



**War trauma, attachment and risky behaviour in
adolescents in Northern Uganda**

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*Dedicated to My mother and My Big sister who are a gift of unqualified,
nonjudgmental love.*

Rose Aceng Ochen For the Light in her guidance and teaching

and

Dorcas Amollo For the Strength of her heart.







Preface

The research reflected in this dissertation focuses on the associations among traumatic experiences, their symptomatic and behavioral outcomes and attachment in war-affected adolescents in post-conflict northern Uganda. The research aims to contribute to bridging the current gaps in the knowledge about mechanisms and explanatory factors for post-war outcomes among adolescents, through an investigation of differential roles of intrafamilial and extrafamilial trauma exposure, and attachment. In addition, the research aims to contribute to the development of policies and practices which are adapted to the needs of war-affected adolescents. The research consists of three different studies, with particular groups, aims and methods.

This dissertation begins with (chapter 1) an introduction to war-affected adolescents and the current stance of the research knowledge regarding the central theme, the problem statement, research questions, aims and study design. The subsequent chapters report on the three studies undertaken (chapters 2 – 7). The final chapter (chapter 8) integrates the main findings of the studies and clarifies the contributions and implications of the research. This dissertation comprises several chapters which have been submitted for publication, are under editorial review or have been published. Inevitably, because of the separate publications based on the same population, there might be considerable repetition in sections.

For me, undertaking this research has been a unique experience of combining pedagogical and contextual factors in my work and approach to working with children and adolescents. But above all, it has been enriching for me as a researcher, as a psychiatrist, and personally. The study of school-going adolescents provides a window of opportunity to bridge the gap between survey and clinic-based data, and has provided useful information that will inform my future clinical work with war-affected children and adolescents.

I hope that this contribution and novel approach will stimulate further work in this area.



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'Umuntu ngumuntu ngabantu' – a person is a person because of other people. (Zulu proverb)

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Abstract

BACKGROUND

War exposure in adolescents has been extensively linked to internalising symptoms. However, the role of childhood adversities and attachment and externalising behaviors in war-affected adolescents has not been given equal prominence. There is limited knowledge regarding the mechanisms via which adolescent adjustment occurs. Identifying mechanisms that explain the war-affected adolescents' differential vulnerability to trauma exposure is an important research focus. Developmentally sensitive theories and methods are recommended to better understand adolescents' risk and resilience to trauma exposure. This study strengthens the understanding of adolescent responses to war by examining the associations among traumatic exposure, attachment and mental health outcomes in post-war (1987-2006) adolescents.

AIMS

We aimed to assess the nature and patterns of mental health problems among war-abducted and non-abducted adolescents in northern Uganda. Second, we aimed to clarify the roles of war-related trauma and childhood adversity as vulnerability factors towards PTSD, depression, and anxiety symptoms. Further aims were to examine whether depression symptoms offered a conduit through which war-related trauma could have an effect on multiple risk behaviors, and to explore whether maternal, paternal and peer attachment each had separate roles with regards to vulnerability to multiple risk behaviors. Due to the high burden of depression symptoms among war-affected adolescents, it was hypothesized that depression would act as a conduit between war-related trauma and multiple risk behaviors. Attachment theory holds that attachment moderates the effect of stressors on depression. Because depression has been associated with risk behaviors among post-war samples, the moderating role of attachment in this link was assessed. The temporal association between childhood adversity and internalising symptoms is unclear among post-war adolescents. Based on previous literature, it was hypothesized that childhood adversity would predict internalising symptoms over time. Finally, previous research had used quantitative measures of attachment and social support, which may not be adequate in our research context and by using it alone, our study would be impeded. An investigation of the nature and perceived importance of significant others in adolescents' relationships was therefore also undertaken in the present study.

METHOD

Data were based on three cross-sectional studies involving 724 adolescents of whom 153 were in the first study, 551 in the second study and 20 in the third study. The first study compared rates of mental health problems among abducted and non-abducted adolescents. The second study assessed the associations between war-related trauma, childhood adversities, attachment, internalising symptoms and risk behaviors. A qualitative investigation of adolescents' perspectives of relationships and sources of support was undertaken in the third study.

RESULTS

As expected, war-abducted adolescents reported more mental health problems than non-abducted adolescents. However, childhood adversity had the effect of attenuating the influence of war-related trauma on avoidance symptoms only. The association between war-related trauma and multiple risk behaviors was mediated by depression symptoms. A temporal association between childhood adversities and depression symptoms was also found. War-related trauma attenuated the influence of peer attachment on PTSD symptoms but not maternal or paternal attachment. Specifically, a significant association was found between peer attachment and PTSD symptoms only for those participants with high levels of war-related trauma. Maternal attachment but not paternal or peer attachment moderated the link between depression symptoms and multiple risk behaviors. These results were triangulated with qualitative findings, which showed perceived security in relationships with mothers as most important while growing up. In contrast to the predominant findings, social support was the least important while growing up and now among a clinical sample of adolescents.

CONCLUSIONS

War-related trauma is associated with higher rates of mental health problems among war-affected adolescents. Childhood adversity and war-related trauma act as vulnerability factors through which war-related trauma and attachment respectively could have an effect on internalising symptoms. The pathway from war-related trauma to multiple risk behaviors was mediated by depression symptoms. Maternal attachment was a modest protective factor in the link between depression symptoms and multiple risk behaviors. The need to situate research on war-trauma and its mental health outcomes within attachment and intrafamilial experiences, the roles of social relationships, as well as their implications for mental health practice and research among post-war adolescents are discussed.

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1

GENERAL INTRODUCTION

1.1 State of the art

1.1.1 Introduction

The conflict in northern Uganda, which lasted from 1987-2006, has been described as one of the longest running, most complex and brutal conflicts on the African continent with over 300,000 persons deceased and approximately two million people displaced (Spitzer & Twikirize, 2012; Pham, Vinck & Stover, 2009). In recent years, research investigating adolescent post-war psychosocial development has increasingly considered the impact of contextual influences, including exposure to war-related trauma, childhood adversities, and parent-child relationships (Betancourt & Khan, 2008). Numerous recent reviews of these studies have integrated and summarized some of the current findings, providing important insights into the nature and impact of such experiences on adolescents' mental health (Betancourt et al., 2013). The studies of both childhood adversities and war-related trauma have recently been characterized by a shift from examining their associations with maladaptive outcomes to investigating specific mechanisms that may be at play in these relationships or that may influence youths' vulnerability to the deleterious effects that have been revealed (Klasen, Oettingen, Daniels & Adam, 2010a; Margolin, 2005).

In this chapter, we will present the nature of wars and other war-related trauma exposures and its influence on mental health of adolescents exposed to armed conflicts. Further, we will present the burden of both internalising symptoms and externalising behaviors in war-affected adolescents as well as the roles of war-related trauma, intrafamilial adversity and attachment play in influencing these outcomes. The mixed-method study design used will be presented and tools utilised described. Finally a model on which the study approach is based and the need for qualitative data on adolescents' perspectives on social relationships will be discussed.

1.1.2 War and armed conflict

Many individuals' lives are defined by armed conflicts that last throughout their childhood. Although the total number of armed conflicts has decreased in the world since the 1990s and the number of international and interstate wars has decreased, the number of intrastate wars has increased. These intrastate wars are more likely in Africa and Asia: Africa experiencing 40 percent of the armed conflicts worldwide and Asia 37 percent. The nature

of experiences vary during war with some individuals experiencing mass internal displacement, forced recruitment and abduction for use as combatants, and as victims or witnesses to a number of stressful war events. However, a significant number of these adolescents experience childhood adversities occurring within their families hence are exposed to cumulative trauma.

1.1.3 Impact of war on adolescents' mental health

Adolescents who experience war-related trauma are at risk for a range of **internalising symptoms**, such as posttraumatic stress disorder (PTSD), depression and anxiety (Amone, Garnefski & Kraaij, 2007; Bayer, Klasen & Adam, 2007; Derluyn, Broekaert, Schuyten & De Temmerman, 2004). Studies among adolescents show rates of ranging from 26.7% to 97% for PTSD (Bayer, et al., 2007; Derluyn, et al., 2004; Kohrt, et al., 2008; Moscardino, Scrimin, Cadei & Altoè, 2012; Okello, Onen & Musisi, 2007), from 19.5% to 53.2% for depression (Kohrt et al., 2008; Okello et al., 2007), and from 13.4% to 46.1% for anxiety (ibid.).

Most studies have investigated the prevalence of internalising problems in war-affected youths. Few studies however have documented the rates of **risk behaviors** among war-affected adolescents. Specific risk behaviors, such as substance use, aggression, antisocial behavior, risky sexual behavior and self-harm, appear to increase considerably during adolescence, but have also been linked to war-trauma exposure (Kerestes, 2006; Qouta, Punamäki, Miller & El-Sarraj, 2008; Sibai et al., 2008). Literature has provided several theories linking traumatisation in general (not specifically war-related trauma) to specific risk behaviors (Danielson et al., 2006). For example, the self-medication hypothesis suggests that substance abuse reflects an individual's attempt to deal with distress associated with trauma-related memories or cues (Danielson et al., 2006). However, overall, there is a lack of evidence about the prevalence of risk behaviors in adolescents living in conflict and post-conflict settings.

1.1.4 Factors impacting adolescents' mental health

As shown above, the propensity to suffer from internalising symptoms in the aftermath of armed conflict is not shared equally by all adolescents affected by war, and at the same time, these overall high rates of internalising symptoms call for a clear identification of factors that render

an individual vulnerable to developing mental health symptoms during or in the aftermath of war and armed conflict.

War-related traumatic events seem to be a necessary, but insufficient condition for the development of PTSD, with only a few of those exposed to war-related experiences likely to develop clinically significant symptoms (Dubow et al., 2012). There is thus no linear causal relationship between war-related trauma exposure and the later development of mental health symptoms, including PTSD (Markowitz, Milrod, Bleiberg & Marshall, 2009). Many studies thus have focussed on the identification of these 'risk' and 'protective' factors. Hereafter, we discuss some of the most commonly studied risk and protective factors in these populations of war-affected youth.

- **Socio-demographic characteristics**

First, socio-demographic characteristics as gender, age and parental availability appear to have a significant impact on adolescents' mental health. War-affected girls are reported to suffer more from internalising symptoms than boys (Aceirno et al., 2000; Dyregrov, Gupta, Gjestad & Mukanoheli, 2000; Schiff et al., 2007), while boys exhibit more externalizing problems (Amone-P'olak et al., 2007; Qouta et al., 2008; Sibai et al., 2009). Second, the availability and thus protection of familial systems seems to protect youth from the impact of war (Brook, Brook & Whiteman, 2007; Shamaï & Kimhi, 2007).

- **Trauma exposure**

Besides socio-demographic characteristics, the nature of war-related trauma exposure (Moscardino et al., 2011; Klasen et al., 2010a) seems to impact adolescents' mental health, Former child soldiers for example are found to report higher rates of mental health problems than their non-conscripted counterparts (Moscardino et al., 2011).

Internalising symptoms and risk behaviors may also arise as a function of social deprivation within the family. However, the role of childhood adversities and intra-familial traumatic experiences in adolescents' mental health during the aftermath of war is less documented in literature. The few studies have focused on PTSD, anxiety and depression symptoms as outcomes of childhood adversities (Carbrera et al., 2007; Stein et al., 2005) It has been shown that interfamilial violence, poverty and war-related trauma have an additive effect on internalising symptoms (Catani et al., 2009; Panter-Brick et al., 2011).

- **Internalising problems**

Although recognised in terms of comorbidity, the prevalence of risk behaviors may rise as a function of internalising symptoms, most commonly PTSD (Bayer et al., 2007; Klasen et al., 2010a; Pat-Horenczyk et al., 2007; Schiff et al., 2007, 2012). However, research on depression as a risk factor for engagement in risk behaviors in the general and war affected populations is limited (Acierno et al., 2000; Brown et al., 2009; Carr et al., 2013; Lundberg et al., 2011). Two studies have reported that depression plays a more important role in engaging in risk behavior than PTSD (Acierno et al., 2000; Carr et al., 2013), while another study has shown that risk behaviors are particularly common among adolescents experiencing co-occurring depression and PTSD (Schiff et al., 2007). These studies neither report on the relationship between war-related stressors and risk behavior nor do they report on the potential mediating role of depression in this relationship.

- **Attachment and social support**

There is support for a link between trauma and attachment (Aspelmeier, Elliot & Smith, 2007; de Zulueta, 2007; Dieperink, Leskela, Thurax & Engdahl, 2001), but few studies have specifically examined the association between war-related trauma and attachment in adolescents (Al-Krenawi, 2009; Haskuka, Sunar & Alp, 2008; Mikulincer, Florian & Weller, 1993). Some studies suggest that war trauma affects attachment negatively (Haskuka et al., 2008) whereas others suggest that it established attachment style remains unchanged (Mikulincer et al., 1993). A few studies have found an association between attachment and internalising outcomes such as depression and PTSD (Declercq & Palmans, 2006; Mikulincer & Shaver, 2007; Whiffen, Judd & Atube, 1999). However, data regarding the influence of attachment on risk behaviors is limited among war-affected adolescents (Al-Krenawi et al., 2009; Kerestes, 2006; Quota et al., 2008).

Social support – the support of people in one’s social network – is demonstrated as protective factor in children affected by traumatic events in general and armed conflict in particular (Betancourt & Khan, 2008). However, research has mainly investigated this quantitatively, and few studies have examined this in a qualitative way, thus taking into account contextual and cultural perspectives on social relationships and social support.

In sum, war-affected adolescents are exposed to potential risk factors that have been associated with poor adjustment at each level of their social ecologies. Protective factors are also inherent in the lives of many war-affected adolescents, and many adolescents and families are resilient

(Betancourt & Khan, 2008; Haroz et al., 2012; Klasen et al., 2010b). Although this study focuses on a risk-effects approach, balanced research requires that this population be understood in the context of their social ecologies, with emphasis on strength based and culturally appropriate perspectives.

1.2 Problem statement, research questions and aims

The research on trauma samples may be misunderstood to indicate that war trauma exposure is automatically associated with mental health problems, such as symptoms of PTSD, anxiety and depression, and externalizing behaviors. However, although severe trauma exposure may result in distress in children, clinically significant problems in war-affected persons are not universal. It is therefore important to determine the processes through which trauma potentially impacts mental health and renders adolescents more vulnerable (mediating models), and the factors that can protect their mental health in traumatic conditions (moderating models).

First, the nature and impact of exposure to complex trauma is not well understood. The effects of war-affected traumatic experiences, including child soldiering, and childhood intrafamilial adversity occurring in the context of other war-related exposures on adolescents' mental health remains understudied.

Second, internalising symptoms are generally known as important risk factors for externalising behavior. Although in adolescence, the link between internalising symptoms and externalizing behavior endures, the strength of this link is unclear.

Third, there is limited data on the differential associations of war-related trauma and attachment with mental health problems. Further, there is limited research on the perspectives of war-affected adolescents regarding their social relationships and social support, specifically in particular contexts such as clinical settings.

The general **problem statement** of this study can therefore be summarized as follows: *“What differential roles do childhood adversity, war-related trauma exposure, attachment and social support play in predicting internalizing symptoms and risk behaviors among war-affected adolescents in northern Uganda?”*

In keeping with the problem statement, our research focuses on following specific **research questions**:

1. What is the nature of internalizing problems (anxiety, depression, PTSD) and risk behaviors (aggressive and rule-breaking behavior, suicidal behavior, risky sexual behavior and substance use) among former child soldiers and other war-affected adolescents?
2. Which associations exist between war-related trauma, childhood adversities, PTSD, depression and anxiety symptoms and multiple risk behaviors among war-affected adolescents?
3. What is the nature and perceived importance of relationships with significant others in adolescents' lives?

This study strengthens the understanding of adolescent responses to war by examining the associations among traumatic exposure, attachment and mental health outcomes in post-war adolescents. Further, given the dearth of theoretical models regarding the effects of war on adolescents, the study sought to provide more empirically-based data of relevant conceptual frameworks, mechanisms and their confluence (Miller & Rasmussen, 2010). Third, the implications of this research are many: with better conceptual understanding of the psychological context of war, clinical interventions and program design that are specific to their needs and strengths may be implemented for adolescents and their families. Moreover, this research may inform policies in ways that ameliorate the long-term deleterious effects of war on adolescents living in situations of ongoing conflict.

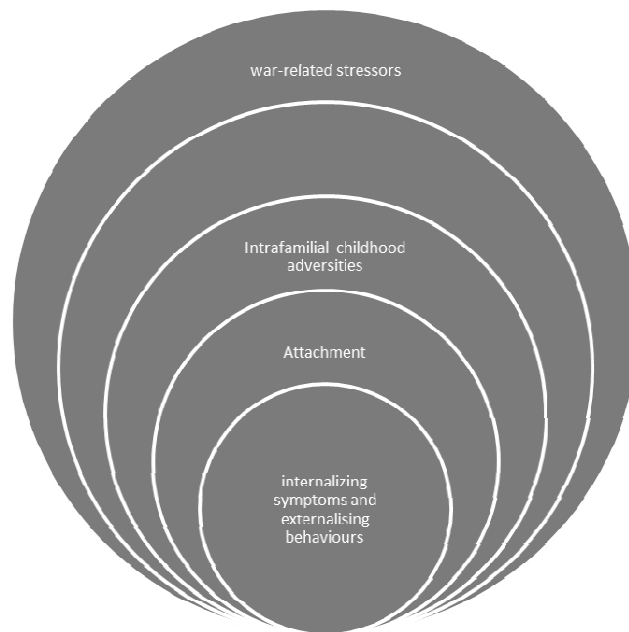
1.3 Framed in an ecological-transactional model

Given the above shortcoming in the literature, in recent years considerable efforts have been made to investigate mechanisms influencing the relationships among distressing experiences (i.e. childhood adversities or war-related trauma) and mental health problems (Betancourt et al., 2013). The extant literature has emphasized the importance of considering the individual in the context of his/her dynamic relation to internal and external environment (Sameroff, 2000). Consistent with this perspective, the ecological-transactional theory, the theoretical framework that is guiding this study, identifies multiple contextual levels at varying proximity to the individual, such as the cryostem (family), exosystem (peers) and ontogenic (biological) development (Cicchetti & Lynch, 1993).

The ecological transactional model of Cicchetti and Lynch (1993; 1998) provides a theoretical framework to explain this correlation between child maltreatment and exposure to community violence (figure 1). This study is

also based on the conceptual framework of attachment as described by Bowlby (1969), which states that early caregiving experiences are internalized as working models. These models serve as a prototype for future relationships with significant others and how one experiences the world. Bowlby's theory is that the attachment bond between parent and child is formed at the early stage of development in order to bring the parent close during times of distress and away in times of safety, allowing the child to explore his or her world.

Figure 1: An ecological-transactional model for the investigation of war-related trauma and its outcomes (adapted from Lynch & Cicchetti, 1998)



A major shortcoming in the literature is the lack of theory, as far as we know, to guide empirically testable hypotheses concerning the relationships this study seeks to explore. Recent studies have provided evidence for both a unidirectional and bidirectional transactional model to explain how parent-adolescent relationships are associated with internalizing and externalizing problems (Lynch & Cicchetti, 1998). Although most studies have tested a unidirectional model, our proposed theoretical model incorporates the above models while assuming a reciprocal relationship between the key variables (figure 1). Research examining the effects of

childhood adversities and/or war-related trauma from the perspective of ecological-transactional theory has primarily focused on the role of family functioning, including measures of constructs such as family conflict, levels of maternal distress, parenting styles, and parental supervision/monitoring. These studies highlight the importance of considering the family context and the parent-child relationship, when examining the effects of childhood adversities and war-related trauma on adolescents' psychological wellbeing. Bowlby (1980) proposed that parent-child attachment might be especially influential on individual development, yet this construct has been relatively neglected in research examining the interplay between exposure to trauma and the family environment. From an ecological-transactional perspective, studying the associations between war-related trauma, familial contexts, attachment and maladaptive outcomes (e.g., internalising symptoms) may provide important insights into the mechanisms at work among at risk children and adolescents (Lynch & Cicchetti, 1998; Margolin, 2005). Moreover, studying these associations may provide a unique glimpse into the impact of family relationships on adolescents' mental wellbeing, especially those adolescents exposed to stressful events such as childhood adversities and war-related trauma. Findings from this research can be used to guide prevention and intervention efforts tailored to a particularly high risk group of adolescents. However, there is a paucity of data regarding the nature and importance of significant others among war-affected adolescents.

The dissertation provides a summary of the current findings linking childhood adversities and war-related trauma with risk behavior and internalising symptoms in adolescents. The first and second study focuses on the relationships between childhood adversities, war-related trauma exposure and mental health problems. Second, the possible role of the parent-adolescent, peer-adolescent attachment relationship as a mechanism through which the aforementioned trauma exposure may exert their effects on adolescents' psychosocial development is presented. The last study provides qualitative data regarding adolescents' perspectives on the nature and influences of significant others. In order to clarify important constructs discussed throughout this dissertation (e.g. internalising/externalising symptoms, externalising/risk behaviors, and attachment), each construct is defined in the next section.

1.4 Definition of key concepts

For purposes of this study, key concepts used in this study are defined as follows:

- **Attachment:** For the purposes of this study, the affectional tie (bond) between two people, beginning with an infant and mother (Bowlby, 1988) that binds these two beings together and endures over time (Ainsworth, Blehar, Waters & Wall, 1978) as measured by the Inventory of Parent and Peer Attachment (Armsden & Greenberg, 1987).
- **Externalising behavior/risk behavior:** For the purposes of this study, acts that describe the overall adjustment and well-being in adolescents such as those behaviors that were directed outward, such as delinquency and substance abuse as measured by the Youth Self Report and a sexual risk behavior survey. Regarding adolescent externalising behavior, we used the term risk behavior to refer to aggression, rule breaking, substance misuse, sexual risk, and suicidality since these behaviors may place adolescents at “risk” but are not necessarily deviant.
- **Internalising symptoms:** Internalizing problems are characterized by covert, inner-directed symptoms (e.g., distress) and overcontrolled behaviors operationalized in child and adolescent studies as symptoms, syndromes, or diagnoses (Fonseca & Perrin, 2001). Internalising symptoms are therefore those symptoms were predominantly directed inward, such as those of depression, anxiety and posttraumatic stress disorder (PTSD). For simplicity, we will use the terms PTSD, depression and anxiety as reflecting symptoms.
- **Mediator:** The generative mechanism through which the focal independent variable is able to influence the dependent variable of interest. Mediation is best done in the case of a strong relation between the predictor and the criterion variable (Baron & Kenny, 1986).
- **Moderator:** In general terms, a moderator is a qualitative (e.g., sex, race, class) or quantitative (e.g., level of reward) variable that affects the direction and/or strength of the relation between an independent or predictor variable and a dependent or criterion variable. Specifically, a moderator is a third variable that affects the relationship between two other variables. Such an effect would

have occurred if the variable in question reduces the likelihood of the outcome variable, thereby changing the direction of the relation between the predictor variable and outcome variable from positive to negative or vice versa (Baron & Kenny, 1986).

- **Parent:** For purposes of this study and for clarity and reliability purposes, the term “parent” will refer to a parent or parent-surrogate: the person(s) identified by the adolescent who lives in the home and has parental authority and influence over the adolescent. At the administration of the attachment questionnaire, each adolescent was asked to identify the caregiver whom he/she was considering in answering the questionnaire (e.g., mother, grandmother, foster mother, father, grandfather, foster father).
- **Peer Relations:** For the purposes of this study, peer relations are the relationships which exist between individuals who see themselves more or less as equals as measured by the Inventory of Parent and Peer Attachment (Armsden & Greenberg, 1987).
- **War-related traumatic experience:** denotes stressful war events occurring during the war, in particular those in the extra familial context.
- **Childhood adversity:** Adverse childhood experiences occurring in the family context, including interpersonal trauma, poverty and deprivation occurring before the age of 13 years.

1.5 Methods

1.5.1 Context of the study

From 1986 until 2006, the Lord's Resistance Army (LRA), led by Joseph Kony, attempted to overthrow the Museveni government. In the mid-1990s, the LRA war was characterised by attacks on civilian targets, major massacres and the abduction of children (Machel, 2001; MacMullin & Loughry, 2004). As a counter-strategy, the Uganda army forced the population into Internally Displaced Persons Camp's (IDP camps) where they experienced terrible living conditions (Kisseka-Ntale, 2007; Spitzer & Twikirize, 2012). Since 2007 there has been voluntary return to homes from IDP-camps and the process is now complete. However, as children move out of these IDP-camps, they experience difficulty in meeting the challenges of

their primary social environments of school and family (Betancourt & Khan, 2008). For example, the current HIV/AIDS prevalence in conflict affected northern Uganda stands at 8.2% and is higher than the national average of 6.7%, with 2.3% and 5% of females and males respectively aged 15-24 years infected with HIV (UNHCR, 2008).

1.5.2 Studies

In this section, we specifically address the three studies that were carried out in the framework of this dissertation. Gulu district in northern Uganda was the setting for all the studies.

The study protocol was approved by the Ethical Committee of the Faculty of Psychology and Educational Sciences of Ghent University, the Gulu University's research committee and cleared by the Uganda National Council of Science and Technology. We used a mixed-methods research design, including both quantitative and qualitative methods. Data collection took place in 2007 (study 1), 2010 (study 2) and 2012 (study 3).

- **Study 1 (research question 1 – chapter 2)**

This study aimed to assess the nature and patterns of psychiatric disorders among adolescents who had been war-abducted in the war in northern Uganda, compared to non-abducted adolescents living in Gulu district, Uganda (research question 1).

A cross-sectional study, that used an unmatched case-control design, compared 82 abducted and 71 non-abducted adolescents on measures of psychological distress and for selected psychiatric diagnoses, using the Strength and Difficulties Questionnaire (SDQ) and the Mini International Neural-Psychiatric Interview for Children and Adolescents English version 2.0 (M.I.N.I.-KID). 163 war-affected adolescents were systematically recruited into the study. We selected 83 adolescents aged 11-19 years from Gulu support children's organization (GUSCO), a trauma reception centre for formerly abducted children from Gulu district. A comparison group of 80 adolescents aged 11-19 years was selected from Gulu College, a mixed boarding and day government aided secondary school. The protocol was reviewed and approved by the institutional review board of Faculty of Medicine, Makerere University and protocol for obtaining consent/assent was observed for all adolescents.

- **Study 2 (research question 2 – chapters 2-6)**

Study 2 aimed to determine the factors influencing the relationship between war-related trauma exposure, internalising symptoms and risk behaviors among war-affected adolescents in Gulu district northern Uganda (research question 2).

Procedure: From the period August 2010 to September 2010, we approached 600 adolescents, of whom 551 (92%) war-affected school-going adolescents aged 13–21 years old completed the self-report questionnaires. The setting for the study was purposively selected (to ensure socioeconomic representativeness) secondary schools in Gulu district (2 mixed boarding, 2 non mixed boarding, 2 day school mixed and 2 day school non mixed) in northern Uganda. In the participating schools most adolescents were from the senior 3 and senior 2 classes (age 13 – 21 years). Written informed consent/assent was obtained from all the participants.

Data analysis: Data entry was done using SPSS version 17.0 and analysed using STATA. Of the 600 questionnaires administered post-consent, 25 were subsequently discarded for grossly incomplete entries and 24 adolescents withdrew participation, leaving a total of 551 questionnaires.

Past adverse childhood experiences were assessed using the Adverse Childhood Exposure (ACE) questionnaire (Bruffaerts et al., 2010). The modified ACE used examined six context-specific intrafamilial childhood adversities: not growing up with parents, death of a parent, financial adversity (i.e. dependence on food aid for at least six months), and physical abuse by parents and by other adults, sexual abuse, and witnessing fights between the parents before the age of 13 years. The Cronbach α for this sample was 0.94 indicating good reliability. A total ACE score was computed for each participant and was modeled as a continuous variable in our analyses.

Traumatic war-related exposure was measured using the Stressful War Events (SWE) questionnaire (Derluyn et al., 2009). This 17-item questionnaire was designed specifically for war-affected adolescents in this region, and included questions referring to a specific war-related traumatic event, such as “Did you experience living in an internally displaced persons camp?”

Post-traumatic stress symptoms were assessed using the Impact of Event Scale–Revised (IES-R) (Weiss & Marmar, 1997), a 22-items scale consisting of three subscales of intrusion, avoidance and hyperarousal. The IES-R has already been administered in war-affected adolescent populations in Africa (Amone-P'olak et al., 2007; Mels, Derluyn & Broekaert, 2010). Respondents

were asked to identify a specific event endorsed on the SWE or ACE questionnaire as a reference point for completing the IES-R, and indicate how much it distressed them in the past month by rating each item on a 5-point Likert scale from 0 (not at all) to 4 (extremely). The Cronbach α for this sample was 0.94 indicating good reliability. A total IES-R score was computed for each participant and was modeled as a continuous variable in our analyses.

Depression and anxiety symptoms were assessed using the Hopkins Symptom Checklist-37 for Adolescents (HSCL-37A) (Bean et al., 2007), a self-report questionnaire that previously had been used in war-affected and refugee populations (Derluyn et al., 2008; Mels et al., 2010). Thirty-seven items inquire the severity of DSM-IV based symptoms associated with depression (15 items), anxiety (10) and externalizing problems (12), using a 4-point Likert scale from 1 (never) to 4 (always). The Cronbach's alphas for the depression and anxiety subscales were .83 and .78 respectively. Total depression and anxiety scores were computed for each participant and were modeled as continuous variables in our analyses.

In this study, aggressive and rule-breaking behaviors were regarded as the antisocial behaviors and were measured using the aggressive and rule breaking behavior syndrome scales of the Youth Self Report (YSR) (Achenbach, 1991). Total scores for each study participant were computed. Binary variables were created whereby study participants whose total scores were greater than the mean score for the study sample were regarded as having high levels of aggression or rule breaking (coded 1) and study participants whose total scores were less than the mean score of the study sample were regarded as having low levels of aggression or rule breaking (coded 0).

Suicidal behavior was assessed using two items from the YSR (i.e. "I deliberately try to hurt or kill myself" and "I think about killing myself"). A binary variable was created whereby study participants who endorsed either of the two items were regarded as having suicidal behavior (coded 1) and study participants who did not endorse any of the two items were regarded as not having any suicidal behavior (coded 0).

Substance use was assessed using three items on the YSR including "I drink alcohol without my parents' approval, I smoke, chew or sniff tobacco, and I smoke or chew marijuana." Study participants who endorsed any one of the three items were regarded as having substance use behavior (coded 1) while those who did not endorse any of the three items were regarded as not having substance use behavior (coded 0). The YSR items are rated based

on the preceding month, on a 3-point likert scale ranging from 0 (not true) to 2 (very true). All scores above 1 were considered as risk and 0 as no risk.

Assessment of sexual risk behavior was based on a single question about whether one was sexually active or not. Given that in the Acholi culture adolescents are not expected to be having sex, those who were sexually active were regarded as being at risk for HIV-infection and other sexually transmitted diseases. We created a binary variable in which individuals who were sexually active were coded 1 and those who did not report any sexual activity were coded 0.

Study participants who had three or more of the following risk behavior categories including sexual risk behavior, high levels of aggression, high levels of rule breaking, suicidal and substance use behaviors were regarded as having multiple risk behaviors (coded 1), while those who had less than three categories of these risk behaviors were regarded as not having multiple risk behaviors.

The Inventory of Parents and Peer Attachment questionnaire (IPPA, Armsden and Greenberg, 1989) was used to measure attachment to mother, father and peers. Each version consists of 25 items, with each item rated on a 4-point Likert scale ranging from almost never to almost always. Attachment was conceptualized as the quality of the relationship with mother, father and peers: the availability of communication, trust, and the absence of alienation. The IPPA is not designed to differentiate between attachment patterns, but measures a continuum of secure versus insecure attachment. Someone who obtains a high score is more securely attached than someone who obtains a low score. For brevity, and consistent with Gullone et al.,(2005), the response scale was simplified to a three-point Likert scale of 3 (almost always or always true), 2 (sometimes true) and 1 (almost never or never true). An attachment to father, mother and peer total scores was computed by adding the scores on the IPPA subscales (trust, communication and alienation) with alienation subscales reverse scored.

