant role in controlling the public narrative of encounters with children in military operations. An important consideration to increase public awareness could be to co-create knowledge translation guides around encounters with children to highlight their innocence, role, and the impact of these encounters on the well-being of military members and Veterans.

Under training and policy: (1) Provide explicit training on rules of engagement if encountering children in the deployment context. Given anecdotal evidence that suggests the frequency of these encounters and the recent research suggesting that 426 million children live in conflict affected areas and 337 million are vulnerable to being recruited and used in violence and the numerous accounts emphasising the lack of appropriate training, specific guidelines should be developed surrounding rules of engagement and training pertaining to encountering children in armed conflict settings (Østby et al., n.d.; Østby et al., 2022).
3.3. Limitations and future directions

This is the first review to systematically identify and document deployment-related encounters with children and associated outcomes reported by military personnel, as well as identify any current training programs, policies, or post-deployment interventions in place regarding encountering children during deployment. However, this study is not without its limitations. This review is primarily based on qualitative data from a limited number of databases, which limits the quality and availability of the data. Although it marks an important step forward in the documentation of these encounters, future studies with expanded searches are needed to better substantiate the availability of these encounters across various sources. Further, given the sources used, reporting of encounters were often inconsistent (e.g., some reporting the mission, date since encounter). It was thus difficult to evaluate the quality of the included articles. Given the nature of the information needed for this review (i.e., military data), all relevant documents may not be available to the public via academic or institutional databases. This restriction to available data could further limit our results. In particular, the lack of information about current training programs, policies, and post-deployment interventions available to military personnel may not be reflective of the true prevalence given the limited access to all relevant data. Similarly, this review did not include a data restriction. Older documents may not be available electronically given the use for paper versus electronic documentation, again limiting access to all relevant reports. Given these limitations, an important future direction for this line of research could be to establish a partnership with external agencies to gain access to data beyond the public domain (e.g., NATO). In conclusion, this systematic review provides evidence of the negative consequences encountering children during deployment have on military personnel. Yet, this review emphasises the need for more research to explore these effects in more rigorous methodological approaches.

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Data availability statement

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Lehavot, K., Katon, J. G., Chen, J. A., Fortney, J. C., & Simpson, T. L. (2018). Post-traumatic stress disorder by gender and veteran status. *American Journal of Preventive Medicine, 54*(1), e1–e9. https://doi.org/10.1016/j.amepre.2017.09.008

Litz, B. T., Contractor, A. A., Rhodes, C., Donduvanille, K. A., Jordan, A. H., Resick, P. A., Foa, E. B., Young-McCaughan, S., Mintz, J., Yarvis, J. S., & Peterson, A. L. (2018). Distinct trauma types in military service members seeking treatment for posttraumatic stress disorder. *Journal of Traumatic Stress, 31*(2), 286–295. https://doi.org/10.1002/jts.22276

Maguen, S., Lucenko, B. A., & Reger, M. A. (2010). The impact of reported direct and indirect killing on mental health symptoms in Iraq war veterans. *Journal of Traumatic Stress, 23*(1), 86–90. https://doi.org/10.1002/jts.20434

Nazarov, A., Fikretoglu, D., Liu, A., Thompson, M., & Zamorski, M. A. (2018). Greater prevalence of post-traumatic stress disorder and depression in deployed Canadian Armed Forces personnel at risk for moral injury. *Acta Psychiatrica Scandinavica, 137*(4), 342–354. https://doi.org/10.1111/acps.12866

Østby, G., Siri, A. R., & Andreas, F. T. (n.d.). *Children affected by armed conflict, 1990–2019*. Conflict Trends. Oslo: PRIO. https://www.prio.org/publications/12527.

Østby, G., Siri, A. R., Haer, R., & Arasmith, A. (2022). Children at risk of being recruited for armed conflict, 1990–2020. *Children & Society, 00*, 1–20. https://doi.org/10.1111/chso.12609

Polusny, M. A., Erbes, C. R., Murdoch, M., Arbisi, P. A., Thuras, P., & Rath, M. B. (2011). Prospective risk factors for new-onset post-traumatic stress disorder in National Guard soldiers deployed to Iraq. *Psychological Medicine, 41*(4), 687–698. https://doi.org/10.1017/S0033291710002047

Riffe, J. A. (2014). Corpsman up: The lived experience of ptsd in navy hospital corpsmen who have served in combat with marine corps units in Iraq and/or Afghanistan. [Unpublished doctoral dissertation]. Pacifica Graduate Institute.

Stein, N. R., Mills, M. A., & Arditte, K. (2012). A scheme for categorizing traumatic military events. *Behavior Modification, 36*(6), 787–807. https://doi.org/10.1177/014544551246945

Thompson, J. M., VanTil, L. D., Zamorski, M. A., Garber, B., Dursun, S., Fikretoglu, D., Ross, D., Richardson, J. D., Sareen, J., Sudom, K., Courchesne, C., & Pedlar, D. J. (2016). Mental health of Canadian Armed Forces Veterans: Review of population studies. *Journal of Military, Veteran and Family Health, 2*, 70–86. https://doi.org/10.3138/jmvfh.3258

Thompson, M. M., Thomson, M. H., & Adams, B. D. (2008). *Moral and ethical dilemmas in Canadian Forces military operations: Qualitative and descriptive analyses of Commanders operational experiences* (Report No. TR 2008-183). Defense Research and Development Canada, Toronto. U.S. Department of Veterans Affairs. (2015). Challenges during deployment. U.S. Department of Veterans Affairs. https://www.va.gov/vetsinworkplace/docs/em_challengesDeployment.asp.

UNICEF. (2007). The Paris principles: Principles and guidelines on children associated with armed forces or armed groups. UNICEF. https://www.unicef.org/mali/media/1561/file/ParisPrinciples.pdf.

Weisberg, D. K. (1978). Evolution of the concept of the rights of the child in the western world. *International Court of Justice Review, 43*(21), 43–51. https://repository.uchastings.edu/faculty_scholarship/1271/

Williamson, V., Greenberg, N., & Murphy, D. (2019). Moral injury in UK armed forces veterans: A qualitative study. *European Journal of Psychotraumatology, 10*(1), 1562842. https://doi.org/10.1080/20008198.2018.1562842

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