Children and the Cycle of Violence in Post-Conflict Settings:
Mental Health, Aggression, and Interventions in Burundi

Dissertation submitted for the degree of Doctor of Natural Sciences

Presented by Anselm Crombach

at the

Universität Konstanz

Faculty of Science

Department of Psychology

Date of the oral examination: 2nd of December 2013

First supervisor: Prof. Dr. Thomas Elbert
Second supervisor: Prof. Dr. Jerôme Endrass
Third supervisor: Prof. Dr. Manassé Bambonyé

Konstanzer Online-Publikations-System (KOPS)
URL: http://nbn-resolving.de/urn:nbn:de:bsz:352-256328
I dedicate this work to

all children and adolescents

who have to face the hardship of the streets
Contact details of the author

Dr. Dipl.-Psych. Anselm Crombach

Scientific Research fellow at the Department of Psychology, Clinical Psychology and Clinical Neuropsychology, University of Konstanz

Active member of the Non Governmental Organization (NGO) vivo international

Assistant professor at the Department of Clinical Psychology, University Lumière of Bujumbura, Burundi

Postal address: P.O. Box 23/25, 78457 Konstanz

Phone: 0049-7531-884003

Fax: 0049-7531-884601

E-mail: anselm.crombach@uni-konstanz.de; anselm.crombach@vivo.org

Cooperation partners

The local NGO Fondation Stamm in Burundi

The NGO Burundi Kids in Cologne, Germany

The NGO vivo international, Allensbach-Hegne, Germany

The University Lumière of Bujumbura, Burundi
Acknowledgements

Every time I think back and remember all the people I have encountered and worked with over the past three years, I realize how fortunate I have been. I have had the opportunity to pursue my dream of working in the field of mental health and aggressive behavior. I got to know the Burundian culture and encountered many wonderful people. However, composing this doctoral thesis was a challenging journey for me. I am most grateful to everyone who has supported me on my way.

First and foremost, I thank my mentor Thomas Elbert with all my heart for his exceptional support and his trust in me. He gave me the opportunity to engage in this project. Moreover, I could always rely on him whenever I had to face difficult and challenging situations. Furthermore, I would like to thank Manassé Bambonyé for his knowledgeable input regarding mental health projects within the Burundian culture and for helping me overcome many administrative challenges. I would like to give special thanks to Jerome Endrass whose spontaneous support was greatly appreciated.

I am most grateful to Verena Stamm for welcoming me in her organization as well as for her advice and her support throughout my time in Burundi. Without her open-minded attitude this project would not have been possible. I thank Martina Wziontek and the NGO Burundi Kids for integrating me into their collaboration with the NGO Fondation Stamm and for organizing my first stay in Burundi. I am deeply grateful to Philipp Ziser who introduced me to the Burundian culture and the structures of the Fondation Stamm. Moreover, he and his wife welcomed me to their home and introduced me to their friends. I would also like to thank all my Burundian colleagues for their collaboration.

My heartfelt thanks go to all the children with whom I had the opportunity to work. I thank them for their trust and for sharing their stories with me. They fostered in me a deep understanding for the Burundian culture and made me care about it.
I could not have collected all the data without the help of my colleagues from Germany and Norway: Judith Stöckel, Nadja Jacob, Merethe Garnes Hellen and Tor Hogstad. Nor could I have accomplished this work without my translators Jean-Baptiste Niyungeko, Hervé Ntiruseseka, Arnaud Prosper Kamana and Seleus Mudugitse. I would like to thank them for their hard work and moral support. I am particularly grateful to Jean-Baptiste who was not only my principal translator but became a close friend. He guided me through many delicate situations and saved me more than once. Furthermore, he taught me Kirundi.

Maggie Schauer, Tobias Hecker and Katharin Hermenau offered me advice whenever I needed it. Roland Weierstall and Corina Nandi kept me free of obligations during the last period of my work. Danie Meyer-Parlapanis, Delphine Nzojibwami and James Moran were always ready to correct my English. In particular, James checked my drafts several times and helped me give them their final shape. I am very grateful to James, Nadja, Manassé and most of all Thomas for their critical input regarding my articles and my thesis.

I would have never come this far if it was not for all my friends and my family. They prevented me from losing myself in my work. Their support gave me the courage to continue when I had doubts. My friends in Burundi welcomed me into their lives. All of them opened my heart to the beauty of Burundi. My friends and family in Germany made sure I did not lose contact with my roots.

Last but not least I want to thank my parents Werner Crombach und the late Mechthild Crombach who supported me throughout my life and gave me the opportunity to pursue my academic career. I am particularly grateful to my father for encouraging me to realize my ambitions and putting up with my long absences abroad.

Thank you!  Merci beaucoup!  Murakoze cane!  Dankeschön!

Anselm Crombach
Table of contents

Acknowledgements ........................................................................................................ ii
List of tables ................................................................................................................... vii
List of figures .................................................................................................................... viii
Abbreviations ................................................................................................................ ix
Summary .......................................................................................................................... x
Zusammenfassung ........................................................................................................... xii

1 General introduction ..................................................................................................... 1
   1.1 Overview ............................................................................................................... 1
   1.2 Breakdown of traditional structures in Burundi as a consequence of violent conflict .... 2
   1.3 Trauma-related mental health issues in the aftermath of war and conflicts ................. 3
   1.4 Factors establishing and maintaining a cycle of violence on the individual level ........ 5
   1.5 Risk factors for mental health and aggressive behavior among street children .......... 8
   1.6 Residential centers ............................................................................................. 10
   1.7 Mental health care approaches in post-conflict countries ....................................... 11
   1.8 Interventions addressing aggressive behavior among street children and other vulnerable children in post-conflict settings ........................................................................ 14
   1.9 The aims of this thesis .......................................................................................... 15

2 Shattered by violence, poverty and insecurity: A study on reintegration of street children in Burundi ............................................................................................... 17
   2.1 Abstract ................................................................................................................ 17
   2.2 Introduction ........................................................................................................ 18
   2.3 Methods ............................................................................................................... 22
      2.3.1 Participants and living conditions ........................................................................ 22
      2.3.2 Procedure ........................................................................................................ 24
      2.3.3 Materials ......................................................................................................... 25
      2.3.4 Data analysis ..................................................................................................... 26
2.4 Results .......................................................................................................................... 27
  2.4.1 Description of the participants ............................................................................... 27
  2.4.2 Prevalence of mental disorders .............................................................................. 28
  2.4.3 PTSD symptom severity and exposure to violence and insecurity ....................... 29
  2.4.4 Maltreatment, PTSD and school results ................................................................ 31

2.5 Discussion .................................................................................................................... 33
  2.5.1 Residential centers for street children .................................................................... 33
  2.5.2 Needs beyond food, shelter and education ........................................................... 35
  2.5.3 Limitations ............................................................................................................. 38
  2.5.4 Conclusions ........................................................................................................... 39

3 The benefits of aggressive traits: A study with current and former street
children in Burundi ................................................................................................................ 41
  3.1 Abstract ....................................................................................................................... 41
  3.2 Introduction .................................................................................................................. 42
  3.3 Methods ....................................................................................................................... 47
    3.3.1 Participants ............................................................................................................ 47
    3.3.2 Procedure ............................................................................................................. 48
    3.3.3 Materials ............................................................................................................. 49
    3.3.4 Data analysis ....................................................................................................... 53
  3.4 Results ........................................................................................................................ 53
    3.4.1 Description of participants .................................................................................. 53
    3.4.2 Group differences ............................................................................................... 54
    3.4.3 Aggression and PTSD ......................................................................................... 56
    3.4.4 Aggression and recent offenses .......................................................................... 57
  3.5 Discussion .................................................................................................................... 59

4 Controlling offensive behavior using Narrative Exposure Therapy: A
RCT of vulnerable children ................................................................................................... 64
  4.1 Abstract ....................................................................................................................... 64
  4.2 Introduction .................................................................................................................. 65
List of tables

Table 2.1  Demographic data ................................................................. 28
Table 2.2  Prevalence of mental disorders .............................................. 29
Table 3.1  Demographic data ................................................................. 54
Table 3.2  Regression analysis predicting recent offenses with reactive aggression and appetitive aggression ................................................................. 58
List of figures

Figure 1.1  Schematic illustration of the interaction between the environment and the development of internal predispositions causing the individual perpetration of offenses.................................................................................................................................8

Figure 1.2  Extension by Neuner (2010) of the partial mediation model of war, mental health and daily stress as proposed by Miller and Rasmussen (2010).................................13

Figure 2.1  Differences between the groups in PTSD severity (means and SEs) and regularly experienced violence ...............................................................................................................................31

Figure 2.2  Factors influencing level of PTSD symptoms and success in school in a center for vulnerable children ..................................................................................................................33

Figure 3.1  Group differences in PTSD severity, traumatic life events, regularly experienced violence, recent offenses, reactive aggression and appetitive aggression ...............56

Figure 4.1  Schematic representation of the interaction between the fear network and the hunting network triggering aggressive behavior using the example of a retaliation script .......................................................................................................................................69

Figure 4.2  Flow of the participants through the study .........................................................................................73

Figure 4.3  Group differences in the follow-up assessment and in the development patterns of the sum scores of recent offenses (a), appetitive aggression (b), PTSD (c) and physical health (d) between the initial assessment and the follow-up .................82
## Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAS</td>
<td>Appetitive Aggression Scale</td>
</tr>
<tr>
<td>AAS-C</td>
<td>Appetitive Aggression Scale for Children</td>
</tr>
<tr>
<td>ANCOVA</td>
<td>Analysis of covariance</td>
</tr>
<tr>
<td>CNDD/FDD</td>
<td>Conseil National pour la Défense de la Démocratie/Forces de Défense de la Démocratie</td>
</tr>
<tr>
<td>DSM-IV</td>
<td>Diagnostics and Statistical Manual of Mental Disorders IV</td>
</tr>
<tr>
<td>FORNET</td>
<td>Forensic Offender Rehabilitation Narrative Exposure Therapy</td>
</tr>
<tr>
<td>FNL</td>
<td>Front National de la Libération</td>
</tr>
<tr>
<td>MANOVA</td>
<td>Multivariate Analysis of Variance</td>
</tr>
<tr>
<td>MINI-KID</td>
<td>Minnesota International Neuropsychiatric Interview for children and adolescents</td>
</tr>
<tr>
<td>NET</td>
<td>Narrative Exposure Therapy</td>
</tr>
<tr>
<td>NGO</td>
<td>Non Governmental Organization</td>
</tr>
<tr>
<td>PTSD</td>
<td>Posttraumatic Stress Disorder</td>
</tr>
<tr>
<td>UCLA PTSD Index</td>
<td>University of California at Los Angeles PTSD Reaction Index</td>
</tr>
</tbody>
</table>
Summary

In this thesis I investigated the negative impact of maltreatment on the psychological well-being of children and adolescents who grew up in violent environments of the post-conflict country Burundi. Furthermore, the individual risk factors of these adolescents for engaging in everyday violence were assessed. Subsequently I evaluated the Forensic Offender Rehabilitation Narrative Exposure Therapy (FORNET) as a means of reducing violent behavior among adolescents.

Research has demonstrated that trauma-related mental health disorders are common among war-affected populations. Children and adolescents growing up on the streets or in unstable family conditions in post-conflict settings are particularly vulnerable. Exposure to life-threatening situations, maltreatment and other forms of violence at early age most likely impede their development and exacerbate their risk to suffer from mental ill-health. Furthermore, violent environments also appear to foster aggressive behavior. A large number of studies have shown that posttraumatic stress disorder (PTSD) is associated with an increased likelihood of reactive aggressive responding. However, recent studies with serious offenders showed that violent behavior might also be perceived as appetitive, i.e., as exciting, fascinating and related to feelings of power. Appetitive aggression appears to be a useful adaption to adverse environments, which may also develop among children and adolescents.