- **Study 3 (research question 3 – chapter 7)**

Study 3 aimed to enhance the understanding of the nature and importance of relationships from the perspectives of adolescents in a clinical setting (research question 3).

This pilot study had a descriptive, exploratory design. The target population were war -affected adolescents who sought mental health services from a nonprofit mental health unit or school mental health program in an urban northern Uganda district. Semi-structured interviews were conducted, in a clinic setting, with 19 adolescents aged 15-21 years who had been

Chapter 1

consecutively recruited from a mental health unit and school, in Gulu district, northern Uganda. For the qualitative interviews, 29 adolescents were approached of whom 19 agreed to participate in the study. The qualitative data allowed us to investigate the social influence on adolescents, specifically adolescents' perceived importance of context in which early and current socialization occurs. Hereto, the study took a contextually grounded, participatory approach

Interviews were analysed using a thematic analysis approach supported by the qualitative software package NVivo.

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2

PSYCHIATRIC DISORDERS AMONG WAR- ABDUCTED AND NON-ABDUCTED ADOLESCENTS IN GULU DISTRICT, UGANDA: A COMPARATIVE STUDY*

* Based on Okello, J., Onen, T. S. & Musisi, S. (2007). Psychiatric disorders among war-abducted and non-abducted adolescents in Gulu district, Uganda: A comparative study. *African Journal of Psychiatry*, 10, 225-231.



Abstract

Objective: We aimed to assess the nature and patterns of psychiatric disorders among adolescents who had been war-abducted in the war in northern Uganda, compared to non-abducted adolescents living in Gulu district, Uganda.

Method: A cross-sectional study that used an unmatched case-control design compared 82 abducted and 71 non-abducted adolescents for scores on measures of psychological distress and for selected psychiatric diagnoses using the Strength and Difficulties Questionnaire (SDQ) and the Mini International Neural-Psychiatric Interview for Children and Adolescents English version 2.0 (M.I.N.I-KID).

Results: More than 90% of adolescents reported exposure to severe trauma, either through direct or indirect experiences. Significantly more war abducted adolescents reported PTSD (26.8% vs. 12.7%) ($p=0.03$) major depression (19.5% vs. 4.2%) ($p=0.004$), and generalised anxiety disorder (13.4 vs. 4.2%) ($p=0.049$) than non abducted adolescents. By contrast, non-abducted adolescents reported more past suicidality ($p=0.004$, $\chi^2=8.2$) than adolescents who were abducted. However, despite high rates of psychiatric disorder, these adolescents had good psychosocial adjustment.

Conclusion: Adolescents in war affected areas whether war abducted or not have varied and clinically significant emotional responses to different kinds of traumatic exposure. In a war-affected area, the development of a sustainable service for adolescents that tries to address the full range of mental health problems may be more appropriate than a psychological trauma service that focuses on one diagnosis.

2.1 Introduction

Living in war affected areas places children at high risk of developing various kinds of psychiatric disorders, particularly posttraumatic stress disorder (PTSD) (Derluyn, Broekaert, Schuyten & De Temmerman, 2004; Thabet, Abed & Vostanis, 2002, 2004; Thabet & Vostanis, 1999). Among these children, adolescents are the most consistently affected and are at extreme risk of psychological trauma during armed conflict as they are targets for recruitment; sexual exploitation, and abuse.

In Africa, there is a paucity of knowledge on the psychopathological impact of war on children (de Jong et al., 2001; de Jong, Scholte, Koeter & Hart, 2000; Dyregrov, Gupta, Gjestad & Mukanoheli, 2000; MacMullin & Loughry, 2002; Musisi et al., 1999; Njenga, Nicholls, Nyamai, Kigamwa & Davidson, 2004; Paardekooper, de Jong & Herman, 1999; Savino, 2000). However, studies in ongoing conflict areas outside Africa suggest PTSD rates ranging from 27% to 33% (Chimienti, Nasr & Khalifeh, 1989; Daya, 2002; Husain et al., 1998; Mghir, Freed, Raskin & Katon, 1995; Saigh, 1989, 1991; Thabet, Abed & Vostanis, 2001; Thabet & Vostanis, 2000). One study that assessed children's psychological functioning during conflict; the siege of Sarajevo; found the rate of PTSD was 32%, similar to rates found by Saigh (1989) among children aged 9–13 years during and after the Beirut conflict. However, except for Thabet et al. (2002), these studies were limited by the lack of a comparison group of non exposed children. In contrast, these rates are lower than those established by other studies in conflict situations with rates ranging from 41% to 97%. (Baker, 1990; Goldstein, Wampler & Wise, 1997), Chimienti, Nasr and Khalifeh (1989) in an earlier study estimated that the children exposed to the armed conflict in Lebanon had 1.7 times more symptoms of PTSD than the general population while more recently Thabet et al. (2002) found that exposed children were 2.4 times more likely to develop PTSD than non exposed children.

In the last 19 years, many children have been deeply affected by experiences of war in Uganda's north and east regions where 59% of the population are children under 18 years of age. Since the beginning of the rebel Lord's Resistance Army (LRA) conflict in 1986, more than 20,000 children have been abducted and less than 10,000 of these children have returned through reception centres (Machel, 2000). The LRA targets children, who are ritually terrorised, sexually exploited and abused, forced to kill and watch beatings, maiming, rape and killing of friends and relatives (Ehrenreich, 2003; Machel, 2000). Experiences with the LRA rebel forces may have fundamentally altered the manner in which formerly abducted and non-

abducted children function as members within a family or community (Machel, 2000; MacMullin & Loughry, 2002). There is a lack of comparative data on the effects of ongoing exposure to violence on both directly and indirectly affected children. Specifically, the primary objective of this study was to determine whether there were differences in the nature and pattern of psychiatric disorders in war-abducted adolescents relative to a comparison group of non-abducted adolescents.

2.2 Method

2.2.1 Subjects and settings

This study was conducted in the northern Uganda district of Gulu, which has had the longest and most severe experience of the 18-year-old LRA insurgency. It has the largest number of camps, with a total of about 436,239 people living in internally displaced persons camps. The district has a total surface area of 11,732 square kilometers and 49.4% of the population is less 15 years of age (Ugandan Bureau of Statistics, 2002). During the period September 11th to 7th October 2004, 163 war-affected adolescents were systematically recruited by the first author and his team of three research assistants (two final year medical students and a psychiatric nurse). For this study war abduction was defined as any child who had been forcefully taken away by armed forces, in this case the LRA. The study was undertaken at two sites, Gulu Support Children's Organization (GUSCO) reception centre and Gulu College in Gulu town. These town sites were chosen on the basis of security.

We selected 83 adolescents aged 11-19 years from Gulu support children's organization (GUSCO), a trauma reception centre for formerly abducted children from Gulu district. GUSCO is situated 2 km from Gulu town center and was started in 1994 by a group of mothers to provide care, rehabilitation, and reintegration of war-affected children in Gulu district. GUSCO provides long-term support for these children.

A comparison group of 80 adolescents aged 11-19 years was selected from Gulu College; a mixed boarding and day government aided secondary school that was opened in 1994. Gulu College is one of the 29 secondary schools in Gulu district (Ugandan Bureau of Statistics, 2002). Each adolescent selected for the study was given consent forms to take to their caregivers/parents and were asked to return completed consent forms. Nine adolescents did not participate in the study. The reasons for non participation by the non

abducted group was due to the fact that their parents declined to give consent or did not return signed consent forms (without giving reasons) leaving a total of 71 adolescents. One child from GUSCO refused to participate in the study.

The rationale for choosing the two sites was to compare abducted and non-abducted adolescents in Gulu district living in relatively similar settings. GUSCO was chosen because it handles formerly abducted children, keeps them at the reception centre for a period of time before reintegration and follow up in their communities. Gulu College on the other hand was chosen because it is located in Gulu town and has many non-abducted children. Adolescents at the two study sites were selected using systematic sampling method. At each study site a list of all adolescents aged 11-19 years was obtained and their names arranged in alphabetical order and every third name was selected until the required number was reached. If a child chosen did not meet the study criteria, the next name on the list was chosen. Subjects were selected if they were adolescents, aged 11-19 years, gave assent and/or their caregivers/parents gave written informed consent for them to participate in the study, and were able to communicate in English or Luo, the local dialect. The protocol was reviewed and approved by the institutional review board of Faculty of Medicine, Makerere University.

2.2.2 Measures and procedures

Each subject selected for the study received a thorough assessment that included physical and structured psychiatric interviews. Subjects also completed a set of questionnaires administered by the research assistants that assessed psychological disturbance, socio-demographic factors and trauma events. Current and life-time Diagnostic and statistical manual version four (DSM-IV) (American Psychiatric Association, 1994) axis I diagnoses were assessed with the MINI-KID (Sheehan, 2002). All psychiatric assessments were reviewed by the first author who confirmed the diagnoses clinically using DSM-IV criteria. Symptoms of psychological disturbance were evaluated using the "strength and difficulties questionnaire" (SDQ), a screening instrument, which is well validated and widely used in trauma studies (Goodman, 1997; Goodman, Ford, Simmons, Gatward & Meltzer, 2000). The SDQ version used is a brief 25-item instrument designed for use in 11-16 year old children and adolescents. It has five sub scales on emotional, conduct, hyperactivity, prosocial, and peer problems. With the exception of the prosocial scale, it gives total difficulties scores of 0-15 as normal, 16-19 as borderline and 20-40 as abnormal (Goodman, 2001). The scale uses a three point format, with 0 corresponding

to 'not true', 1 'somewhat true' and 2 'definitely true'. For this study a score of 15 or more on SDQ was considered significant for psychological disturbance to ensure comparability (Paardekooper et al., 1999). The MINIKID is the child and adolescent version of the Mini international Neuropsychiatry Interview (M.I.N.I.) which is based on DSM-IV (Sheehan et al., 1998). It is a structured diagnostic schedule with axis 1 diagnostic categories. Like the DSMIV it has been found to be a useful psychiatric diagnostic instrument. The use of the MINI-KID for screening purposes is less well established, in which case a cut-off score indicative of severity could be hard to adopt. It has been validated in various studies internationally and in various cultures including Africa but not in Uganda although it has been used extensively (Sheehan et al., 1998). It was administered to all children to determine the specific nature of psychiatric disorders. The MINIKID was not modified or translated into the local language as the researchers administered it. A modified trauma events checklist based on Thabet and Vostanis (1999) was also administered to all the participants after ascertaining that the events were the most frightening or upsetting and included a list of DSM-IV qualifying traumas (e.g. being physically attacked or raped). The participants were asked to say 'yes' or 'no' to researchers if specific events had been war related and happened to them or their families in the past 1 year or so. Five children from GUSCO showed marked distress during the interview. The affected children were given supportive counseling and treatment by the first author.

2.2.2.1 Statistical analysis

Statistical analysis was carried out with SPSS version 11.5. The aim of the analysis was to find out the descriptive and comparative data of the two study samples. The main outcome measures were 1) current major depression, 2) generalised anxiety disorder, 3) PTSD, 4) psychological distress, and 5) other depressive and anxiety disorders. We used descriptive statistics to present the characteristics of the adolescents. Chisquared tests (and odds ratios) for categorical variables and student's t tests for numerical variables were used to explore the relationship between abduction status (war abducted or not) and gender, trauma exposure, general psychological distress, PTSD, major depression, and generalized anxiety disorder. Fisher's exact tests were used in place of χ^2 for independence when one or more cells in a 2 x 2 table had an expected count of less than 5. All tests were two tailed and significance was set at $p < 0.05$. We also did multivariate logistical regression analyses to investigate the association between independent (abduction status and sociodemographic

variables) and dependent variables (PTSD, major depression, and generalized anxiety disorder).

2.3 Results

Overall, 153 adolescents participated in the study: 82(54%) who had been abducted and 71(46%) controls who had not. The boys were also proportionally older than the girls (boys: mean age=15.5 years, $SD\pm 1.60$; girls: mean age= 15.2 years $SD\pm 1.41$). We recorded significant differences in level of education and age (more non abducted children than abducted adolescents were in secondary school $p<0.001$; and seventeen years of age or older $p<0.001$); and a strong trend for more abducted children's parents to be subsistence farmers ($p=0.054$). [Table 1]

Table 1: Socio-demographic variables

	Abducted group (n = 82)	Non-abducted group (n = 71)
Gender		
Male	54(65.9%)	43(60.6%)
Female	28(34.1%)	28(39.4%)
Age		
10-13	20(24.4%)	-
14-16	50(61%)	40(56.3%)
≥ 17	12(14.6%)	31(43.7%)
Schooling		
No school	2(1.6%)	-
Primary school	70(85.4%)	-
Secondary school	10 (12.2%)	71(100%)
Tribe		
Acholi	75(91.5%)	68(95.8%)
Langi	7(8.5%)	-
Others	-	3 (4.2%)
Religion		
Catholic	59(72%)	45(63.4%)
Protestant	18(22%)	23(32.4%)
Others	5(6%)	3(4.2%)
Parents' occupation		
Subsistence farmer	52(78.8%)	34(72.4%)
Trader	6(9.1%)	9(19.1%)
Unemployed	2(3%)	4(8.5%)
Not known	6(9.1%)	-
Orphan status		
Not orphan	37(45.1%)	30(42.3%)
Paternal orphan	25(30.5%)	24(33.8%)
Maternal orphan	5(6.1%)	4(5.6%)
Double orphan	12(14.6%)	10(14.1%)

Psychiatric disorders among war-abducted and non-abducted adolescents

Unknown	3(3.7%)	3(4.2%)
Family history of mental illness	32(39%)	18(25.4%)

Values are numbers (%) unless otherwise indicated.

More than 90% of 153 respondents reported both direct and indirect severe traumatic exposures to at least one DSM-IV based trauma (Table 2). Results of comparison of 15 possible exposures showed statistically significant differences for all trauma experiences except hearing about killing of friend or relative ($p=0.406$), father killed during war ($p=0.505$), and mother killed during war ($p=0.122$). All the other possible exposures were more common among the abducted group except a sibling being killed ($p=0.002$).

Table 2: Types and reported frequency of traumatic experiences

Traumatic event	Abducted N=82 n (%)	Non abducted N=71 n (%)	OR (95%CI)	χ^2	P
Deprivation of food and water	38(63.3)	22(36.7%)	3.38(1.65-6.95)	10.7	<0.001
Beating and kicking	67(71.3%)	27(28.7%)	8.48(3.87-18.56)	30.8	<0.001
Destruction and looting of home and property	61(69.3%)	27(30.7%)	5.45(2.64-11.25)	22.5	<0.001
Forced to torture	50(89.3%)	6(10.7%)	21.18(8.03-55.85)	50.5	<0.001
Witnessed torture of relative or friend	53(71.6%)	21(28.4%)	4.75(2.36-9.56)	20	<0.001
Heard about killing of friend or relative	58(55.2%)	47(44.8%)	1.37(0.65-2.89)	0.7	0.406
Father killed during war	12(46.2%)	14(53.8%)	0.75(0.32-1.75)	0.5	0.406
Mother killed during war	7(77.8%)	2(22.2%)	3.56(0.71-17.74)	2.7	0.505
Forced to kill	37(92.5%)	3(7.5%)	21.42(6.18-74.2)	36.3	<0.001
Sibling killed during war	16(33.3%)	32(66.7%)	0.32(0.154-0.6610)	9.8	0.002
Suffered serious injuries	31(88.6%)	4(11.4%)	10.78(3.56-32.66)	23.3	<0.001
Forced to marry ^b	17(94.4%)	1(5.6%)	19.59(2.53-151.7)	14.6	0.004
Forced to perform rituals	30(93.8%)	2(6.3%)	22.5(5.12-98.97)	28.7	<0.001
Forced to leave home and property	66(75%)	22(25%)	10.07(4.68-21.7)	39.3	<0.001
Sexual torture ^a	17(100%)	-	-	19.1	-

^a Non abducted adolescents did not report sexual torture

^b Only females were forced to marry

For both groups the most common traumatic events were hearing about killing of relative and friend (68.6%), beating and kicking (61.4%), destruction and looting of home and property (58.2%), and forced to leave home and property (57.5%). The least common events were mother killed (5.9%) and sexual torture (11.1%) and being forced to marry (11.8%). Of those who experienced sexual torture 11(13.4%) were females and 6 (7.3%) were males. The most significant traumatic experiences were predominantly direct, i.e. being forced to kill ($p<0.001$, 95%CI=6.18-74.2), being forced to perform rituals ($p<0.001$, 95%CI=5.12-98.97), being forced to torture ($p<0.001$, 95%CI=8.03-55.85), and being forced to leave home and property ($p<0.001$, 95%CI=4.68-21.7).

Based on the 'strength and difficulties questionnaire' (SDQ) total scores, over 51.2% (42) of abducted and 18.3% (13) of non-abducted adolescents had clinically significant levels of distress [$t=3.868$; $df=151$; $p<0.001$; odds ratio=4.70; $\chi^2=19.70$; 95%CI=2.23-9.83] implying that more abducted adolescents than non abducted adolescents had poor emotional and behavioural adjustment. Among the abducted group 58 (70.7%) of the respondents met criteria for one or more psychiatric disorders based on the MINI KID compared to 31 (43.7%) of those who were not abducted ($\chi^2=11.5$, $p<0.001$, odds ratio=3.1, 95%CI=1.6-6.1). [Table 3]

Table 3: Reported current psychiatric disorders based on MINIKID in abducted and non-abducted adolescents (n=153)

MINI-KID diagnosis or clinical symptom	Abducted (N = 82) n (%)	Non-abducted (N = 71) n (%)	χ^2	P value	OR	95%CI
Major depressive episode current	16(19.5%)	3(4.2%)	8.2	0.004 ^a	5.5	1.5-19.7
Past suicidality	19(23.2%)	32(45.1%)	8.2	0.006 ^a	0.37	0.18-0.74
Current suicidality	24(29.3%)	11(15.5%)	4.1	0.43	2.3	1.0-5.0
Dysthymia current	11(13.4%)	5(7%)	1.7	0.19	2.1	0.68-6.2
Panic disorder						
Without agoraphobia	5(6.1%)	3(4.2%)	0.3	0.725*	1.5	6.4-0.34
With agoraphobia	4(4.9%)	1(1.4%)	1.5	0.37*	3.6	0.4-32.9
Agoraphobia without history of panic disorder	7(8.5%)	2(2.8%)	2.3	0.18*	3.2	0.65-16
Social phobia	7(8.5%)	2(2.8%)	2.3	0.18	3.2	0.65-16
Specific phobia	3(3.7%)	2(2.8%)	0.1	1.0	1.3	0.2-8.1
PTSD current	22(26.8%)	9(12.7%)	4.7	0.03* ^a	2.5	1.1-5.9
Alcohol dependency	2(2.4%)	4(5.6%)	1	0.42*	0.42	0.1-2.4
Conduct disorder	8(9.8%)	3(4.2%)	1.7	0.19	2.5	0.6-9.6
Generalized anxiety disorder	11(13.4%)	3(4.2%)	3.9	^a 0.049	3.5	0.94-13.1
Co-morbidity						
PTSD & major depression	7(8.5)	1(1.4)	1.43	0.380	-	-
PTSD & generalised anxiety disorder	5(6.1)	2(2.8)	0.001	1.00*	-	-
Major depression & generalised anxiety disorder ^a	3(3.7)	-	-	-	-	-
Generalised anxiety disorder & current suicidality	4(4.9)	1(1.4)	0.35	1.00*	-	-
Major depression & current suicidality	13(15.9)	2(2.8)	3.9	0.069*	4.4	0.04-17.6
PTSD & current suicidality	6(7.3)	3(4.2)	0.02	1.00*	-	-
PTSD, generalised anxiety disorder & major depression	2(2.4)	-	-	-	-	-

* Fisher's exact test

^a Significant at $p < 0.05$

War abducted adolescents compared to the non-abducted reported higher rates of specific psychiatric disorders. In contrast, more non-abducted compared to abducted adolescents had past suicidality (45% vs. 23.2%) ($p =$

0.004). Although more war-abducted children had current suicidality the difference was not significant ($p=0.43$). Posttraumatic stress disorder and major depression were the most common co-morbid disorders and was more common among the abducted (8.5% vs. 1.4%) compared to non abducted ($p=0.38$). Major depression, PTSD, and generalized anxiety disorder co-occurring together were found only among 3 (3.7%) of the abducted and none of those who were not abducted. Co morbidity between current suicidality and the three disorders was more common among those who were abducted but these differences did not reach statistical significance.

Deprivation of food and water (odds ratio=3.2, 95%CI=1.2-8.8; $\chi^2=7.5$, $p=0.038$) and being forced to perform rituals (odds ratio=4.6, 95%CI=1.7-12.1; $p=0.006$) were the only events among the abducted group that were significantly associated with a specific diagnosis, i.e. PTSD. No trauma events showed any significant association with any diagnosis among the abducted group. In the Multivariate logistical regression model, no significant association was found for PTSD, major depression and generalised anxiety disorder.

2.4 Discussion

The study investigated self-reported exposure to traumatic events and psychiatric disorder among adolescents living in an area of ongoing-armed conflict. Interpreting these results in the context of reported work in this field is complicated by the paucity of published studies of psychiatric disorders among adolescents in conflict areas, the diverse demographic characteristics, the difficulties in comparing PTSD, depression and generalised anxiety disorders; the specific methodological issues in relation to the assessment methods and compromise in study design that is inevitable when carrying out research in a war zone.

We found a higher rate of psychiatric disorder (70.7%) and significant psychosocial disturbance (51.2 %) among abducted adolescents. These rates are for at least one axis one psychiatric disorder and may not be comparable with studies that focus on one or two disorders (Thabet et al., 2002; Derluyn et al., 2004) and studies that were carried out in post conflict situations (Berman, 2001). Nevertheless, these findings are comparable to previous studies with children exposed to different levels of traumatisation (Berman, 2001; Derluyn et al., 2004; Paardekooper et al., 1999). The finding of higher rates of psychosocial disturbance among the exposed group are comparable to those established in African (MacMullin & Loughry, 2002;

Paardekooper et al., 1999) and Western studies (Fazel & Stein, 2003; Tousignant et al., 1999). Paardekooper et al. (1999) noted that Sudanese refugee children had higher levels of psychological distress compared to Ugandan children due to their lower levels of social support. Although our study did not specifically measure levels of social support, the tendency of traumatised children to report more psychological problems, diagnostic and otherwise has been found to be associated with the occurrence of more daily stressors and less perceived social support (Daya, 2002; Paardekooper et al., 1999).

There was discrepancy between the higher rates of psychiatric disorder and the rates of general psychological distress, which were relatively lower for abducted and non-abducted groups. In accordance with previous literature, good social adaptation is possible even in the presence of psychopathology or following multiple traumas (Fazel & Stein, 2003; Paardekooper et al., 1999; Palmer, 2002; Punamaki, 2001; Sack, Clarke & Seeley, 1995). Good adaptation, though unexpected, shows that diagnosis does not always suggest severe functional impairment, with demand for further investigation into the mechanisms that promote such adjustment (Sack et al., 1995; Sack, Clarke & Him, 1993).

Overall and in keeping with the literature PTSD was the commonest disorder. The rates of PTSD among the abducted group were more than twice that of the non-abducted group. This finding is comparable to that previously documented in comparative studies on trauma samples, with most studies showing higher rates of PTSD among those who are exposed to relatively prolonged or severe experiences of war or violence (Berman, 2001; Chimienti et al., 1989; Daya, 2002; Mghir et al., 1995; Papageorgiou et al., 2003; Saigh, 1989, 1991; Seedat, Nyamai, Njenga, Vythilingum & Stein, 2004; Thabet et al., 2002; Thabet & Vostanis, 2000;). However, except for Thabet et al. (2002), these studies were limited by the lack of a comparison group of non-exposed children. In contrast, these rates are lower than those established by other studies in conflict situations with rates ranging from 41% to 97% (Baker, 1990; Derluyn et al., 2004; Goldstein et al., 1997). The high rate for PTSD of 97% reported by Goldstein et al. (1997) are strikingly similar to Derluyn et al. (2004)'s finding in a sample of war-abducted children in Uganda. The proportion of non-abducted children who had current PTSD was 12.7%, which is almost 13 times that established among adolescents in non-conflict semi-urban secondary schools in Mukono district (Nalugya, 2004).

We found a higher rate of current major depression among those who were abducted. There are few studies on the prevalence of depression among

traumatized adolescents. However, these rates are lower than those established in other trauma samples (Goldstein et al., 1997; Musisi et al., 1999; Weine et al., 1995). The rates of current major depression among the non abducted is higher than that established by Nalugya (2004) among adolescents in secondary schools in Mukono district (2.7%) using the MINI-KID.

Higher rates of generalized anxiety disorder were found among the abducted group. Anxiety disorders are frequent accompaniments of PTSD (Hubbard, Realmuto, Northwood & Masten, 1995; Kinzie, Sack, Angell, Clarke & Ben, 1986; Musisi et al., 1999; Tousignant et al., 1999). The higher rates of anxiety disorders among the abducted group are in keeping with findings of most studies with children who are exposed to traumatic experiences compared to the general population (Daya, 2002; Derluyn et al., 2004; Tousignant et al., 1999). In contrast to the above studies, Thabet et al. (2002) found higher rates of anxiety among those who were less exposed to trauma experiences. The authors speculated that this could have been due to anticipatory anxiety, which tends to be higher in those who are not directly exposed to the trauma and that PTSD emerged as the predominant anxiety disorder among the exposed group. Except for alcohol dependency, other disorders were also higher among the abducted group although the differences were not significant. The relatively small number of these disorders is comparable to findings in other studies (Daya, 2002; Tousignant et al., 1999). Past suicidal ideation was more common among the non abducted group whereas current suicidality was commoner among those who were abducted. Patients with current major depressive episode with a lifetime history of PTSD are more likely to have had a past history of suicide attempt whereas current suicidal ideation are heightened only while depressed patients are experiencing PTSD, with ideation lessening once PTSD remits (Oquendo et al., 2005). In this study it is possible that suicidality could have been occurring in the context of other psychiatric disorders, commonly major depression and PTSD (American Psychiatric Association, 1994; Oquendo et al., 2005). Co-morbidity of PTSD and other disorders was also found with major depressive disorder the most common co-morbid condition, in keeping with the literature, and was more among the war-abducted group (Hubbard et al., 1995; Kinzie et al., 1986; Musisi et al., 1999; Thabet et al., 2004). The predominant explanation of co morbidity between PTSD and depression remains that both conditions develop in response to trauma (Laurel & Zimmerman, 2001; Thabet et al., 2004). Simultaneous presence of all three disorders was also found, in keeping with previous research and show the multitude of responses to trauma that can present in one individual (Hubbard et al., 1995; Kinzie et al., 1986).

2.4.1 Trauma exposure and psychiatric disorders

In the abducted group, deprivation of food and water and being forced to perform rituals were the only events associated with a diagnosis i.e. PTSD. The unique nature of these experiences may have caused the high rates of psychiatric disorders (Paardekooper et al., 1999). Although this study did not measure the severity or chronicity of trauma exposure or past PTSD, the differences between the two groups may be related to the difference in toxicity of exposure evidenced by the higher rates of exposure to traumatic events among the abducted group (Mollica, McInnes, Poole & Tor, 1998).

Several potential limitations of this study are recognized. The current study is limited by the reliance on western orientated questionnaires and lack of a locally developed traumatic events checklist and instrument to measure potentially confounding socio-demographic factors. It should be noted that non-abducted adolescents were still significantly exposed to the events of war through their relatives and the media.

Some children were not able to recall certain events being asked and the possibility that children with more severe clinical conditions remembered or reported (rather than experienced) more traumatic events and also the lack of corroboration from multi informant ratings (Thabet et al., 2004).

Only a cross sectional design, which could not establish a causal relationship between traumatic events of war and psychopathology, was undertaken.

Finally it should also be noted that this study was undertaken at an urban site trauma centre and secondary school and yet the majority of children live in camps where different conditions may prevail. This limits generalisability of the study findings to the wider population of war-traumatised children in Uganda.

Several strengths of this study should be noted. To our knowledge this is first study in Africa that has attempted to assess a wide range of psychiatric disorders among adolescents in a conflict area. The western oriented tools like the SDQ used in this study uses a three point scale that is easily understood and can detect mental illness in war affected children and its wider applicability in war areas show be explored.

2.4.2 Conclusion

The findings suggest that war-abducted children are significantly more affected psychologically and therefore should be screened and assessed for psychiatric problems.

The majority of children and adolescents in war affected areas have multiple and clinically significant emotional responses to different kinds of traumatic exposure with a high incidence of major depression; generalised anxiety disorder; PTSD; and co-morbidity. These circumstances call for the promotion of sustainable mental health services that are tailored to the needs of adolescents affected by war.

Further research is required to determine the factors associated with mental illness among adolescents in the context of war.

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3

WAR-RELATED TRAUMA EXPOSURE AND INTERNALISING SYMPTOMS IN POST-WAR ADOLESCENTS IN NORTHERN UGANDA: THE MODERATING ROLE OF CHILDHOOD ADVERSITY*

* Based on Okello, J., De Schryver, M., Musisi, S., Broekaert, E., & Derluyn, I. (submitted). War-related trauma exposure and internalising symptoms in post-war adolescents in northern Uganda: the moderating role of childhood adversity. Manuscript submitted for publication.



Abstract

Background: Previous studies have shown a relationship between childhood adversity and mental health among adolescents who are exposed to war-related trauma. To date, no comprehensive studies of childhood adversity have been conducted with war exposed adolescent samples living in post-war settings in Sub-Saharan Africa.

Methods: This study examined the main effects of intra-familial childhood adversities and war-related traumatic experiences on internalising symptoms (PTSD, anxiety and depression), as well as childhood adversities' moderating effects on the relationship between war-related trauma and internalizing symptoms in school-going adolescents (N = 551) living in post-conflict Northern Uganda.

Results: Compared to boys, girls were significantly more likely to report childhood adversities, war-related trauma exposure and had significantly higher depression, PTSD and anxiety symptoms. Multiple hierarchical regression analyses indicated that war-related trauma exposure was associated with PTSD, depression and anxiety symptoms, whereas childhood adversity was only associated with depression symptoms. Moreover, childhood adversity only moderated the strength and direction of avoidance symptoms' relationships with war-related trauma.

Conclusions: The results suggest differential roles that childhood adversities and war-related trauma may play in the development of internalizing symptoms, and suggest a need for further exploration of the outcome of developmental trauma post-conflict. Implications for vulnerability assessment, interventions and future directions for research are suggested.

3.1 Introduction

Adolescents in Africa's Great Lakes region continue to emerge from various armed conflicts that expose them to high incidences of war-related trauma, and put them at risk of developing internalizing symptoms such as posttraumatic stress disorder (PTSD), depression and anxiety (Klasen, Oettingen, Daniels, & Adam, 2010; Okello, Onen, & Musisi, 2007; Panter-Brick, Eggerman, Gonzalez, & Safdar, 2009). Different studies, for example, have documented that adolescents with child soldiering experiences report more internalising symptoms compared to non-conscripted youth adolescents (Moscardino et al., 2011; Okello et al., 2007).

Besides, recent studies have drawn attention to the roles that both childhood adversity and war-related trauma exposure play in the development of post-war internalizing symptoms (Catani, Schauer, & Neuner, 2008; Fritch, Mishkind, Reger, & Gahm, 2010; Panter-Brick, Goodman, Tol, & Eggerman, 2011; Van Voorhees et al., 2012), since long-standing conflicts, such as in Uganda, Sri Lanka and Afghanistan, expose children to both intra-familial childhood adversity and war-related trauma (Benjet, 2010; Catani et al., 2008, 2009; Klasen et al., 2010; Panter-Brick et al., 2011). However, we have limited evidence regarding the associations between intrafamilial childhood adversities and war-related trauma, and their differential effects on adolescents' post-war mental health is limited (Catani et al., 2008; Eytan, Guthmiller, Durieux-Paillard, Loutan, & Gex-Fabry, 2011).

Some studies suggest that childhood adversity and war trauma may have independent effects on internalising symptoms (Panter-Brick et al., 2011), while cumulative trauma studies in children (Copeland, Keeler, Angold, & Costello, 2007; Schiff et al., 2012; Slone, & Shechner, 2011; Suliman et al., 2009) show that earlier intra-familial trauma exposure is associated with worse consequences when exposed to subsequent trauma e.g. war trauma (Klasen et al., 2010). Still studies suggest that childhood adversity may moderate the effects of war exposure on adolescents' internalizing symptoms (Cabrera, Hoge, Bliese, Castro, & Messer, 2005; Stein et al., 2005; Zaidi & Foy, 1994). Overall, little is thus known about whether childhood adversity adds independently to the risk associated with war trauma exposure, or if childhood adversity and war exposure interact in predicting mental health, since few studies have looked at these variables concurrently. Above, the impact of particular childhood adversities on internalizing symptoms, such as intra-familial violence and chronic poverty, both

considered important risk factors for mental health in low-income countries, were not explored (Benjet, 2010; Panter-Brick et al., 2009).

This study therefore explores the independent and interactive effects of both childhood adversities and war-related traumatic events on PTSD, depression and anxiety symptoms. We hypothesized that childhood adversity and war-related exposure are associated with PTSD, depression and anxiety symptoms. In addition to its main effect, we proposed that childhood adversity operates as a moderating variable, interacting with other correlates to determine their influence on internalizing symptoms. Childhood adversity was selected as a moderating variable because it is a consistently strong predictor of PTSD that may determine the strength of other correlates' associations with PTSD and other internalising symptoms (Carbrera et al., 2007; Catani et al., 2008, 2009).

3.2 Method

3.2.1 *Participants and procedure*

The study was conducted in Gulu district, northern Uganda, which until mid-2006 remained the epicenter of over 20 years of armed conflict between the Ugandan government and the rebel group the Lord's Resistance Army (LRA). Data are derived from 551 school-based adolescents' interviews in August-September 2010 (table 1). Out of 14 secondary schools, we contacted seven government and private-operated schools, with additional stratification by single-/mixed-sex schools. In these schools, all second and third year secondary school students (secondary education in Uganda encompasses six years) were included in the sampling frame. We compiled age-specific class-lists in the selected schools, and consecutively recruited 13-21 year olds. Informed consent was obtained from school directors and all information gathered was subject to signed consent of the study participants. All students who were present in class the day the questionnaire was administered were eligible to participate in the study. Six hundred questionnaires were distributed post-consent. Overall, 24 adolescents declined or withdrew participation (they were not required to give reasons) and 25 discarded questionnaire sets with significant portions of missing responses were excluded, resulting in a response rate of 92% (551/600). The questionnaires were anonymous and self-administered during regular school hours and took approximately an hour to complete. The adolescents were given pens as a gift for participation and opportunities for support, and referral for mental health services were

available to all participants. The ethics committee at Gulu and Ghent University and the Uganda National Council of Science and Technology approved the study.

Table 1: Sociodemographic characteristics

	N	Total (N = 551) ^a		Boys (n = 284)		Girls (n = 267)		t / χ^2
		n/mean	%/SD	n/mean	%/SD	n/mean	%/SD	
Age (mean; SD)	540	16.73	1.34	17.03	1.36	16.42	1.25	5.41***
Tribe	547							0.77
Acholi		492	90	253	90	239	90	
Langi		18	3	8	3	10	4	
Other		37	7	21	7	16	6	
Religion	548							15.30**
Catholic		355	65	199	71	156	59	
Protestant		105	19	53	19	52	20	
Born Again		69	13	22	8	47	18	
Muslim		12	2	4	1	8	3	
Other		7	1	4	1	3	1	
Parental marital status	524							7.37*
Married		342	65	183	67	159	63	
Single		91	17	53	20	38	15	
Divorced or separated		91	17	36	13	55	11	
Mother deceased	549	112	20	45	16	67	25	6.50*
Father deceased	550	241	44	123	43	118	44	0.01

3.2.2 Measures

Questionnaires were reviewed with local mental health staff and teachers and later pretested with non-participating adolescents to ensure local validity. All questionnaires were administered in English, the official language used in all Ugandan schools. Self-report measures were used to investigate the independent variables childhood adversities and war-related trauma, and the dependent variables PTSD, depression and anxiety symptoms. A socio-demographic questionnaire was used to determine participants' age, gender, ethnicity, living situation, marital status of parents and whether the adolescent's parents were still alive or not.

Childhood adversity was measured using a modified version of the Adverse Childhood Exposure (ACE) questionnaire used in Bruffaert et al., (2010). Six context-specific intra-familial childhood adversities: not growing up with

both parents, death of a parent, financial adversity (i.e. dependence on food aid for at least six months), physical abuse by parents and/or other adults, sexual abuse, and witnessing fights between the parents before the age of 13 years were assessed. Although parental psychopathology, substance use and criminality are also common elements in adverse childhood experiences, we did not include them as the local experts review team advised they would be too intrusive.

Traumatic war exposure was measured using a Stressful War Events questionnaire designed specifically for the study population. The SWE consists of 17 *yes/no* questions, each referring to a war-related traumatic event typically encountered during active conflict in northern Uganda such as “Did you experience death of close family or friends?” Because of our interest in the experience of exposure to war events prior to 2006, when the conflict in Northern Uganda was still intense, participants were asked to limit their responses to that specific period. Both the ACE and the SWE were modeled as continuous scores in our analyses.

PTSD symptoms were assessed with the Impact of Event Scale–Revised (IES-R, Weiss & Marmar, 1997), a 22-item scale consisting of three subscales of intrusion (8 items), avoidance (8 items) and hyperarousal (6 items). The IES-R has been administered in a number of war-affected adolescent populations in Africa, and has demonstrated good reliability and validity (Amone-P’olak, Garnefski, & Kraaij, 2007; Derluyn et al., 2004; Mels et al., 2010; Moscardino, Scrimin, Cadei, & Alto’e, 2011). Respondents were asked to identify a specific event endorsed on either the SWE questionnaire as a reference point for completing the IES-R, and indicate how much it distressed them in the past month by rating each item on a 5-point scale from 0 (*not at all*) to 4 (*extremely*). Cronbach’s alpha values demonstrated good reliability (intrusion: .88, avoidance: .83, hyperarousal: .82, total IES-R score: .93).

Depression and anxiety symptoms were assessed using the Hopkins Symptom Checklist-37 for Adolescents (HSCL-37A) (Bean, Derluyn, Eurelings-Bontekoe, Broekaert & Spinhoven, 2007), a self-report questionnaire which had been previously used in war-affected and refugee populations (Derluyn, Broekaert & Schuyten, 2008; Mels et al., 2010). Thirty-seven items inquire about the severity of DSM-IV based symptoms, such as depression (15 items) and anxiety (10 items) using a 4-point scale from 1 (*never*) to 4 (*always*). Cronbach’s alphas for the depression and anxiety subscales were good (respectively .83 and .78).

For both IES-R and HSCL-37A, we used continuous scores for analyses to retain greater variability in the data.

3.2.3 Data analysis

We used Pearson's correlations to examine the relationship between these variables, and χ^2 and t tests to examine gender differences in exposure (ACE and SWE) and internalising symptoms (IES-R, HSCL-37A). Two linear regression models were fit to explore the possible effects of Socio-demographics on war-related traumatic events (SWE total count score) and on intra-familial childhood adversities (ACE total count score).

The independent and interactive effects of ACE and SWE exposure in predicting IESR-total and subscale scores and HSCL-37A scores were estimated using hierarchical linear regression models. In all models, the following variables were entered: (1) age, (2) sex, (3) mother alive, (4) father alive, (5) parental marital status, (6) ACE, (7) SWE, (8) an ACE \times SWE exposure interaction term. SWE and ACE exposure were grand-mean centered to reduce collinearity with interaction terms. If ACE actually moderates the relation between SWE and an outcome variable, the interaction term should be significant (Aiken & West, 1991). Our moderator hypothesis proposes that high childhood adversity scores dominates when present and minimizes the effects of other variables. In contrast, for participants who report low childhood adversity scores, the effects of other variables on internalising symptoms are expected to emerge. Overall, alpha was set at 0.05, and missing values were considered as 'missing completely at random'. All statistical analyses were executed using R-2.15.2 (R Development Core Team, 2012).

3.3 Results

3.3.1 Intra-familial childhood adversities

The mean number of intra-familial childhood adversities was 2.50 out of six events (table 2). Linear regression analysis examining the impact of different demographic variables on the number of childhood adversities (independent variables: age, gender, if the adolescent's mother and/or father is still alive, and parental marital status; dependent variable: ACE total count score) revealed that the model tested explained 11% of the total variance ($R^2 = .11$, $F(6,504) = 10.05$, $p < .001$). The mean ACE-score was

higher for girls than boys ($B = 0.28$, $SE B = 0.13$, $t(504) = 2.22$, $p = .03$), and for adolescents who lost their mother ($B = 0.68$, $SE B = 0.17$, $t(504) = 4.04$, $p < .01$) or father ($B = 0.31$, $SE B = 0.14$, $t(504) = 2.28$, $p = .02$). Mean differences were found for different parental marital status ($F(2,504) = 6.94$, $p < .01$), with higher ACE-scores for adolescents with divorced or separated parents. No significant effect of age was found.

3.3.2 War-related exposure

The mean number of stressful war events per adolescent was 6.56 out of 16 events assessed (table 3). Linear regression analysis examining the impact of demographics on the number of war-related traumatic experiences (independent variables: age, gender, if the adolescent's mother and/or father is still alive, and parental marital status; dependent variable: SWE total count score) revealed a model that explained 12% of the total variance ($R^2 = .12$, $F(6,463) = 10.54$, $p < .001$). Older adolescents reported more war-related trauma ($B = 0.62$, $SE B = 0.13$, $t(463) = 4.87$, $p < .001$), as well as those adolescents who lost their mother ($B = 2.01$, $SE B = 0.46$, $t(463) = 4.36$, $p < .01$) or father ($B = 0.78$, $SE B = 0.38$, $t(463) = 2.07$, $p = .04$). No significant effects of gender or parent marital status were found.

3.3.3 Internalizing symptoms and associated factors

Adolescents exhibited the following mean scores on the total IES-R questionnaire: $M = 31.24$ ($SD = 20.29$), intrusion subscale: $M = 10.91$ ($SD = 8.54$), avoidance subscale: $M = 11.72$ ($SD = 8.00$), and hyperarousal subscale: $M = 8.18$ ($SD = 6.27$). Average scores on the HSCL-37A were for anxiety: $M = 9.44$ ($SD = 5.13$) and for depression: $M = 28.60$ ($SD = 7.46$).

Hierarchical regression models revealed a main effect of gender on all mental health outcomes except avoidance symptoms, with girls reporting higher scores than boys (table 5). Adolescents who lost their mother had more intrusion and anxiety symptoms. Analyses showed that SWE was a significant predictor for all symptoms, whereas ACE only predicted depression symptoms. Lastly, a statistically significant interaction between ACE and SWE exposure was noted only for intrusion symptoms. This interaction showed that the slope marking the relationship between SWE exposure and intrusion symptoms was steeper for those reporting low ACE exposure than for those reporting higher ACE exposure (figure 1).

Table 2: Nature and Frequency of Childhood Adversities by Gender in War-Affected Adolescents

	Total group (N = 551)		Boys (n = 284)		Girls (n = 267)		χ^2
	n or M	% or SD	n or M	% or SD	n or M	% or SD	
Did not grow up with both parents	291	53	139	49	152	58	3.28*
Experienced financial adversity	292	53	153	55	139	53	0.11
Experienced physical violence from parents	212	39	102	37	110	42	1.07
Experienced physical violence from others	286	52	137	49	149	57	2.80*
Experienced sexual violence	41	7	13	5	28	11	5.92**
Witnessed inter-parental violence	253	46	118	42	135	52	4.50**
Total number (M, SD)	2.50	1.45	2.33	1.37	2.67	1.52	

Table 3: Nature and Frequency of Stressful War Events by Gender in War-Affected Adolescents

	Total group (N = 551)		Boys (n = 284)		Girls (n = 267)		χ^2
	n or M	% or SD	n or M	% or SD	n or M	% or SD	
Death of close family or friends	461	86	231	84	230	86	0.61
Forceful separation from family	170	34	80	29	90	34	1.41
Lived in an IDP camp	247	46	135	50	112	43	2.27
Ever been abducted	47	9	21	8	26	10	0.47
Witnessed violence against others	201	38	95	35	106	41	1.77
Victim of violence	74	14	32	12	42	16	1.60
Committed violence	63	12	28	10	35	13	1.02
Lacked food and water	310	58	143	52	167	64	7.40***
Lacked education	290	54	145	53	145	55	0.15
Lacked medical care	310	58	152	56	158	60	0.99
Getting wounded or disabled	160	31	70	26	90	36	4.91**
Lack of job or income for parents	417	78	215	79	202	77	0.04

War-related trauma exposure and internalising symptoms in post-war adolescents

Lived on streets for several months	69	13	33	12	36	15	0.50
Threatening by LRA	282	53	151	55	131	50	1.11
Not feeling accepted by family/community	212	39.6	96	35	116	44	4.40**
Taking responsibility of others/many children	230	43.6	118	43	112	44	0.00
Total number (M, SD)	6.56	3.81	6.33	3.58	6.82	4.03	

IDP = internally displaced persons; LRA = Lord's Resistance Army.

*p < .05, **p < .01, ***p < .001

Table 4: Correlation between Mental Health Scores, Childhood Adversities and Trauma Exposure

	IES-Rtot	Int	Avo	Hyp	Anx	Dep	SWE
IES-Rtot							
Int	.92						
Avo	.86	.64					
Hyp	.92	.84	.67				
Anx	.41	.40	.27	.44			
Dep	.41	.39	.29	.43	.75		
SWE	.51	.52	.40	.46	.26	.29	
ACE	.32	.32	.26	.29	.25	.27	.52

All ps < .001

IES-Rtot: IES-R total score; Int: Intrusion subscale IES-R; Avo: Avoidance subscale IES-R; Hyp: hyperarousal subscale IES-R; Anx: anxiety subscale HSCL-37A; Dep: depression subscale HSCL-37A; SWE: Stressful War Events questionnaire; ACE: Adverse Childhood Exposure questionnaire.

Table 5: Factors associated with Mental Health Problems among War-Affected Adolescents

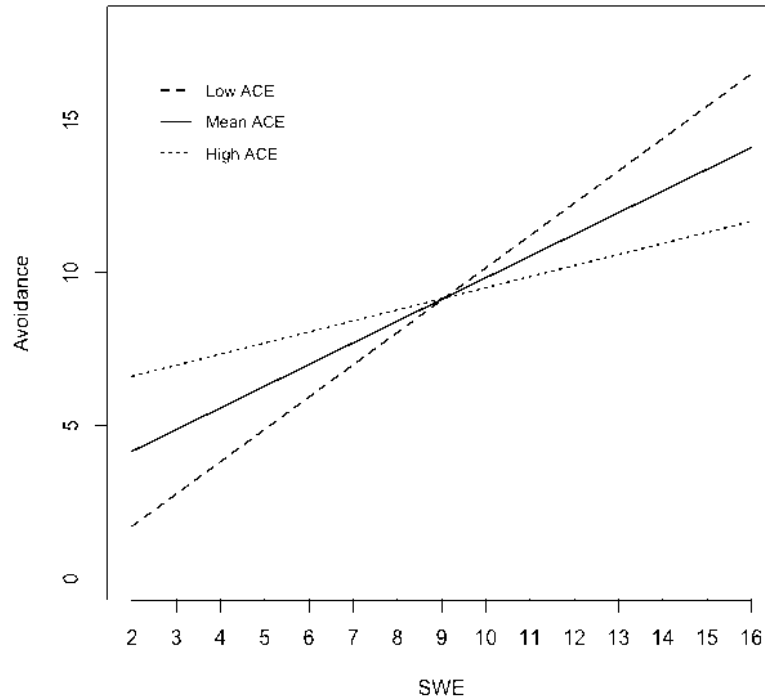
	IES-R						HSCL-37A											
	Total PTSD-score			Intrusion			Avoidance			Hyperarousal			Anxiety			Depression		
	B	SEB		B	SEB		B	SEB		B	SEB		B	SEB		B	SEB	
Intercept	18.72	11.78		9.27	4.59		7.39	4.81		2.96	3.71		21.91***	3.13		28.60***	4.60	
Age	0.81	0.66		0.16	0.26		0.32	0.27		0.28	0.21		-0.09	0.18		-0.03	0.26	
Sex (base = M)	4.06*	1.75		1.78**	0.69		0.47	0.73		2.06***	0.55		2.32***	0.47		3.63***	0.69	
Mother alive? (base = no)	-3.91	2.37		-2.80**	0.93		-0.52	0.98		-0.63	0.74		-1.80**	0.63		-1.43	0.92	
Father alive? (base = no)	-0.80	1.88		-0.53	0.74		0.16	0.78		-0.20	0.59		-0.67	0.51		0.41	0.75	
Parent marital status (base = divorced or separated)																		
Married	0.76	2.27		0.33	0.88		-0.42	0.94		0.49	0.71		-0.18	0.61		-0.87	0.90	
Single	-0.38	2.88		0.18	1.13		-0.88	1.20		-0.13	0.91		0.27	0.77		-0.66	1.14	
ACE	0.78	0.70		0.18	0.27		0.40	0.29		0.28	0.22		0.27	0.19		0.84**	0.27	
SWE	2.39***	0.26		0.96***	0.10		0.71***	0.11		0.65***	0.08		0.23***	0.07		0.35***	0.10	
ACE x SWE	-0.14	0.15		0.03	0.06		-0.17**	0.06		-0.01	0.05		0.06	0.04		0.08	0.06	
ΔR^2 step 1	.09***			.11***			.04***			.09***			.13***			.12***		
ΔR^2 step 2	.19***			.19***			.12***			.15***			.04***			.07***		
ΔR^2 step 3	.01			.00			.01***			.00			.01			.01		
R ²	.29***			.30***			.17***			.24***			.18***			.20***		

Results of hierarchical linear regression analyses predicting IES-R and HSCL-37A: In the first step, demographic variables (age, gender, mother and father still alive or not, and parent marital status) were entered; in the second step, ACE and SWE were added; in the third step, the interaction term SWE x ACE was included. Regression coefficients (B and SE B) from the last step in the analyses are shown.

ACE: adverse childhood experience; PTSD: post-traumatic stress disorder; IES-R: Impact of Events Scale-Revised; HSCL-37A: Hopkins Symptom Checklist-37 for Adolescents.

*p < .05, **p < .01, ***p < .001

Figure 1: Effect of Stressful War Events on Avoidance, Moderated by Number of Childhood Adversities



The regression lines represent the predicted scores, based on the final linear model for avoidance. All regression coefficients were set at 0, except for SWE and ACE. Since we assume that the relation between SWE and avoidance is moderated by ACE, we illustrate this effect by predicting scores for 1) low ACE-scores (defined as the mean ACE-score minus 1.5 SD), 2) mean ACE-scores, and 3) high ACE-scores (defined as the mean ACE-score plus 1.5 SD). SWE: Stressful War Events; ACE: Adverse Childhood Experiences.

3.4 Discussion

This is the first study, to our knowledge, exploring the relationship between internalizing symptoms and childhood adversity among post-war adolescents exposed to war-related trauma. There are three major findings in this study. First, in line with other studies, girls reported more trauma exposure (both war-related trauma and childhood adversities) and more symptoms of PTSD, depression and anxiety while boys reported more avoidance symptoms (Acierno et al., 2000; Amone P'Olak et al., 2007; Armour et al., 2011; Dyregrov et al., 2000; Klasen et al., 2010; Kolltveit et al., 2012; Okello et al., 2007; Schiff et al., 2007). Although the findings may

reflect a gender-specific exposure and response to particular traumas, the higher rates of exposure of females to both war-related and intra-familial events could have led to a learned symptom response (Acierno et al., 2000).

Second, our findings show that internalising symptoms are positively associated with both war-related trauma and specific childhood adversities including, but not limited to, interfamilial violence and chronic poverty. However, overall results indicated that childhood adversities were associated with only depression symptoms, whereas the war-related trauma impacted all internalizing symptoms, stressing the importance of potential mediators (Layne et al., 2010). Similarly, Entholt and Yule (2006) found that PTSD symptoms were more strongly linked to earlier war related trauma, whereas depression symptoms were more strongly linked to recent stressful life events and current maternal mental health among post war youth. While we acknowledge that not all ACE items qualify as trauma in the DSM-IV, and that intra-familial childhood adversity may be qualitatively different from war-related trauma, the results suggest that depression may develop similarly across different forms of trauma, from wars to childhood adversities (Fernando et al., 2010).

Lastly, we found that ACE was a significant predictor of avoidance symptoms, above and beyond the role of war-related exposure. Two previous studies have found similar ACE-by-war-related trauma exposure interactions in which individuals with higher exposure to childhood adversities appeared less reactive to the effects of war-related trauma than individuals who reported no such trauma (Cabrera et al., 2007; Stein et al., 2005). Plausible explanations for this finding have been suggested (e.g. Cabrera et al., 2005; Stein et al., 2005; Zaidi & Foy, 1994). One hypothesis is that adolescents exposed to childhood adversities display lower reactivity to war-related trauma (Cabrera et al., 2005; Stein et al., 2005). Second, the previous trauma may act to create a symptom “ceiling effect”, in which only the most distressing symptoms are reported following war-related trauma exposure, although they may be manifesting as much symptom variation as they are likely to display (Cabrera et al., 2005). On the contrary, other researchers have suggested the opposite: individuals with previous childhood-related trauma were more likely to react negatively to war-related trauma than individuals not similarly traumatized (Bremner et al., 1993; Friedman et al., 1994; Lapp et al., 2005; McCranie et al., 1992), urging for deeper investigation of this finding in further research.

3.4.1 Limitations

The data were retrospective and self-reported, and consequently subject to recall bias. The literature indicates under-reporting is more widespread among males than females, so it is likely that under-reporting is a feature of this study. The cross-sectional design precludes both causal inference (as event reporting may be confounded with current psychological functioning and age) and the longitudinal analysis of adjustment trajectories (Layne et al., 2009). The generalizability of our findings is limited to only school-based adolescents. Furthermore, given that active war ended in 2006, the extended time frame (four years post-war) created a situation in which other post-war factors, such as post-war trauma could occur and compete for explained variance. The time frame also sampled youths 9 to 17 years old at the end of the war – a group that was possibly less severely exposed than older adolescents. This may have led to low endorsement rates for some event types (e.g., physical violence) that prevented their predictive effects from being adequately tested (Layne et al., 2010). As a consequence, factors such as daily stressors and more recent traumatizing events, or parental and peer attachment, might have influenced internalizing symptoms (Fernando et al., 2010). However, for purposes of this study in this particular context, and to avoid participant fatigue, we focused on a specific set of adverse experiences, such as intra-familial violence and abuse, parental separation and financial adversity, and war-related trauma. Lastly, using count scores summing up conceptually diverse childhood adversities assumes an arithmetic relationship between these experiences, an assumption which may not be valid. Although this is in accordance with earlier studies (see e.g. Kendler, Karkowski, & Prescott, 1998) stating that both low- and high-threat events increased the risk for internalizing symptoms, and that counts of events (without regard to type of trauma) predicted outcomes, no consensus exists yet on methods of weighting aspects of traumatic exposure (Layne et al., 2010).

To conclude, this study adds to the developmental trauma and war-related trauma literature among post-war adolescents. Assessment of adversities experienced during childhood might therefore help to identify symptoms, such as avoidance symptoms, that possibly impair help-seeking behavior. Our findings thus support the differential associations of childhood adversities and war-related stressors with post-war internalizing symptoms (Fayyad et al., 2004; Panter-Brick et al., 2011). Although the impact of childhood adversity has received recent attention in post-conflict settings, the result of this study draws attention to the impact of war-related stressors. The study by Klasen and others (2013) for example, emphasizes

the need to broaden our thinking regarding the impact of complex trauma on youths' mental health, so that it reflects developmental aspects of childhood trauma as seen in the developmental trauma disorder. It is therefore important to consider these diverse factors in developing interventions to mitigate the impact of these exposures on adolescents' post-conflict adjustment. Future work should also focus on mechanisms like parental and peer attachment that might modify or moderate interactions between childhood adversity, war-related trauma and later internalizing symptoms (Armour et al., 2011). Finally, the dearth of data on interaction effects of childhood adversity and war-related trauma on symptoms such as PTSD, and analyzing for these symptoms in a larger sample that could potentially shed more light on the topic, may be a suggestion for future research.

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4

WAR-RELATED TRAUMA EXPOSURE AND MULTIPLE RISK BEHAVIORS AMONG SCHOOL- GOING ADOLESCENTS IN NORTHERN UGANDA: THE MEDIATING ROLE OF DEPRESSION SYMPTOMS*

* Based on Okello, J., Nakimuli-Mpungu, E., Musisi, S., Broekaert, B., & Derluyn, I. (2013). War-related trauma exposure and multiple risk behaviors among school-going adolescents in northern Uganda: The mediating role of depression symptoms. *Journal of Affective Disorders, 151*(2), 715–721.



Abstract

Background: The relationship between war-related trauma exposure, depressive symptoms and multiple risk behaviors among adolescents is less clear in sub-Saharan Africa.

Methods: We analyzed data collected from a sample of school-going adolescents four years postwar. Participants completed interviews assessing various risk behaviors defined by the Youth Self Report (YSR) and a sexual risk behavior survey, and were screened for post-traumatic stress, anxiety and depression symptoms based on the Impact of Events Scale Revised (IES-R) and Hopkins Symptom Checklist for Adolescents (HSCL-37A) respectively. Multivariate logistic regression was used to assess factors independently associated with multiple risk behaviors. The logistic regression model of Baron and Kenny (1986) was used to evaluate the mediating role of depression in the relationship between stressful war events and multiple risk behaviors.

Results: Of 551 participants, 139 (25%) reported multiple (three or more) risk behaviors in the past year. In the multivariate analyses, depression symptoms remained uniquely associated with multiple risk behavior after adjusting for potential confounders including socio-demographic characteristics, childhood adversity and war-related trauma exposure variables, anxiety and post-traumatic stress symptoms. In mediation analysis, depression symptoms mediated the associations between stressful war events and multiple risk behaviors.

Limitations: The psychometric properties of the questionnaires used in this study are not well established in war affected African samples thus ethno cultural variation may decrease the validity of our measures.

Conclusions: Adolescents with depression may be at a greater risk of increased engagement in multiple risk behaviors. Culturally sensitive and integrated interventions to treat and prevent depression among adolescents in post-conflict settings are urgently needed.

4.1 Introduction

Most studies of post-war adolescents have focused on estimating prevalence rates of posttraumatic stress disorder (PTSD), depression, and anxiety symptoms (Amone-P'Olak, Garnefski & Kraaij, 2007; Bayer, Klasen & Adam, 2007; Klasen, Oettingen, Daniels & Adam, 2010). More recently, researchers have started to investigate the association between war exposure and risk behaviors such as aggression, suicidality, and substance abuse and how these behaviors relate to intrafamilial adversity and war-related experiences (Klasen et al., 2010; Kolltveit et al., 2012; Panter-Brick, Goodman, Tol & Eggerman, 2011; Schiff et al., 2012). For example, cross-sectional studies in Ugandan former child soldiers found a high rate of aggression (Klasen et al., 2010; Weierstall, Schalinski, Crombach, Hecker & Elbert, 2012), with increased rates for those exposed to both war and intrafamilial violence (Klasen et al., 2010). Similarly, a study among Israeli adolescents found exposure to recurrent threats was associated with high rates of self-reported aggression (Pat-Horenczyk et al., 2007). Other studies have documented substance abuse and risk-taking behaviors following exposure to war (Franic et al., 2011; Schiff, Zweig, Benbenishty & Hasin, 2007).

An increased likelihood of exposure to intrafamilial adversity in longstanding conflicts such as in Uganda and Afghanistan suggests that some children may be exposed to a high cumulative burden of risk for exposure that appears to influence risk behavior (Catani et al., 2009; Klasen et al., 2010). It has been hypothesized that the association between war exposure and externalizing behaviors may occur through a direct causal link, indirectly through comorbidity with internalizing problems e.g., PTSD, depression, or may be due to third variables associated with both. Of these three possibilities, the indirect effect has received the most attention in the literature. Increased rates of internalizing symptoms are considered one of the mechanisms through which elevated externalizing behaviors are explained (Schiff et al., 2007).

A growing body of literature has also shown that adolescents who develop PTSD following exposure to trauma are more likely to participate in risk behaviors such as alcohol and substance use, suicidal behavior and aggression (Bayer et al., 2007; Klasen et al., 2010; Pat-Horenczyk et al., 2007; Schiff et al., 2007, 2012). However, research on depression as a risk factor for engagement in risk behaviors in the general and war affected populations is limited (Acierno et al., 2000; Brown et al., 2009; Carr et al., 2013; Lundberg et al., 2011). Two studies have reported that depression

plays a more important role in engaging in risk behavior than PTSD (Acierno et al., 2000; Carr et al., 2013), while another study has shown that risk behaviors are particularly common among adolescents experiencing co-occurring depression and PTSD (Schiff et al., 2007). These studies neither report on the relationship between war-related stressors and risk behavior nor do they report on the potential mediating role of depression in this relationship.

Studies on gender differences in risk behavior among adolescents have yielded mixed results. Although most studies report that boys have higher levels of risk behaviors (Amone-P'olak et al., 2007; Pat-Horenczyk et al., 2007; Quota, Punamaki, Miller & El Sarraj, 2008; Sibai, Tohme, Beydoun, Kanaan & Sibai, 2008), some studies have found the opposite pattern (Young, 2010) or no gender differences (Chemtob et al., 2011; Franic et al., 2011). There is limited information on gender differences in multiple risk behaviors in post-conflict settings in sub-Saharan Africa.

Therefore, to better understand the relationship between war exposure and risk behaviors, in this paper we examine gender differences in socio-demographics, mental health symptoms and risk behaviors among school-going adolescents in post-conflict northern Uganda. Further, we investigate factors independently associated with multiple risk behaviors and explore the mediating role of depression symptoms in the association between war exposure and multiple risk behaviors.

4.2 Method

4.2.1 Study settings and population

Study participants were school-going adolescents recruited from seven out of fourteen government and private-operated secondary schools in Gulu district situated in northern Uganda. Prior to 2006 the district had experienced over 20 years of armed conflict between the Ugandan government and the rebel group Lord's Resistance Army (LRA).

4.2.2 Study procedure

Study data were collected between August and-September 2010. The eligibility criteria required participants to be in their second or third year of secondary education, aged between 13 and 21 years and had the ability to comprehend study procedures and provide informed consent. Research

assistants reviewed the study questionnaires with local mental health staff and teachers to ensure local validity and were pretested. Class teachers were asked to distribute study questionnaires to students who were present in class on a given day and were eligible to participate in the study. All questionnaires were administered in English, the official language used in schools. Those who declined or withdrew participation were not required to give reasons. The questionnaires were anonymous and self-administered during regular school hours and took approximately an hour to complete. The adolescents were given pens as a gift for participation and opportunities for support and referral for mental health services were available to all participants. The research protocol was approved by Gulu University Research Ethics Committee, the Ethics Committee at the faculty of Psychology and Educational Sciences of Ghent as well as the Uganda National Council of Science and Technology.

4.2.3 Study measures

4.2.3.1 Socio-demographic variables

In a socio-demographic questionnaire, participants reported their age, gender, ethnicity, living situation, marital status of parents and whether their parents were still alive or not.

4.2.3.2 Trauma exposure variables

Past childhood adverse events were assessed using the Adverse Childhood Exposure (ACE) questionnaire (Bruffaerts et al., 2010). The ACE examines six context-specific intra-familial childhood adversities: not growing up with parents, death of a parent, financial adversity (i.e. dependence on food aid for at least six months), physical abuse by parents and by other adults, sexual abuse, and witnessing fights between the parents before the age of 13 years. The Cronbach α for this sample was 0.94 indicating good reliability. A total ACE score was computed for each participant and was modeled as a continuous variable in our analyses.

Potentially traumatic war exposure was measured using the Stressful War Events (SWE) questionnaire (Derluyn, Vindevogel, Coppens, Loots & Broekaert, 2009). This 17-item questionnaire was designed specifically for war-affected adolescents in this region, and included questions referring to a specific war-related traumatic event, such as “Did you experience living in an internally displaced persons camp?” Post-traumatic stress symptoms were assessed using the Impact of Event Scale–Revised (IES-R) (Weiss &

Marmar, 1997), a 22-items scale consisting of three subscales of intrusion, avoidance and hyperarousal. The IES-R has already been administered in war-affected adolescent populations in Africa (Amone-P'olak et al., 2007; Mels, Derluyn & Broekaert, 2010).