The mental health and the propensity to engage in violent behavior were investigated in 112 male children and adolescents. They were recruited from the streets (n = 15), families (n = 15), a residential center for former street children (n = 32) and other vulnerable children (n = 50) in Burundi. They were between 11 and 24 years old (mean = 15.9 years; SD = 3.0 years). PTSD symptom severity was assessed with the University of California at Los Angeles PTSD Reaction Index (UCLA PTSD Index; Steinberg, Brymer, Decker, & Pynoos, 2004). The Minnesota International Neuropsychiatric Interview for Children and Adolescents
(MINI-KID; Sheehan et al., 2010) was used to screen for depression, alcohol and substance dependence as well as for suicidal risk. In addition, physical health complaints were examined with a checklist. Aggression was assessed with an offense checklist, the Reactive Proactive Aggression Questionnaire (Raine et al., 2006) and the Appetitive Aggression Scale for Children (AAS-C). Among the adolescents in residential care, the 32 scoring highest in appetitive aggression were chosen to participate in an intervention study. Half of them received FORNET, the remaining 16 received treatment as usual. The follow-up assessment was conducted 4-7 months after completing treatment.

Results showed that current street children were most affected by mental disorders. The children living in the residential center suffered more from PTSD symptoms than children who still lived with their families. In residential care, the current exposure to minor violence and neglect was positively associated with increased PTSD symptom severity. The latter impeded progress in school. Appetitive aggression was negatively related to PTSD symptoms. This indicates that appetitive aggression improves resilience against mental ill-health of adolescents who grew up in precarious conditions. Furthermore, appetitive aggression was a serious risk factor for current offenses. FORNET proved to be effective in reducing the involvement in everyday violence among adolescents (Hedges g = .62). In addition, the physical health of the FORNET treated participants improved (Hedges g = .56). The results disentangled different aspects of the cycle of violence: (1) Being a victim of even minor violent acts impairs mental health, which in turn impedes progress in school. Hence providing adolescents with a violence free environment is essential for successful integration into society. (2) Children and adolescents may develop appetitive aggression as an adaption to violent environments. While this protects their mental health in precarious conditions, it also increases their involvement in everyday violence. The FORNET is a promising approach to reducing violent behavior and to improving resilience against ill-health.
Zusammenfassung

In der vorliegenden Arbeit wurden die negativen Auswirkungen von Misshandlungen auf das psychische Wohlbefinden von Kindern und Jugendlichen untersucht, die unter gewalttätigen Umständen in dem Post-Konfliktland Burundi aufgewachsen sind. Weiterhin wurden individuelle Risikofaktoren untersucht, die Jugendliche motivieren alltägliche Gewalt auszuüben. Anschließend wurde die Wirksamkeit der Forensic Offender Rehabilitation Narrative Exposure Therapy (FORNET) evaluiert, gewalttätiges Verhalten bei Jugendlichen zu verringern.


Es wurde die psychische Gesundheit und die Gewaltbereitschaft von 112 männlichen Kindern und Jugendlichen erhoben. Diese wurden von der Straße \( n = 15 \), in ihren Familien \( n = 15 \) und in einem Heim für ehemalige Straßenkinder \( n = 32 \) und andere Kindern aus

Zusätzlich profitierten die Probanden, welche mit FORNET behandelt wurden, von einer verbesserten physischen Gesundheit.

1 General introduction

“Our worry is this, what will become of these kids tomorrow? Thousands of children living on the streets with no supervision, no education, no love or care, accustomed to daily violence and abuse. What future for these children and for our country?“

Street child educator in Lubumbashi, Kongo (Human Rights Watch, 2006, p. 1)

1.1 Overview

This thesis focuses on the ways in which maltreatment and violent environments impact upon the mental health and upon aggressive behavior of children and youths. Empirical studies were conducted with children and adolescents growing up on the streets, in residential care, and in families in Burundi, which is a post-conflict land. In this general introduction, I present an overview of the potential psychological consequences of the aftermath of conflicts for children and adolescents. Furthermore, I outline common care approaches employed in post-war communities to deal with the high number of vulnerable children. The subsequent chapters of this thesis empirically examine each issue in detail, including risk factors for mental ill-health, the efficacy of residential care facilities and a possible psychological intervention for these children. In the conclusion of this thesis, I discuss the results of the empirical work in a broader context and highlight further implications for research and practice.
1.2 Breakdown of traditional structures in Burundi as a consequence of violent conflict

Burundi is one of the smallest and most densely populated countries in Eastern Africa. Since its independence in 1962, inter-ethnic conflicts between Hutus and Tutsis have continuously escalated, culminating in a civil war, which erupted in 1993 and destabilized the country for more than a decade. A slow peace and reconciliation process started only in 2005 after the largest Hutu rebel movement, the Conseil National pour la Défense de la Démocratie/Forces de Défense de la Démocratie (CNDD/FDD), had been integrated into the institutions of the state and army. The CNDD/FDD has subsequently been elected as the new ruling party. In 2006, the remaining significant rebel movement, the Front National de la Libération (FNL), signed an agreement that was supposed to pave the way for integration and peace. However, it took three more years until the FNL finally handed over their weapons. During the war, more than 300,000 people lost their lives and more than a million were displaced (Uvin, 2009). Even today, politically motivated killings take place regularly, contributing to an atmosphere of violence and insecurity (Human Rights Watch, 2012).

As a consequence of the civil war, Burundi has become one of the poorest countries in the world. Many Burundians have lost close relatives and families have fallen apart. A significant portion of the population still lacks basic needs such as access to a stable food supply. Additionally, there is a great deal of family-conflicts centered on the issue of inheritance of the land. For example, if a family is to pass on their property to their children, they will typically subdivide their lands into very small plots that are ultimately insufficient to feed a family. Some families are even not able to satisfy the very basic needs of their children. Poverty and conflicts among the remaining family further increase the risk of children being exposed to neglect and maltreatment (Adérinto, 2000; Human Rights Watch, 2006). Male children are particularly affected by the inheritance-related conflicts and hence
have a higher risk living on the streets (Armstrong, 2011; Veale & Dona, 2003; Watt, 2008). Out there on the streets, these children are facing constant and pervasive threats to safety and well-being (Karabanow et al., 2007; Thomas de Benitez, 2007).

Over the past decades, the Burundian government, church initiatives, international and local Non Governmental Organizations (NGOs) have established residential care facilities to respond to the basic needs of the affected children. However, only a few of these centers target the particularly vulnerable population of street children (Armstrong, 2011).

1.3 Trauma-related mental health issues in the aftermath of war and conflicts

The psychological consequences of armed conflicts are particularly devastating for children and adolescents. The experience of displacement, death of relatives, exposure to violence and other life-threatening conditions at a very early age, not only cause immediate suffering but also interfere with healthy development (Elbert, Rockstroh, Kolassa, Schauer, & Neuner, 2006). In addition, children are severely affected by psychosocial factors arising from the experience of trauma (Amone-P’Olak, 2004; Vinck, Pham, Stover, & Weinstein, 2007).

Trauma-related mental health disorders as a result of war, abuse and violence can persist for decades, thereby decreasing the abilities of individuals to cope with the myriad of problems arising from poverty and insecurity (H. Johnson & Thompson, 2008; Schaal, Dusingizemungu, Jacob, & Elbert, 2011; Schaal & Elbert, 2006). They undermine empathic abilities and trust in others. Subsequently, reconciliation processes are threatened, delaying the restoration of a social contract, and peace building (Bayer, Klasen, & Adam, 2007; Beiser, Wiwa, & Adebajo, 2010). The prevalence of posttraumatic stress disorder (PTSD) is high within the general population of low-income post-conflict and crisis regions (Canetti et al., 2010; de Jong et al., 2001). The estimated prevalence rates among war-affected
populations in Rwanda, Somalia, South Sudan and Uganda range from 20% to 50% (Karunakara et al., 2004; Neuner et al., 2004; Onyut et al., 2009). Similar rates have been reported among children and adolescents (Catani, Jacob, Schauer, Kohila, & Neuner, 2008; Dyregrov, Gupta, Gjestad, & Mukanoheli, 2000; Elbert et al., 2009). Moreover, during the early aftermath of the Rwandan genocide, Neugebauer and colleagues (2009) reported PTSD rates of over 50% among children and youths. More than 10 years after the genocide, studies have found that between 29% and 44% of orphans still met the diagnostic criteria for PTSD.

In addition, a considerable number of these children suffered from clinically significant depression and anxiety symptoms as well as suicidal ideation (Schaal et al., 2011; Schaal & Elbert, 2006). Studies with school children in Sri Lanka provided evidence of the devastating effects of trauma-related stress on psychosocial well-being and physical health. Greater exposure to traumatic incidents, such as in war, domestic violence or during the Tsunami, was associated with greater reported difficulties in relationships with friends, family life and school performance. Furthermore they suffered more from physical health complaints (Catani et al., 2010; Elbert et al., 2009).

Different factors contribute to the enhanced vulnerability of children and adolescents born during violent conflicts or who are growing up in crisis regions. Being exposed to multiple life-threatening and violent situations at an early age probably induces a hypersensitivity in the biological stress-response system, as the plasticity of the brain is at its vulnerable peak. This produces a life-long decrease in the resilience against stress-related mental ill-health (Andersen & Teicher, 2008; Elbert et al., 2006; Tottenham et al., 2010). In addition, intergenerational effects of trauma-related disorders affect children of parents and caretakers who have themselves been exposed to traumatic life events. The parents’ ability to help their children in dealing with stressful events is impaired. Due to maladaptive parenting styles, parents or caregivers often fail to provide a stable attachment, which would protect
children from early life stressors and buffer against their negative impact (Cohen, Dekel, Solomon, & Lavie, 2003; Field, Om, Kim, & Vorn, 2011; Lieberman, Chu, Van Horn, & Harris, 2011; Rao et al., 2010). Recent studies further suggest that maternal prenatal stress in the form of inter-partner violence, and stress exposure during childhood can lead to epigenetic alterations of gene-expression within the genome of children. These changes most likely affect the regulatory function of the biological stress-response system of the child, thereby further exacerbating the vulnerability of the children (Essex et al., 2013; Radtke et al., 2011). The negative effects of childhood maltreatment on psychological well-being and functionality of children cannot be stressed enough. According to a very recent review from Teicher and Samson (2013), it accounts for 30 % to 70 % of a populations’ attributable risk of suffering from anxiety disorders, depression, substance abuse, suicidal risk and PTSD over lifetime. In addition, individuals who suffered from maltreatment during their childhood respond poorly to treatment later in their lives.

1.4 Factors establishing and maintaining a cycle of violence on the individual level

Over the past 50 years research has gathered an abundant amount of evidence showing that exposure to violence is a major risk factor for committing offenses in the future (e.g., Elbert et al., 2006). Catani (2010) suggested that the exposure to war might increase the maltreatment of children by their parents. This idea is supported by various studies with veteran soldiers, which associated PTSD with inter-partner violence and impulsive aggressive behavior (e.g., Jakupcak et al., 2007; Taft et al., 2007; Taft et al., 2009; Teten et al., 2010). Increased alcohol consumption, often described as a co-morbid adaption to trauma, could further aggravate the maltreatment of children and in consequence increase trauma-related symptoms among children growing up in conflict regions (Catani et al., 2008; Catani et al.,
Another factor might be that children who have been exposed to traumatic stress, show externalizing behavior problems, which in turn result in more frequent physical punishment by the caretakers (Catani, 2010; Punamäki, Qouta, & El-Sarraj, 2001). Parents who were maltreated during childhood are more likely to mistreat their own children, thereby contributing to an intergenerational transmission of trauma and violence (Pears & Capaldi, 2001).