4.2.3.3 *Mental health variables*

Depression and anxiety symptoms were assessed using the Hopkins Symptom Checklist-37 for Adolescents (HSCL-37A) (Bean, Derluyn, Eurelings-Bontekoe, Broekaert & Spinhoven, 2007), a self-report questionnaire that previously had been used in war-affected and refugee populations (Derluyn, Broekaert & Schuyten, 2008; Mels et al., 2010). Thirty-seven items inquire the severity of DSM-IV based symptoms associated with depression (15 items), anxiety (10) and externalizing problems (12), using a 4-point Likert scale from 1 (never) to 4 (always). The Cronbach's alphas for the depression and anxiety subscales were .83 and .78 respectively. Total depression and anxiety scores were computed for each participant and were modeled as continuous variables in our analyses.

Potentially traumatic war exposure was measured using the Stressful War Events (SWE) questionnaire (Derluyn et al., 2009). This 17-item questionnaire was designed specifically for war-affected adolescents in this region, and included questions referring to a specific war-related traumatic event, such as "Did you experience living in an internally displaced persons camp?" Post-traumatic stress symptoms were assessed using the Impact of Event Scale-Revised (IES-R) (Weiss & Marmar, 1997), a 22-items scale consisting of three subscales of intrusion, avoidance and hyperarousal. The IES-R has already been administered in war-affected adolescent populations in Africa (Amone-P'olak et al., 2007; Mels et al., 2010).

Respondents were asked to identify a specific event endorsed on the SWE questionnaire as a reference point for completing the IES-R, and indicate how much it distressed them in the past month by rating each item on a 5-point Likert scale from 0 (not at all) to 4 (extremely). The Cronbach α for this sample was 0.94 indicating good reliability. A total IES-R score was computed for each participant and was modelled as a continuous variable in our analyses.

4.2.3.4 *Anti-social behaviors*

In this study, aggressive and rule breaking behaviors were regarded as the antisocial behaviors and were measured using the aggressive and rule

breaking behavior syndrome scales of the YSR (Achenbach, 1991). Total scores for each study participant were computed. Binary variables were created whereby study participants whose total scores were greater than the mean score for the study sample were regarded as having high levels of aggression or rule breaking (coded 1) and study participants whose total scores were less than the mean score of the study sample were regarded as having low levels of aggression or rule breaking (coded 0).

4.2.3.5 Suicidal behaviors

Suicidal behavior was assessed using two items from the Youth Self Report (i.e. “I deliberately try to hurt or kill myself” and “I think about killing myself”). A binary variable was created whereby study participants who endorsed either of the two items were regarded as having suicidal behaviour (coded 1) and study participants who did not endorse any of the two items were regarded as not having any suicidal behavior (coded 0).

4.2.3.6 Substance use

Substance use was assessed using three items on the youth self-report including “I drink alcohol without my parents’ approval, I smoke, chew or sniff tobacco, and I smoke or chew marijuana.” Study participants who endorsed any one of the three items were regarded as having substance use behavior (coded 1) while those who did not endorse any of the three items were regarded as not having substance use behavior (coded 0). The YSR items are rated based on the preceding month, on a 3-point likert scale ranging from 0=Not true to 2=Very true. All scores above 1 were considered as risk and 0 no risk.

4.2.3.7 Sexual risk behaviors

Assessment of sexual risk behavior was based on a single question about whether one was sexually active or not. Given that in the Acholi culture adolescents are not expected to be having sex, those who were sexually active were regarded as being at risk for HIV infection and other sexually transmitted diseases. We created a binary variable in which individuals who were sexually active were coded 1 and those who did not report any sexual activity were coded 0.

4.2.3.8 *Multiple risk behaviors*

Study participants who had three or more of the following risk behavior categories including sexual risk behavior, high levels of aggression, high levels of rule breaking, suicidal and substance use behaviors were regarded as having multiple risk behaviors (coded 1) while those who had less than three categories of these risk behaviors were regarded as not having multiple risk behaviors.

4.2.4 *Statistical analyses*

First, we performed simple logistic regression analyses to explore any gender differences in patient characteristics, internalizing symptoms and trauma exposure and specific risk behaviors. Second, we performed simple logistic regression analyses to determine bivariate associations between various patient characteristics, internalizing symptoms and trauma exposure and multiple risk behaviors. Third, we conducted multivariate logistic regression analyses in which adjusted odds ratios and 95% CIs were computed for the effect of stressful war events on multiple risk behaviors while controlling for all the potential confounders including orphan status, anxiety and post-traumatic-stress symptoms as well as socio-demographic characteristics. Stepwise logistic regression was used to determine factors independently associated with multiple risk behaviors. Lastly, to evaluate the mediating effect of depression symptoms, we used the logistic regression model proposed by Baron and Kenny (1986). Mediation was said to occur if (1) stressful war events significantly predicted multiple risk behaviors, (2) depression symptoms predicted multiple risk behaviors, and (3) if the effect of stressful war events on multiple risk behaviors was reduced or eliminated when depression symptoms were included in the regression model (Baron & Kenny, 1986).

4.3 **Results**

Of the 600 students approached to take part in the study, 551 (92%) completed the questionnaires. Baseline characteristics of male and female adolescents are presented in Table 1. Using simple logistic regression models, we found that there were significant gender differences with regard to trauma exposure and mental symptoms. In comparison to males, females were younger and more likely to be total orphans, had higher mean total scores of stressful war and adverse childhood events, higher mean scores of anxiety, depression and post-traumatic stress symptoms.

Table 1: Socio-demographic characteristics, mental health symptoms and war-related exposure among school-going war-affected adolescents by gender

	Total N=551 n(%)	Females (N=267) n(%)	Males (N=284) n(%)	Odds ratio 95%CI
Age (Mean, SD)	16.72(1.33)	16.41(1.25)	17.00(1.35)	-0.59(-0.81- -0.37)†**
Ethnicity				
Other	59(10.71)	28(10.49)	31(10.92)	1
Acholi	492(89.29)	239(89.51)	253(89.08)	0.96(0.56-1.64)
Religion				
Non-Christian	21(3.81)	12(4.49)	9(3.17)	0.91(0.73-1.14)
Christian	530(96.19)	255(95.51)	275(96.83)	1
Orphan status				
Has both parents (no)	284(51.54)	131(49.06)	153(53.87)	1
Lost one parent (one)	182(33.03)	87(32.58)	95(33.45)	0.93(0.64-1.36)
Lost both parents (both)	85(15.43)	49(18.35)	36(12.68)	0.63(0.38-1.03)*
Living situation				
Lives alone	13(2.36)	1(0.37)	12(4.23)	1
Lives with siblings	61(11.07)	32(11.99)	29(10.21)	0.07(0.01-0.72)**
Lives with relatives	46(8.35)	26(9.74)	20(7.04)	0.06(0.01-0.67)**
Lives with parents	431(78.22)	208(77.9)	223(78.52)	0.09(0.01-0.71)**
Parental Marital Status				
Married	342(62.07)	159(59.55)	183(64.44)	1
Divorced or Separated	91(16.52)	55(20.6)	36(12.68)	0.57(0.35-0.91)**
Single	118(21.42)	53(19.85)	65(22.89)	1.07(0.69-1.62)
Trauma Exposure				
Adverse Childhood Events scores (Mean, SD)	2.49(1.45)	2.67(1.52)	2.33(1.37)	0.34(0.10-0.5)†**
Stressful war events scores (Mean, SD)	6.59(3.65)	6.84(3.85)	6.37(3.46)	0.46(-0.15- 1.07)†**

Mental Symptoms	
PTSD symptoms total scores (Mean, SD)	31.22(19.5)
Depression total scores (Mean, SD)	28.56(7.22)
Anxiety symptom total scores (Mean, SD)	19.42(5.03)
	33.84(20.2)
	30.49(7.34)
	20.68(5.00)
	28.77(18.5)
	26.76(6.63)
	18.24(4.77)
	5.07(1.82-8.30)†**
	3.74(2.56- 4.90)†**
	2.44(1.62 - 3.25)†**

† Mean difference (95%CI)

p<0.05, *p<0.01

Further, using simple logistic regression models, we found that there were significant gender differences with regard to specific risk behaviors in our study population (Table 2). In comparison to males, females were more likely to have high sexual risk, high levels of aggression and suicidal behavior than males while males were more likely to have high levels of rule breaking behavior than females. Substance use was comparable between the two genders. Multiple risk behaviors were significantly more among females than males.

Table 2: Risk behaviors among school-going war-affected adolescents by gender

	Total N=551 n(%)	Females (N=267) n(%)	Males (N=284) n(%)	Odds ratio (95%CI)
Sexual risk behavior				
Not sexually active	353(64.07)	185(69.29)	168(59.15)	1
Sexually active	198(35.93)	82(30.71)	116(40.85)	1.56(1.09- 2.21)
Anti-social behaviors				
Rule breaking mean scores > 3	212(38.48)	88(32.96)	124(43.66)	1.58(1.12-2.23)**
Aggression mean scores > 7	243(44.1)	132(49.44)	111(39.08)	0.66(0.47-0.92)**
Suicidal behavior				
Suicidal ideation	99(17.97)	70(26.22)	29(10.21)	0.32(0.19-0.52)**
Self-harm	104(18.87)	75(28.09)	29(10.21)	0.29(0.18-0.47)**
Substance use				
Alcohol use	29(5.26)	17(6.37)	12(4.23)	0.65(0.3-1.39)
Marijuana use	11(2)	4(1.5)	7(2.46)	1.66(0.48-5.75)
Tobacco use	12(2.18)	4(1.5)	8(2.82)	1.91(-.56-6.42)
Number of risk behaviors				
0 (no risk behavior)	154(27.95)	67(25.09)	87(30.63)	1
1 (one risk behavior)	156(28.31)	78(29.21)	78(27.46)	0.77(0.49-1.21)
2 (Dual risk behavior)	102(18.51)	50(18.73)	52(18.31)	0.8(0.48-1.32)
3-5 (Multiple risk behaviors)	139(25.23)	72(26.97)	67(23.59)	0.72(0.45-1.14)

* $p < 0.05$, ** $p < 0.01$

Table 3 presents the factors associated with having multiple risk behaviors in simple logistic regression models.

Table 3: Simple logistic regression model: Factors associated with multiple risk behaviors among school-going war-affected adolescents

	≥3 risk behaviors (N=139) n(%)	<3 risk behaviors (N=412) n(%)	Unadjusted Oddsratio (95%CI)
Age (Mean, SD)	17.17 (1.47)	16.56(1.24)	0.62 (0.37-0.87)‡**
Gender			
Females	72 (51.80)	195 (47.33)	1
Males	67 (48.20)	217(52.67)	0.83(0.56 -1.23)
Religion			
Christian	133(95.68)	397(96.36)	1
Non-Christian	6(4.32)	15(3.64)	1.20(0.45 -3.14)
Orphan status			
Has both parents	68(48.92)	216(52.43)	1
Lost one parent	44(31.65)	138(33.50)	1.01(0.66 -1.57)
Lost both parents	27(19.42)	58(14.08)	1.48(0.87 -2.52)
Living situation			
Lives alone	7(5.04)	6(1.46)	1
Lives with siblings	12(8.63)	49(11.89)	0.21(0.06-0.79)**
Lives with relatives	15(10.79)	31(7.52)	0.41(0.11-1.50)
Lives with parents	105(75.54)	326(79.13)	0.28(0.09- 0.85)**
Parental Marital Status			
Married	84(60.43)	258(62.62)	1
Single	25(17.99)	66(16.02)	1.16(0.68-1.96)
Divorced or Separated	30(21.58)	88(21.36)	1.10(0.64- 1.69)
Trauma Exposure			
Stressful war events scores (Mean, SD)	7.87(3.45)	6.16(3.54)	1.70 (1.01-2.40)‡**
Adverse Childhood Events scores (Mean, SD)	3.03(1.54)	2.32(1.38)	0.71(0.44-0.99)‡**
Mental Symptoms			
PTSD symptoms total scores (Mean, SD)	36.55(17.87)	29.42(19.72)	7.11(3.40 -10.83)‡**
Depression total scores (Mean, SD)	31.82(6.89)	27.47(7.00)	4.34(3.00-5.70)‡**
Anxiety symptom total scores (Mean, SD)	21.16(4.88)	18.84(4.95)	2.34(1.38-3.23)‡**

‡ Mean difference (95%CI)

*p<0.05, **p<0.01

Table 4 presents the results of the multiple logistic regressions examining factors independently associated with having multiple risk behaviors. The results show that depression symptoms (adjusted odds ratio [AOR]=1.10,

95% CI=(1.04–1.12), $p<0.001$) and adverse childhood events (AOR=1.25, 95% CI=1.06–1.48, $p=0.02$) were independently associated with having multiple risk behaviors while living with siblings (AOR=0.16, 95% CI=0.04–0.7, $p=0.02$) or both parents (AOR=0.40, 95% CI=0.10–1.50, $p=0.17$) were protective against multiple risk behaviors.

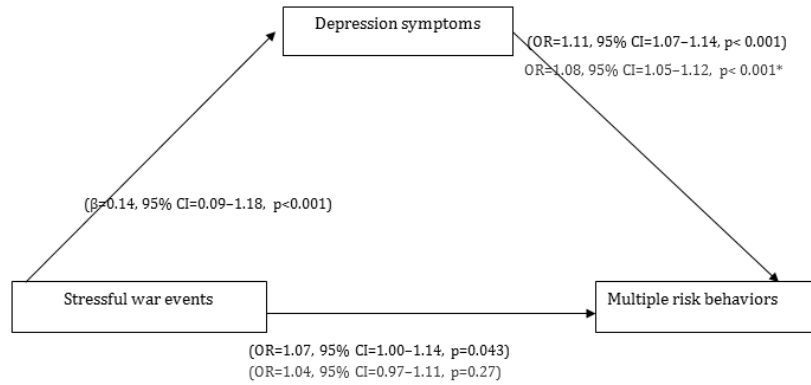
Table 4: Multivariate logistic regression model: Factors independently associated with multiple risk behaviors adjusting for sociodemographic characteristics and potential confounding variables

	Adjusted Odds ratio	95%CI	P-value
Depression total scores	1.10	1.04-1.12	0.000
Age	1.45	1.23-1.69	0.000
Sex	0.93	0.9-1.47	0.28
Lives with siblings	0.16	0.04-0.70	0.02
Lives with both parents	0.40	0.10-1.50	0.17
Stressful war events scores	1.05	0.97-1.12	0.24
Adverse Childhood Events scores	1.25	1.06-1.48	0.008
Anxiety symptom total scores	1.01	0.96-1.07	0.64
PTSD symptoms total scores	0.99	0.98-1.02	0.54

4.3.1 Analyses of the mediating role of the depression symptoms

Fig. 1 shows that depression symptoms mediate the association between stressful war events and multiple risk behaviors. The direct effect of stressful war events on multiple risk behavior adjusted for age, gender and adverse childhood events was statistically significant (OR=1.07, 95% CI=1.00–1.14, $p=0.043$). The linear regression of depression symptoms scores on stressful war events scores showed that there was a significant relationship between stressful war events and the proposed mediator, depression symptoms ($\beta=0.14$, 95% CI=0.09–1.18, $p<0.001$). The logistic regression of multiple risk behaviors on depression symptoms showed a significant association (OR=1.11, 95% CI=1.07–1.14, $p<0.001$). In the final model, when both variables stressful war events and depression symptoms were entered into the regression equation, a previously significant association between stressful war events and multiple risk behaviors was no longer significant (OR=1.04, 95% CI=0.97–1.11, $p=0.27$).

Figure 1: Depression symptoms mediate the association between stressful war events and multiple risk behaviors.



Values with an asterisk indicate indirect effects when the hypothetical mediator (depression symptoms) was included in the regression equation.

4.4 Discussion

There are three major findings in this study. First, there were significant gender differences in socio-demographics, mental health symptoms and risk behaviors among school-going adolescents in post-conflict northern Uganda. In comparison to male adolescents, females were significantly younger, more likely to live with a divorced parent and had significantly higher depression, PTSD and anxiety scores. Regarding, specific risk behaviors, females had significantly higher aggression scores and more suicidal behaviors while males had significantly higher rule breaking scores. Both gender had comparable substance use behaviors. Previous studies of adolescent populations in post-conflict settings report similar findings for internalizing symptoms (Acierno et al., 2000; Dyregrov, Gupta, Gjestad & Mukanoheil, 2000; Schiff et al., 2007); rule breaking (Pat-Horenczyk et al., 2007) and suicidal behavior (Acierno et al., 2000; Young, 2010). The finding of females being more aggressive than males is in contrast to what most studies have found (Amone-P'olak et al., 2007; Quota, Punamaki, Miller & El Sarraj, 2008; Sibai et al., 2009). Some authors (Acierno et al., 2000; Bjorkqvist, Lagsnpetz & Kaukiainen, 1992) suggest that although males engage in more physical aggression, females engage in more relational violence or indirect aggression than males, which could explain this finding. Further, higher exposure of females to both war-related and intrafamilial events could have led to learned behavior related to exposure (Acierno et al., 2000), while higher PTSD symptoms, such as hyperarousal, numbing,

dissociation (Allwood, Bell & Horan, 2011; Pat-Horenczyk et al., 2007) may be at play in augmenting risk behavior participation.

However, a significant rise in female delinquency and overt aggression has been reported, indicating that such differences between males and females are narrowing (Acierno et al., 2000; Odgers & Moretti, 2002). Our findings indicate the need for gender specific interventions for suicide and anti-social behaviors.

Second, similar to findings from previous studies (Klasen et al., 2010; Pat-Horenczyk et al., 2007), this study revealed a high prevalence rate of multiple risk behaviors in this study population. One in four adolescents had three or more risk behaviors. There is need for more research to determine whether the high rate of multiple risk behaviors are unique to this war-affected sample or is developmentally normal and part of adolescent development and thus a way of coping with the stressful events (Acierno et al., 2000; Rolison & Scherman, 2002).

Third, depression was the only internalizing symptom that was independently associated with multiple risk behavior. Although literature on each type of externalizing risk behaviors is rich (Garbarino & Kostelny, 1996) and particular mechanisms of effect may vary by type (e.g., self-medication for alcohol problems; hostile attributions for aggression), there are similarities across types in that many theories explain the role of negative affectivity as a precipitating risk factor.

Interestingly, adverse childhood events were also independently associated with multiple risk behaviors. Other researchers have found evidence of an association between childhood adversities and risk behaviors in adolescence (Bruffaerts et al., 2010; Cabrera, Hoge, Bliese, Castro & Messer, 2007), but this relationship needs further study among war-affected adolescents. Potential pathways for explaining these relationships include the possibility that adolescents with a history of childhood adversities may be more likely to be involved in deviant social networks, which then leads to a normalization of risky behaviors, such as having multiple sexual partners (Acierno et al., 2000; Miller, 1999). Another possibility is that experiencing adversity early in life has a negative effect on overall interpersonal functioning, increasing the likelihood of engaging in multiple risk behaviors or become involved with risky and deviant peers.

Lastly, although theoretically PTSD symptoms have been explicated as a mediator between war exposures and risk behaviors (Taft et al., 2007), this study found that the association between stressful war events and multiple risk behaviors was mediated by depression symptoms and not PTSD.

Depression symptoms might mediate the association between stressful war events and multiple risk behaviors through different processes. Some authors (Acierno et al., 2000; Watson, Clark & Tellegan, 1988) have suggested a general negative affectivity perspective in which clustering of negative affective symptoms such as depressed mood occurs following exposure to war stress. The experience of negative affect may then increase the risk for engaging in risk behaviors that function as a way to cope with the mood symptoms (Wills, Sandy & Yaeger, 2002).

These results should be viewed within the context of the following limitations. This study relied on self-report data, and thus it is possible that they were affected by a social desirability bias. Moreover, a cross-sectional study such as this did find an association between depressive symptoms and exposure to violence, but could not confirm the causality. Knowledge of the psychometric properties of the ACE and SWE questionnaires is limited. Although the measures were developed with the assistance of Ugandan mental health workers familiar with the types of war events children experienced in Uganda, it is possible that the list was not exhaustive. Although the IESR and HSCL-37A are the most frequently used measures of children's posttrauma reactions (Mels et al., 2010), they assess different symptoms and thus different aspects of trauma reactions. Therefore, it is unclear whether differences between the relation of IESR and HSCL-37A scores to trauma exposure and risk behaviors reflect reporter differences or construct differences. Finally, despite the merits of our findings, it is important to consider issues of construct and content validity with an African sample. Ethnocultural variation may decrease the validity of the PTSD construct as well as the validity of our measures.

This study has some important clinical and research implications. It is apparent that longitudinal studies are necessary to develop a clearer understanding of the complex relationships between childhood adversity, stressful war events and multiple risk behaviors, given the limited role for PTSD in this sample. It is also important that future work examines how specific forms of abuse including physical, sexual, and emotional abuse occurring at different developmental stages affect multiple risk behaviors. In addition, future work should examine potential mediators of these relationships including social support, attachment, and psychopathology. Finally, there is a clear need for the development, assessment, and refinement of interventions targeting adolescents who engage in multiple risk behaviors that take into account both contextual and historical influences on these behaviors.

Chapter 4

To conclude, the present findings extend previous findings (Pat-Horenczyk et al., 2007; Schiff et al., 2007, 2012) suggesting that cumulative exposure to events during war and internalizing symptoms associated with such exposure are risk factors for involvement in multiple risk behaviors, not only during the exposure, but even 4 years later. The study identifies the connection between experiences in war and multiple risk behaviors and has implications for psychological assessment and early intervention for school-based adolescents post-war.

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War-related trauma exposure and multiple risk behaviors among school-going adolescents

Young, R. (2010). Trauma, attempted suicide, and morning cortisol in a community sample of adolescents. *Journal of Traumatic Stress, 23*, 288-291.



5

ATTACHMENT, POSTTRAUMATIC STRESS, DEPRESSION, AND ANXIETY SYMPTOMS AMONG SCHOOL-GOING ADOLESCENTS IN NORTHERN UGANDA: THE MODERATING ROLE OF WAR-RELATED TRAUMA*

* Based on Okello, J., Nakimuli-Mpungu, E., Musisi, S., Broekaert, E. & Derluyn, I. (submitted). Associations of attachment with internalizing symptoms among school-going post-war adolescents in Uganda: the moderating role of war-related trauma. Manuscript submitted for publication.

Abstract

Background: The association between attachment and mental health symptoms in adolescents in a post-conflict low resource setting has not been documented.

Methods: We investigated the relationship between parent and peer attachment and posttraumatic stress, depression and anxiety symptoms in a sample of 551 adolescents aged 13-21 years old. Attachment quality was assessed using the Inventory of Parent and Peer Attachment (IPPA). Post-traumatic stress, depression and anxiety symptoms were assessed using the Impact of Events Scale Revised (IES-R) and Hopkins Symptom Checklist for Adolescents (HSCCL-37A) respectively. Gender differences in attachment relationships were determined using independent t-tests. Multivariate logistic regression was used to assess whether attachment relationships were independently associated with posttraumatic stress, depression and anxiety symptoms. Hierarchical linear regression analyses were conducted to explore the moderating role of war-related trauma.

Results: Our analyses revealed gender differences in attachment to parents, with males reporting stronger attachment than females. Parental attachment was protective against depression and anxiety symptoms but not posttraumatic stress symptoms after adjusting for potential confounders. Alienation by parents was independently associated with an increase in these mental health symptoms while peer attachment was not associated with any of these symptoms. However, in situations of severe trauma, our analyses showed that peer attachment was significantly protective against post-traumatic stress symptoms.

Conclusions: Secure parental attachment is associated with better psychosocial adjustment in adolescents affected by war. Further, adolescents with secure peer attachment relationships in situations of severe war trauma may be less likely to develop posttraumatic stress symptoms. Interventions to enhance peer support in this post conflict setting would benefit this vulnerable population.

5.1 Introduction

There is worldwide recognition of adolescence as a period of rapid significant transformation in all aspects of functioning. Changes in psychosocial function include increasing reliance on peers for intimacy and social support and decreasing time spent with parents (Moretti & Peled, 2004). Nonetheless, several studies have shown that parental influence is important for psychosocial adjustment (Mikulincer & Shaver, 2012). The absence of secure parental attachment has been associated with more engagement in high risk behaviors and more mental health symptoms in adolescence (Sund & Wichstrom, 2002). Much of the information regarding the association between attachment and mental health symptoms is provided by research studies from developed countries. The extent to which this information would apply in say, a post-conflict, low resource country is unknown.

For example, the brutal civil war between the Ugandan government forces and the Lord's Resistance Army (LRA) rebels over a twenty year period targeted children and adolescents who were forcefully abducted and forced to commit atrocities (Amony-P'olak, Garnefski & Kraaij, 2007; Okello, Onen & Musisi, 2007). In post-war northern Uganda, established outcomes among adolescents include most commonly, posttraumatic stress disorder (PTSD), depression and anxiety (Derluyn, Broekaert, Schuyten & De Temmerman, 2004; Klasen, Oettingen, Daniels & Adam, 2010; Okello, Onen & Musisi, 2007) as well as risk behaviors (Okello, Nakimuli-Mpungu, Musisi, Broekaert & Derluyn, 2013). A growing body of evidence has shown that interfamilial violence, poverty and war-related trauma have an additive effect on these outcomes (Catani, Schauer & Neuner, 2008; Panter-Brick, Goodman, Tol & Eggerman, 2011).

Early research focused primarily on the effect of war-related factors including internal displacement, abduction, death of loved ones and loss of property on mental health. Subsequent research has emphasized the importance of identifying explanatory mechanisms and protective factors, such as social support, resilience, coping and attachment style (Betancourt, 2011; Betancourt, Brennan, Rubin-Smith, Fitzmaurice & Gilman, 2010; Cohen, 2008; Kliewer, Murrelle, Mejia, de Torres & Angold, 2001). The linkages between war exposure and adjustment in adolescents are dependent in part on interpersonal factors such as attachment (Mikulincer, Florian & Weller, 1993).

The extant research shows that females are more attached to their peers than males; whereas males are more attached to parents than females

(Gorrese & Ruggieri, 2012). In keeping with attachment theory, interactions with inconsistent, unreliable, or insensitive attachment figures interfere with the development of a secure, stable mental foundation; reduce resilience in coping with stressful life events; and predispose a person to break down psychologically in times of crisis (Bowlby, 1988). Although some studies found causal links in which psychological symptoms increase attachment insecurity, attachment insecurity can be viewed as a general vulnerability to mental disorders, with the particular symptoms depending on genetic, developmental, and environmental factors (Mikulincer, Shaver & Berant, 2012).

Stressful events have been found to moderate the relationship between attachment and mental health outcomes in a few of empirical researches (Mikulincer & Shaver, 2012). For example, findings from a recent study showed that stressful life events strengthened the association between attachment and mental health symptoms in adolescence (Mikulincer & Shaver, 2007). Another study has shown that childhood adversities influence the association between insecure attachment and depression (Whiffen, Judd & Atube, 1999). Luthar et al. suggested a more complex interactive process is useful to conceptualize protective and vulnerability processes (Luthar, Cicchetti & Becker, 2000). However, the extent to which insecure attachment is associated with mental health symptoms in post-conflict low resource setting like northern Uganda is unclear.

In this paper, first, we explore gender differences in attachment relationships. Second, we assess whether attachment relationships were independently associated with post-traumatic stress, depression and anxiety symptoms. Lastly, we explore the moderating role of war-related trauma in the association between attachment and mental health symptoms. We hypothesize that 1) there would be gender differences in attachment relationships, 2) that secure attachment (defined as high scores of attachment) would be significantly protective against mental health symptoms and 3) stressful war events would moderate the association between attachment and mental health symptoms.

5.2 Method

5.2.1 Ethics statement

This study was approved by the Ethics Committee at the faculty of Psychology and Educational Sciences of Ghent, Gulu University Research Ethics Committee, and the Uganda National Council of Science and Technology. Permission and informed written consent was obtained from all head teachers of participating secondary schools. Study participants less than 18 years old provided oral assent and those 18 years old and above provided informed written consent. Those who declined or withdrew participation were not required to give reasons. Study participants were given pens as a gift for participation and opportunities for support and referral for mental health services were available to all participants.

5.2.2 Study setting and population

Study participants were school-going adolescents recruited from seven out of fourteen government and private-operated secondary schools in Gulu district situated in northern Uganda. Prior to 2006 the district had experienced over 20 years of armed conflict between the Ugandan government and the LRA rebel group.

5.2.3 Study procedure

Study data were collected between August and September 2010. The eligibility criteria required participants to be in their second or third year of secondary education, aged between 13 and 21 years and had the ability to comprehend study procedures and provide informed consent. Research assistants reviewed the study questionnaires with local mental health staff and teachers to ensure local validity and were pretested. Research assistants distributed study questionnaires to students who were present in class on a given day and were eligible to participate in the study. All questionnaires were administered in English, the official language used in schools.

5.2.4 Study measures

5.2.4.1 Socio-demographic variables

A standardized socio-demographic questionnaire was used to obtain study participants' age, gender, ethnicity, living situation, marital status of parents and whether their parents were still alive or not.

5.2.4.2 Trauma exposure variables

Past childhood adverse events were assessed using the Adverse Childhood Exposure (ACE) questionnaire (Bruffaerts et al., 2010). Selected ACE items were used to examine six context-specific intra-familial childhood adversities: not growing up with parents, death of a parent, financial adversity (i.e. dependence on food aid for at least six months), and physical abuse by parents and by other adults, sexual abuse, and witnessing fights between the parents before the age of 13 years. The Cronbach α for this sample was 0.94 indicating good reliability. A total ACE score was computed for each participant and was modelled as a continuous variable in our analyses.

War-related trauma was measured using a locally developed Stressful War Events (SWE) questionnaire. This 17-item questionnaire was designed specifically for war-affected adolescents in this region, and included questions referring to a specific war-related traumatic event, such as "Did you experience living in an internally displaced persons' camp?"

5.2.4.3 Mental health variables

Post-traumatic stress symptoms were assessed using the Impact of Event Scale-Revised (IES-R) (Amone-P'olak, Garnefski & Kraaij, 2007), a 22-items scale consisting of three subscales of intrusion, avoidance and hyperarousal. The IES-R has already been administered in war-affected adolescent populations in northern Uganda and Africa (Mels, Derluyn, Broekaert & Rosseel, 2010; Weiss & Marmar, 1997). Respondents were asked to identify a specific event endorsed on the SWE questionnaire as a reference point for completing the IES-R, and indicate how much it distressed them in the past month by rating each item on a 5-point Likert scale from 0 (not at all) to 4 (extremely). The Cronbach α for this sample was 0.94 indicating good reliability. A total IES-R score was computed for each participant and was modeled as a continuous variable in our analyses.

Depression and anxiety symptoms were assessed using the Hopkins Symptom Checklist-37 for Adolescents (HSCL-37A, Bean, Derluyn, Eurelings-Bontekoe, Broekaert & Spinhoven, 2007), a self-report questionnaire that previously had been used in war-affected and refugee populations (Derluyn, Broekaert & Schuyten, 2008; Mels et al., 2010). Thirty-seven items inquire the severity of DSM-IV based symptoms associated with depression (15 items), anxiety (10) and externalizing problems (12), using a 4-point Likert scale from 1 (never) to 4 (always). The Cronbach's alphas for the depression and anxiety subscales were .83 and .78 respectively. Total depression and anxiety scores were computed for each participant and were modeled as continuous variables in our analyses.

5.2.4.4 Attachment to parents and peers

The quality of parental and peer attachment in adolescence was assessed using the Inventory of Parent and Peer Attachment (Armsden & Greenberg, 1987). The IPPA was developed in order to assess adolescents' perceptions of the positive and negative affective/cognitive dimension of relationships with their parents and close friends -- particularly how well these figures serve as sources of psychological security. The instrument is a self-report questionnaire with a five point Likert-type scale response format whereby each item has five possible responses ranging from "almost never true" to "almost always true". The revised version is comprised of 25 items in each of the mother, father, and peer sections, yielding three attachment scores. In each of these three sections, three broad dimensions are assessed: degree of mutual trust (sample item, "My mother/father/friend respects my feelings"); quality of communication (sample item, "When my mother/father/friend knows that something is bothering me, they ask me about it"); and extent of anger and alienation (sample item, "I don't get much attention from my mother/father/friends").

For brevity, and consistent with Gullone et al., the response scale was simplified to a three-point Likert scale of 3 (*almost always or always true*), 2 (*sometimes true*) and 1 (*almost never or never true*) (Gullone & Robinson, 2005). The Cronbach α in this study for the mother, father, and peer sections was 0.85, 0.88 and 0.75 respectively. Total scores of each section and the three dimensions were computed for each study participant. When the total score for each participant was computed, the Alienation subscale items were reverse-scored. Parent and peer attachment were treated as continuous variables in all analyses conducted.

5.2.5 Statistical analyses

First, we performed simple logistic regression analyses to explore any gender differences in maternal, paternal and peer attachment relationships. Second, we conducted multivariate logistic regression analyses in which the association between attachment and mental health symptoms including depression, anxiety and posttraumatic stress symptoms was examined, adjusting for age, gender, orphan status and adverse childhood experiences. Third, to evaluate the moderating role of war-related trauma on the association between attachment and mental health symptoms, we conducted three separate hierarchical binomial logistic regression analyses for each outcome.

5.3 Results

Of the 600 students approached to take part in the study, 551 (92%) completed the questionnaires. The mean age of the study participants was 16.7 (SD=1.34); age range 13 years to 21 years. The mean number of traumatic events experienced was 6.5 (SD=3.8) with a range of 0 to 17. Detailed baseline characteristics of the study population are presented in Table 1.

Table 1: Socio-demographic characteristics

Characteristic	Characteristic (subcategory)	N(%)
<i>Age category (years)</i>	13-16	251(45.55)
	≥16	300(54.45)
<i>Ethnicity</i>	Other	59(10.71)
	Acholi	492(89.29)
<i>Religion</i>	Non-Christian	21(3.81)
	Christian	530(96.19)
<i>Orphan status</i>	Has both parents	284(51.54)
	Lost one parent	182(33.03)
	Lost both parents	85(15.43)
<i>Living situation</i>	Lives alone	13(2.36)
	Lives with siblings	61(11.07)
	Lives with relatives	46(8.35)
	Lives with parents	431(78.22)
<i>Parental Marital Status</i>	Married	342(62.07)
	Divorced or Separated	91(16.52)
	Single	118(21.42)
<i>Number of Trauma events</i>	< 3 trauma events	93(16.88)
	3-6 trauma events	144(26.13)
	>6 trauma events	314(56.99)

Using simple logistic regression models, we found that there were significant gender differences with regard to maternal and paternal attachment (Table 2). Males reported stronger parental attachment than females. Male adolescents were more likely to have trust in mothers and more communication with fathers than female adolescents. Trust in fathers and communication with mothers was comparable across gender. Alienation to parents was more in females than males. There were no gender differences in peer attachments.

Table 2: Gender differences in Maternal, Paternal and Peer attachment relationships

	Males		Females		Total (N=551)		t
	Mean	SD	Mean	SD	Mean	SD	
Maternal							
Attachment security	36.29	7.00	33.65	8.94	35.01	8.10	3.74***
Trust	15.01	3.17	13.68	4.26	14.36	3.80	4.08***
Communication	13.18	3.03	12.69	3.61	12.94	3.34	1.62
Alienation	4.02	2.39	4.58	2.72	4.28	2.57	-2.37*
Paternal							
Attachment security	32.74	9.01	29.89	9.99	31.40	9.59	3.31***
Trust	13.38	4.18	12.71	4.67	13.07	4.43	1.67
Communication	11.99	3.91	10.74	4.32	11.39	4.15	3.25**
Alienation	4.59	2.89	5.57	2.84	5.05	2.90	-3.58***
Peer							
Attachment security	33.76	6.08	33.98	6.69	33.86	6.37	-0.37
Trust	14.92	3.11	14.76	3.64	14.84	3.37	0.59
Communication	11.50	2.70	11.89	2.78	11.68	2.74	-1.55
Alienation	7.24	2.09	7.11	2.14	7.18	2.11	0.66

* $p < 0.5$

** $p < 0.01$

*** $p < 0.001$

Table 3 presents the adjusted associations between attachment (parental and peer) and each of the three outcomes of depression anxiety and posttraumatic stress symptoms. Both paternal and maternal attachment was protective against depression ($\beta=0.09$, 95% CI=0.14--0.05, $p<0.001$ and $\beta=0.198$, 95% CI=0.27--0.12, $p<0.001$ respectively) and anxiety symptoms ($\beta=0.05$, 95% CI=0.08--0.02, $p=0.001$ and $\beta=0.11$, 95% CI=0.16--0.06, $p<0.001$ respectively), but not posttraumatic stress symptoms ($\beta=0.03$, 95% CI=0.15--0.09, $p=0.66$ and $\beta=0.02$, 95% CI=0.18--0.22, $p=0.86$ respectively), after adjusting for potential confounders.

Alienation by mothers was independently associated with an increase in depression ($\beta=0.50$, 95% CI=0.26–0.75, $p<0.001$) and anxiety ($\beta=0.26$, 95% CI=0.10–0.44, $p=0.002$), but not post-traumatic stress symptoms ($\beta=0.22$, 95% CI=-0.48–0.88, $p=0.52$), while alienation by fathers was independently associated with an increase in depression ($\beta=0.50$, 95% CI=0.28–0.72, $p<0.001$), anxiety ($\beta=0.30$, 95% CI=0.15–0.46, $p<0.001$), and post-traumatic stress symptoms ($\beta=0.58$, 95% CI=-0.02–1.18, $p=0.05$). Alienation by peers was not associated with any of these symptoms. Interestingly, trustful peer relationships were protective against depression symptoms ($\beta=-0.17$, 95% CI=-0.34–0.003, $p=0.05$), while communication with peers was associated with more posttraumatic stress symptoms ($\beta=0.73$, 95% CI=0.14–1.31, $p<0.015$).

Table 3: Multivariate linear regression model: The association between attachment relationships and mental health symptoms adjusted for sex, age, orphan status and adverse childhood events

	Depression symptoms scores		Post-traumatic stress symptom scores		Anxiety symptoms	
	β Coefficient	SE	β Coefficient	SE	β Coefficient	SE
Maternal						
Attach. security	-0.198	0.04***	0.017	0.105	-0.110	0.027***
Trust	-0.414	0.08***	-0.068	0.22	-0.232	0.06***
Communication	-0.3300	0.94***	0.349	0.26	-0.166	0.07**
Alienation	0.504	0.12***	0.215	0.34	0.268	0.09**
Paternal						
Attach. security	-0.094	0.02***	-0.027	0.06	-0.054	0.02***
Trust	-0.250	0.07***	0.245	0.19	-0.189	0.05***
Communication	-0.305	0.08***	-0.167	0.21	-0.253	0.05***
Alienation	0.504	0.11***	0.584	0.31*	0.302	0.08***
Peer						
Attach. security	-0.071	0.05*	0.134	0.12	-0.044	0.032
Trust	-0.169	0.09*	0.269	0.24	-0.072	0.06
Communication	-0.134	0.11	0.709	0.29**	-0.115	0.08
Alienation	-0.278	0.14	-0.410	0.37	-0.219	0.09

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Table 4 presents the results of the moderation analyses. Fig. 1 shows that when there are high levels of stressful war events (1 standard deviation above the mean total number of stressful war events) increasing levels of peer attachment are associated with decreasing post-traumatic stress symptom scores ($\beta = -0.17$, 95% CI= -0.48–0.14, $p = 0.28$). On the other hand, when there are low levels of stressful war events (1 standard deviation below the mean total number of stressful war events) increasing levels of

peer attachment are associated with increasing post-traumatic stress symptom scores ($\beta=0.32$, 95% CI=0.01- 0.64, $p=0.043$).

Table 4: Trauma severity moderates the association between peer attachment and post-traumatic symptoms

Model	Step	Independent variable	β	95% CI	P-value
A	1	Peer attachment	0.131*	-0.12 - 0.38	0.297
	2	Peer attachment	0.08	0.14 - 0.32	0.442
		Traumatic events total scores	2.28	1.82 - 2.73	0.001
3	Peer attachment	0.532	0.08 - 0.98	0.21	
	Traumatic events total scores	4.5	1.12 - 6.98	0.000	
	Peer attachment x traumatic events	-0.067	-0.12 - -0.008	0.026	

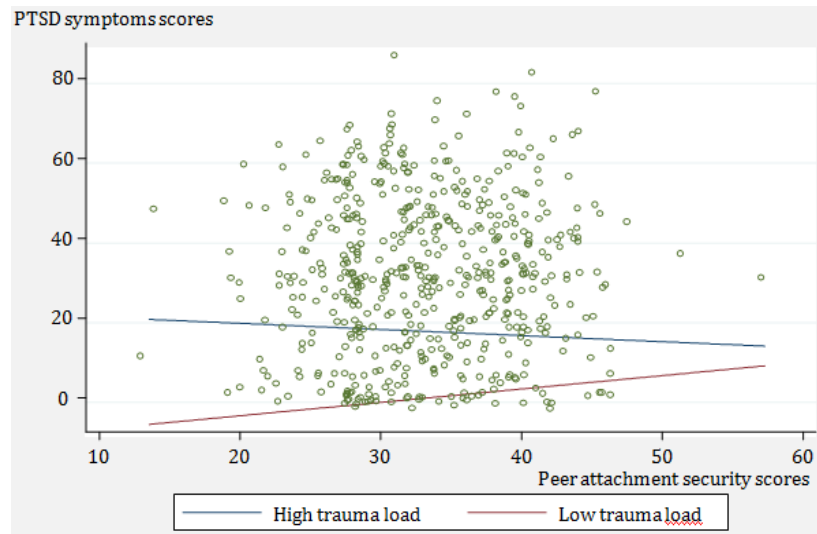
Abbreviations: CI, confidence interval

* β -coefficient adjusted for age, sex, orphan status and adverse childhood events

PTSD symptom scores were analyzed as a continuous variable

Peer attachment and traumatic events total scores were also treated as continuous variables centered at the mean.

Figure 1: Trauma severity moderates the association between peer attachment and post-traumatic stress symptoms



5.4 Discussion

The present study aimed to examine the association between attachment and mental health symptoms and to explore the moderating role of war-related trauma in this relationship. We found three major findings. First, there were gender differences in attachment. Overall, males were more attached to their fathers and mothers than females, consistent with findings among non-trauma samples (Gorrese & Ruggieri, 2012; Pace, Martini & Zavattini, 2011). Some researchers have reported that war trauma is especially more harmful to female than male relationships, possibly explaining the stability of male-parental attachment relationships (Peltonen, Qouta, El Sarraj & Punamaki, 2010).

Second, in keeping with our hypothesis, secure parental attachment was protective against both depression and anxiety symptoms. Contrary to the hypothesis, parental attachment was not associated with PTSD symptoms and peer attachment was not associated with any of the mental health symptoms. Specifically, the protective role of secure parental attachment against depression and anxiety symptoms is in keeping with what other studies have found (Kliewer et al., 2001; Sund & Wichstrom, 2002; Yi et al., 2012). It has been suggested that secure attachment, especially during adolescence may serve as a buffering system in the developmental stage of many internal and external pressures (Papini & Roggman, 1992; Petersen & Elklit, 2013) and that according to a diathesis-stress model, one would therefore expect to find an interaction between number of stressful war events and level of attachment (Sund & Wichstrom, 2002). Regarding the association between parental attachment and post-traumatic stress symptoms, our findings are similar to what other researchers have found. Some studies have shown that secure parental attachment is not a significant contributor to post traumatic stress (Costello, Erkanli, Fairbank & Angold, 2002; Petersen & Elklit, 2013). These researchers argue that adolescents receive greater social support following exposure to traumatic events and thereby manage to cope with the event in an adaptive way. Further, it has been observed that disclosure of painful traumatic experiences leads to resilience among traumatized children (Punamaki, Komproe, Qouta, El-Masri & de Jong, 2005). The inability to share painful traumatic experiences may therefore hinder the protective effects of parental attachment on PTSD symptoms.

Peer attachment was not protective against any mental health symptoms in our study sample. This finding is consistent with that of other researchers

who have found a more robust protective effect of parental attachment than peer attachment against mental health symptoms (Kliewer et al., 2001; Waldinger, Vaillant & Orav, 2007). Some researchers have explained that the stronger protective role of parents compared to peers is due to the stronger family ties that overrule other relationships, especially during threat. Alternatively, they suggested that the atmosphere of suspicion surrounding war makes adolescents less trustful of disclosing experiences and sharing emotions with peers (Peltonen et al., 2010). Feelings of alienation by parents, i.e. less secure attachment towards both parents, was associated with both depression and anxiety symptoms. It has been suggested that depressive cognitive schemata leads to feelings of rejection and distortion of the adolescent's feeling of being a person worthy of being loved (Sund & Wichstrom, 2002).

Lastly, in contrast to our hypothesis, war-related trauma did not moderate the association between parental attachment and any of the mental health symptoms but it moderated the association between peer attachment and PTSD symptoms. Specifically, peer attachment was significantly protective against PTSD symptoms in situations of severe trauma. This finding contradicts previous studies in which severe trauma was reported to diminish positive peer relationships in which feelings of safety and togetherness are created (Peltonen et al., 2010). A plausible explanation for this finding could be that the predominantly older adolescent population in this study would be more likely to seek social support and share emotions when facing traumatic events, which further can consolidate their friendships and protection from trauma specific post-traumatic stress symptoms (Peltonen et al., 2010).

We note that war-related trauma did not moderate the relationship between parental attachment and mental health. Regardless of the level of war-related trauma, parental attachment remained protective against depression and anxiety symptoms. Possible explanations for this could be that the adolescents and their parents maintain strong attachment bonds irrespective of the severity of trauma, thus countering the effect of the stresses the adolescents may face. It is unclear why war-related trauma would significantly moderate the association between peer attachment and PTSD symptoms but not others.

These study findings should be viewed within the context of the following study limitations. First, all measures were based on retrospective self-report data, subject to recall and social desirability biases. Second, because we did

not measure post-war stressors, we cannot rule out the influence of unmeasured aspects of the current psychosocial environment on the relation between attachment and mental health symptoms. Third, the sample was limited to school-going adolescents affecting generalizability. Fourth, the study was cross-sectional, making it impossible to conclude a causal or temporal relationship between attachment and mental health symptoms. Fifth, our measure of attachment may not have captured certain aspects of the attachment relationship unique to the African ethno cultural setting, including whether the attachment indices were socially relevant, given that attachment as a concept is understudied in the African context (Igreja, 2003).

Despite the above mentioned limitations, this study is the first to contribute to the scientific literature on attachment relationships and psychopathology in adolescents in a post-conflict low resource setting. Understanding the role of moderating influences is important for identifying individual differences in the influence of attachment on mental health and for targeting interventions that will hopefully improve mental health outcomes throughout the life span. Additional research is needed to develop more clearly the theoretical model concerning the relationships among war trauma, attachment, and psychosocial outcomes. In particular, there is a need to better understand the mechanism(s) through which attachment may serve as a protective factor against the negative effects of war-related trauma.

In conclusion, secure parental attachments are associated with better psychosocial adjustment in adolescents affected by war. Further, adolescents with secure peer attachment relationships in situations of severe war trauma may be less likely to develop posttraumatic stress symptoms. Interventions to enhance peer support in this post-conflict setting would benefit this vulnerable population.

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6

THE ROLE OF ATTACHMENT IN MODERATING ASSOCIATIONS BETWEEN DEPRESSION SYMPTOMS AND MULTIPLE RISK BEHAVIORS IN WAR-AFFECTED ADOLESCENTS*

* Based on Okello, J., Nakimuli-Mpungu, E., Musisi, S., Broekaert, E. & Derluyn, I. (submitted).
The role of attachment in moderating associations between depression symptoms and
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Abstract

Background: This paper examined whether the association of depression symptoms with multiple risk behaviors among 551 post-war adolescents in Northern Uganda is moderated by maternal attachment. Previous work had shown that depression symptoms mediated the relationship between war-related trauma exposure and multiple risk behaviors in the same sample (Okello, Nakimuli-Mpungu, Musisi, Broekaert & Derluyn, 2013).

Method: We analyzed data based on self-reports from school-going adolescents four years post-war. Interviews were completed assessing various risk behaviors (defined by the Youth Self Report (YSR) and a sexual risk behavior survey), depression symptoms (Hopkins Symptom Checklist for Adolescents (HSCL-37A)) and attachment to parents and friends (Inventory of Parent and Peer Attachment (IPPA)). Gender differences in attachment relationships were determined using logistic regression analyses. Hierarchical logistic regression analyses were conducted to explore the moderating role of attachment in the relationship between depression symptoms and multiple risk behavior.

Results: In moderation analysis, only maternal attachment moderated the link between depression symptoms and multiple risk behaviors. Specifically, the strength of the relationships between depression symptoms and multiple risk behaviors were greater for high maternal attachment than for low maternal attachment.

Limitations: The concurrent depressive symptoms might confound contemporaneous assessments of attachment security by distorting the recall of attachment-related memories.

Conclusion: These results suggest that, in general, maternal attachment served as a protective factor at low levels, while serving as additional risk factors at high levels in war-affected adolescents with depression symptoms. Generating positive affect in the face of a potential trauma may thus be a protective strategy for adolescents at risk for depression. The implications of these findings include designing interventions that address the particular contexts of multiple risk behaviors as well as further exploration of the role of attachment among adolescents in post-conflict settings.

6.1 Introduction

Associations between risk behaviors in adolescents and depression symptoms have been shown (Allen et al., 2007), although it is still unclear which moderating factors may be at play within these associations (Okello et al., 2013). Concurrently, developmental theorists have postulated a stable association between attachment and behavioral difficulties in later life (Ainsworth, 1989; Bowlby, 1969), a statement supported in later empirical studies (Mikulincer & Shaver, 2012; Sund & Wichstrom, 2002). These lines of research thus suggest that attachment and depression symptoms may be associated with multiple risk behavior outcomes. Further, attachment theory and research suggests that adolescent attachment may help explain the link between depression symptoms and risk behaviors because adolescent attachment has important connections to the development of mental health problems, such as symptoms of depression (Allen, Hauser, & Borman-Spurrell, 1996; Deklyen, 1993). However, little is known about whether attachment insecurity adds independently to the risk associated with depression symptoms, or if attachment insecurity and depression symptoms interact in predicting risk behaviors.

The burden of depression and risk behaviors amongst war-affected adolescents has been well documented (Okello, Onen & Musisi, 2007; Okello et al., 2013; Klasen, Oettingen, Daniels & Adam, 2010; Weierstall, Schalinski, Crombach, Hecker & Elbert, 2012). A growing body of research has begun exploring factors associated with both outcomes. Both depression and risk behavior have a tendency to develop and increase as adolescence progresses (Costello, 2003; Lewinsohn et al., 1993; Moffitt, 1993). Previous studies have linked risk behaviors such as aggression, suicidality, and substance abuse to intrafamilial adversity and war-related trauma, as well as to PTSD symptoms (Klasen et al., 2010; Kolltveit et al., 2012; Okello et al., 2013; Panter-Brick et al., 2011; Pat-Horenczyk et al., 2007; Schiff et al., 2012; Weierstall et al., 2012). A recent study amongst postwar school-going adolescents in Northern Uganda showed a rate of around 25% of multiple risk behavior, whereby the relationship between war-related trauma and multiple risk behavior was mediated by depression symptoms (Okello et al., 2013). This suggests that depression symptoms can be a critical factor in fostering risk behaviors.

Earlier studies addressed the effect of symptoms such as PTSD, depression and anxiety on later risk behaviors. Subsequent research emphasized the importance of explanatory factors such as attachment (De Zulueta, 2007; Punamaki et al., 2005). The quality of the mother-adolescent relationship is

linked strongly to attachment security (Allen et al., 2003; Kenny et al., 1998). Although the impact of maternal attachment may differ from that of paternal attachment (Grossmann et al. 2008; Paterson et al., 1994), parental attachment plays a buffering role on the negative effects of depression symptoms in the early stages of many internal and external pressures (Allen et al., 1998; 2007; Kenny et al., 1998; Papini & Roggman, 1992). Similarly, studies have linked insecure attachment to risk behaviors, such as anger (Armsden & Greenberg, 1987; Allen et al., 1999), antisocial behavior (Marcus & Betzer, 1996), cannabis use (McGee, 2000), and school dropout (Wichstrøm, 1998). However, only two studies (Aspelmeier et al., 2007; Whiffen et al. 1999) have provided a direct test of attachment as moderator hypothesis in non-war affected trauma samples. With regards to the interaction, questions about developmental sequelae associated with insecure attachment and depression symptoms remain contentious. War-related experiences may lead to insecure attachment, but longitudinal research suggests that the impact of mental health symptoms on attachment could overshadow the role of attachment on mental health over the long-term (Currie et al., 2012; Mikulincer et al., 2011). However, although insecure attachment may follow depression symptoms (Allen et al., 1996), most studies have suggested that depressive symptoms are more likely to result from insecure attachment than vice versa (Armsden & Greenberg, 1987; Jinyao et al., 2012; Sund & Wichstrom, 2002) while others have found that higher levels of insecure attachment are significantly associated with higher levels of current depression (Muris, Mayer & Meesters, 2000). Further, Aspelmeier and colleagues (2007) found that individuals with lower attachment security appeared less reactive to the effects of depression symptoms than individuals who reported no such symptoms. Thus, there is evidence to suggest that secure attachment acts both as risk and protective factor (Currie et al., 2012).

The central purpose of the present study was to examine attachment as a possible theoretically important moderator of the association between depression symptoms and multiple risk behaviors in a school-going sample of war-affected adolescents. Our earlier paper in the same sample had shown that depression symptoms mediated the association between war-related trauma and multiple risk behaviors (Okello et al., 2013). We chose to focus on depressive symptoms because of depression's status as one of the most prevalent mental health conditions in post-war adolescents, and on multiple risk behaviors because of the clustering of risk behaviors and significantly high levels of it in post-war adolescents. In addition, we felt that it was important to consider paternal, maternal and peer attachment separately as protective factors, to explore their potential differential roles.

We chose to explore the moderating role of attachment in such a way that we could explore its effects at different levels of depression symptoms. For example, it is possible that attachment may be more protective in situations of higher risk, such as when symptoms of depression are high. Conversely, it may be that if risk is too high, security of attachment is no longer protective. The present paper therefore examines how attachment may moderate the links between depression symptoms and multiple risk behaviors in a school-going sample of adolescents.

6.2 Method

6.2.1 Study setting and population

Study participants were school-going adolescents recruited from seven out of fourteen government and private-operated secondary schools in Gulu district situated in northern Uganda. Prior to 2006 the district had experienced over 20 years of armed conflict between the Ugandan government and the rebel group Lord's Resistance Army (LRA).

Study data were collected between August and September 2010. The eligibility criteria required participants to be in their second or third year of secondary education, aged between 13 and 21 years, with the ability to comprehend study procedures and to provide informed consent.

Research assistants reviewed the study questionnaires with local mental health staff and teachers to ensure local validity, and all questionnaires were pretested.

Class teachers were asked to distribute study questionnaires to students who were present in class on a given day and were eligible to participate in the study. All questionnaires were administered in English, the official language used in schools. Those who declined or withdrew participation were not required to give reasons. The questionnaires were anonymous and self-administered during regular school hours, and took approximately an hour to complete. The adolescents were given pens as a gift for participation and opportunities for support and referral for mental health services were available to all participants.

The research protocol was approved by Gulu University Research Ethics Committee, the Ethics Committee at the faculty of Psychology and Educational Sciences of Ghent as well as the Uganda National Council of Science and Technology.

6.2.2 Measures

In a *socio-demographic questionnaire*, participants reported their age, gender, ethnicity, living situation, marital status of parents and whether their parents were still alive or not.

Past *childhood adverse events* were assessed using the Adverse Childhood Exposure (ACE) questionnaire (Bruffaerts et al., 2010). The ACE examines six context-specific intra-familial childhood adversities: not growing up with parents, death of a parent, financial adversity (i.e. dependence on food aid for at least six months), physical abuse by parents and by other adults, sexual abuse, and witnessing fights between the parents before the age of 13 years. A total ACE score was computed for each participant and was modelled as a continuous variable in our analyses.

Traumatic war exposure was measured using the Stressful War Events (SWE) questionnaire (Derluyn, Vindevogel, Coppens, Loots, & Broekaert, 2009). This 17-item questionnaire was designed specifically for war-affected adolescents in this region, and included questions referring to a specific war-related traumatic event, such as "Did you experience living in an internally displaced persons camp?"

Depression symptoms were assessed using the 37-item Hopkins Symptom Checklist-37 for Adolescents (HSCL-37A) (Bean et al., 2007), a self-report questionnaire that previously had been used in war-affected and refugee populations (Derluyn et al., 2008; Mels et al., 2010). Fifteen items inquire the severity of DSM-IV based symptoms associated with depression, using a 4-point Likert scale from 1 (never) to 4 (always). The Cronbach's alpha for the depression subscale was .83. Total depression scores were computed for each participant and were modeled as a continuous variable in our analyses.

In this study, we composed a multiple risk behavior score, composed of items inquiring aggressive behavior, rule-breaking behaviour, suicidality, substance use and risky sexual behavior.

Aggressive and rule-breaking behaviors were measured using the aggressive and rule-breaking behavior syndrome scales of the Youth Self Report (YSR) (Achenbach, 1991). Total scores for each study participant were computed. Binary variables were created whereby study participants whose total scores were greater than the mean score for the study sample were regarded as having high levels of aggression or rule-breaking behavior (coded 1) and study participants whose total scores were less than the mean score of the study sample were regarded as having low levels of aggression or rule breaking (coded 0).

Suicidal behavior was assessed using two items from the YSR: “I deliberately try to hurt or kill myself” and “I think about killing myself”. A binary variable was created whereby study participants who endorsed either of the two items were regarded as having suicidal behaviour (coded 1) and study participants who did not endorse any of the two items were regarded as not having any suicidal behavior (coded 0).

Substance use was assessed using three items of the YSR: “I drink alcohol without my parents’ approval”, “I smoke, chew or sniff tobacco”, and “I smoke or chew marijuana.” Study participants who endorsed any one of the three items were regarded as having substance use behavior (coded 1), while those who did not endorse any of the three items were regarded as not having substance use behavior (coded 0). The YSR-items are rated based on the preceding month, on a 3-point Likert scale ranging from 0 (*not true*) to 2 (*very true*).

Assessment of *sexual risk behavior* was based on a single question about whether one was sexually active or not. Given that in the Acholi-culture adolescents are not expected to be having sex, those who were sexually active were regarded as being at risk for HIV-infection and other sexually transmitted diseases. We created a binary variable in which individuals who were sexually active were coded 1 and those who did not report any sexual activity were coded 0.

Study participants who had three or more of the following risk behavior categories: sexual risk behavior, high levels of aggression, high levels of rule-breaking behaviour, suicidal and substance use behaviors, were regarded as having *multiple risk behaviors* (coded 1), while those who had less than three categories of these risk behaviors were regarded as not having multiple risk behaviors (coded 0).

The quality of *parental and peer attachment* in adolescence was assessed using the Inventory of Parent and Peer Attachment (IPPA) (Armsden & Greenberg, 1987). The IPPA was developed in order to assess adolescents’ perceptions of the positive and negative affective/cognitive dimension of relationships with their parents and close friends, particularly how well these figures serve as sources of psychological security. The instrument is a self-report questionnaire with a five point Likert-type scale response format whereby each item has five possible responses ranging from “almost never true” to “almost always true”. The revised version is comprised of 25 items in each of the mother, father, and peer sections, yielding three attachment scores. In each of these three sections, three broad dimensions are assessed: degree of mutual trust (sample item, “My mother/father/friend respects my feelings”); quality of communication (sample item, “When my mother/

father/friend knows that something is bothering me, they ask me about it”); and extent of anger and alienation (sample item, “I don't get much attention from my mother/father/friends”). For brevity, and consistent with Gullone et al. (2005), the response scale was simplified to a three-point Likert scale of 3 (*almost always or always true*), 2 (*sometimes true*) and 1 (*almost never or never true*). The Cronbach α in this study for the mother, father, and peer sections was 0.85, 0.88 and 0.75 respectively. Total scores of each section and the three dimensions were computed for each study participant. When the total score for each participant was computed, the Alienation subscale items were reverse-scored. Parent and peer attachment were treated as continuous variables in all analyses conducted.

6.2.3 Analyses

First, we performed simple logistic regression analyses to explore gender differences in maternal, paternal and peer attachment relationships. Second, to evaluate the moderating role of attachment on the association between depression symptoms and multiple risk behavior, we conducted three separate hierarchical binomial logistic regression analyses for each type of attachment. Moderator relationships are indicated by the presence of a significant interaction between the proposed moderator (attachment) and the independent variable (depression symptoms; Baron & Kenny, 1986). Following the procedures outlined by Aiken and West (1991), each depression \times attachment interaction was tested separately using a three step hierarchical regression approach where depression symptoms were entered in the first step, depression symptoms and the respective attachment variables in the second step, and the interaction term (product of depression symptoms and respective attachment variable) entered in the third step. If the interaction term in the third step is significant, a moderated relationship exists.

6.3 Results

Of the 600 students approached to take part in the study, 551 (92%) completed the questionnaires. The mean age of the study participants was 16.7 years ($SD=1.34$; range 13-21). The mean number of traumatic events experienced was 6.5 ($SD=3.8$; range 0-17). Detailed baseline characteristics of the study population are presented in Table 1. Gender differences in specific risk behaviors have been described elsewhere (Okello et al., 2013).

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Using simple logistic regression models, we found that there were significant gender differences with regard to maternal and paternal attachment (Table 2). Males reported stronger parental attachment than females. Male adolescents were more likely to have trust in mothers and more communication with fathers than female adolescents. Trust in fathers and communication with mothers was comparable across gender. Alienation to parents was more in females than males. There were no gender differences in peer attachment.