Growing up in violent and unpredictable environments, experiencing or witnessing violent acts, maltreatment and war, increases the risk of mental ill-health, but promotes also aggressive behavior among children and adolescents (Qouta, Punamäki, Miller, & El-Sarraj, 2008). The majority of studies focused on reactive aggression, which explains violent outbursts as a result of an impulsive anger-driven reaction to perceived threats and provocations, with the objective of eliminating or reducing potential danger or damage (Fontaine, 2007). As such, reactive aggression has been consistently linked to PTSD. For example, children and youths involved in violent offenses and crimes reported more victimization and PTSD symptoms than those who were not (Flannery, Wester, & Singer, 2004; Wood, Foy, Layne, Pynoos, & Boyd, 2002). Several studies have indicated that violent and insecure environments may cause emotional dysregulation in the form of irritability, tantrums, and feelings of imminent danger. This dysregulation in turn predisposed individuals to react aggressively in order to defend themselves, often leading to violent offenses (Ford, 2002; Marsee, 2008).

However, recent research suggests that this form of aggression is not the only internal motivation for individuals to engage in violent behavior. For example Qouta and colleagues (2008) reported that witnessing severe military violence was also associated with proactive aggression and violence-related enjoyment. Elbert, Weierstall and Schauer (2010) suggested that perpetrating violence might very well be associated with rewarding feelings such as...
excitement, power, and fascination. Appetitive aggression, i.e., the infliction of harm in order to experience violence-related enjoyment in the form of power, excitement and passion, would be a useful adaption facilitating the perpetration of violent acts and increasing the chances of survival in adverse environments. In fact, the adaptive function of appetitive aggression has been demonstrated in several studies with extremely violent offender populations such as child soldiers, genocide perpetrators and combatants (Hecker, Hermenau, Maedl, Elbert, & Schauer, 2012; Weierstall, Schaal, Schalinski, & Elbert, 2011). A study in South Africa assessing youth and young men involved in gang wars associated appetitive aggression with better social functioning skills and less trauma-related distress, hence suggesting that it may serve as a psychologically self-protecting function (Weierstall, Hinsberger, et al., 2013).

Considering the insecure circumstances many children in post-conflict countries have to face, it is possible that they have also acquired a taste for violence in order to prevail. Children deprived of positive reinforcement, such as parental attachment and a secure environment, might find compensatory pleasure in the sudden experience of power, control and security that comes with the defeat of an opponent. Consequently, appetitive aggression most likely contributes to re-occurring current violent behavior. Reviewing the literature about bullying behavior among children further strengthens this assumption: Contrary to popular beliefs that bullies are anxiety-ridden or suffer from low self-esteem, their stronger aggression and willingness to fight is reinforced by higher social status among their peers (Jordan & Austin, 2013). They “have a strong need for power and dominance, overpowering others, which seems to be enjoyable to the bully, as s/he is in a position of control”; they “have a need to subdue others”; and they “seem to enjoy being in control” (Olweus, 1993, p. 35). Figure 1.1 summarizes how predispositions to reactive aggression and appetitive aggression might develop in children and adolescents, thereby enhancing the probability of
them resorting to bullying or violent behavior. This would in turn reinforce the violent atmosphere of their environment.

![Diagram showing the interaction between environment and development of internal predispositions causing violent offenses.]

**Figure 1.1.** Schematic illustration of the interaction between the environment and the development of internal predispositions causing the individual perpetration of offenses.

1.5 **Risk factors for mental health and aggressive behavior among street children**

Among the children growing up in post-conflict and crisis regions, street children are probably the most affected by the above-mentioned psychological effects of violent environments. Both adverse family situations and detrimental experiences while living on the
streets impair their mental health (Forde, Baron, Scher, & Stein, 2012; Hadland et al., 2011; Thompson, Bender, & Kim, 2011). Apart from daily struggles to find food and shelter, they have to endure sexual and physical assaults and other forms of victimization (Karabanow et al., 2007; Thomas de Benitez, 2007). Researchers working with street children in high-income countries found high rates of trauma-related and co-morbid mental health disorders. For example Chen, Thrane, Whitbeck and Johnson (2006) reported prevalence rates as high as 30% to 40% for PTSD, depression, alcohol and substance dependence in a sample of American youths living on the streets. Having this basic information at hand is a necessary prerequisite for developing specific psychological interventions. However, there is a lack of studies on mental health of street children in post-conflict countries.

Maltreatment and adverse living conditions most likely also foster aggressive behavior in street children (Ramphele, 1997). Constant insecurity and risk of victimization exacerbate reactive aggression, while the involvement in violent acts enhances appetitive aggression. Indeed, proactively committing offenses might be an important factor that keeps street children functional, as it satisfies a need for positive emotions in such an adverse environment (Arsenio, Adams, & Gold, 2009). Perpetrating violence might be a useful adaption for them against becoming victimized, giving them a sense of control in their violent environment (Baron & Forde, 2007; Baron, Kennedy, & Forde, 2001). Furthermore, the involvement in violent activities might replace the self-esteem that had been taken from them through the experiences of abuse (Baron, 2004; Baumeister, Boden, & Smart, 1996). Moreover, in the street environment, aggressive behavior is accepted as a means of gaining social status and ensuring the necessary means for survival (Baron, 2009, 2013). Most likely, this further reinforces appetitive aggression. The more time children and youths spend on the streets, the more they are affected by this environment (Baron, 2009; Gaetz, 2004; Gaetz, O’Grady, & Buccieri, 2010).
1.6 Residential centers

As illustrated in the example of Burundi, over the past few decades, governments, church initiatives, international and local NGO’s have established many residential care facilities in low-income post-conflict countries to provide vulnerable children with food, shelter and education. Providing street children and other vulnerable children with a stable environment and preparing them for their future could potentially improve their mental health and in turn enhance their functionality (Slesnick, Dashora, Letcher, Erdem, & Serovich, 2009). However, in recent years these facilities have been ever more criticized for being too expensive and for having detrimental effects on the development of children (Williamson & Greenberg, 2010). Furthermore, it has been suggested that housing former street children in overcrowded and understaffed centers might significantly contribute to a violent and abusive atmosphere (Thomas de Benitez, 2007). However, there are not enough studies assessing the efficiency of residential centers in crisis regions in providing a secure environment for former street children.

The long-term objective of residential care centers for children and adolescents is usually successful reintegration into remaining family structures or enabling them to care for themselves. The key element of this is considered to be school education (Betancourt et al., 2008; United Nations Children’s Fund, 2006). Research has furthermore revealed that a strong and stable relationship to adult caregivers, be they family members, caregivers or educators, is essential for good psychosocial functioning of children growing up in residential care (Dvir, Weiner, & Kupermintz, 2012). In particular, during the difficult transition from the relatively safe environment of the residential care facility to an independent life, the children depend on this kind of support. Without the relative sanctuary of the residential care facility, they once again face the difficult living conditions, depending mainly on themselves to survive (Dvir et al., 2012).
1.7 Mental health care approaches in post-conflict countries

Miller and Rasmussen (2010) suggested that there is a divisive split between advocates of trauma-focused and psychosocial approaches to understanding and addressing mental health needs in conflict and post-conflict settings. Apparently this split is not limited to research but is also manifested in guidelines of international aid organizations:

For a long time, humanitarian efforts promoting psychosocial well-being were focused on responding to the immediate psychological affects of distressing events. Approaches were developed based on psychology and psychiatry. The emphasis was often on treating trauma and posttraumatic stress disorder (PTSD), a clinical mental health diagnosis. However, experience has shown that only a small percentage of an affected population will develop mental illness. In fact, this approach can be counterproductive if the terminology and methods stigmatize portions of the population by labelling them as ill. The approach can also deflect attention away from the role of the broader social environment on which interventions could have a greater impact. There has been a resulting shift toward a psychosocial perspective, emphasizing a focus on risk and protective factors that influence the development and well-being of the child. (United Nations Children’s Fund, 2009, p. 24)

The above cited research firmly rejects the assumption that only a small percentage of populations in post-conflict settings suffer from mental ill-health and consequent impairment in functioning (Canetti, et al., 2010; Catani et al., 2008; de Jong et al., 2001; Dyregrov et al., 2000; Elbert et al., 2009 Karunakara et al., 2004; Neuner et al., 2004; Onyut et al., 2009). However, there is much discussion on how to approach mental disorders in these settings. Miller and Rasmussen (2010) emphasized the role of daily stressors in mediating the effects
of direct war exposure on mental health effects. In consequence, they proposed an integrative, sequential approach to interventions. They suggested first addressing daily stressors and providing specialized interventions only for individuals whose distress does not abate with the repair of the social ecology. The implementation of residential care for children is partially based on this assumption. The idea is that satisfying the basic needs of the children, and thereby addressing the most obvious stressors such as food, shelter, health, and education would adequately reduce psychological difficulties. However, Neuner (2010) challenged the position taken by Miller and Rasmussen (2010) on several points:

The assumption that daily stressors causally contribute to the onset or maintenance of common mental disorders in conflict and post-conflict populations is oversimplified. Mental ill-health, and material circumstances interact: As a consequence of mental ill-health, individuals perceive their environment as being more threatening or negative than it really is; dysfunctional behavior related to impaired mental health might increase the likelihood of poverty, unemployment and marital difficulties; physical health problems might be caused by biological stress reactions due to mental disorders; or as already mentioned above trauma-related behavioral problems might increase the chance of physical punishment. More research is necessary to disentangle the exact causal relationships. However, it is reasonable to suppose that the relationship between daily stressors and mental health disorders goes both ways: Daily stressors contribute to mental ill-health and vice-versa. Figure 1.2 illustrates the extension of Neuner (2010) to the model of Miller and Rasmussen (2010).
CHAPTER 1: GENERAL INTRODUCTION

![Diagram of stressors and mental health]

Figure 1.2. Extension (solid lines) by Neuner (2010) of the partial mediation model (dashed lines) of war, mental health and daily stress as proposed by Miller and Rasmussen (2010). Daily stress could also be the consequence of mental health, rather than the predictor or mediator.

Furthermore, a chronological prioritization of psychosocial interventions is only useful if the following criteria are satisfied: Salient daily stressors must be easily identified; the most detrimental daily stressors can be reduced by psychosocial interventions; finally it must be shown that a reduction of daily stressors brings about an improvement in mental health that outperforms the efficiency of psychotherapeutic treatment. Unfortunately, according to Neuner (2010) the evidence for all of these assumptions is lacking. While some daily stressors, such as poverty or malnutrition might be obvious, others, such as domestic or community violence are very difficult to assess even though they might play an integral role in maintaining psychological distress and social malfunctioning. Furthermore, protecting individuals from daily stressors might not always be possible and/or even be severely complicated by mental health symptoms. Moreover, there is a high risk in impoverished post-conflict regions of daily stressors reemerging at a later point in time, which means that latent mental health symptoms can reemerge and cause functional impairment. An example could be the moment when the former street children are leaving residential care to embark on an independent life. Last but not least, there is a lack of well-controlled studies on the
effectiveness of psychosocial interventions - e.g., play activities or unspecific counseling - to reduce daily stressors and improve mental health (Neuner, 2010).

Over the last decade, field-based studies in crisis regions such as Sri Lanka, Rwanda, Uganda, Democratic Republic of Congo, Ethiopia, Romania, Somalia, Afghanistan have provided evidence for the effectiveness of the short-term intervention Narrative Exposure Therapy (NET) to treat PTSD in crisis regions. In particular, severely traumatized survivors of organized violence such as war and torture, as well as victims of domestic violence have been successfully treated. The effectiveness of NET, especially in comparison to other therapeutic approaches in providing sustainable long-term improvements in mental health, has been proven in numerous controlled studies in war and crisis regions (for details, see Robjant & Fazel, 2010). Furthermore recent randomized-controlled studies have shown that NET can also be applied by laypersons and be disseminated via train-the-trainer approaches (Jacob, Neuner, Maedl, Schaal, & Elbert, 2013; Neuner, Onyut, et al., 2008).