Table 1: Socio-demographic characteristics, mental health symptoms, multiple risk behaviors and war related exposure among school-going war-affected adolescents by gender

	Total (N=551)	Females (N=267)	Males (N=284)	OR (95% CI)
Age (Mean, SD)	16.72(1.33)	16.41(1.25)	17.00(1.35)	0.59(0.37-0.81)**
Ethnicity				
Other	59(10.71)	28(10.49)	31(10.92)	1
Acholi	492(89.29)	239(89.51)	253(89.08)	0.96(0.56-1.64)
Religion				
Non-Christian	21(3.81)	12(4.49)	9(3.17)	0.91(0.73-1.14)
Christian	530(96.19)	255(95.51)	275(96.83)	1
Orphan status				
Has both parents	284(51.54)	131(49.06)	153(53.87)	1
Lost one parent	182(33.03)	87(32.58)	95(33.45)	0.93(0.64-1.36)
Lost both parents	85(15.43)	49(18.35)	36(12.68)	0.63(0.38-1.03)*
Living situation				
Lives alone	13(2.36)	1(0.37)	12(4.23)	1
Lives with siblings	61(11.07)	32(11.99)	29(10.21)	0.07(0.01-0.72)**
Lives with relatives	46(8.35)	26(9.74)	20(7.04)	0.06(0.01-0.67)**
Lives with parents	431(78.22)	208(77.9)	223(78.52)	0.09(0.01-0.71)**
Parental Marital Status				
Married	342(62.07)	159(59.55)	183(64.44)	1
Divorced or Separated	91(16.52)	55(20.6)	36(12.68)	0.57(0.35-0.91)**
Single	118(21.42)	53(19.85)	65(22.89)	1.07(0.69-1.62)
Trauma Exposure				
Adverse Childhood Events scores (Mean, SD)	2.49(1.45)	2.67(1.52)	2.33(1.37)	0.34(0.10-0.5)**
Stressful war events scores (Mean, SD)	6.59(3.65)	6.84(3.85)	6.37(3.46)	0.46(-0.15- 1.07)**
Number of risk behaviors				
0 (no risk behavior)	154(27.95)	67(25.09)	87(30.63)	1

1 (one risk behavior)	156(28.31)	78(29.21)	78(27.46)	0.77(0.49-1.21)
2 (dual risk behavior)	102(18.51)	50(18.73)	52(18.31)	0.8(0.48-1.32)
3-5 (multiple risk behaviors)	139(25.23)	72(26.97)	67(23.59)	0.72(0.45-1.14)
Mental health variable				
Depression total scores (Mean, SD)	28.56(7.22)	30.49(7.34)	26.76(6.63)	3.74(2.56-4.90)***

N (%); *Mean difference (95% CI); * $p < 0.05$, ** $p < 0.10$; OR: Odds Ratio; CI: Confidence Interval

Table 2. Gender differences in maternal, paternal and peer attachment

	Females (N=267)	Males (N=284)	Total (N=55)	t
Maternal attachment				
Attachment total scores	36.29(7.00)	33.65(8.94)	35.01(8.10)	3.74***
Trust	15.01(3.17)	13.68(4.26)	14.36(3.80)	4.08***
Communication	13.18(3.03)	12.69(3.61)	12.94(3.61)	1.62
Alienation	4.02(2.39)	4.58(2.72)	4.28(2.57)	-2.37*
Paternal attachment				
Attachment total scores	32.74(9.01)	29.89(9.99)	31.40(9.59)	3.31***
Trust	13.38(4.18)	12.71(4.67)	13.07(4.43)	1.67
Communication	11.99(3.91)	10.74(4.32)	11.39(4.15)	3.25**
Alienation	4.59(2.89)	5.57(2.84)	5.05(2.90)	-3.58***
Peer attachment				
Attachment total scores	33.76(6.08)	33.98(6.69)	33.86(6.37)	-0.37
Trust	14.92(3.11)	14.76(3.64)	14.84(3.37)	0.59
Communication	11.50(2.70)	11.89(2.78)	11.68(2.74)	-1.55
Alienation	7.24(2.09)	7.11(2.14)	7.18(2.11)	0.66

Mean (SD); * $p < 0.05$, ** $p < 0.10$, *** $p < 0.001$

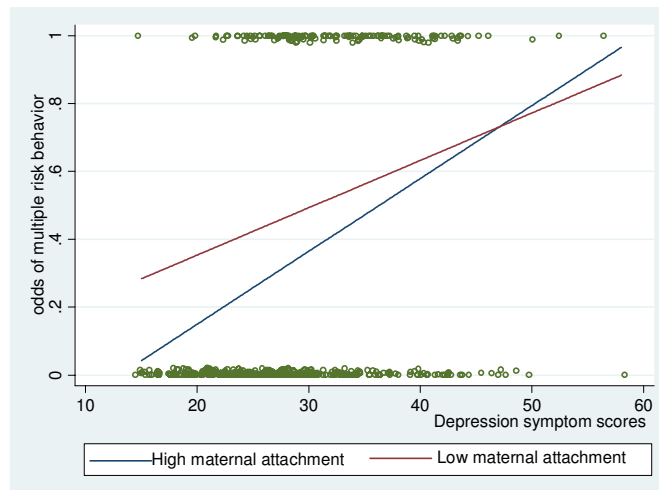
Three separate hierarchical binomial logistic regression analyses were conducted to evaluate the moderating role of maternal, paternal and peer attachment on the association between depression symptoms and multiple risk behavior. Given that only maternal attachment showed significant results, only these findings are presented (table 3): maternal attachment significantly moderated the relationship between depression symptoms and multiple risk behaviors, with a greater strength of the relationship between depression symptom and multiple risk behaviors for low maternal attachment scores than for high maternal attachment scores, and a significant slope for low scores of maternal attachment (figure 1).

Table 3: Hierarchical regression analyses: maternal attachment moderates association between depression symptoms and multiple risk behavior

Model	Step	Independent variable	$\beta^{\#}$	95% CI	P
A	1	Depression	0.10	0.06 - 0.13	0.000
	2	Depression	0.092	0.06 - 0.12	0.000
		Maternal attachment	-0.042	-0.069 - -0.015	0.002
	3	Depression	-0.057	-0.015 - 0.09	0.251
		Maternal attachment	-0.192	-0.29 - -0.09	0.000
		Depression x Maternal attachment	0.004	0.002 - -0.007	0.002

β -coefficient adjusted for age, sex, orphan status, war-related traumatic events and adverse childhood events; CI: confidence interval

Figure 1: Moderating role of maternal attachment in the association between depression and multiple risk behavior



6.4 Discussion

The study aimed to examine the moderating role of maternal, paternal and peer attachment in the relationship between depression symptoms and multiple risk behaviors among post-war adolescents. The central study findings were that only maternal attachment moderated the link between depression symptoms and multiple risk behaviors, consistent with the notion that secure maternal attachment only plays a protective role in some situations (Greenberg, Speltz & Deklyen, 1993). It is interesting that low maternal attachment security emerged as a protective factor primarily in the context of high depression symptoms (as opposed to low depression symptoms). Such data, although necessarily tentative, suggest that those adolescents characterized by low maternal attachment may be less vulnerable to the deleterious effects of depression on multiple risk behaviors when depression symptoms are high.

These findings can be interpreted in several ways. It has been suggested that attachment may be more protective in situations of lower risk, such as when depression symptoms are low. Conversely, in situations of high depression symptoms such as in clinical samples, the protective effects of secure attachment is lost or overwhelmed (Woodhouse et al., 2010). Given the high burden of depression and anxiety among post-war females, it is also possible that if a mother has symptoms of anxiety or depression, the adolescent may consider the mother as being difficult to approach or threatening. Insecure adolescents may then respond to this sense of threat with depressive symptoms because they lack a sense that they can turn to others when needed, and withdraw socially. As such they are less likely than securely attached adolescents to socialize with their peers and thus enact/participate in risk behaviors (Woodhouse et al., 2010). On the other hand, secure maternal attachment was not protective in the context of higher depression symptoms because depressive symptoms, if present in the parent, tends to interfere with the adolescent's trust that the parent will be available if needed to provide protection or support (Woodhouse et al., 2010). Thus, adolescents with secure attachments may give up in the face of such parental immobilization and experience depressive symptoms (Woodhouse et al., 2010). Moreover, the fact that multiple risk behaviors were linked to high maternal attachment is consistent with the idea that attachment security may not be protective in the context of depressive symptoms in the parents, because these depressive symptoms interfere with parental availability to the adolescents (Campbell et al., 2004; Woodhouse et al., 2010). Finally, an alternate model for the moderating effects in the present data could be that the parents of secure adolescents

become anxious themselves in response to the symptoms they observe in their children (Larson & Richards, 1994). Further research is needed to explore these possibilities.

The second main finding of this study was that the association between depression symptoms and multiple risk behaviors was not moderated by paternal and peer attachment, underscoring the importance of maternal attachment (Allen et al., 2003; Markiewicz, Lawford, Doyle & Haggart, 2006). Observational data indicate that adolescents engage in more emotionally charged and intimate interactions, both positive and negative with their mothers than with fathers (Larson & Richards, 1994; Youniss & Smollar, 1985). Alternatively, it may be that the severity of the war-related outcomes found in our sample is too low for the protective effects of general models of attachment to father and peers to be evident. In particular it could be that the school-going sample represents a population where individuals experiencing severe symptoms and risk behaviors have been screened out (for example, out of school). In out-of-school adolescents, there may be more variability in psychosocial functioning and the protective effects of attachment may then become more apparent. Finally, it may be that the level of attachment specificity assessed by the IPPA measure is too general to identify the protective effects of attachment security (Bosman et al., 2006).

These results should be viewed within the limitations inherent in a cross-sectional design, that could be addressed by longitudinal, prospective studies, such as social desirability and recall biases of retrospective self-report data, and the limited ability to address the directionality of the observed effects (insecure attachment has also been interpreted as a consequence of mental health problems) (Allen et al., 1996, 2007; Thoits, 1982). Given that the sample were school-going adolescents, results may not be generalizable to other adolescent groups. Although stable and possibly formed early in life, attachment patterns may change through the life course (Ainsworth, 1989), as well as in conflict situations due to severe trauma (Haskuka et al., 2008; Mikulincer et al., 1993).

This paper has important implications that can be extended in several important ways. Because attachment security may play a role in buffering the effects of depression symptoms on adolescent multiple risk behaviors, professionals need to assess for the stability attachment when adolescents report depression symptoms. Moreover, adolescents living with depressed parents may benefit from other sources of interpersonal supports that could potentially protect them from the negative effects of parental symptoms. Because the buffering effects of attachment security in the context of

multiple risk behavior seem to disappear if the adolescent shows high depressive symptoms, efforts to improve attachment may prove difficult. In such cases, clinical attention to the adolescent's symptoms may be more helpful. In addition, helping adolescents to build multiple sources of support may also help to reduce mental health symptoms (Hammen et al., 2008). Although the current inquiry provides support for the preposition that the links between attachment security and multiple risk behaviors should be conceptualized in terms risk-resilience terms, there is still much scope for greater understanding of the specific manner in which socio-contextual risks and attachment security interact (Belsky & Fearon, 2002). It will also be important to examine these processes in more at-risk and clinically symptomatic adolescent samples, with a more representative measure of attachment, such as observation. Longitudinal studies will allow examination of whether attachment continues to play the same roles over time, and specifically for peer, paternal and maternal attachment. It is likely that a greater degree of specificity, with respect to putative causal mechanisms, will also point to reasons why links between attachment security and multiple risk behaviors are not conditional on contextual risk. Whatever the specific mechanisms turn out to be, increased attention to proximal processes is called for if we are to understand the developmental events that lead to multiple risk behaviors. Furthermore, a better understanding of the specific psychological and social mechanisms by which individual differences in attachment are translated into multiple risk behaviors in adolescents may also shed further light on the reasons why, in some instances and under some circumstances, otherwise anticipated associations do not emerge (Belsky & Fearon, 2002).

In conclusion, the present findings extend previous data (Bowlby, 1969, 1982) suggesting that the association between depression symptoms and multiple risk behaviors is attenuated by psychosocial factors, including but not limited to attachment. The study identifies important links between attachment and depression symptoms and has implications for the psychological assessment and attachment-based interventions for post-war adolescents with depression and multiple risk behaviors.

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Chapter 6

Youniss, J., & Smollar, J. (1985). *Adolescent relations with mothers, fathers, and friends*. Chicago: University of Chicago Press.

7

A QUALITATIVE EXPLORATION OF SOCIAL RELATIONSHIPS FROM THE PERSPECTIVE OF WAR-AFFECTED ADOLESCENTS IN UGANDA*

* Based on Okello, J., De Nutte, L., Musisi, S., Broekaert, E. & Derluyn, I. (submitted). A qualitative exploration of social relationships from the perspective of war-affected adolescents in Uganda. Paper submitted for publication.



Abstract

While it has been established that attachment and social support are salient factors with regard to war-related trauma/adversity and later psychosocial problems, there is a dearth of information on adolescents' thoughts and feelings about the nature and significance of relationships with significant others.

Aim: The exploratory cross-sectional study examined the nature and influence of social relationships with significant others from the perspective of adolescents living in post-war northern Uganda. Specifically we sought to measure perceived security to significant others and social support expectations.

Methods: Semi-structured interviews were conducted, in a clinical setting, with 20 adolescents aged 12-21 years who had been consecutively recruited from a mental health unit and school, in Gulu district, northern Uganda.

Results: In 12 of 20 cases, while growing up, the mother was the most important, and a primary biological family member was first and second in importance to the upbringing of the adolescent. Extended family, peers and other members of the social network took on importance furthest to the adolescent. Trust, communication, love, respect, support and togetherness were the most important perceived need of adolescents. The primary biological family was the most important in providing instrumental and emotional support, peers in providing social support, and the social support network (including school, church and community members) in providing spiritual support. The most important kind of support during the adolescents' upbringing was spiritual support, followed in order of importance by instrumental, emotional and social support. The most important current need included instrumental support, followed by spiritual, emotional and social support.

Conclusions: Key attachment-related constructs emerged as well as the roles of different kinds of support in influencing relationships perceptions among adolescents. The findings illuminate the relationship between these factors and implications for future research and work with this population.

7.1 Introduction

Researchers continuously strive to understand the factors associated with post-war outcomes (Betancourt et al., 2012). Recently, a proliferation of theoretical and empirical work suggests that social support and attachment are key intervening factors in how adolescents deal with war-related traumatic events (Al-Krenawi et al., 2009; Betancourt et al., 2012; Haskuka et al., 2008), with parent-child relationships, and in particular attachment, considered as important sources of social support and as key protective factors for adolescents' mental health (see e.g. Derluyn, Schuyten, Broekaert & De Temmerman, 2004). Indeed, according to Bowlby (1969), the attachment relationship represents a 'special type of social relationship'.

Social support is referred to as "social interactions that provide individuals with actual assistance and embeds them into a web of social relationships perceived to be loving, caring, and readily available in times of need" (Kaniasty, 2005, p. 1). Within this definition, three major aspects of social support can be distinguished: (1) received support or the actual help one receives; (2) perceived support or the belief that one will be helped if needed; and (3) social embeddedness or the type and quality of the relationships that one has with others.

In the literature, several subdivisions concerning social support have been proposed. For instance, according to Cohen and Wills (1985), social support includes four principal categories: informative, instrumental, emotional, and companionship support. First, informative support refers to providing information, advice and guidance, and helping the individual to understand and cope with difficult events. Second, instrumental support takes the form of material aid, alleviating pressure by providing a direct response to instrumental needs. Third, emotional support refers to interactions in which the individual is appreciated, accepted and valued, with as chief manifestation the generation of the feeling that one is appreciated and loved, and that others are available to turn to for help in times of distress. Fourth, companionship support denotes the relationships that one maintains with those who are nearest and dearest, which furnish a sense of security and belonging, and help to reduce one's sense of pressure by improving mood or diverting attention from worrying about one's situation (Cohen & Wills, 1985).

Social support also refers to the network of people with whom an individual has personal, social and familial relationships (Sarason, Sarason & Pierce, 1990). Hereby, it is urged that both the source of social support and the recipient-provider relationship must be differentiated, in particular given

supposed cultural and contextual differences in how social support and support providers are perceived (Llabre & Hadi, 1997). Hereby, studies have suggested that Western societies tend to see individuals as responsible for mishaps that happens to them, while in the Middle Eastern and African societies, communities and families shoulder the burden of responsibility (Musisi, 2005). Further, some scholars suggest that Western individualistic society's sense of who one is tends to be closely intertwined with the internal representation of one's early attachment figures and later on with one's role as an individual in society (De Zulueta, 2009). In most African societies, shame plays a big role in the individual's emotional and social development and the formation of his or her sense of identity takes place within relationships with family and community (Ntukula, 2004). Studies examining adolescents' views on social support relationships need therefore to take into account particular conceptual, cultural and contextual formulations.

War and armed conflict challenge individual's mental health through traumatic experiences and ongoing daily stressors in both conflict and post-conflict situations (Betancourt & Khan, 2008). Moreover, organized violence puts pressure on social networks, destroying the core social fabric through encouraging s atrocities (e.g. child soldiering, rape as weapon of war), killing thousands of civilians, including parents, and the forced displacement of large groups, leading to many children ending up without parental care (Strang & Ager, 2003). Even in post-conflict situations, restoration of social networks remains challenging, because, amongst others, there is ongoing stigmatization of particular groups, e.g. child soldiers and victims of sexual violence, ongoing feelings of revenge, persistent daily stressors and disrupted social support (Betancourt et al., 2012; Klasen et al., 2010; Vindevogel et al., 2013).

Given the dearth of information on influence and roles of social relationships this study aims to unravel adolescents' perceptions of social relationships, including the roles these relationships play in their daily lives, in a post-conflict African setting. We thus included adolescents admitted in a mental health clinic, since a clinical setting represents an interesting social context for studying perceived security in relationships, social connectedness, and social support options and needs with reference to significant others. The restructuring of social ties that is necessitated by contact with a mental health service and the lack of data on the influence of relationships amongst a clinical sample further underscores the need to focus on a clinical group of adolescents.

7.2 Method

The current study was conducted in September-October 2012 in Gulu district, northern Uganda. This area is currently in transition after two decades of a complex armed conflict between the Lord's Resistance Army (LRA) and the government of Uganda (see e.g. Kisseka-Ntale, 2007).

Interviews were conducted to investigate the lived experiences and perspectives on social support of war-affected adolescents who sought mental health services from a nonprofit mental health unit or school mental health program in Gulu town. Criterion sampling (Patton, 2001) was used to include participants who received mental health services at the Gulu Mental Health Unit (GMHU) in northern Uganda. Also, a random primary school was chosen which was part of the mental health school program of the GMHU. A convenience sample was chosen from this school. Overall, a maximum variation strategy made sure we included adolescents which differed regarding to, particularly, sex and age. These sampling strategies were ensured through continuous feedback between the main interviewer (LDN), who oversaw the socio-demographic information on the participants, and the second interviewer, a psychiatric nurse working at the GMHU. A written informed assent or consent was obtained from all participants as well as their guardians. The participants did not receive any compensation for their participation in this study, except transport refund.

All together 23 adolescents from Gulu district aged between 15-21 years were approached for in-depth interviews. Two adolescents declined to participate saying they did not have time and one refused to participate, which resulted in a total of 20 interviews, 12 males and 8 females (table 1).

Table 1: Sociodemographic information

	Number of participants
Gender	
Male	12
Female	8
Age	
10-13	2
14-16	7
≥17	11
Schooling	
Primary school	9
Secondary school or secondary school drop-outs	11
Tribe	
Acholi	17
Langi	3
Religion	
Catholic	8
Protestant	6
Born Again	6
Living situation	
With biological parent(s)	10
With relative	5
In boarding school	5
Number of people in the household (including participant)	
1-4	6
5-8	9
≥9	5
Marital status of parents	
Married or living together	8
Separated or divorced	6
One of the parents died or disappeared	6

An interview with open-ended questions was administered. Open questions enable the participants to talk freely about all kinds of social support, without pre-structuring certain sources of support. First, some socio-demographic characteristics were questioned, after which open-ended questions explored adolescents' perspectives on different kinds of social support, hereby addressing following themes: (1) the most important parent or caregiver while growing up, visually supported by the exercise "Circles of Trust" (Blaustein & Kinniburgh, 2010) whereby the adolescents could place figures out of his/her environment in circles which represented the importance of a certain figure; (2) family closeness, relationships, and importance of proximity while growing up; (3) nature, source and quality of received support; and (4) perceived attachment qualities. All questions

were carefully designed by the bicultural research team to ensure inclusion of all possible relevant views on and sources of social support.

The interviews were either conducted in English, either in Luo, the local language, always in presence of an English speaking researcher (LDN) and a trained bilingual translator. Interviews took place in a confidential setting, chosen by the participants (mental health unit: n=15; primary boarding school: n=5), and were, after consent, audiotaped and later on literally transcribed. The average time for completing the interviews was 55 minutes (range 43-146 minutes).

The study was approved by the Ethical Committee of the Faculty of Psychology and Educational Sciences of Ghent University, and by Gulu University Research Ethics Committee, as well as by the Uganda National Council of Science and Technology.

7.2.1 Data analysis

The Luo version of the in-depth interview records was translated into English, and then, firstly, interpreted by three persons (LDN, JO and ID) independently. Following the method of inductive thematic analysis (Braun & Clarke, 2006), a tree structure was developed after careful revision of the interview records and intensive discussions between the three coders. First, the research data was coded line-by-line and assigned a coding. Then, patterns among these codings were abstracted, forming themes, and all the data under the codings were moved under these themes. After reviewing the content of the themes, against each other and the original data set, they were labelled and reported using excerpts. To support the data management during analysis, a software application for analyzing qualitative data, NVIVO 9 (QSR International, 2011), was used.

7.3 Results

A thematic analysis was designed in such a way that the themes represent aspects in the reciprocal relationship between the adolescents and his/her most important caregiver. The results shown here reflect the most important influence on the adolescents while growing up and reasons for choosing that person. Perceived security and support expectations regarding relationships are presented using key attachment-related and support-related constructs. In order to differentiate between different forms of support expectations and their roles, different forms of support are

presented, such that received support is distinguished from perceived support. Finally, current support expectations of the adolescents are also presented.

7.3.1 Important people while growing up

A primary biological family member was the most important person while growing up: for twelve participants their mother, for four their father. Second in importance while growing up were still members of the primary biological family, most commonly a brother, auntie or grandmother. Those reporting an extended family member as third in the ranking order mostly noted an uncle or grandfather, while three of the adolescents noted peers (friends). The majority of people coming fourth were members of the extended family, mostly referring to their uncle whereas those who noted a primary biological family member mostly referred to a sister or brother.

7.3.1.1 Perceived reason for choice

Receiving care was the most common reason for choosing a particular person as the most important person while growing up. Received care included: being nurtured, having things done for oneself (e.g. cooking, washing clothes), taking responsibility, being followed up, as well as the ability of the caregiver to mobilize help from others when they couldn't provide the support themselves.

"Right from that time she [mother] struggled with me to make sure that everything is right." (Male, 17 years)

Provision of instrumental support was the most common reason for placing a significant other second in importance to the adolescents, as reported by 17 participants. This instrumental support included: financial help, and meeting educational and basic needs.

Those giving the adolescents a sense of togetherness (companionship support) were most commonly placed third in order of proximity. The feeling of togetherness included: dialogue, sharing difficulties, closeness, living and working together, and being available. Simultaneously, the lack of togetherness was reported as reason for someone not being important.

Most adolescents also reported receiving guidance (informative support) from a primary biological family member(s). These member(s) often were the most important person indicated by the participants.

"And time and again he tells me that "please, don't have anger on our parents. Leave our parents alone and you do your things". Because I was having a lot of anger towards my parents, especially my mother for her drinking habits but ... my elder brother kept on saying "let us do something good for our future and we leave our mother". That is the thing my brother influenced me and up to now." (Male, 18 years)

Being in a loving relationship with a significant other was another reason for choosing them as most important while growing up, with decreasing likelihood of reporting a loving relationship the more distant the adolescent was in biological relationship with one.

Lastly, having a biological bond with the primary biological family member(s) was also noted by 14 participants as a reason for one being important to them while growing up. Most of the adolescents placed extended family fourth in order of importance because they received care and love from them. Peers were less important to them while growing up because they were unable to provide instrumental support but provided sharing (companionship).

7.3.2 Perceived relationship with the most important caregiver

A thematic analysis was designed in such a way that the themes represent aspects in the reciprocal relationship between the adolescents and his/her most important caregiver (table 2).

Table 2: Themes in the reciprocal relationships between adolescent and his/her most important caregiver

Adolescent to caregiver →	Interaction ↔	Caregiver to adolescent ←	Caregiver
- Supporting	- Relationship	- Taking care	
- Respect and trust	- Togetherness	- Love and respect	
- No negative feelings	- Communication	- Teaching and guidance	
	- Being the same		

Three aspects identified that related to attachment constructs in the literature that played a role in the adolescent-caregiver interaction included trust, communication and togetherness (companionship). The interactive component of the relationship between the adolescents and caregiver had four aspects in order of prominence as being 'good enough', closeness, communicable, connectedness.

"Somebody who's too close... is too close, hé, close to me. The way I see my mother: somebody close to me. Every time she's with me. That is... so close to me than any other person." (Male, 20 years)

Communication was reported by nine adolescents while referring to having good conversations and knowing how to talk to one another. Three adolescents mentioned aspects of '**sameness with**' their caregiver, either through being connected by blood or having the same way of doing things.

"We are the same. Okay, our manners, our ways are the same, what we do. It's the same thing I do. Because they say "like mother, like daughter", something like that." (Female, 18 years)

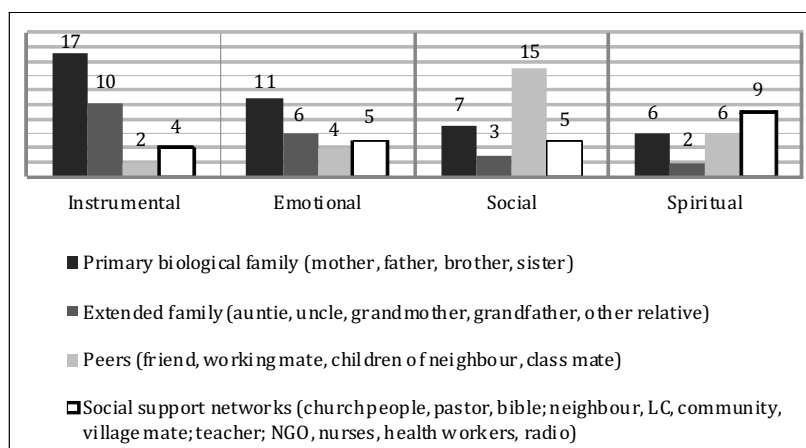
The caregiver's contributions to the perceived relationship were characterised by three aspects: caring, love and respect, and guidance.

7.3.3 Received support and source of support while growing up

To differentiate attachment-related constructs from received social support, we asked adolescents to describe the nature of received support (instrumental, emotional, social and spiritual support) during their upbringing and who provided this (figure 1).

Education was the most important instrumental support, reported by all the adolescents. Other instrumental needs included basic needs: medical care, shelter, feeding and dressing. Sixteen adolescents mentioned aspects of disclosure as the most important in emotional support, and included exchanging with others, receiving from others, and giving to others. In contrast, five adolescents mentioned they did not share their concerns with others. The most important aspect of social support was being together, more specifically, doing things together e.g. school work or playing. Regarding spiritual support, receiving guidance from spiritual figures and communicating to God were most commonly mentioned. Overall, figure 1 shows the nature and source of support received by the adolescents.

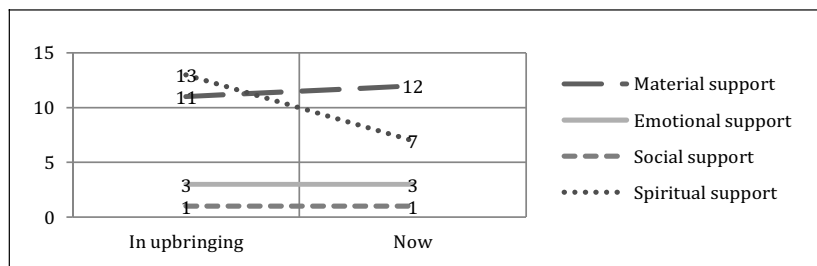
Figure 1: Nature and source of support received by adolescents



The adolescents were allowed to include more than one source of a particular kind of support

The most important sources of support were from the primary family of which instrumental and emotional support were most commonly received. Peers were the most common source of social support. The social support network (including community members, school, church, and service figures) was the most common source of spiritual support to the adolescents.

Figure 2: Nature of support received during upbringing and now



The adolescents were allowed to choose more than one kind of support

The most important kind of support received during the adolescents' upbringing was spiritual support, while social support was the least important (see figure 2). With regard to current support needs, instrumental support was the most important.

Always I get a lot of support from spiritual way and with my condition I get a lot of challenges. When I move people look at me, sometimes they don't talk but you find people look at me. Some people talk and when I

go to church I get a lot of bible reading and always in the bible they've said "we people are the image of God". Then it makes me sometimes happy and say "why did God created me in this way? Maybe I'm special", but if not, if I'm start thinking like a human being without God by now I would have even committed suicide because people look at me a lot when I'm moving. And I forget that... I'm not a human being just but I'm also special by God, it is God who created me. So I feel happy and I must use the things that God has created me to use, so it makes me to use other things in a happy way. (Female, 15 years)

7.4 Discussion

This study examined war-affected adolescents' perspectives on perceived security and support expectations of significant others, as well as past and current received support and their sources. Participants' descriptions of their relationships with parents, family, peers, and others provided insight into adolescent attachment and support-related constructs. Several attachment and support themes emerged in the results. Trust appeared most commonly and presented itself as the bedrock for all relationships. Trust is critical in attachment concepts such as secure base, safe haven, and felt security (Dykas et al., 2003).

The adolescents in this study clearly sought support from primary caregivers, yet descriptions of their relationships supported a push-pull force in the developmental process of individuation.

7.4.1 Important people while growing up

Primary family, specifically the mother, was the most important while growing up, in keeping with the extant literature (Bowlby, 1969; Ntukula, 2004). Most social scientists agree that the relationships between mother and child often exist as a secure attachment behavior. In keeping with Western individualistic society, the attachment figures often are members of the primary family. In the periphery, peers, extended family, and social networks became more prominent (Ntukula, 2004; Vindevogel et al., 2012).

7.4.2 Perceived reason for proximity to most important attachment figure

The most important person while growing up was based on the perceived ability to provide instrumental support to the adolescent suggesting that relative importance of the emotional bonds decrease during adolescence at the expense of emotional support. Notable attachment theorists, like John Bowlby and Mary Ainsworth, posit that perceived security in relationships is a symbiotic one designed to bind the child to the mother (or primary caretaker) for the purpose of protection, security, and survival of the species (Ainsworth et al., 1978; Bowlby, 1969). Unsurprisingly, having a biological bond was noted by a significant number of adolescents as a reason for choosing a person most important to them while growing up. Most participants put peers further away from them because they were unable to provide instrumental support needs but provide sharing.

7.4.3 Perceived security in the relationship with significant others

Three aspects were identified that related to attachment constructs in the literature: trust, communication and togetherness (affiliation or companionship). Further, the adolescents perceived their caregiver relationship as being 'good enough', and including closeness, communication, connectedness, and sameness, the latter either through being connected by blood or having the same way of doing things (Main, Kaplan & Cassidy, 1985). Other perceived attachment constructs included caring, love and respect, and guidance.

7.4.3.1 Support related constructs

Attachment theory suggests that perceptions of social support are a function of two types of internal working models (IWM): models of the self (beliefs about self-worth) and models of the others (beliefs about the availability and responsiveness of others). This study investigated the relationship between models of the self and others and perceived social support. IWMs provide the interior framework from which children view themselves and others (Bowlby, 1969). The presence of trust in relationships reported in this study means that adolescents trust others to meet their needs and find themselves, in turn, worthy of trust (Bowlby, 1969, 1973; Feeney & Cassidy, 2003). Many adolescents in this study discussed experience-based expectations of trust, communication and affiliation with their parents.

7.4.4 Received support and source of support while growing up

Education was the most important instrumental support, reported by all the adolescents. Further, disclosure was the most important in companionship support, and included exchanging with others, receiving from others, and giving to others. The most important aspect of social support was being together or doing things together. Regarding spiritual support, receiving guidance from spiritual figures and communicating to God were most important. In keeping with Vindevogel et al. (2012), the tendency to report direct needs may have led to underestimation of other supports such as emotional support, yet they could make a valuable contribution in a rather indirect manner or in the longer term.

7.4.5 Source of received support

The primary family was most important in providing instrumental and emotional support; peers most prominent in providing social support. Whereas the extended family was not prominent for any one kind of support, the social support network (including community members, school, church, and service figures) was most prominent in providing spiritual support to the adolescents. The results of this study suggest that it is not only the perceived security in relationships that matters, but also the process and social context in which it is utilized.

7.4.6 Trajectories of support relationship needs

Social support was the least important both while growing up and now, whereas spiritual support was most important while growing but less important now, while emotional support did not feature prominently while growing up and now. Instrumental support is most important now. The role of spiritual support has been previously documented and is a key coping mechanism in sub-Saharan Africa (Ntukula, 2004). Although the salience of social support has been reported in previous war-affected adolescent samples (Betancourt et al., 2008, 2010, 2012; Vindevogel et al., 2012), a limited role of social support was found when conceptualised as different from other supports such as emotional and informational support. Further, emotional support also had a limited impact. As a protective factor, emotional support from significant others and a perceived security in the adolescent –significant other relationship may provide the responsive care needed to become more resilient to psychosocial problems. This appears to

have particular relevance to mothers because of the sociocultural setting that encourages more maternal-child relationships. In keeping with Vindevogel et al.'s (2012) study, instrumental support was emphasized, especially that provided or received from the primary family. The findings correlate with earlier studies which highlight the importance of protective factors such as a secure attachment at an individual level and the role of the family and community at a social level.

Perceived security and available support were closely linked within particular relationships such as the relationship to mother, and modestly linked for categories of relationships such as peers; their consistency across relationships was much lower (Asendorpf & Wilpers, 2000). Although both received and perceived social support have received attention in the literature, perceived social support has been the focus of greater research interest due to its theorized role as a buffer against the adverse effects of stress (Wills & Shinar, 2000).

7.4.7 Implications

Adolescents' relationships constructs of perceived security are related to but distinct from social support and the findings support a distinct conceptual role of support constructs in attachment representations in adolescence (Scott et al., 2011).

Our findings are in keeping with those obtained from self-report measures, such as the IPPA, that are supported by theoretical assumptions of the attachment theory, showing that secure individuals maintain constructive engagement with others, social interaction and social connectedness and competence (Armsden & Greenberg, 1987).