Based on these results, Schauer and Schauer (2010) argue for a paradigm shift in humanitarian assistance regarding mental health. They advocate for evidence-based treatment of trauma-related disorders, because restoring mental health enables people to live productive lives. Furthermore, this may prevent some of the transgenerational effects of trauma exposure that render the next generation more vulnerable for mental disorders and impairment of functioning. In addition, it may help to interrupt the prevalent cycle of violence.

1.8 Interventions addressing aggressive behavior among street children and other vulnerable children in post-conflict settings

The need for evidence-based psychological interventions in post-conflict settings for such marginalized and alienated populations, such as children and adolescents growing up on the streets, have been widely acknowledged (Karabanow & Clement, 2004; Kidd, 2013; Schauer
Addressing psychological distress and aggressive behavior of street children and other vulnerable children should enable them to profit better from opportunities for social reintegration through the transition of stable housing programs (McCay & Aiello, 2013). Such interventions would most likely improve their functionality and could inhibit their involvement in future violent behavior (Hart, O’Toole, Price-Sharps, & Shaffer, 2007).

Most of the existing therapeutic approaches addressing aggressive behavior in violent offenders as well as delinquent children and adolescents focused on strengthening social and cognitive control of aggressive behavior by teaching strategies to deal with cues or situations that might trigger this kind of behavior. Empathy training for perpetrators has been considered as another important factor for reducing violent behavior (e.g., Urbaniok & Stürm, 2006; Weidner, 2008). However, little has been done so far to directly address the individual predispositions and in particular the appetitive perception of violent behavior. Based on the narrative approach of treating trauma-related disorders, we developed an intervention to address the appetitive aspects of aggressive behavior (Elbert, Hermenau, Hecker, Weierstall, & Schauer, 2012). The focus on individual predispositions, biological or learned, is of particular importance in an environment in which destabilizing factors are difficult to control. The theoretical background and the exact mechanisms of the Forensic Offender Rehabilitation Narrative Exposure Therapy (FORNET) will be detailed in Chapter 4 of this thesis.

1.9 The aims of this thesis

This thesis aims to disentangle different effects and mechanisms of the cycle of violence on mental health and aggressive behavior of children and adolescents. In the following studies I want to show how traumatic incidents as well as violent and insecure environments interact to establish and maintain a cycle of violence. The psychological risk factors for mental ill-
CHAPTER 1: GENERAL INTRODUCTION

The health and benefits of aggressive behavior in street children and other vulnerable children growing up in the aftermath of political conflicts are explored. Furthermore, the FORNET is evaluated as a specific intervention to interrupt the cycle of violence.

Chapter 2 explores the efficiency and limitations of institutional care facilities in protecting children from extremely violent and insecure living conditions such as the streets and examines the associated advantages regarding mental health. In particular, the risks of violence for the psychological well-being and functionality of vulnerable children are investigated. This study aims to highlight how violence and insecurity may undermine attempts to support vulnerable children and adolescents in a sustainable manner.

Chapter 3 aims to identify how children adapt to violent environments and to disentangle the principal mechanisms that maintain the cycle of violence on an individual level. I want to provide evidence that children and adolescents growing up in adverse environments may develop an attraction to violence that is very similar to combatants and child soldiers in order to adapt to violent circumstances. Though this adaptation might have a protective function for the psyche of the child in violent circumstances, it most likely also enhances their risk of becoming violent.

In chapter 4, FORNET is evaluated as a means of efficiently interrupting the cycle of violence. Furthermore, I want to show the feasibility of adapting and implementing specific psychological interventions to improve the children’s well-being and to reduce the perceived stress of children who have been severely affected by traumatic events and violence.
2 Shattered by violence, poverty and insecurity: A study on reintegration of street children in Burundi

“Street children [...] are [...] among the most invisible and, therefore, hardest children to reach with vital services, such as education and health care, and the most difficult to protect.”

(United Nations Children’s Fund, 2006, p. 40)

2.1 Abstract

Street children are exposed to violence, and subsist in poor and generally precarious conditions. In conflict regions, institutional care facilities are often the only well established way to care for vulnerable children. Providing access to school education is considered to be key to allow successful integration into society. However, adverse effects of psychological disorders may pose another serious obstacle. In semi-structured interviews in a sample of 112 Burundian male youths (mean age = 15.9 years), we assessed exposure to traumatic stressors, regular and recent violence, prevalence of posttraumatic stress disorder (PTSD), depression, substance dependence, suicidal risk, and progress in school. Former street children and other vulnerable children in a residential center were compared to children living in the streets or with families. While the children living in the center were exposed to less regular violence and reported less substance dependence than street children, PTSD diagnoses were common among the former street children. Furthermore, for the children living in the center, recently experienced violence – mostly minor physical conflicts, psychological violence and neglect –
was associated with increased PTSD symptomatology and impeded progress in school. In a population of children who experienced many traumatic incidences and a lot of violence, even minor violent events may trigger and reinforce PTSD symptoms. Hence controlling exposure to violence and addressing mental ill-health in vulnerable children is mandatory for reintegration.

**Keywords:** Burundi; street children; residential centers; posttraumatic stress disorder; maltreatment and success in school; reintegration

### 2.2 Introduction

Street children lives are marked by frequent, and in some cases continuous exposure to violence. They have typically already suffered abuse at home in dysfunctional families, and have grown up in poverty-afflicted, chaotic neighborhoods, experiencing both violence in the streets, and mistreatment by police forces (Gaetz, 2004; Kidd, 2003; Le Roux, 1996; Ochola, 1996; Pinheiro, 2006; Scanlon, Tinkins, Lynch, & Scanlon, 1998; Thomas de Benitez, 2007; Young, 2004). These violent experiences, combined with the constant insecurity of having to struggle to find food and shelter, put these children at substantial risk of developing trauma-related mental disorders (Cleverleya & Kidd, 2011; McManus & Thompson, 2008; Turnera, Finkelhorb, & Ormrodb, 2006; Veale & Dona, 2003). The few studies that have assessed mental health suggest that children living in the streets frequently suffer from behavioral and emotional difficulties, such as low-self-esteem, suicidal ideation or even suicidality, alcohol and substance abuse, depression and posttraumatic stress disorder (PTSD; Ahmadkhaniha, Shariat, Torkaman-nejad, Moghadam, & Moghadam, 2007; Greene, Ennet, & Ringwvalt, 1997; Jones, Herrera, & Thomas de Benitez, 2007; Kerfoot et al., 2007; Kidd & Carroll, 2007; Stewart et al., 2004; Thompson, McManus, & Voss, 2006; Tyler, Whitbeck, Hoyt, & Johnson, 2003).
It can be assumed that the risk of developing trauma-related mental ill-health is even higher for these children and youth in crisis and war regions, as studies have shown PTSD prevalence rates between 20% and 50% for war-affected children in conflict regions such as Bosnia, Sri Lanka and Rwanda, even years after the exposure to war (Elbert et al., 2009; Schaal & Elbert, 2006; Smith, Perrin, Yule, Hacam, & Stuvland, 2002). A greater exposure to traumatic stressors is associated with a higher probability of suffering from PTSD (e.g., Neuner et al., 2004). Trauma-related cognitions, emotions and physical reactions build up to an associative memory representation, called a fear network. This fear/trauma network cues strong feelings of a present danger, helplessness, insecurity and fear within the individual. The ignition of just a few elements in the network may be sufficient to activate the whole structure (e.g., Schauer, Neuner, & Elbert, 2011). We postulate that the persistent insecure and violent situations that children living in the streets and other vulnerable children are exposed to easily trigger and reinforce the fear-network, reinforcing PTSD and other trauma-related disorders. However there is a dearth of studies assessing the mental health of street children in crisis and conflict regions.

Institutional care facilities have been put into place to respond to the needs of orphaned and other vulnerable children in countries affected by civil war, i.e., to support them with nutrition, places to sleep, medical care, access to education and psychosocial support (Williamson & Greenberg, 2010). The principal objective is the reintegration of these children into society, either by enabling them to return to their families or by helping them to start an independent life. School education in particular is considered to be the key element for a successful reintegration of vulnerable children because it enhances the chances of living a healthy as well as financially and socially secure life (Betancourt et al., 2008; United Nations Children’s Fund, 2006). The benefits of a good school education are so well-known that sometimes even children leave their families or are sent by their parents to institutional
care facilities to give them access to education, with the hope that they will eventually overcome their poor living conditions (Uvin, 2009; Williamson & Greenberg, 2010).

However, keeping the high risk of street and other vulnerable children for mental disorders in mind, providing nutrition, sleeping places and access to education may not be sufficient for the children and youth to successfully integrate into civil society. In fact, it is known that institutional care can have detrimental effects on the development of children and youth. This is exacerbated in institutional situations where children accustomed to violence are packed into overcrowded, poorly conditioned, under-managed and under-staffed conditions. These factors can perpetuate a violent and abusive atmosphere and thereby expose the children to other forms of insecurity, neglect and deprivation (Thomas de Benitez, 2007). Additionally, caretakers in the institutional facilities are often not trained to deal with these children and are accustomed to using corporal punishment and threats in order to establish their authority (Benjet, 2010; Gershoff, 2002; Straus, 2010). This however reinforces and maintains the behavioral and emotional problems of the children and youth (Cyr, Fortin, & Lachance, 2006; Greenfield & Marks, 2010; O’Donnell, Roberts, & Schwab-Stone, 2011) and endangers the development of a reliable, emotionally safe connection. This is compounded by the fact that these children have already experienced violence and abuse within their families of origin, neighborhoods and school (Benjet, 2010; Ramphele, 1997). On the other hand, institutional care facilities may provide the children with a more stable and secure environment than the privations and dangers of the streets, thereby improving their mental health.

Recent studies suggest that exposure to community violence, i.e., witnessing or experiencing potentially traumatic incidences, or even peer victimization, strongly impairs academic success in school by amplifying symptoms of depression and PTSD (Mathews, Dempsey, & Overstreet, 2009; Schwartz, Gorman, Nakamoto, & Toblin, 2005). This would
be particularly true for children who have previously been exposed to traumatic experiences and insecure living conditions. Hence, institutional care facilities might undermine their own foundation for successful reintegration of the children, should they fail to provide a safe, predictable and violence free environment.

In this study we examined current and former street children in Burundi. To account for the diverse life stories of the children in Burundi, we defined street-children as all those who were exposed to the dangers of the streets and who had to struggle to survive on their own. Burundi, with a population of more than 10 million inhabitants, is one of the smallest and most densely populated countries within the Great Lakes region of Eastern Africa, a region that has been destabilized severely by many wars and conflicts over the last 40 years (Hatzfeld, 2004; D. Johnson, 2008; Pham, Vinck, & Stover, 2009). Burundi’s history over this time epitomizes this, with a long simmering conflict escalating intensively in 1993, and lasting until 2006. During “la crise” - as the Burundians refer often to this war - over 300,000 persons were killed, more than 500,000 had to flee and over 800,000 were internally displaced (Uvin, 2009). Today the population still suffers from its consequences in the form of poverty, and family conflicts and has to deal with an atmosphere of violence and insecurity created by politically motivated killings (Human Rights Watch, 2012). A significant portion of the population lacks a stable food supply. Moreover, a myriad of conflicts relating to private property rights troubles many families. Lands are divided so that the resulting small plots are insufficient to sustain their owners (Armstrong, 2011; Watt, 2008).