Building positive relationships between children and adults in the family, school, community and beyond as well as with peers is central to constructing positive perceptions of significant others and of self. It has been suggested that interventions for adolescents are more effective if directed at relationship-building with adults and peers in the child's broader systemic context rather than focusing solely on the adolescent (Dishion, Mcoud & Poulin, 1999).

7.4.8 Limitations

There are limitations to the study design and generalizability of the results of this study. The study was based on only adolescent reports, and subject to

biased reporting. The respondents may not have described their experiences in full, for two reasons: First, some of the subjects were interviewed just before discharge and may therefore have had difficulty describing their relationships, especially if this had influenced symptoms or precipitated treatment seeking. Second, the participants may not have wished to be reminded of the negative relational circumstances that may have led to their mental health symptoms, and may therefore have evaded answering questions that were emotionally challenging. Although a saturation effects was achieved with the final sample, the small sample of 20 consecutively selected adolescents, limits generalization of the results of this study. Community-based adolescents not specifically seeking mental health care were not included in the study. The selection of the adolescents was purposive and therefore we relied on a convenience sample, as a completely randomised selection was not possible because of the intensive cooperation required from the families. However, the findings are consistent enough to suggest a clear pattern of relationships between perceived security in relationships and social support related constructs. Attachment is a multidimensional construct that does not capture all aspects, has considerable overlap with emotional and social support (Laible, 2007).

Finally, while in general we measured three salient aspects of social support (social embeddedness, received support and perceived support) we recognise definition confusion and overlap, and that other important aspects of relationships with significant others may have an equally important influence on attachment. Nevertheless, strength of the study was that we included measure of perspective of relationships to extended family, community and peers etc and differentiated between perceived and received support and their relative importance over time.

7.5 Conclusions

The qualitative approach allows for an in-depth exploration of meaning and significance. Participant perspectives allows for an immersion in the specific cultural contexts (Dykas et al., 2006). The obvious limitation is its specificity. The models of relationships between attachment and social support suggested herein are made on the basis of related constructs and located in specific cultural contexts. However, they raise important questions about the relationship between attachment constructs and social support that may have applicability in non-clinical samples.

More research is needed to better understand relationships among social support and attachment specific constructs and the reciprocal relationships

Chapter 7

between attachment and social support in the context of trauma experienced by both parents and children.

By using this approach in understanding relationships among adolescents, we acknowledge humanity's basic need for human support – both physical and psychological – when under severe stress.

More research is needed to better understand attachment in adolescence and the reciprocal relationships between attachment and social support experienced by adolescents.

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8

GENERAL DISCUSSION



Abstract

This final chapter aims to present results based on the central research questions in this dissertation by summarizing and integrating the main findings of the three studies. Each results section has discussed specific findings in relation to the existing literature. The general discussion is concerned with exploring the extent to which the present research has clarified the roles of different trauma exposures and attachment as vulnerability factors for mental health problems and depression symptoms as a conduit for risk behaviors in war-affected adolescents, as well as the significance of relationships. This chapter will address issues relevant to all chapters (e.g., the potential differential effects of trauma exposure), integrate the findings, answer outstanding questions, and present applications, limitations, and suggestions for future research with war-affected adolescents.

8.1 Introduction

The overall aim of this dissertation was to gain more insight into the nature and associations between trauma exposures, attachment, internalising symptoms and risk behaviors among war affected adolescents. We therefore adopted an ecological-transactional approach towards war-affected adolescents, situated in the orthopedagogical scientific discipline and the field of developmental trauma studies. This approach implies that we view war-affected adolescents as dynamic human agents who are part of dynamic ecological-transactional contexts and who exhibit vulnerabilities as well as protective factors. Accordingly, we have investigated the trauma experiences, mental health, attachment and relationships perspectives of war-affected adolescents themselves. We have also adopted an integrative approach towards the conceptual framework. On the one hand, we have conceptualized trauma, attachment, and psychosocial wellbeing, focusing on contextual factors, differential effects, and an integration of theories. On the other hand, we have discussed the three concepts together in an alternating confluence throughout the different chapters of this dissertation.

This research consisted of three studies. The first study (chapter 2) aimed to compare the nature and prevalence of mental health problems among abducted and non-abducted adolescents in northern Uganda and thus build a knowledge base to support the exploration of factors associated with key variables among war-affected adolescents in the second study. The second study (chapters 3 – 6) examined war-related trauma exposure, childhood adversities, attachment, internalising symptoms and risk behaviors among war-affected adolescents four years post-war. The third study (chapter 7) was an exploratory study of adolescents' perceptions of relationships with significant others in their lives.

This final chapter presents an integration of the key findings from the three studies to address the central research questions and to document how the research contributes to current knowledge about war-affected adolescents. It then outlines the limitations of the research and implications for further research. Finally, it discusses the implications of the research for intervention policies and psychosocial support for war-affected adolescents.

8.2 Main findings

8.2.1 *Internalising symptoms and risk behaviors amongst war-affected adolescents*

Adolescents affected by war or living in a post-war setting show significant levels of mental health problems, as shown in this study, with relatively high levels of both internalising symptoms (PTSD, anxiety and depression) and risk behaviors (substance abuse, rule-breaking and aggressive behavior, sexual risk behavior). The prevalence rates are comparable to other studies for internalising symptoms (Bayer et al., 2007; Derluyn et al., 2004; Kohrt et al., 2008; Moscardino et al., 2011), and externalising behaviors (Franic et al., 2011; Klasen et al., 2010; Pat-Horenczyk et al., 2007; Schiff et al., 2012; Weierstall et al., 2012). Although comorbidity seems to be the norm rather than the exception, children exposed to repeated interpersonal trauma may develop symptoms that exceed those documented in criteria for PTSD (Allwood, Bell-Dolan & Husain, 2002; van der Kolk, 2005). Recent research from a similar population in Uganda suggested that the clustering of internalising symptoms are better described with the emerging concept of developmental trauma disorder (Klasen, Gehrke, Metzner, Blotevogel & Okello, 2013; van de Kolk, 2005). These findings underscore the importance of measuring cumulative trauma among children and adolescents.

In addition, considerable gender differences emerged, with girls significantly more likely to report depression, PTSD and anxiety symptoms. The stability of the exposure – symptom outcome in females may be due to the representative number of girls in the study. Regarding specific risk behaviors, girls had significantly higher aggression scores and more suicidal behaviors, while boys had significantly higher rule-breaking scores. These findings are comparable to previous studies in post-conflict settings for internalizing symptoms (Acierno et al., 2000; Dyregrov, Gupta, Gjestad & Mukanoheli, 2000; Schiff et al., 2007), rule breaking (Pat-Horenczyk et al., 2007), and suicidal behavior (Acierno et al., 2000). It has been suggested that boys engage more in physical aggression, while girls engage more in relational violence or indirect aggression than boys (Acierno et al., 2000; Bjorkqvist, Lagsnpetz & Kaukiainen, 1992). Although it has been suggested that the differences in risk behaviors between boys and girls are narrowing (Acierno et al., 2000; Odgers & Moretti, 2002), higher exposure of girls to trauma could lead to learned behavior response (Acierno et al., 2000), while higher PTSD symptoms, such as hyperarousal, numbing, dissociation may be at play in augmenting risk behavior participation (Allwood et al., 2011; Pat-

Horenczyk et al., 2007). Our findings indicate the need for gender specific interventions for suicide and anti-social behaviors.

8.2.2 Factors associated with mental health outcomes

The current study findings were generally in keeping with the extant literature regarding the association between exposure to trauma and the development of internalising and externalising symptomatology. It is clear that not all adolescents who experience trauma developed serious symptoms: some individuals who experienced severe trauma developed few symptoms, while others experienced mild trauma or adversity and went on to develop severe symptoms. These variations have raised further aetiological questions, in keeping with the extant literature, and suggest that conceptual models of internalising symptoms and risk behaviors among adolescents need further refinement (Pynoos, 1999). The complexity of traumatic situations and their aftermath suggests the relevance of multiple stress diatheses in understanding individual variability in proximal and distal effects (Pynoos et al., 1999).

In this study, we examined the relationship between two types of exposure to trauma (intra-familial childhood adversity and war-related trauma), attachment, and two outcomes (internalising symptoms and risk behaviors) among war-affected adolescents in northern Uganda. The current study used an ecological-transactional model of internalising symptoms and risk behaviors based on Cicchetti & Lynch's (1993) theory that includes multiple risk and protective factors at three levels (individual level, micro- and meso-level). As discussed later, either full or partial support was obtained for the study's primary hypotheses, in keeping with Lynch & Cicchetti's (1998) findings. Rates of childhood adversities were related to levels of war-related trauma. In addition, childhood adversities and war-related trauma exposure were related to different aspects of adolescents' functioning. Specific effects were observed for childhood adversities and war-related trauma as well as attachment. Results presented below will be discussed within the framework of an ecological-transactional model of development. Although the proposed model was not entirely supported, war-related trauma and childhood adversities as risk factors and attachment as a compensatory factor for internalising symptoms and risk behaviors were identified.

8.2.3 Associations between war-related trauma, childhood adversities and internalising symptoms

First, the findings of study 1 suggest that although both former child soldiers and non-conscripted adolescents were exposed to significant levels of war-related experiences during the long-lasting armed conflict in northern Uganda, former child soldiers were significantly more affected psychologically. The majority of these children and adolescents have multiple and clinically significant emotional responses to different kinds of traumatic exposure, with a high incidence of major depression, generalised anxiety disorder, PTSD and co-morbidity of these. These circumstances of child soldiering thus call for the promotion of sustainable mental health services that are tailored to the needs of adolescents affected by war.

Second, overall, our results indicated that childhood adversities were associated with only depression symptoms, whereas the war-related trauma impacted all internalising symptoms, stressing the importance of potential mediators (Layne et al., 2010). Childhood adversity had the effect of attenuating the influence of war-related trauma on avoidance symptoms, providing support for its role as a moderator of the war-related trauma and internalising symptoms relationship (Cabrera et al., 2007; Stein et al., 2005). Assessment of adversities experienced during childhood might therefore help to identify symptoms, such as avoidance symptoms, that possibly impair help-seeking behavior.

It has been hypothesised that adolescents exposed to childhood adversities display lower reactivity to war-related trauma (Cabrera et al., 2005; Stein et al., 2005), and that previous childhood trauma may act to create a “symptom ceiling effect” in which only the most distressing symptoms are reported following war-related trauma exposure (Cabrera et al., 2005). On the contrary, other findings have suggested the opposite: individuals with previous childhood-related trauma were more likely to react negatively to war-related trauma than individuals not similarly traumatized (Bremner et al., 1993; Friedman et al., 1994), urging for deeper investigation of this finding in further research. While we acknowledge that not all childhood-related events measured in this study qualify as “trauma” in the DSM-IV, and that intra-familial childhood adversity may be qualitatively different from war-related trauma, our results suggest that depression symptoms may develop similarly across different forms of trauma, from war-related trauma to childhood adversities (Fernando et al., 2010).

In conclusion, although the impact of childhood adversity has received recent attention in post-conflict settings, the results of this study draw

further attention to the impact of war-related stressors. Our findings thus support the differential associations of childhood adversities and war-related stressors with post-war internalizing symptoms (Fayyad et al., 2004; Panter-Brick et al., 2011).

8.2.4 The moderating role of war-related trauma on the relationship between attachment and internalising symptoms

In our study, war-related trauma did not attenuate the influence of maternal or paternal attachment on PTSD symptoms, contrasting our initial hypothesis. Besides, war-related trauma did attenuate the influence of peer attachment on PTSD symptoms. Specifically, peer attachment was significantly protective against PTSD symptoms in situations of severe trauma. This finding contradicts previous studies in which severe trauma was reported to diminish positive peer relationships in which feelings of safety and togetherness are created (Peltonen et al., 2010). The predominantly older adolescent population in this study were more likely to seek social support and share emotions when facing traumatic events, which further can consolidate their friendships and protection from trauma-specific post-traumatic stress symptoms (Peltonen et al., 2010). It remains however unclear why war-related trauma would significantly moderate the association between peer attachment and PTSD symptoms but not others.

Second, regardless of the level of war-related trauma, parental attachment remained protective against depression and anxiety symptoms, suggesting that the adolescents and their parents maintain strong attachment bonds irrespective of the severity of trauma, thus countering the effect of stresses the adolescents may face. These findings are to some extent consistent with Bowlby's (1973, 1988) hypothesis that insecurity is positively associated with internalizing problems, particularly anxiety and depression.

However, to conclude that attachment is a causal factor for internalizing problems, strong longitudinal support is needed, and the study data provide mixed support for this hypothesis. Secure parental attachments are associated with better psychosocial adjustment in adolescents affected by war. Further, adolescents with secure peer attachment relationships in situations of severe war trauma may be less likely to develop posttraumatic stress symptoms. Interventions to enhance peer support in this post-conflict setting would benefit this vulnerable population. The robust association between attachment and internalizing problems is not surprising, given that secure attachment, by itself, will invariably lead to lower PTSD, anxiety or

depression symptoms. In keeping with the thesis' conceptual model, for example, Cummings and Cicchetti (1990) proposed a transactional model of childhood/adolescent depression in which the effects of insecure attachment depend on potentiators ("factors increasing the probability of insecure attachment leading to depression") and compensators ("factors decreasing the chances of developing depression"). Thus, attachment may be consistently associated with internalizing problems only in the presence of other risk factors such as war-related trauma as seen in this study.

Although a limited number of studies have also assessed other factors (i.e., moderators) that might identify the conditions under which attachment is related to PTSD, anxiety and depression symptoms, some researchers have also conceptualized attachment as a moderator (Aspelmeier et al., 2007; Whiffen et al., 1999). Further studies should elaborate these roles of attachment in the context of war and post-conflict situations, in particular among adolescents affected by war-related trauma.

8.2.5 Associations of war-related trauma and childhood adversities with risk behaviors

First, the present findings extend previous findings (Pat-Horenczyk et al., 2007; Schiff et al., 2007, 2012) suggesting that cumulative exposure to events during war and internalizing symptoms associated with such exposure are both risk factors for involvement in multiple risk behaviors, not only during the exposure, but even four years later. The study identifies the connection between war-related traumatic experiences and multiple risk behaviors, and thus reveals implications for psychological assessment and early intervention for depression symptoms in school-going adolescents in a post-conflict context.

Second, adverse childhood events were also independently associated with multiple risk behaviors (Bruffaerts et al., 2010; Cabrera et al., 2007). Although this finding suggests that a temporal association between childhood adversities and depression exists, this relationship needs further study among war-affected adolescents. Potential pathways for explaining these relationships include the possibility that adolescents with a history of childhood adversities may be more likely to be involved in deviant social networks, which then leads to a normalization of risky behaviors, such as having multiple sexual partners (Acierno et al., 2000). Another possibility is that experiencing adversity early in life has a negative effect on overall interpersonal functioning, increasing the likelihood of engaging in multiple risk behaviors or becoming involved with risky and deviant peers.

8.2.6 *Depression as a conduit for risk behaviors*

The association between war-related trauma and multiple risk behaviors was mediated by depression symptoms, and not PTSD, the established mediator in most studies (Taft et al., 2007). Depression symptoms might mediate the association between stressful war events and multiple risk behaviors through different processes: for example, a negative affectivity perspective has been hypothesised in which the clustering of negative affective symptoms following trauma may increase the risk for engaging in risk behaviors as a way to cope with the mood symptoms (Acierno et al., 2000; Watson et al., 1988; Wills et al., 2002).

8.2.7 *The moderating role of attachment on the relationship between depression symptoms and risk behaviors*

Only maternal attachment moderated the association between depression symptoms and multiple risk behaviors. It has been suggested that maternal attachment plays a buffering role on the negative effects of depression symptoms in the early stages of many internal and external pressures (Allen et al., 1998, 2007; Kenny et al., 1998; Papini & Roggman, 1992). Although the impact of maternal attachment may differ from that of paternal attachment (Grossmann et al., 2008), the results of this study suggest that maternal attachment plays a bigger role than paternal or peer attachment.

In conclusion, our study lends support for attachment as a moderator of the effects of depression symptoms on risk behavior. Still, the cross-sectional nature of these associations requires stronger longitudinal support in future research. As expected, the effect sizes are also generally higher for studies based on self-report questionnaires than for studies based on behavioral or representational measures of attachment. Comparing this finding to other studies is thus limited by the variability in the use of attachment measurement approaches across studies. Further, studies of adolescents' attachment representations using questionnaires are rare among war-affected adolescents, regardless of the type of internalizing symptoms assessed.

8.2.8 *The nature and roles of relationships with significant others*

The above stated results were further triangulated with qualitative findings regarding adolescents' perspectives on significant relationships during their upbringing and currently. The qualitative approach of this study allowed for an in-depth exploration of meaning and significance. Participant perspectives thus provided possibilities for an immersion in the specific cultural contexts (Dykas et al., 2006).

Perceived security in relationships with mothers was the most important while growing up amongst this (clinical) sample of adolescents. In contrast to the predominant findings, social support was the least important while growing up and now, with implications for the role of peers in adolescent psychosocial adjustment. The results reaffirmed the significance of adolescent-maternal attachment relationships, in keeping with Bowlby & Ainsworth' attachment theories, and lend support for the use and conceptualisation of attachment in this particular socio-cultural setting. Further, attachment and social support relationships emerged in this study as distinct constructs, underscoring the need to define social support clearly, in concert with other forms and sources of support, such as emotional support which might be more closely linked to attachment as a concept.

Although these findings provide further support for the importance of social support in general, and mothers in particular during adolescence, the role and nature of social support still remain contentious (Paardekooper et al., 1999). The limited role for social support in this study has been previously documented among war-affected adolescents, but may reflect the inadequate conceptualization of what social support actually means for each individual adolescent, rather than what is assumed to be needed or is provided to the individual. Further studies are therefore needed to clarify the nature and roles of social support in this population.

8.2.9 *Complex trauma, posttraumatic growth and resiliency among war-affected adolescents*

The study's main focus was a risk-vulnerability model to investigate risk factors impacting war-affected adolescents' mental health. This however means that a more "positive" resiliency model focussing on the adolescents' strengths that may be either temporarily interrupted, either co-exist with the psychological problems a child might develop because of the traumatic

or adversity events did not come to the forefront of this study. Nevertheless, we want to stress that the presence of mental health problems does not at all exclude that these adolescents also establish huge strengths and strong coping mechanisms, as also, amongst others, shown in the qualitative study on the meaning of social relationships. On top, in recent years, there has been also a growing recognition that, in addition to these well-documented negative effects, highly stressful events such as adversity, abuse and wars, have also the potential for positive consequences, and that a significant proportion of trauma survivors also reports certain 'benefits' and growth ("posttraumatic growth") after severe stressful experiences (Joseph & Linley, 2008; Westphal & Bonnano, 2007).

The study also draws attention to the often neglected area of developmental trauma due to ongoing intrafamilial adversity and trauma, concepts that have been linked to complex trauma symptoms among war-affected children and adolescents, such as "Developmental Trauma Disorder" (Klasen et al., 2013) and "Nodding Syndrome" (Okello et al., in press).

8.3 Limitations of the research

These results should be viewed within the context of following limitations.

First, the **generalizability** of our study findings to wider population of war-affected adolescents in Uganda is limited, given that the study was undertaken at one urban town setting and with institution-based adolescents and did not consider out-of-school adolescents. This therefore limits the generalizability of the study findings to the wider population of war-affected adolescents in Uganda. Moreover, in the qualitative study (study 3), only adolescents in a clinical setting were included, which also limits the applicability of the findings to other, non-clinical groups.

Second, the three different studies used only a cross-sectional **design**, which established associations, but could not confirm causality. The cross-sectional design precludes both causal inference (as event reporting may be confounded with current psychological functioning and age) and the longitudinal analysis of adjustment trajectories (Layne et al., 2009)

Third, the **data** gathered in this study were retrospective and self-reported, and consequently subject to social desirability and recall biases. The literature indicates under-reporting is more widespread among males than females, so it is likely that under-reporting is a feature of this study..

Fourth, the extended **time frame** (four years post-war) created a situation in which other post-war factors, such as post-war traumatic events, could

occur and compete for explained variance. This may have led to low endorsement rates for some event types (e.g., physical violence) that prevented their predictive effects from being adequately tested (Layne et al., 2010). As a consequence, factors such as daily stressors and more recent traumatizing events might have influenced internalizing symptoms (Fernando et al., 2010).

Fifth, the findings of the first two studies are limited by their reliance on western-orientated **questionnaires** and constructs. Although the self-report questionnaires were developed with the assistance of Ugandan mental health workers, it is possible that still the questionnaires were not entirely adapted to the local context.

Sixth, although the IPPA was selected as a measure of attachment based on reported positive experiences of other researchers, it could be argued that the experienced attachment towards parents and peers and the experienced relationships with significant others are not independent of each other. While the qualitative data on relationships reflects the adolescent's perception of the nature and roles of relationships with significant persons, the attachment measure reflects the adolescent's subjective or psychological experience of the relationship with his parents. It is critical that attachment is conceptualised as a psychological rather than a social process. The extant literature considers attachment to be a psychological process whose assessment and measurements needs (to be complemented with) qualitative measures such as observation, while the findings of the qualitative study suggest that adolescents referred to it rather as a relational construct, which it was not as originally conceptualized by, for example, John Bowlby.

Finally, despite the merits of our findings, it is important to consider issues of construct and content **validity** with an African sample. Ethno-cultural variation may decrease the validity of the constructs as well as the validity of our measures. Moreover, our measure of attachment and support may not have captured certain aspects of relationship unique to the African ethno-cultural setting, including whether the attachment indices were socially relevant, given that attachment as a concept is understudied in the African context,

8.4 Implications for future research

Despite these shortcomings and limitations, this study is unique in its contribution to the scientific literature on relationships between attachment, internalising symptoms and risk behaviors amongst adolescents living in a post-conflict low-resource setting. Understanding the role of moderating influences is indeed important for identifying individual differences in the influence of attachment on mental health, and for targeting interventions that will hopefully improve mental health outcomes throughout the life span. Additional research is needed to develop more clearly the theoretical model concerning the relationships among war trauma, attachment, and psychosocial outcomes. Thus, there is a need to better understand the mechanism(s) through which attachment may serve as a protective factor against the negative effects of war-related trauma.

In particular, firstly, future work should focus on mechanisms like parental and peer attachment that might modify or moderate relationships between childhood adversity, war-related trauma and later internalizing symptoms and risk behaviors (Armour et al., 2011).

Secondly, the dearth of data on interaction effects of childhood adversity and war-related trauma on later symptoms calls for further research with larger and more diverse samples, including non-clinical samples and out-of-school adolescents.

Third, it is apparent that longitudinal studies are necessary to develop a clearer understanding of the complex relationships between childhood adversity, stressful war events and multiple risk behaviors. Further, because mood can influence the recollection of data, in particular regarding traumatic events and attachment, longitudinal studies that control for initial levels of internalizing symptoms may disentangle the possible bidirectional effects between attachment and internalizing symptoms.

Fourth, future work needs to examine how specific forms of abuse, including physical, sexual, and emotional abuse occurring at different developmental stages affect multiple risk behaviors.

Fifth, self-report questionnaires are the most commonly employed assessment tools in studies evaluating adolescents' mental health and associated factors, such as traumatic events and attachment. However, there is a need for additional studies using other methods of assessing these different concepts, in order to avoid capitalizing on shared method variance and response biases that inflate associations between different constructs (Miller & Rasmussen, 2010).

Further, more research is needed to better understand the reciprocal relationships between the constructs of social support and attachment in the context of trauma experienced by both parents and children. Attachment has been conceptualized as a construct that includes emotional and cognitive functioning, that reflects quality of interpersonal interaction, that is supposed to reflect the way parents interacted with their children when they were young, that is supposed to measure feelings of safety, etc. We would like to stimulate researchers to try to further differentiate the construct of attachment. Further conceptualization as well as a more concrete operationalization of the construct can help us understand why or how attachment plays such an important role in explaining, for example, the link between depression symptoms and risk behaviors. By using this approach in understanding relationships among adolescents, we acknowledge humanity's basic need for human support – both physical and psychological – when under severe stress.

Finally, there is a clear need for the development, assessment, and refinement of interventions targeting adolescents who engage in multiple risk behaviors that take into account both contextual and historical influences on these behaviors.

8.5 Implications for practice

Although these findings add to the knowledge base regarding the nature of mental health problems and the influence of trauma and other factors among post-war adolescents, far less is known about its implications for interventions in the post-conflict period. Programmes that facilitate their psychosocial adjustment continue to face a number of challenges. In the following section, we present a literature-based review of the extent to which these mental health needs are addressed by current programs in northern Uganda. Hereafter, some implications for interventions are discussed.

8.5.1 The fit between mental health needs and programming responses for war-affected children in northern Uganda¹

8.5.1.1 Programming responses

Interventions in northern Ugandan directed towards war-affected children and adolescents typically include either basic mental health literacy or specific mental health or psychosocial interventions (Crowley, 2009). In post-conflict settings, the provision of specific interventions addressing mental health problems may not be feasible given that the most important considerations are those of basic mental health literacy (Crowley, 2009), focusing mainly on psycho-education about mental health symptoms children may experience and aiming at normalising children's reaction to stress, as well as to provide an opportunity for health care providers to suggest to the children ways of managing these symptoms and of coping with them (Crowley, 2009; Okello & Alipanga, 2009). The Ministry of Health, through its division of mental health, and other stakeholders in trauma work in northern Uganda have specifically focused on training general health workers and the public to recognise common mental illnesses and on designing Information, Education and Communication (IEC) materials specific to the needs of war-affected persons (ibid.).

Secondly, specific mental health or psychosocial interventions can generally be classified into four types: individual-based, school-based, family-based and community-based (Crowley, 2009).

Individual-based mental health and psychosocial interventions in northern Uganda include, amongst others, trauma counselling, skills and vocational training, group psychotherapy and provision of material support (MacMullin & Loughry, 2002). Studies of specific individual-based interventions are few, and the evidence regarding the efficacy of individual-based interventions varies depending on the population and the context studied. Macmullin and Loughry (2002) found that psychosocial interventions provided by agencies in northern Uganda improved the psychosocial adjustment of former child soldiers compared to those who returned directly home after captivity. However, they found that important differences still existed among the different agencies, suggesting that

¹ Based on: Okello, J., Derluyn, I., Musisi, S. & Broekaert, E. (2012). The fit between mental health needs and programming responses for war-affected children in northern Uganda. In: I. Derluyn, C. Mels, S. Parmentier & W. Vandenhole (Eds.), *Re-Member. Rehabilitation, reintegration and reconciliation of war-affected children*. Cambridge/Antwerp/Portland: Intersentia, pp. 437-448. ISBN 978-94-000-0027-8

significant contextual and cultural factors should be considered when measuring post-conflict adaptation. Secondly, Neuner and colleagues (2004) found that exposure-based therapy might be safe and effective in treating children with war-related PTSD in post-conflict settings in developing countries.

Family-based approaches, such as family tracing, have also been studied as a way to ameliorate the mental health status of war-affected children. Qualitative research has shown that many war-affected children in northern Uganda primarily depend on their own families for support and guidance and may be reluctant to seek help from outside the family (Annan, Briere & Aryemo, 2009). In a survey of war-affected youths in northern Uganda, Annan and Blattman (2006) provide evidence of the integral role of the family in the reintegration of former child soldiers and in former child soldiers' long-term mental health: high family connectedness and social support predicted lower levels of emotional distress and better social functioning (Annan et al., 2008). Family-based interventions have therefore been thought to be effective (Annan et al., 2008; Crowley, 2009).

School-based interventions, often concretised into the training of teachers to recognise mental health problems among school-going children, have been proposed as an effective way to reach war-affected children and adolescents (Okello & Alipanga, 2009). Not only do schools provide a place for learning, but they also facilitate the development of peer relationships and a sense of identity (Alipanga & Okello, 2009). Moreover, schools can play an essential role in the successful integration or reintegration of war-affected adolescents into their community, and can serve as a strong foundation not only for educational but also for social and emotional development (Ibeziako, Olayinka & Tolulope, 2008; Okello & Alipanga, 2009). The role of schools as a setting in which to intervene and effect improvements in mental health outcomes for war-affected children is therefore promising.

Lastly, *community-based interventions*, including, amongst others, group psychotherapy, community education, cleansing ceremonies and community capacity building, have been suggested as a fourth type of intervention. Community-based approaches in northern Uganda have shown some evidence of effectiveness in reducing symptoms of mental ill health. For example, Bolton and colleagues (2007) have demonstrated in a randomised-controlled trial of 314 adolescents aged 14-17 years in two camps for internally displaced persons in northern Uganda that a therapy-based intervention (i.e. group interpersonal psychotherapy) was effective in reducing depression symptoms in war-affected adolescent girls (not in boys) compared to an activity-based intervention (i.e. creative play).

However, neither group interpersonal psychotherapy nor creative play was effective in improving anxiety symptoms, conduct problems or general functioning among boys or girls.

8.5.1.2 The fit between programming response and mental health needs

Several significant observations can be made about current interventions and mental health approaches in the war- and post-war region of northern Uganda.

Firstly, as shown in the abovementioned typology of interventions in war-affected regions, we clearly can state that there is often a tendency to overlook issues of trauma in recovery efforts and that interventions and resources also seemed to be mainly concentrated on selected categories of youth, such as former child soldiers.

Secondly, most programmes focus solely on (severe) mental health problems and tend to overlook the broader range of psychosocial problems with which northern Ugandan war-affected children and adolescents are confronted, although most children in (post-)conflict settings do not show severe mental health problems but suffer from a broader range of psychosocial problems. This means that children suffering from this broader range of psychosocial problems often do not find appropriate support for dealing with them.

Moreover, in the immediate aftermath of war, short-term humanitarian responses are usually phased out during the transition to the post-conflict and the reconstruction phases. However, the needs of war-affected children do not follow a similar phasing out process, particularly when they have been poorly addressed at the outset (Ibeziako et al., 2008).

In post-conflict phases, many adolescents and their families are also still confronted with feelings of loss of control over current circumstances, as well as feelings of distrust towards others.

Fourthly, there is clear evidence of the major impact of the disruption to family and other social structures on adolescents' mental health in (post-) conflict settings (Okello & Alipanga, 2009). However, mental health interventions addressing and/or including family and other social structures remain rather limited, overlooking important possibilities for strengthening families and communities in their ability to support children's and adolescents' mental health and psychosocial functioning.

Similarly, there is little knowledge of how schools and their academic programmes can best contribute to children's mental health (Haruri, 2009),

although they seem to be an excellent context for engaging with children and adolescents. However, defining what works for school mental health is a daunting challenge in view of the general lack of school mental health programmes, policies and services in post-conflict settings (Okello & Alipanga, 2009). In an effort to explore the role of school in post-conflict settings, there is need to determine the feasibility of utilising schools to promote or address the mental health of school-going children from the perspectives of those who must deliver the services: school teachers and administrators (ibid.). A recent review of the perspectives of high school teachers revealed that most thought the best way mental health specialists could help was to ensure that teachers were trained in basic mental health skills, such as recognition of mental health problems and adequate referral of students with mental health problems to further specialised interventions (Crowley, 2009; Okello & Alipanga, 2009). Moreover, context-specific factors unique to the developing world that dictate how mental health services for children and adolescents can be provided need to be taken into account. For example – and in contrast with school settings in the developed world – currently almost no mental health services are provided by schools in developing countries (Graham & Orley, 1998; Omigbodun, 2004). In Uganda too, the burden of mental health problems among school-going children has been documented, but specific school-based interventions to address them do not exist (Amone-P'Olak et al., 2007; Nalugya, 2004; Okello & Alipanga, 2009).

This lack of school-based interventions is also due to the fact that in northern Uganda most interventions for war-affected children are provided within institutional settings – and often only within rehabilitation centres for former child soldiers. However, these programmes addressing mental health in institutional settings have been seriously criticised because the successes registered there, if any, are seldom translated into actual changes of behaviour when the children are reintegrated into their homes or communities (Savino, 2000). Furthermore, the heterogeneous nature of children in these institutions means that it is imperative that individualised approaches are used to address their mental health or psychosocial problems. Such approaches are, however, often not possible because the institutions lack specialised and trained staff members. Furthermore, the post-conflict setting in northern Uganda presents special challenges in the lack of basic mental health literacy, child-specific mental health services, specialised mental health staff for children and adolescents and evidence-based mental health treatment programmes for children and adolescents. These deficiencies therefore raise major obstacles to developing an adequate approach towards children and youngsters with severe mental

health problems (Betancourt, Speelman, Onyango, & Bolton, 2009; Okello & Alipanga, 2009).