In 2011, the International Rescue Committee, the United Nations Children’s Fund and the Burundian Ministry of National Solidarity, Human Rights and Gender published a report on the situation of children in residential centers in Burundi. The analysis encompassed 98 centers in total, in which 5,520 children were taken care of. However, only few centers care for extremely vulnerable children who have been living on the streets. In order to assess our
hypothesis, we chose a center run by a local NGO in Bujumbura, the capital of Burundi, for evaluation. This center took care of boys only, and included children and youths who had lived on the streets. The annual budget per child was approximately 550,000 fbu ($314), which is higher than the average rate for this country ($180; Armstrong, 2011).

With this study we aimed to obtain an estimate of the prevalence rate of different mental disorders within current and former street children and other vulnerable children. Furthermore we wanted to assess the extent to which violence can affect mental well-being and psychosocial functioning and thus limit the possibility for reintegration. We hypothesized that the children with experience of life on the street or other dangerous experiences would suffer more from psychological disorders than children without such a history. However, we also predicted that they would suffer less than children who were still living in the streets. Furthermore, we predicted that orphaned and vulnerable children were more affected than children who had grown up with their families and still lived in Bujumbura with them. Finally, we expected that even minor violent experiences trigger and reinforce PTSD symptoms impairing progress in school on the long run. In addition the impact of time spent within a center on the mental well-being and functioning of the children was explored.

2.3 Methods

2.3.1 Participants and living conditions

All boys (n = 82) living in the center in 2011 were examined using structured clinical interviews. The age ranged from 10 to 23 years. All children went to school or received vocational training. Furthermore they had a place to sleep, received food twice a day and had access to running water and sanitary facilities. On weekdays two male and two female educators took care of the children. The director of the center at that time was a nurse, who stayed overnight and on holidays in the center. Additionally one educator looked after the
children on the weekend. A Burundian psychologist provided psychosocial support in the form of individual counseling when specific problems emerged or needed to be addressed. Additionally two cooks and two guards worked in the center and sometimes psychology and education students provided extra assistance. One child was excluded from the analysis due to a neurological disorder (epilepsy, treated with carbamazepine).

Fifteen additional boys living in the streets at the time of the investigation and 15 more who were living in families in Bujumbura also participated in the study. Groups were selected so that they had a comparable age range. In order to obtain a representative sample, three different places in Bujumbura were selected to contact children living in streets. Children there were randomly invited to participate in the study. The interviews were conducted in private on the premises of the Red Cross Burundi. The families invited to participate were also chosen randomly. The quarters, streets and houses were approached in a random order to recruit boys within the given age range. One child was selected from each quarter, in order to attain a representative sample for the city of Bujumbura. Children living in families, who had reported street experience \((n = 2)\) and with mental disabilities \((n = 1)\) were excluded from further analysis. The interviews were conducted privately in the family homes.

32 of the children living within the centers were considered as belonging to a very high-risk population for mental disorders because they had spent part of their lives on the streets and had been potentially exposed to very difficult living conditions. These former street-children were compared to the former family children living in the center, current street children and current family children. The Ethical Review board of the University of Konstanz approved the study and the University Lumière of Bujumbura assisted with the implementation. All participants gave their informed consent. For participants under the age of 18 the legal guardians gave informed consent, if available. While boys in the centers
profited later from restructuring of the centers, therapies and other supporting activities, the children in the streets and in the families received a financial compensation of 5,000 fbu (≈ 2,86 €).

2.3.2 Procedure

The assessment was conducted from January to April 2011 in the center and between March 2011 and June 2011 on the streets and within the families. The principal investigator of this study (who lived in Bujumbura before and during the period of the assessment) and another psychologist with clinical training and work experience in Germany and East Africa conducted the interviews in French, which were in turn translated into the native Kirundi language by two local interpreters who had been trained in the relevant concepts of mental disorders. In order to standardize the form of assessment and to achieve a high inter-rater reliability, the interviewers practiced in joint interviews. To guarantee a precise translation, all instruments were translated from a validated English or French version to Kirundi and back into English or French by different interpreters and the results of the translation procedure were discussed in detail with the interpreters before the beginning of data collection. To guarantee confidentiality, it was assured that no other person was present or could listen to the interviews. The children were assured that everything they said during the interview was confidential and that there would be no negative consequences or punishment for whatever information was given. Furthermore, the children living in the center were given the opportunity to suggest improvements for the center. In addition to the interviews, the main researcher observed the behavior and performance of the children in their daily activities, school and joint playing.
2.3.3 Materials

2.3.3.1 Socio-demographics

The children were asked about their background and their actual social situation. This included particularly questions about their age and education. We also asked about their contact with the family, the age at which they left their family, as well as their reasons for doing so. Information on time spent in the streets and information about the whereabouts of their parents was also gathered.

2.3.3.2 Domestic and Community Violence Checklist

This 37-item checklist assessed the children’s exposure to violence (following Hermenau et al., 2011). The events in the checklist range from small events like being pinched or slapped to very frightening events like being injured with a weapon or sexually abused. The checklist includes physical, psychological and sexual violence as well as neglect and witnessed violence. For every event the children were asked the following: If they were ever exposed to violence in their lives; if this happened regularly (at least 1/month in three succeeding months); or at least once over the past three months.

2.3.3.3 The University of California at Los Angeles PTSD Reaction Index (UCLA PTSD Index) for children and adolescents

The UCLA PTSD Index for children and adolescents (Steinberg, Brymer, Decker, & Pynoos, 2004) was used in interview form to assess the exposure to traumatic events and the severity of symptoms of PTSD. The latter is assessed based on the frequency of symptoms reported by children. The occurrence of each DSM-IV symptom within the last month is scored on a scale from none of the time (0) to most of the time (4). Thus an overall PTSD severity score can be calculated by summing up the symptom scores, which results in a
maximum possible score of 68. A PTSD diagnosis was assumed if the DSM-IV criteria were fulfilled, including impairment in the daily functioning of the children in response to traumatic stress. The UCLA PTSD Index shows good psychometric properties and has been successfully utilized and validated in non-western and African settings (Catani et al., 2008; Elbert et al., 2009; Hermenau et al., 2011; Shaw & Harris, 2003). Inter-rater reliability was assessed by independently rating the same child in parallel, i.e., when both interviewers were present. The intra-class correlation of .99 ($p < .001$) indicated a high agreement among the interviewers.

2.3.3.4 *Minnesota International Neuropsychiatric Interview for Children and Adolescents (MINI-KID)*

The sections A, C, J and K of the MINI-KID (Sheehan et al., 2010) were used to assess depression, suicidal risk, alcohol and substance dependence or abuse. The MINI-KID has been used successfully in East-African settings (e.g., Hermenau et al., 2011). In order to allow a comparison between all children living in the center, the MINI-KID was used as well for the participants exceeding the age limit of 17 years. This seemed appropriate because all children and adolescents lived in the same conditions and still went to school.

2.3.4 *Data analysis*

The statistical analysis was carried out using SPSS 20.0 and AMOS 20.0 (IBM Corporation, Armonk, New York, USA). The hypothesis about group differences in PTSD severity and regularly experienced violence a multivariate analysis of variance (MANOVA) was calculated. The effects of life within the center and violence on both PTSD and performance in school were analyzed via a path-model.
2.4 Results

2.4.1 Description of the participants

Table 2.1 presents the demographic data of the 112 participants. The sample is divided into four categories: former family children, former street-children, street children and family children. As expected, the street children had spent significantly more time on the streets than the former street children within the center ($t_{(16.32)} = -2.98, p = .009$) and they had completed fewer school grades successfully than the other three groups (all $z < -2.70$, all $p < .007$).

The most frequent reason children had for leaving their family was poverty (55 %), followed by severe maltreatment (19 %) within their families. Other reasons included being abandoned, having been forced to work very hard, death or divorce of parents and a variety of other reasons, including loss of contact with the family because of war, and searching for medical help. Some could not give a reason why the family had given the child to the center. In regard to the death or divorce of parents and family violence, the children often mentioned that the family did not want to have another boy around who could possibly become an heir. This was also reflected in the high percentage of orphans (33 %) amongst the children living in the center and the street children. However most of the former family children (78 %) and the former street children (69 %) within the center and even of the street children (60 %) have had at least some contact with their families over the last year. All children living in the center were either going to school or doing apprenticeship training. Not surprisingly, more than 90 % of the street children had no access to education.
Table 2.1

Demographic data

<table>
<thead>
<tr>
<th></th>
<th>Former family children (n = 50)</th>
<th>Former street-children (n = 32)</th>
<th>Street children (n = 15)</th>
<th>Family children (n = 15)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, years, mean (SD)</td>
<td>15.5 (3.1) [11 - 23]</td>
<td>16.6 (2.6) [11 - 21]</td>
<td>16.2 (3.2) [12 - 24]</td>
<td>15.7 (3.1) [11 - 22]</td>
</tr>
<tr>
<td>Age when leaving family, years, mean (SD) [range]</td>
<td>11 (3.2) [5 - 17]</td>
<td>9.9 (2.7) [5 - 15]</td>
<td>10.4 (3.5) [4 - 16]</td>
<td>14 (0) [14] b</td>
</tr>
<tr>
<td>Time spent on the streets, months, mean (SD) [range]</td>
<td>0 [0.1 - 84]</td>
<td>18.7 (20.3) [1.5 - 156]</td>
<td>57.8 (48.9)</td>
<td>0</td>
</tr>
<tr>
<td>Age of arrival in center, years, mean (SD) [range]</td>
<td>11.3 (3.4) [5 - 20]</td>
<td>11.5 (2.2) [7 - 17]</td>
<td>- a</td>
<td>- a</td>
</tr>
<tr>
<td>Time spent in the center, months, mean (SD) [range]</td>
<td>50.3 (26.4) [3 - 120]</td>
<td>60.3 (24.1) [7 - 120]</td>
<td>- a</td>
<td>- a</td>
</tr>
<tr>
<td>School grade successfully completed, mean (SD) [range]</td>
<td>5.58 (2.67) [0 - 11]</td>
<td>5.91 (2.18) [1 - 10]</td>
<td>3.00 (2.22) [0 - 8]</td>
<td>5.87 (2.80) [2 - 10]</td>
</tr>
</tbody>
</table>

Note. a - means that the question is not applicable to the group. b mean of 2 family children who lived with relatives in the capital, while their immediate family lived in the countryside.

2.4.2 Prevalence of mental disorders

The prevalence of PTSD, depression, alcohol- and substance dependence/abuse and suicide risk (at least moderate) is presented in table 2.2. Fisher’s exact tests, generalized for m x n tables (Mehta & Patel, 1983) showed that the frequency of substance dependency, in this case “chanvre”, a drug similar to marijuana, was higher in street children compared to the other
groups (\(p < .001\)). The street children also had a higher prevalence of PTSD than the family
children and the former family children (all \(p < .05\)). The frequencies of the other mental
health disorders did not differ significantly between the groups.

Table 2.2

*Prevalence of mental disorders*

<table>
<thead>
<tr>
<th>Diagnose of, No. (%)</th>
<th>Former family children in the center ((n = 50))</th>
<th>Former street children in the center ((n = 32))</th>
<th>Street children ((n = 15))</th>
<th>Family Children ((n = 15))</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTSD</td>
<td>7 (14)</td>
<td>8 (25)</td>
<td>7 (46.7)</td>
<td>1 (6.7)</td>
</tr>
<tr>
<td>Major depression</td>
<td>3 (6)</td>
<td>2 (6.3)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Alcohol dependence</td>
<td>0 (0)</td>
<td>1 (3.1)</td>
<td>1 (6.7)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Alcohol abuse</td>
<td>2 (4)</td>
<td>1 (3.1)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Substance dependence</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>9 (60)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Substance abuse</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>1 (6)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Moderate suicidal risk</td>
<td>0 (0)</td>
<td>2 (6.3)</td>
<td>2 (13.3)</td>
<td>0 (0)</td>
</tr>
</tbody>
</table>

2.4.3 PTSD symptom severity and exposure to violence and insecurity

Our first goal was to assess the assumption that street children and former street-children
living in the center had been exposed more regularly to violence and insecurity over the
course of their lives and suffered more from symptoms of PTSD. We calculated a MANOVA
with the overall sum score of PTSD severity of the UCLA PTSD Index and the sum score of
the regularly experienced violence of the Domestic and Community Violence Checklist. The
statistical analysis revealed highly significant differences with moderate to strong effect sizes
on the multivariate level \(F(6, 214) = 7.05, p < .001, \eta^2_p = .17\), on the univariate level for the
PTSD severity ($F_{(3, 108)} = 5.88, p = .001, \eta^2_p = .14$) and for the sum score of the regularly experienced violence ($F_{(3, 108)} = 14.09, p < .001, \eta^2_p = .28$). Gabriel’s test was used for the post hoc tests because the group sizes differed (Field, 2009). As illustrated in Figure 2.1, the post hoc tests showed that the PTSD symptom severity was stronger for street children than for the former family children living in the center and for the family children (all $p < .01$). However they did not differ significantly from the former street children in the center ($p = .43$). The latter group did not differ significantly with respect to the PTSD severity from the former family children ($p = .23$) but did have somewhat more severe PTSD symptoms than the family children ($p = .07$). Concerning regularly experienced violence, the street children experienced more events than the former family children, the former street-children and the family children (all $p < .001$). The three latter groups did not differ (all $p > .05$), even though the former street-children showed a tendency towards having experienced more violence than the family children ($p = .10$).
Figure 2.1. Differences between the groups in PTSD severity (means and SEs) and regularly experienced violence. Dotted lines (\( p \leq .1 \)), solid lines (\( p \leq .05 \)), 1 asterisk (*; \( p \leq .01 \)) and 2 asterisks (**; \( p \leq .001 \)) indicate the level of significance of the differences.

### 2.4.4 Maltreatment, PTSD and school results

For the children living in the center we expected that their success in school - measured by the number of classes successfully completed - was not only influenced by the time spent in the center, the age of arrival in the center and the interaction between the two variables, but was also affected negatively by PTSD symptoms. Furthermore we predicted that the PTSD severity was not only determined by the exposure to the number of traumatic life events but also by the level of violence experienced in the past three months.

In order to test the above hypothesized relationships we conducted a path-analysis using AMOS 20 for SPSS. We used a backwards stepwise method in a linear model until all
beta coefficients were significant and the Akaike information criterion was lowest (see Akaike, 1987). The final model fitted the data according to the criteria for a good-fitting model and the combinatorial rules to reduce type I and type II errors (Hu & Bentler, 1999), \( \chi^2(12) = 13.00, p = .369, \frac{\chi^2}{df} = 1.083, \text{comparative fit index} = .99, \text{root-mean-square error of approximation} = .03, p = .548. \) The model explained 75 % of the variance of the number of classes successfully completed and 24 % of variance of the PTSD severity.

As can be seen in figure 2.2, the age of arrival in the center and the time spent in the center positively predicted the number of classes successfully completed, indicating that if the children were older when they arrived in the center, they were more likely to be more advanced in school. Secondly, the more time they spent in the center, the more advanced they were likely to be in school. However, the interaction between the two variables negatively predicted the number of classes successfully completed, indicating that the older they were upon arrival and the longer they lived in the center, the less successful children became at school. As expected, the PTSD severity was positively predicted by the number of traumatic life events and also by the violence experienced in the past three months. The vast majority of these violent events - 81.62 % - were minor physical conflicts, psychological violence or neglect. The PTSD severity had a negative influence on the number of classes successfully completed, underlining the assumption that suffering from PTSD is detrimental to success in school. The age of arrival in the center was negatively related to the amount of violence experienced in the past three months. The time spent in the center was positively correlated with experienced traumatic life events.
Figure 2.2. Factors influencing level of PTSD symptoms and success in school in a center for vulnerable children

2.5 Discussion

2.5.1 Residential centers for street children

Residential centers often fail to respond to the childrens’ psychosocial needs, especially those of the younger children, e.g., not sufficiently satisfying their attachment needs or providing sufficient help for a successful cultural and social integration in the society (Hermenau et al., 2011). However, living in the streets often exposes children and youths to high rates of violence, abuse and drug use, thereby endangering the development of the children (McManus & Thompson, 2008; Thomas de Benitez, 2007). Unfortunately the infrastructure for successful reintegration into a family system without abuse and maltreatment is often missing in the East African context and the process of reintegration is not as cheap and easy to accomplish as is often assumed. Residential centers are often the first line of defense in helping children living in the streets. These contradictions and the complexity of the situation were reflected in the results of this paper, which assesses the mental health of current street children and of children living in a residential center in Burundi.
In line with the criticism of Williamson and Greenberg (2010), we found that only about 33% of the children living within the center or on the streets could be strictly defined as orphans. In fact, most of the children had contact with a member of their family at least once a year. This was true for 69% of the former street children and 78% of the former family children living in the center, as well as for 60% of the children who were still living in the streets. Apparently, the percentage of children living in the center who had contact with their families was only slightly higher compared to the current street children. In a few cases, the lack of contact came about through a lack of knowledge of where to find the family. This separation was sometimes brought about by the war. However, in most cases it was either due to a lack of money for the journey home or the reluctance of the child to stay even a few days with the family. This was often out of fear of maltreatment and conflicts relating to private property inheritance. In some cases, children refused to return to their families because they were afraid of being forced to leave the center. This once again underlines the counter-productive results of educators using such threats as a means of gaining authority. It also demonstrates the necessity of creating a transparent and predictable procedure for reintegrating the children into their families. Since the final goal of residential centers is the successful reintegration of the children into society, frequent contact between children and family has to be a much higher priority.

However, before raising the argument that children who are in contact with their families should not be living in the center, we need to consider the fact that most of the children left their families because of severe poverty, which made it almost impossible to raise a child and/or lead to severe maltreatment within the family. Moreover, many children reported that in the case of death or divorce of parents, the family did not want to have another boy around who could possibly inherit. Further research is needed to evaluate when children and youths in Africa might be better off in residential centers and when they are
better of staying with their own family. The present study focuses on the advantages of residential centers for extremely affected children only.

The results showed some of the advantages of living in residential centers. Firstly, all children in the center had access to education and, like children growing up in families, were more successful in school than children living in the streets. The most prevalent mental disorders in this sample were substance dependence and PTSD. While about 60% of the children living in the streets were affected by substance dependence, no child living in the center or in a family fulfilled these criteria. The PTSD prevalence as well as symptom severity was different across groups. Children living in the streets had the highest prevalence and severity, followed by the former street children living in the center, the former family children living in the center, whilst the family children had the lowest prevalence and severity. Although this pattern was not statistically significant between all groups, it appears that the former street children fall between the street children and former family children in severity. A similar pattern could be seen in regularly experienced violence during the life of the children, indicating that the residential center offered at least some protection from violence experienced on a regular basis in the streets.

2.5.2 Needs beyond food, shelter and education

The fact that the PTSD severity of the formerly exposed children within the center did not differ significantly from the children still living in the streets indicates that it is not enough to provide the children with a relatively secure environment with shelter, food and access to education. This is supported by the overall clinical impression that the children were extremely mistrustful and afraid, often feeling helpless and appearing to feel very easily threatened. In a path-model we further examined the relationship between the following variables: Firstly, the impact of the time the children spent within the center and the age of
arrival in the center on both PTSD severity and school performance; secondly the model measured the impact of traumatic life events and violence upon both PTSD severity and school performance. This path-model revealed that the secure environment provided within the center was only relative. Even though the center was apparently protecting the children from regular violence, the positive relationship between the time spent within the center and traumatic life events indicates that there was a probability of experiencing very severe traumatic events within the center. This strong relationship most likely reflects a combination of factors. Some of the older children had experienced very dangerous and terrifying war events during the time they had spent at the center. Some of the children had been exposed to different forms of abuse within the center. The negative relationship between recently experienced violence and age of arrival in the center showed that the younger children in particular were exposed to further maltreatment within the center. This reflects the paradoxical situation in which children are taken from the streets as early as possible to protect them from regular exposure to violence, only to be again exposed to physical and psychological violence as well as neglect in a residential center.

The detrimental effects of maltreatment on the children can be seen in the path-model when examining how the success in school was negatively influenced by mental ill-health. The degree of PTSD severity had a negative impact on the performance in school over the years. The PTSD severity itself was not only influenced by the number of traumatic events but also by the exposure to recently experienced physical, psychological violence and neglect. The violence and neglect experienced, although not strictly “traumatic” in the sense defined for PTSD diagnosis, nevertheless creates a feeling of insecurity and helplessness that easily triggers the trauma-related fear network, provoking the related cognitions, emotions and physical reactions, thereby evoking strong feelings of present danger and fear within the individual. This reinforces PTSD symptoms and other trauma-related disorders and hence
diminishes the functionality of the child. As most of this recently experienced violence consisted of either minor physical events like being slapped, psychological threats or neglect, these results again highlight how important a violence free upbringing is for children and how easily the fear network can be triggered within children who have lived through traumatic situations. Maltreatment of any kind is detrimental to the general mental well-being of children, and enhances the severity of PTSD symptoms (Catani et al., 2008). This effect is especially prominent in a post-conflict country like Burundi, where vulnerable children have been continually exposed to violence. Consequently, raising children in a residential center without strictly controlling violence directly undermines the objectives of such a center. It prevents children from successfully progressing in school or vocational training, thereby diminishing the chances of successful (re-) integration into society. The older the children were, when they arrived at the center, the less they were exposed to recent physical, psychological violence and neglect. This may be the reason why children arriving later at the center suffered less from PTSD, even though they had experienced more regular violence in their lifetime.

While PTSD symptoms had an effect on school results, the success in school was strongly influenced by the opportunity to go to school. Therefore it is not surprising that the time spent in the center predicted the number of successfully completed classes over the years. Interestingly, the older the children were when they arrived at the center, the more advanced they were in school. This effect is easily explained by the fact that not all the children lived in the streets. Some of them only arrived when the situation at home became intolerable, having already been in school. Moreover some of the children arriving later participated in a training program in order to start with the third class instead of the first class. The interaction between the time spent at the center and the age of arrival at the center suggests that the beneficial effect of living in the center is the strongest at the beginning,
when the children arrive. The longer they stayed in the center the slower they progressed in school. This most likely reflects the fact that many children having faced hardship in their early years were unable to cope with the increasing demands of the higher classes.

All together the results strongly suggest that it is not enough to simply satisfy the more obvious needs of vulnerable children in order to help them successfully reintegrate into society, but that it is necessary to see to their psychological needs as well. The most important factor appears to be a really secure environment with no physical violence, no threats and no neglect. Otherwise, a frequent activation and enlargement of the associative fear network will impair the functionality of the children. A well-trained and reliable team of educators may be the key to success here. Furthermore the effects of PTSD have again been demonstrated to reach beyond the realm of the child’s mental health, affecting school performance, and thereby the chances for successful reintegration into society (Elbert et al., 2009). As the former street children did not differ significantly from the current street children regarding PTSD symptom severity, a more targeted treatment of this mental disorder may be needed within residential centers.