Lastly, although there is a significant need to provide evidence-based culturally appropriate psychosocial and mental health interventions to war-affected children, few such services exist, raising questions about the cultural validity of the services provided (Betancourt, 2001; Betancourt, Speelman, Onyango, & Bolton, 2009; Okello & Alipanga, 2009; Summerfield, 2001), all the more so because many of these interventions are offered by international organisations and executed by non-local workers.

In relation to this last remark, the above-mentioned findings about interventions' efficacy and effectiveness also need to be considered in light of significant measurement problems, imposing Western concepts and practices on non-Western societies and on non-Western responses to trauma (Summerfield, 2001). Moreover, most studies have focused on the impact of interventions on specific mental health problems and often solely on their impact on post-traumatic stress symptoms, while a broader range of mental health and psychosocial issues, such as general functioning, and the role of other factors in children's mental health, such as openness to reconciliation, feelings of revenge and cognitive emotional processing of trauma, have seldom been included or evaluated (Amone-P'Olak et al., 2007).

8.5.2 Implications

As children continue to be victims of war, psychosocial interventions adapted to children's specific needs using a public health approach are increasingly important and relevant for post-conflict settings. Conscious efforts are needed to improve child and adolescent mental health services and mental health literacy among conflict-affected populations. Because schools provide the most feasible way of accessing children, there is need to work with and provide specialised training for teachers, parents and general health workers in recognition of common mental health problems among children and adolescents affected by armed conflict. An integrated model of trauma intervention must not only reflect Western psychotherapeutic interventions, but also embrace the mores of the culture within which the intervention is offered (Wessels, 2009). The primary focus of any model should include empowerment of indigenous populations to teach trauma intervention principles within their communities, operationalise programmes supportive of the ongoing trauma intervention as they define it, and accomplish this without dependence on international funding. We

recommend that a mental health policy specifically adapted to the needs of children and adolescents affected by armed conflict is developed within each (post-) conflict setting.

Secondly, our study persuasively demonstrated that all war-affected adolescents in northern Uganda have been affected by internalising symptoms and risk behaviors following war and displacement. Post-conflict programme planners must therefore plan interventions that go beyond special groups such as former child soldiers. Instead, they must develop evidence-based risk behavior prevention programs such as HIV interventions that are responsive to adolescents' specific needs (Patel et al., 2013).

Third, this study adds to the developmental trauma and war-related trauma literature among post-war adolescents. The study by Klasen and others (2013) for example emphasizes the need to broaden our thinking regarding the impact of complex trauma on youths' mental health, so that it reflects developmental aspects of childhood trauma as seen in the construct "developmental trauma disorder". It is therefore important to consider these diverse factors in developing interventions to mitigate the impact of these exposures on adolescents' post-conflict adjustment.

Fourth, an understanding of trauma experiences, internalising symptoms and risk behaviors is vital to both the development of effective mental health programming and the design of appropriate risk prevention interventions for all war-affected adolescents, as also elaborated in previous sections.

Finally, given the important influence of attachment relationships and intra-familial childhood adversity, programs to address ongoing adversities and vulnerabilities may be useful as well as programs to improve attachment and social support networks for war-affected adolescents.

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Nederlandstalige samenvatting

NEDERLANDSTALIGE SAMENVATTING

Oorlogstrauma, hechting en risicogedrag bij Noord-Oegandese Adolescenten

Inleiding

De oorlog in noord-Oeganda, van 1987 tot 2006, wordt omschreven als één van de meest complexe en brutaalste conflicten op het Afrikaanse continent. Meer dan 300 000 burgers werden gedood en zo'n twee miljoen mensen sloegen op de vlucht. Ondanks het gegeven dat in deze oorlog ook grote aantallen kinderen op één of andere wijze getroffen werden, is er maar weinig empirisch onderzoek dat inzoomt op de effecten van deze stressvolle en traumatische ervaringen op kinderen en jongeren. Blootstelling aan oorlog wordt vaak gerelateerd aan de ontwikkeling van internaliserende symptomen, zoals symptomen van posttraumatische stress (PTSD), depressie en angst. Echter, de prevalentie van externaliserende gedragingen bij adolescenten die getroffen zijn door oorlogservaringen werd tot nu weinig bestudeerd. Specifieke risicogedragingen, zoals druggebruik, agressie, antisociaal gedrag, risicovol seksueel gedrag en zelfverwonding, lijken aanzienlijk toe te nemen gedurende de adolescentie, maar worden ook gerelateerd aan blootstelling aan oorlogservaringen. Niettemin is er over het algemeen een gebrek aan cijfergegevens omtrent de prevalentie van risicogedragingen in adolescenten die leven in conflict- en postconflictgebieden.

Recent is onderzoek rond het welzijn van adolescenten in naoorlogse contexten zich meer gaan toeleggen op het bestuderen van de impact van verschillende context-gerelateerde variabelen, zoals blootstelling aan oorlogsgelateerde traumatische ervaringen, moeilijke ervaringen tijdens de kindertijd en ouder-kind-relaties. Hierbij zien we een evolutie van het bestuderen van linken tussen moeilijke ervaringen tijdens de kindertijd, oorlogsgelateerd geweld en psychische problemen, naar het onderzoeken van specifieke mechanismen die een rol zouden kunnen spelen in deze relaties of die de kwetsbaarheid van jongeren zouden kunnen beïnvloeden. De voorliggende studie stelde zich dan ook als doelstelling om meer inzicht te verkrijgen in hoe blootstelling aan oorlogsgelateerde traumatische ervaringen een invloed heeft op de geestelijke gezondheid van schoolgaande adolescenten in de postconflict context van Noord-Oeganda.

Deze studie contextualiseerde de ervaringen van door oorlog getroffen adolescenten vanuit het perspectief van een ecologisch-transactioneel paradigma, gegeven dat adolescenten moeten gezien worden in de specifieke context waarin ze leven en dat rekening moet gehouden worden

met de risico- en protectieve factoren die ze ervaren. Volgens het ecologisch-transactioneel kader zijn aanpassing en welzijn het resultaat van onderling verbonden transacties tussen de individuele en multidimensionele ecologie waarin iemand leeft, op drie onderscheiden, maar interagerende niveaus: het micro-, meso- en macroniveau.

Probleemstelling, onderzoeksvragen en doelen van het onderzoek

Onderzoek bij populaties die geconfronteerd worden met traumatische ervaringen zouden verkeerdelijk tot de vaststelling kunnen leiden dat blootstelling aan oorlogstrauma automatisch leidt tot geestelijke gezondheidsproblemen, zoals symptomen van posttraumatische stress, angst en depressie, en tot externaliserende gedragsproblemen. Hoewel ernstige blootstelling aan trauma kan resulteren in stress bij kinderen, zijn klinisch significante problemen bij oorlogsgetroffen personen toch niet universeel. Daarom is het belangrijk om de processen te bepalen waardoor trauma een potentiële impact heeft op geestelijke gezondheid en adolescenten meer kwetsbaar worden (mediërende modellen), en de factoren die hun geestelijke gezondheid kunnen beschermen in traumatische leefomstandigheden (modererende modellen).

Ten eerste is er relatief weinig bekend over de specifieke aard en de impact van blootstelling aan complexe traumatische ervaringen. De impact van oorlogsgerelateerde traumatische ervaringen, zoals ervaringen als kindsoldaat, in combinatie met andere intra-familiale stressoren tijdens de kindertijd op het emotioneel welzijn van adolescenten blijft relatief weinig bestudeerd.

Ten tweede is er evidentie dat internaliserende symptomen een risicofactor vormen voor de ontwikkeling van externaliserend probleemgedrag. Desondanks is de sterkte van de link tussen beiden tijdens de adolescentie onduidelijk.

Ten derde bestaat er weinig onderzoek omtrent de differentiële verbanden tussen oorlogsgerelateerde traumatische ervaringen, hechting en geestelijke gezondheidsproblemen. Ook is er weinig onderzoek gedaan naar de perspectieven van door oorlog getroffen adolescenten met betrekking tot hun sociale relaties en sociale ondersteuning, in het bijzonder in specifieke contexten zoals klinische settings.

De algemene **probleemstelling** van deze studie luidt dan ook als volgt: *"Wat is de differentiële impact van moeilijke ervaringen tijdens de kindertijd,*

oorlogsgelateerde traumatische ervaringen, hechtingspatronen en sociale ondersteuning op zowel internaliserende symptomen als risicogedragingen bij Noord-Oegandese adolescenten?"

Hierbij aansluitend focust het onderzoek op volgende specifieke **onderzoeksvragen:**

1. Wat is de aard van internaliserende problemen (angst, depressie, posttraumatische stress) en risicogedragingen bij voormalige kindsoldaten en andere door de oorlog getroffen adolescenten?
2. Welke verbanden bestaan er tussen oorlogsgelateerde traumatische ervaringen, moeilijke ervaringen tijdens de kindertijd, symptomen van posttraumatische stress, depressie en angst en meervoudige risicogedragingen bij door oorlog getroffen adolescenten?
3. Wat is de aard en de betekenis van sociale relaties in het leven van deze adolescenten?

Deze studie leidt tot een dieper inzicht in de reacties van adolescenten op oorlog en gewapende conflicten, in het bijzonder door het bestuderen van de verbanden tussen traumatische blootstelling, hechting en emotioneel welzijn. Gezien er relatief weinig theoretische modellen beschikbaar zijn inzake de effecten van oorlog op adolescenten, bouwt deze studie rond meer empirisch gebaseerde gegevens ook relevante conceptuele raamwerken, mechanismen en hun onderlinge verbanden (Miller & Rasmussen, 2010). Daarnaast leidt dit onderzoek tot een resem implicaties: met een beter conceptueel begrip van de psychologische context van oorlog kunnen er klinische interventies en programma's worden geïmplementeerd voor adolescenten en hun families die beter afgestemd zijn op hun noden en krachten. Ook kan dit onderzoek het beleid van meer kennis voorzien zodanig dat er beter kan ingespeeld worden op het verminderen van de negatieve impact van oorlog op adolescenten.

Onderzoeksdesign

De onderzoekscontext, Noord-Oeganda, was het toneel van een bloedige oorlog van 1986 tot 2006, een gewapend conflict tussen het rebellenleger 'Lord's Resistance Army (LRA)' en het Oegandese regeringsleger. In hun oorlogsvoering werden burgers door het LRA heel duidelijk gevisieerd, met onder meer massale moordpartijen en het ontvoeren van duizenden kinderen als kindsoldaten. Als tegenoffensief dwong het Oegandese leger de bevolking te verhuizen naar vluchtelingenkampen waar ze in verschrikkelijke omstandigheden leefden. Sinds 2007 keerden de mensen

vrijwillig terug naar huis, een proces dat nu stilaan beëindigd is. Deze postconflictsetting, en meer in het bijzonder Gulu district, was de context van dit onderzoek. De dissertatie omvat drie studies en kent een mixed-methods-design, waarbij zowel kwantitatieve als kwalitatieve onderzoeksmethoden werden gebruikt. De dataverzameling vond plaats in 2007 (studie 1), 2010 (studie 2) en 2012 (studie 3).

Studie 1 (onderzoeksvraag 1 – hoofdstuk 2) had als doel om de aard en de patronen van psychiatrische stoornissen vast te stellen bij adolescenten die ontvoerd werden als kindsoldaten gedurende de oorlog in noord-Oeganda, in vergelijking met niet-ontvoerde adolescenten. Er werd een cross-sectionele studie uitgevoerd waarbij gebruik werd gemaakt van een unmatched case-control design. Hierbij werden 82 ontvoerde en 71 niet-ontvoerde adolescenten tussen elf en negentien jaar vergeleken inzake psychologisch lijden en psychiatrische diagnoses, waarbij gebruik werd gemaakt van de Strengths and Difficulties Questionnaire (SDQ) en de Mini International Neural-Psychiatric Interview for Children and Adolescents English version 2.0 (M.I.N.I.-KID).

Studie 2 (onderzoeksvraag 2 – hoofdstukken 2 t.e.m. 6) had als doel om te bepalen welke verbanden bestonden tussen oorlogsgerelateerde traumatische eraringen, moeilijke ervaringen tijdens de kindertijd, hechting, internaliserende problemen (symptomen van posttraumatische stress, depressie en angst) en risicogedragingen bij door oorlog getroffen adolescenten. Van augustus 2010 tot september 2010 werden 600 adolescenten benaderd, waarvan 551 (92%) schoolgaande adolescenten tussen 12 en 21 jaar een zelfrapportagevragenlijst invulden. Alle participanten gaven schriftelijk hun geïnformeerde toestemming. De zelfrapportagevragenlijsten bevroegen sociodemografische karakteristieken; zes contextspecifieke moeilijke ervaringen tijdens de kindertijd; zeventien oorlogsgerelateerde traumatische gebeurtenissen; hechting ten aanzien van moeder, vader en leeftijdsgenoten; internaliserende symptomen (posttraumatische stress, depressie en angst); en risicogedragingen (agressie, anti-sociaal gedrag, suïcidaal gedrag, druggebruik, seksueel risicogedrag en meervoudig risicogedrag [bestaande uit drie of meer specifiek risicogedragingen]).

Studie 3 (onderzoeksvraag 3 – hoofdstuk 7) had tot doel om meer inzicht te krijgen in de betekenis van de aard en het belang van sociale relaties vanuit het perspectief van adolescenten in een klinische setting. In deze studie werd een beschrijvend, exploratief design gehanteerd waarbij door oorlog getroffen adolescenten die hulp zochten bij een dienst geestelijke gezondheidzorg in Gulu district gevraagd werden te participeren.

Semigestructureerde interviews werden afgenomen van twintig adolescenten tussen 15 en 21 jaar. Door deze kwalitatieve gegevens konden we de aard en kwaliteit van sociale relaties onderzoeken vanuit het perspectief van adolescenten.

Dit onderzoek werd goedgekeurd door de Ethische Commissie van de Faculteit Psychologie en Pedagogische Wetenschappen van de Universiteit Gent, het onderzoekscomité van Gulu University (Uganda) en de Oegandese Nationale Raad voor Wetenschap en Technologie.

Belangrijkste conclusies

- ***Internaliserende symptomen en risicogedragingen bij door oorlog getroffen adolescenten***

De studies in dit onderzoek tonen aan dat adolescenten die getroffen zijn door oorlog of leven in een postconflict setting hoge prevalenties van zowel internaliserende problemen (symptomen van posttraumatische stress, angst en depressie) als externaliserende problemen en risicogedragingen (druggebruik, anti-sociaal gedrag, agressief gedrag en risicovol seksueel gedrag) vertonen. Hoewel comorbiditeit eerder de norm dan de uitzondering lijkt, blijken kinderen die blootgesteld werden aan meerdere moeilijke ervaringen tijdens hun kindertijd psychische symptomen te ontwikkelen die de reeds gedocumenteerde criteria van posttraumatische stressstoornis overschrijden. De clustering van internaliserende symptomen is dan waarschijnlijk ook beter te omschrijven aan de hand van het relatief nieuwe concept "developmental trauma disorder". Deze bevindingen onderstrepen het belang van het meten van cumulatief trauma bij kinderen en adolescenten. Verder kwamen er aanzienlijke genderverschillen naar voor, waarbij meisjes significant meer symptomen van depressie, posttraumatische stress en angst rapporteerden, alsook hogere agressie en suïcidaal gedrag, terwijl jongens significant meer anti-sociaal gedrag vermeldden. Deze bevindingen zijn een indicatie voor de nood aan genderspecifieke interventies met betrekking tot suïcidaal en antisociaal gedrag.

- ***Verbanden tussen oorlogsgerelateerd trauma, moeilijke ervaringen tijdens de kindertijd en internaliserende symptomen***

De resultaten van studie 1 gaven aan dat, ondanks significante niveaus van blootstelling aan oorlogsgerelateerde ervaringen in beide groepen,

voormalige kindsoldaten significant meer psychologische problemen hadden dan niet-ingelijfde adolescenten. De omstandigheden van het kindsoldaat-zijn vragen dus tot het installeren van langetermijninterventies op het vlak van geestelijke gezondheidszorg, waarbij deze ook afgestemd worden op de noden van door oorlog getroffen adolescenten.

Ten tweede waren er duidelijke associaties tussen moeilijke ervaringen tijdens de kindertijd en symptomen van depressie, waar anderzijds oorlogsgelateerde traumatische ervaringen geassocieerd konden worden met alle gemeten internaliserende symptomen. Hierdoor wordt het belang van potentiële mediators onderstreept. Zo bleek uit de studie dat moeilijke ervaringen tijdens de kindertijd de impact van oorlogsgelateerde traumatische ervaringen op symptomen van vermijden (PTSS) verminderde, wat de modererende rol aantoont van deze ervaringen in de relatie tussen oorlogsgelateerde traumatische ervaringen en internaliserende symptomen. De resultaten toonden tevens aan dat symptomen van depressie zich op eenzelfde manier kunnen ontwikkelen over verschillende vormen van trauma, van oorlogsgelateerde traumatische ervaringen tot moeilijke ervaringen tijdens de kindertijd.

- ***De invloed van oorlogsgelateerde traumatische ervaringen op de relatie tussen hechting en internaliserende symptomen***

In onze studie hadden oorlogsgelateerde traumatische ervaringen geen impact op de relatie tussen ouder-kind-hechting en posttraumatische stresssymptomen, in tegenstelling tot onze initiële hypothese. Dit was wel het geval voor hechting aan leeftijdsgenoten, meer bepaald was hechting aan leeftijdsgenoten protectief ten aanzien van het ontwikkelen van symptomen van posttraumatische stress in situaties van ernstige traumatische ervaringen. Deze bevinding spreekt vorige studies tegen waarin ernstige traumatische ervaringen de impact van positieve relaties met leeftijdsgenoten deed afnemen. Het blijft echter enigszins onduidelijk waarom oorlogsgelateerde traumatische ervaringen het verband tussen hechting aan leeftijdsgenoten en symptomen van posttraumatische stress zouden modereren, maar geen andere vormen van hechting (ouder-kind).

Daarnaast stelden we vast dat, onafhankelijk van het aantal oorlogsgelateerde traumatische ervaringen, hechting aan ouders beschermend is tegen depressie- en angstsymptomen, wat aangeeft dat de adolescenten en hun ouders sterke hechtingsbanden behouden ongeacht de ernst van het trauma, waardoor het effect van mogelijke stress bij de adolescenten wordt tegengewerkt. Echter, er is nood aan verder

longitudinaal onderzoek om te concluderen dat hechting een causale factor is in het al dan niet ontwikkelen van internaliserende problemen.

- ***Verbanden tussen oorlogsgerelateerde traumatische ervaringen, moeilijke ervaringen tijdens de kindertijd, hechting, symptomen van depressie en risicogedragingen***

De huidige bevindingen ondersteunen voorgaand onderzoek dat aantoonde dat cumulatieve blootstelling aan traumatische gebeurtenissen gedurende de oorlog en hieraan gerelateerde internaliserende problemen risicofactoren vormen voor de ontwikkeling van meervoudige risicogedragingen en dit niet enkel gedurende de blootstelling aan de traumatische ervaringen, maar ook vele jaren later. De studie leidt hiermee dus tot belangrijke implicaties inzake de psychologische assessment van en vroegtijdige interventies voor schoolgaande adolescenten in een postconflict context.

De studie vond ook evidentie voor een duidelijke associatie tussen moeilijke ervaringen tijdens de kindertijd en meervoudige risicogedragingen. Potentiële trajecten ter verklaring van deze relaties omvatten de mogelijkheid dat adolescenten met een geschiedenis van moeilijke ervaringen tijdens de kindertijd gemakkelijker betrokken raken in deviant sociale netwerken, wat dan kan leiden tot normalisatie van deze risicogedragingen. Een andere mogelijkheid is dat het ervaren van tegenslagen tijdens de kindertijd een negatief effect heeft op het algemeen interpersoonlijk functioneren, waardoor het risico vergroot om deel te nemen aan risicogedrag of om te gaan met leeftijdsgenoten die dergelijk risicogedrag vertonen.

De associaties tussen oorlogsgerelateerde traumatische ervaringen en meervoudige risicogedragingen werden gemedieerd door symptomen van depressie, en niet door symptomen van posttraumatische stress. Eén hypothese voor deze mediërende rol kan zijn dat de clustering van negatieve affectieve symptomen volgend op trauma het risico op externaliserend probleemgedrag kan verhogen als een manier om met stemmingssymptomen om te gaan.

Ten slotte, zoals voorondersteld, modereerde hechting aan de moeder het verband tussen depressiesymptomen en meervoudige risicogedragingen. Meer specifiek verzachtte moederlijke hechting de impact van oorlogsgerelateerde traumatische ervaringen op meervoudig risicogedrag.

- ***De betekenis van sociale relaties***

De hierboven vermelde resultaten werden verder getrianguleerd met kwalitatieve bevindingen die inzoomden op de perspectieven van adolescenten op betekenisvolle relaties gedurende hun opgroeien en in hun huidige leefsituatie. De kwalitatieve aanpak van deze studie liet een diepte-exploratie van deze betekenissen toe. Eigen perspectieven van participanten bieden immers mogelijkheden tot een exploratie van de betekenis ervan binnen specifieke culturele contexten.

Veiligheid in de relaties met moeders werd gezien als het meest belangrijke element in het opgroeiproces. De resultaten bevestigden het belang van de adolescent-moeder hechtingsrelaties, in overeenstemming met hechtingtheorieën, en gaven ondersteuning voor het gebruik en de conceptualisatie van hechting in deze bijzondere socioculturele setting. Verder kwamen hechting en sociale relaties in deze studie naar voor als te onderscheiden constructen, waarbij het belang om sociale ondersteuning duidelijk te definiëren wordt onderstreept. Hoewel deze bevindingen verdere inzichten geven in het belang van sociale ondersteuning in het algemeen, en van moeders in het bijzonder gedurende de adolescentie, blijft de aard en rol van sociale ondersteuning nog enigszins onduidelijk. Verdere studies zijn daarom nodig om de aard en rollen van sociale ondersteuning te verduidelijken in deze populatie.

Samengevat kunnen we stellen dat door oorlog getroffen adolescenten blootgesteld worden aan een resem van potentiële risicofactoren op elk niveau van hun sociale ecologie. Anderzijds zijn ook protectieve factoren inherent aan het leven van deze adolescenten, en vele adolescenten en hun families zijn dan ook erg veerkrachtig. Hoewel deze studie focust op een risico-benadering, vereist gebalanceerd onderzoek dat deze populatie wordt begrepen in de context van hun sociale ecologie, met nadruk op op veerkracht gebaseerde en cultuur-gerelateerde perspectieven.

Beperkingen van het onderzoek

De bevindingen moeten bekeken worden in de context van volgende methodologische beperkingen. Ten eerste is de generaliseerbaarheid van onze bevindingen beperkt, gegeven dat de studie uitgevoerd is in een stedelijke setting en bij schoolgaande jongeren. De resultaten van deze studie kunnen dan ook niet gegeneraliseerd worden naar de volledige populatie van door oorlog getroffen adolescenten in Oeganda. Verder werden er in de kwalitatieve studie (studie 3) enkel adolescenten in een

klinische setting benaderd, wat de toepasbaarheid van de bevindingen naar andere, niet-klinische groepen beperkt.

Ten tweede hanteerden we in de drie studies enkel een cross-sectioneel design, waarbij wel verbanden werden aangetoond, maar geen causaliteiten konden worden bevestigd.

Ten derde werden de gegevens retrospectief verzameld en op basis van zelfrapportage, waarbij sociale wenselijkheid en 'recall bias' de data mogelijk hebben beïnvloed. Aangezien de literatuur aangeeft dat onderrapportage meer voorkomt bij mannen dan vrouwen, kan ook in dit onderzoek onderrapportage een rol hebben gespeeld. Sommige kinderen waren niet in staat om bepaalde gebeurtenissen te herinneren en het is mogelijk dat participanten met ernstiger emotionele problemen traumatische gebeurtenissen anders herinnerden of rapporteerden dan jongeren met minder internaliserende problemen.

Ten vierde werden de data pas vier jaar na het einde van het conflict verzameld, waardoor andere postconflictfactoren, zoals postconflict traumatische gebeurtenissen, konden plaatsvinden en interfereren met de gemeten variabelen.

Ten vijfde zijn de bevindingen van de eerste twee studies beperkt door hun afhankelijkheid van westers-geörienteerde vragenlijsten en constructen. Hoewel de zelfrapportagevragenlijsten ontwikkeld werden met ondersteuning van Oegandese experts, is het toch mogelijk dat de vragenlijsten niet helemaal cultureel gevalideerd waren voor de lokale context.

Ten zesde, hoewel vele andere onderzoekers positieve ervaringen hebben met de hier gehanteerde zelfrapportagevragenlijst rond hechting, is een mogelijke beperking tot dat enerzijds de ervaren hechting ten aanzien van ouders en leeftijdsgenoten en anderzijds de ervaren sociale ondersteuning niet onafhankelijk zijn van elkaar.

Ten slotte is het belangrijk om de construct- en inhoudsvaliditeit inzake onderzoek bij een Afrikaanse steekproef in acht te nemen. Ethnoculturele variatie kan zowel de validiteit van de constructen als de validiteit van onze metingen verminderen. Ook is het mogelijk dat de wijze waarop hechting en sociale steun werden gemeten bepaalde aspecten van zowel hechting als sociale steun die uniek zijn binnen de Afrikaanse ethnoculturele setting niet in kaart heeft gebracht.

Implicaties voor verder onderzoek

Ondanks deze beperkingen is deze studie uniek in zijn bijdrage tot de wetenschappelijke literatuur omtrent de mogelijke associaties tussen hechting, internaliserende symptomen en risicogedrag bij adolescenten die leven in een postconflict setting waar weinig hulpbronnen voorhanden zijn. Een groter inzicht in de rol van modererende invloeden is belangrijk in het identificeren van individuele verschillen in emotioneel welzijn en voor het uitbouwen van interventies die het emotioneel welzijn van adolescenten kunnen ondersteunen. Bijkomend onderzoek is nodig om het theoretisch model omtrent de relaties tussen oorlogstrauma, hechting en psychologische uitkomsten duidelijker te ontwikkelen. Hierbij is er nood aan een beter begrip van de mechanismen waardoor hechting kan dienen als een beschermende factor tegen de negatieve impact van oorlogsgelateerd trauma.

Ten eerste zou toekomstig onderzoek moeten focussen op mechanismen zoals hechting ten aanzien van ouders en leeftijdsgenoten die interacties tussen moeilijke ervaringen tijdens de kindertijd, oorlogsgelateerd trauma en latere internaliserende symptomen en risicogedrag kunnen veranderen of modereren.

Ten tweede is er door een gebrek aan gegevens omtrent interactie-effecten van moeilijke ervaringen tijdens de kindertijd en oorlogsgelateerd trauma op latere symptomen, nood aan dataverzameling in grotere en meer diverse steekproeven, zoals niet-klinische steekproeven, adolescenten die niet naar school gaan, andere culturele contexten, enzovoort.

Ten derde is het duidelijk dat longitudinale studies nodig zijn om meer inzicht te verkrijgen in de complexe relaties tussen moeilijke ervaringen tijdens de kindertijd, stressvolle oorlogsgebeurtenissen en veelvuldig risicogedrag. Daarenboven, aangezien internaliserende problemen een invloed kunnen hebben op het herinneren van ervaringen, voornamelijk inzake traumatische gebeurtenissen en hechting, kunnen longitudinale studies die controleren voor initiële niveaus van internaliserende symptomen, de mogelijke bidirectionele effecten tussen hechting en internaliserende symptomen ontrafelen.

Ten vierde is het nodig, gezien zelfrapportagevragenlijsten het meest gebruikt zijn in dit type onderzoek, om eveneens andere dataverzamelingmethoden aan te wenden om deze verschillende concepten in kaart te brengen.

Ten vijfde is er meer onderzoek nodig om de wederzijdse relaties tussen de constructen van sociale steun en hechting in de context van trauma te

documenten. Daarenboven willen we onderzoekers stimuleren om het construct van hechting verder te differentiëren. Zowel een verdere conceptualisatie als een meer concrete operationalisering van het construct 'hechting' kan ons helpen om beter te begrijpen waarom of hoe hechting zo'n belangrijke rol speelt in het verband tussen depressiesymptomen en risicogedrag.

Ten slotte is er een duidelijke nood aan het ontwikkelen, beoordelen en verfijnen van interventies die zich richten op de ondersteuning van adolescenten met externaliserende probleemgedragingen.

Implicaties voor praktijk

Hoewel de bevindingen van dit onderzoek bijdragen tot een grotere kennisbasis omtrent de aard van geestelijke gezondheidsproblemen en de invloed van trauma en andere factoren bij oorlogsgetroffen adolescenten, is er minder bekend omtrent de specifieke implicaties voor interventies in deze postconflict contexten. Programma's die de psychosociale aanpassing faciliteren, staan voor een heel aantal uitdagingen. In wat volgt, zullen we een aantal implicaties van dit onderzoek belichten.

Aangezien kinderen slachtoffers van oorlog blijven, zijn psychosociale interventies die aangepast zijn aan de specifieke noden van kinderen en gebruik maken van een eerstelijnsaanpak meer en meer van belang en relevant voor postconflict contexten. Er is nood aan bewuste inspanningen om de geestelijke gezondheidszorg voor kinderen en adolescenten alsook de kennis inzake emotioneel welzijn van minderjarigen te verbeteren. Aangezien scholen één van de belangrijkste settings vormen om kinderen en jongeren te bereiken, is er nood aan samenwerking met en gespecialiseerde training van leerkrachten, ouders en gezondheidswerkers. Een geïntegreerd model van trauma-interventie moet niet alleen westerse psychotherapeutische interventies weerspiegelen, maar ook de specifieke culturele en contextgebonden benaderingen omvatten. De voornaamste focus van elk model zou moeten liggen op het versterken van lokale gemeenschappen, waarbij deze lokale gemeenschappen een grote rol opnemen inzake trauma-interventieprincipes en operationalisering van programma's. In elke (post)conflictsetting zou dus een beleid inzake geestelijke gezondheid moeten ontwikkeld worden dat aangepast is aan de specifieke noden van kinderen en adolescenten die getroffen zijn door het gewapend conflict.

Ten tweede heeft onze studie aangetoond dat alle adolescenten in Noord-Oeganda op één of andere manier getroffen zijn door het conflict. Bij het opstellen van postconflictprogramma's moeten daarom interventies ontwikkeld worden die voorbij de focus op bijzondere groepen gaan, zoals voormalige kindsoldaten. In plaats daarvan moeten programma's ontwikkeld worden die gebaseerd zijn op wetenschappelijke gegevens en op algemeen risicogedrag, zoals HIV, en waarbij een antwoord wordt geboden op de specifieke noden van adolescenten.

Ten derde draagt dit onderzoek bij aan de literatuur omtrent traumatische ervaringen tijdens de kinderen en tijdens gewapende conflicten. We moeten ons denken met betrekking tot de impact van complex trauma op de geestelijke gezondheid van jongeren dus verbreden, zodat dit eveneens ontwikkelingsaspecten weerspiegelt, alsook moeilijke ervaringen tijdens de kindertijd, zoals in het construct "developmental trauma disorder". Het is daarom belangrijk om deze diversiteit van factoren in rekening te brengen bij het ontwikkelen van interventies die de impact van deze gebeurtenissen op postconflict aanpassing van adolescenten verzachten.

Ten vierde is inzicht in traumatische ervaringen, internaliserende symptomen en risicogedrag essentieel voor zowel de ontwikkeling van effectieve geestelijke gezondheidsprogramma's als het opzetten van gepaste risicopreventieprogramma's voor alle oorlogsgetroffen adolescenten, zoals ook uitgewerkt in bovenstaande paragrafen.

Ten slotte, gegeven de belangrijke invloed van hechtingsrelaties en intrafamiliale moeilijkheden tijdens de kindertijd, moet er in programma's zowel aandacht zijn voor moeilijkheden en kwetsbaarheden als voor protectieve factoren van hechting en sociale steun.