2.5.3 Limitations

The children in the center were afraid of being suddenly sent back to their families and of being left alone with their difficult life situation. Most of them had learned to be mistrustful of others, especially adults. Hence they were biased in reporting that everything was fine in order to protect their actual refuge. They had learned that it might be best to appear strong and keep quiet about problems. It is thus plausible to assume that the children in the center underreported traumatic stress. In fact, distrust in others and the reluctance to admit symptoms may be a manifestation of hyperarousal in traumatized youths (Auerswald & Eyre, 2002; Baer, Peterson, & Wells, 2004; Whitbeck & Hoyt, 1999). Furthermore, chronically
traumatized persons and homeless youths are often ashamed of their problems and have a diminished understanding of self-care (Kidd & Kral, 2002; Newman, 2000). As the children and youths most likely experienced traumatic stressors during critical periods of their development, they may frequently be unable to access and regulate their emotional responding (Elbert et al., 2006). Therefore the effects of PTSD on success in school and the PTSD severity may actually be much stronger than they appear in this study. Observations during subsequent interventions and interviews conducted with the same children confirmed this impression.

2.5.4 Conclusions

Previous studies on street children have focused on the resilience and other protective factors of children living in the streets (e.g., Kidd & Shahar, 2008; Kidd & Davidson, 2007; Zhang & Fogarty, 2007). The present study shows that effective treatment programs for mental disorders are necessary in order to assist children in becoming successfully reintegrated into society. As Schauer and Schauer (2010) pointed out, there is a need for a paradigm shift in humanitarian aid for war-affected populations. Healing from trauma reduces emotional pain, decreases the likelihood of aggression and enables people to live productive lives. Hence an effective psychological treatment for PTSD ought to be provided for children within residential care.

Furthermore, this study shows that residential centers can have beneficial effects for children who have lived in the streets, such as protecting them to a certain degree from regularly experienced violence. However, the living conditions of children in centers are still difficult and need to be improved in order to enable them to successfully reintegrate into society. Most importantly, the educators of these facilities need to be trained to avoid resorting to violence or threats as a means of control, because this is detrimental for the
mental health of the children and destroys the efficiency of any aid. Most of the educators use violence or threats because they are not adequately prepared to cope with the challenges of a residential center. This is exacerbated in overcrowded centers, as the educators are overworked.

Hermenau and colleagues (2011) pointed out there is very little research on what could be done to improve the situation in residential centers. Hence we want to stress the priorities that emerge from the results of the present study: A secure and predictable environment has to be established for the children. Children should be protected from violence, fear and helplessness. They should be motivated by reward rather than punishment. In the case of residential centers, a transparent structure has to be created and communicated, detailing when and how children are to be sent back to their families of origin. The educators should have the opportunity to engage in activities with the children that allow them to bond and to help the children to establish trusting relationships.
3 The benefits of aggressive traits: A study with current and former street children in Burundi

“In Bujumbura street children call themselves ‘abatimbayi’. [...] That means “persons who support everything, who are not afraid of anything, persons with cold blood.”

(Translation by the authors; Nsengiyumva, 2010, p. 6)

3.1 Abstract

Aggressive behavior in children and youths is commonly associated with exposure to violence and maltreatment. Consequently, aggressive behavior has often been explained as a form of reactive behavior in response to violence-inflicted mental suffering. However, perpetrating violence can become appealing, fascinating and exciting, i.e., may acquire appetitive, self-rewarding aspects. We postulated that appetitive aggression reduces the vulnerability for developing posttraumatic stress disorder (PTSD) in insecure and violent environments. Furthermore we investigated of the extent to which reactive aggression and appetitive aggression account for current violent behavior of children and youths. We conducted semi-structured interviews in a sample of 112 children and youths (mean age = 15.9 years) recruited from the streets, families and a residential center for vulnerable children in Burundi. We investigated the cumulative exposure to traumatic events and to domestic and community violence, assessed the recently committed offenses, the severity of PTSD symptoms, and the potential for reactive and appetitive aggression. Reactive aggression was positively related to PTSD, whilst appetitive aggression was negatively related to PTSD.
Children higher in appetitive aggression were also more likely to display violent behavior. Theses results suggest that an appetitive perception of violence may be a useful adaption to insecure and violent living conditions reducing the vulnerability of children for trauma related mental disorders. However, positive feelings experienced through violent or cruel behavior are also an important risk factor for ongoing aggressive behavior and therefore need to be considered in prevention strategies.

**Keywords:** Burundi; violent behavior; resilience against PTSD; street children; reactive aggression; appetitive aggression

### 3.2 Introduction

Violence breeds violence! This simple and harrowing concept from 50 years ago neatly expresses Curtis’ (1963) concern that “abused and neglected children would become tomorrow’s murderers and perpetrators of other crimes of violence” (p. 386). Since that time, substantial evidence has accumulated demonstrating that experiencing violence is related to expressing violence (e.g., Elbert et al., 2006; Weaver, Borkowski, & Whitman, 2008). In the Western countries, a large proportion of homicide offenders come from unfavourable home environments and up to 80% of subjects within delinquent samples report witnessing violence during their childhood or adolescence. Commonly, it is assumed that the subsequent aggressiveness results as a direct reaction from an explosive, uncontrolled and impulsive response to perceived threats or provocations in the environment. The underlying emotions of this *reactive* or relieving form of aggression are fear, anxiety and anger. The fundamental function of this type of aggression is to alleviate the tension and discomfort experienced with these emotions, and to eliminate or reduce the perceived danger or damage (Fontaine, 2007; Kempes, Matthys, de Vries, & van Engeland, 2005; Weierstall & Elbert, 2012).
CHAPTER 3: BENEFITS OF AGGRESSIVE TRAITS

However, it has become increasingly obvious that perpetration of violence is experienced very differently than exposure to violence and is not necessarily linked to a purely aversive emotional state. Deliberately aggressive thoughts and behavior can be intrinsically rewarding (Elbert et al., 2010). In fact, studies with former child soldiers, combatants and genocide offenders have revealed that the perpetration of violence is often experienced as exciting, appealing and fascinating (e.g., Weierstall, Bueno Castellanos, Neuner, & Elbert, 2013; Weierstall et al., 2011). Many offenders reported the development of appetitive aggression, i.e., the perpetration of violence and/or the infliction of harm upon a victim for the purpose of experiencing violence-related enjoyment. This appetite for aggression can even result in risk-seeking behavior, motivating individuals to look for opportunities to act out violently. Growing up in a culture of cruelty may strongly imprint and alter neurophysiological pathways of processing violent cues and emotional responses in former child soldiers, even years after returning to a peaceful society (Blümke et al., 2013). In insecure and dangerous environments of combat, appetitive aggression seems to constitute a potential form of adaptation, which enables individuals to cope with violence and atrocities around them. Recent studies showed that individuals capable of engaging in higher levels of appetitive aggression were more resilient against developing symptoms of posttraumatic stress disorder (PTSD). Of course this protective factor can counter only a certain load of exposure to traumatic stressors. When exposure becomes too severe, even individuals with a high level of appetitive aggression will suffer from PTSD (Hecker, Hermenau, Maedl, Hinkel et al., 2013; Hecker, Hermenau, Maedl, Schauer, et al., 2013; Weierstall, Bueno Castellanos, et al., 2013; Weierstall et al., 2011; Weierstall, Schalinski, Crombach, Hecker, & Elbert, 2012).

So far studies assessing appetitive aggression have focused almost exclusively on populations that were heavily involved in the perpetration of violence. The majority of the
participants were ex-combatants and had severely injured at least one other individual and many had even frequently killed or tortured. They were all adults at the time of the investigation. However, we postulate that the development of appetitive aggression is not limited to these extreme populations but is also present in less dangerous and violent environments. An insecure and violent environment not only provokes reactive aggression but also seems to foster a trait for appetitive aggression. Becoming a perpetrator instead of a victim, winning fights and thereby regaining a feeling of control in insecure and dangerous living conditions such as in the streets, could be the prerequisite for the activation of this trait. Feelings of power, control and effectiveness in violent situations lead to the enjoyment of violence and a craving for more.

In this study we wanted to test if the development of appetitive aggression in children and adolescents growing up in insecure environments strengthens their resilience against PTSD. We also wanted to assess the positive emotions towards aggression and their role in maintaining violent behavior. As physical violence is more common in males, and appetitive aggression has only been assessed so far in male combatants, we focused in this study on boys and young men (Elbert et al., 2010).

Reactive aggression has been consistently linked to PTSD. Research suggests that this is due to the emotional dysregulation, i.e., the diminished emotional control, affective instability and impulsive angry reactions that is associated with PTSD (Marsee, 2008). Furthermore the ability to adequately process social information seems to be diminished in individuals affected by trauma-related mental disorders. Everyday cues are more often perceived as threatening, hence leading to fearful and angry reactions (Ford, 2002). In children and adolescents evidence for this relation has been provided by several studies showing that effects of experienced violence during childhood on aggressive behavior were amplified by the presence of PTSD symptoms (Moretti, Obsuth, Odgers, & Reebye, 2006;
Wood et al., 2002) and that children who had experienced traumatic incidences reported more reactive aggression than children without traumatic life events (Connor, Doerfler, Volungis, Steingard, & Melloni, 2003). Moreover, regular exposure to violence at home, in school or anywhere else in the community amplifies not only PTSD symptoms but also the probability of aggressive behavior in children and adolescents (Flannery et al., 2004; Shields & Cicchetti, 1998; Shields & Cicchetti, 2001; Turnera et al., 2006).

For the assessment of our hypotheses we decided to study children and adolescents growing up in the post-conflict country Burundi. In 2006 a civil war that shook the whole country for 13 years ended. Today the population still suffers from its consequences such as severe poverty and violence in daily life. Constant feelings of insecurity arise from lack of food and politically motivated killings. The latter are often committed on a communal level by ordinary people (Human Rights Watch, 2012). In the Burundian culture violence is widely accepted as a means of punishment for thieves or as a means of authority in educational matters. Children risk being punished by beating every day in school, at home or on the streets (Sommers, 2013). The readiness to use violence for educational purposes is reflected by a statement of women on how mothers deal with their children when food is lacking in her rural community:

Sometimes children beg for food all day and into the night. So we beat them until they get tired of crying. The big problems come at night, before they sleep. When you tell them, “Go to sleep,” they again ask for food. So we beat them again until they cry and cry, until they get tired and sleep. We are obliged to beat our children when they ask for something that we don’t have [like food]. (Sommers, 2013; p. 20)
While this shows that the vast majority of children and adolescents in Burundi have been exposed to violence, war events and insecurity (Jordans, Tol, Komproe, Susanty, & Vallipuram, 2010; Warf, Eisenstein, & Stahl, 2009), we aimed to include children from different backgrounds to ensure sufficient variance in both exposure to violence and the committing of violence for the scientific questions of our enquiry. Hence we included children and adolescents growing up in families with different social backgrounds in Bujumbura. The age range of this part of the sample was adjusted to children living in a residential center for vulnerable children including those who had lived in the streets. For the purpose of this study we defined former street-children as all children who had been exposed to the dangers of the streets and had to struggle to survive on their own. We hypothesized that these children were more exposed to and affected by violence than the ones still living in their families. Furthermore we also included current street children. Research and reports on street children suggest that they are continuously exposed to high-risk situations. They have limited access to adequate food, shelter, clothing and medical care. Many suffered and continue to suffer from famine, natural disasters and/or orphanhood caused by AIDS, social violence or war. In war-affected countries in particular, street children most likely survived internal displacements, flight and exposure to combat situations. Many have already faced violence, abuse and neglect at home. In the streets, the children often suffer once more maltreatment, intimidations, robberies, sexual and physical assaults. Many of them have to pass violent initiation rituals to become accepted by the other street children. Additionally, they being chased, beaten up and sometimes even imprisoned by the police (McManus & Thompson, 2008; Pinheiro, 2006; Thomas de Benitez, 2007).

At the same time street children are also involved in committing violence. Older boys often take advantage of the younger children in the streets (Aptekar, 1994), poverty forces them to take part in robberies (Bop, 1990), or they need to defend their social status within a
group of street children (Nsengiyumva, 2010). As children age into teenagers and young men in the streets they are forced into criminal activity because they are no longer considered cute and helpless but instead dangerous. Hence begging money from the public becomes more difficult (Thomas de Benitez, 2007). Therefore we expected the current street children to be simultaneously the most affected by experienced violence and the most inclined to commit violent offenses.

3.3 Methods

3.3.1 Participants

The participants of this study were 112 Burundian male children and adolescents living in the capital Bujumbura with an age range of 10 to 24 years. Inclusion of boys from different social backgrounds in this study ensured variance of exposure to violence. There were four groups: (1) current street children; (2) family children; (3) former street children; and (4) former family children. (1) Fifteen participants lived in the streets at the time of the investigation. In order to obtain a representative sample of these street children three different places in Bujumbura were selected to contact and invite them randomly to participate in the study. (2) The street children were compared to 15 family children who grew up and still lived with their families and had no street experience. The families invited to participate were chosen randomly. The quarters, streets and houses were approached in a random order. For each quarter only one child was examined in order to get a representative sample for the city of Bujumbura and to include families with different social backgrounds. Family children who had reported street experience \((n = 2)\) and with mental disabilities \((n = 1)\) were excluded from further analysis. The remaining 82 children were recruited from a residential center for vulnerable and former street boys. (3) Out of these boys, 32 were considered to be former street children because they had spent part of their lives on the
CHAPTER 3: BENEFITS OF AGGRESSIVE TRAITS

streets and were potentially exposed to very difficult living conditions. (4) The other 50 had also lived through difficult circumstances but had never spent time on the streets. Hence they were former family children. One child was excluded from the analysis due to a neurological disorder (epilepsy, treated with carbamazepine). All four groups were selected so that they had a comparable age range.

The Ethical Review board of the University of Konstanz approved the study and the University Lumière of Bujumbura assisted with the implementation. All participants gave their informed consent. For participants under the age of 18 the children as well as the legal guardians, if known, gave informed consent. While boys in the center profited later from restructuring of the center, therapies and other supporting activities, the children in the streets and in the families received a financial compensation of 5,000 fbu (≈ 2,86 €).

3.3.2 Procedure

The assessment was conducted from the beginning of January until April 2011 in the center and from March 2011 until June 2011 with the street and the family children. The principal investigator (A. C., living in Bujumbura before and during the period of the assessment and working as the supervising psychologist of the residential center) and another German psychologist with clinical training and work experience in East Africa conducted the interviews with the help of two local interpreters. The interpreters had been trained as co-investigators in the relevant concepts of mental disorders and translated between French and Kirundi. In order to standardize the form of assessment and achieve a high inter-rater reliability, the interviewers had practiced in joint interviews. To guarantee a precise translation, different interpreters translated all instruments from a validated English or French version to Kirundi and back into English or French. The results of the translation procedure were discussed in detail with the interpreters before the beginning of data collection. To
guarantee confidentiality, the interviews were conducted in quiet, private locations in the residential center, at home, at the Red Cross Burundi and in schools. Furthermore the interviewers ensured that no other person was present or could listen to the interviews. The children were assured that everything they said during the interview was confidential and that there would be no negative consequences or punishment for whatever information was given. In addition to the interviews the main researcher observed the behavior and performance of the children in their daily activities, school and joint playing. The study on aggressive behavior was part of a bigger project that assessed the mental health situation of the children in the residential center and of street children as part of overall consideration for possible interventions.

### 3.3.3 Materials

#### 3.3.3.1 Socio-demographics

The participants were asked about their background and their current social situation. This included questions about their age, education, contact with their family, time spent within the center, time spent on the streets as well as physical health complaints during the past four weeks (concerning cough/cold, stomach pain, tuberculosis, headache, malaria, pain, diarrhea, fever/shivering, skin rush/scabies, and vomiting; following Neuner, Onyut, et al., 2008).

#### 3.3.3.2 Domestic and Community Violence Checklist

In order to assess the exposure to violence of the participants, they were asked 37 items about their experience with violence (following Hermenau et al., 2011). The events in the checklist range from small events like being pinched or slapped to very frightening events like being injured with a weapon or sexually abused. The checklist includes physical,
psychological and sexual violence as well as neglect and witnessed violence. For every event the participants were asked if they had experienced the violence once, regularly (at least once per month for three consecutive months) and if they had experienced this violence recently, specifically during the past three months.

3.3.3.3 The University of California at Los Angeles PTSD Reaction Index (UCLA PTSD Index) for children and adolescents

The UCLA PTSD Index for children and adolescents (Steinberg et al., 2004) was used in interview form to assess the exposure to traumatic events and the severity of symptoms of PTSD. The latter is assessed based on the frequency of symptoms reported by children. The occurrence of each DSM-IV symptom within the last month is scored on a scale from none of the time (0) to most of the time (4). Thus an overall PTSD severity score can be calculated by summing up the symptom scores, which results in a maximum possible score of 68. A PTSD diagnosis was assumed if the DSM-IV criteria were fulfilled including impairment in the daily functioning of the children in response to traumatic stress. The UCLA PTSD Index shows good psychometric properties and has been successfully utilized and validated in low-income conflict regions (Catani et al., 2008; Elbert et al., 2009; Hermenau et al., 2011; Shaw & Harris, 2003). Inter-rater reliability was assessed by independently rating the same child in parallel, i.e., when both interviewers were present. The intra-class correlation of .99 ($p < .001$) indicated a high agreement among the interviewers.

3.3.3.4 Offense checklist

The committed offenses of the children were assessed with an offense checklist, constructed after the model of the traumatic event checklist. The list consists of 18 items ranging from “I hit back when being attacked” to “I have hurt another person severely/killed
another person”. We recorded whether the offense was committed at all in their lives, and secondly whether this was committed in the last 3 months. The sum score represents the number of different offense types, as opposed to number of offenses, which is hard to quantify by self-report. Scores range from 0 to 18.

3.3.3.5 Reactive Proactive Aggression Questionnaire

The potential for reactive aggression was assessed with the 11 reactive items of the Reactive-Proactive Questionnaire (Raine et al., 2006). The children were asked how often they have exhibited a specific aggressive behavior. They had to choose between never (0), sometimes (1) and often (2). The sum score of the reactive scale showed good psychometric properties and validity in a sample of American youths and has been successfully used in a study with Tanzanian children in a residential center (Hermenau et al., 2011). The sum of the points assigned to the answer represents the reactive aggression and ranges from 0 to 22. Inter-rater reliability was assessed by independently rating the same child in parallel, i.e., when both interviewers were present. The intra-class correlation of .99 ($p < .001$) indicated a high agreement among the interviewers.

3.3.3.6 Appetitive Aggression Scale for Children (AAS-C)

The children’s propensity to perpetrate aggressive acts was assessed using the AAS-C, which is based on the Appetitive Aggression Scale for Combatants (AAS; Weierstall & Elbert, 2011), a semi-structured interview that has been validated with over 1,600 ex-combatants and has been proven to have good psychometric properties. It contains questions regarding the appetitive perception of aggression. The items are based on the definition of the instrumental aggression subtype according to Vitiello and Stoff (1997) and the International Classification of Diseases 10 (ICD-10; World Health Organisation, 2008) addiction criteria.
Further items were compiled on the basis of interviews with perpetrators about the appetitive experience of perpetrating aggressive acts. In the AAS-C the items were asked in regard to the last month or if the children thought the item still applied to them. Most of the items of the original version for combatants were rephrased to adapt them to a non-combatant setting and to facilitate the language for the children (e.g., Item 4 of the AAS: “Do you feel powerful when you go to a fight?” was rephrased to: “…if you fought with others, you mostly expected to win?”; Item 15 of the AAS: “When you fight, do you stop caring about whether you could be killed?” was rephrased to: “…sometimes you wanted to fight/watch a fight, even though you knew that you could be hurt?”). A more child-appropriate item asking for the satisfaction of imagining someone being hurt replaced one item of the AAS that was asking after sexual arousal when attacking someone. We replaced item 12 of the AAS (“Do you know what it is like to feel the hunger/thirst to fight?”) with two items (“…sometimes you really wanted to fight?” and “…if you imagined going to fight, you felt an urge for it in your body and you wanted to unleash it?”), including only the better working item for the individual child in the sum score. Additionally we added two items to the AAS-C that were not in the AAS (“…you felt strong and powerful because you attacked someone?” and “…you teased others so they would fight against you?”). Each item is scored on a five-point Likert scale ranging from 0 (I totally disagree) to 4 (I totally agree). The total sum score of the 17 items scale represents the appetitive perception of aggression and ranges from 0 to 68. Cronbach’s α coefficient as a measure for reliability of the scale was .80. In a principal-axis factor analysis, all items loaded statistically significantly onto a single factor accounting for 23% of the total variance. Inter-rater reliability was assessed by independently rating the same child in parallel, i.e., when both interviewers were present. The intra-class correlation of .99 (p < .001) indicated high agreement among the interviewers.
CHAPTER 3: BENEFITS OF AGGRESSIVE TRAITS

3.3.4 Data analysis

The statistical analysis was carried out using SPSS 20.0 (IBM Corporation, Armonk, New York, USA). For assessing group differences a multivariate analysis of variance (MANOVA) was calculated. The different effects of aggressive subtypes on PTSD and on recently committed violence were assessed with multiple linear regression models.

3.4 Results

3.4.1 Description of participants

Table 3.1 presents the demographic data of the 112 participants separately for the four groups: the former family children, the former street children, the street children and the family children. As expected, the street children had spent significantly more time in the streets than the former street children within the center ($t_{(16.32)} = -2.98, p = .009$) and they had successfully completed fewer school grades than the other three groups (all $z < -2.70$, all $p < .007$). Twenty-three percent of all the children who no longer lived with their families had left their homes because of maltreatment or because they were exploited as workers.
Table 3.1

Demographic data

<table>
<thead>
<tr>
<th></th>
<th>Former family children in the center (n = 50)</th>
<th>Former street-children in the center (n = 32)</th>
<th>Street children (n = 15)</th>
<th>Children living in families (n = 15)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, years, mean (SD) [range]</td>
<td>15.5 (3.1) [11 - 23]</td>
<td>16.6 (2.6) [11 - 21]</td>
<td>16.2 (3.2) [12 - 24]</td>
<td>15.7 (3.1) [11 - 22]</td>
</tr>
<tr>
<td>Age when leaving family, years, mean (SD) [range]</td>
<td>11 (3.2) [5 - 17]</td>
<td>9.9 (2.7) [5 - 15]</td>
<td>10.4 (3.5) [4 - 16]</td>
<td>14 (0) [14]</td>
</tr>
<tr>
<td>Time spent on the streets, months, mean (SD) [range]</td>
<td>0 [0.1 - 84]</td>
<td>18.7 (20.3) [1.5 - 156]</td>
<td>57.8 (48.9) [1.5 - 156]</td>
<td>0</td>
</tr>
<tr>
<td>Time spent in the center, months, mean (SD) [range]</td>
<td>50.3 (26.4) [3 - 120]</td>
<td>60.3 (24.1) [7 - 120]</td>
<td>- [a]</td>
<td>- [a]</td>
</tr>
<tr>
<td>Orphaned children, No. (%)</td>
<td>15 (30 %)</td>
<td>11 (34.4 %)</td>
<td>5 (33.3 %)</td>
<td>1 (6.7 %)</td>
</tr>
<tr>
<td>School grade successfully completed, mean (SD) [range]</td>
<td>5.58 (2.67) [0 - 11]</td>
<td>5.91 (2.18) [1 - 10]</td>
<td>3.00 (2.22) [0 - 8]</td>
<td>5.87 (2.80) [2 - 10]</td>
</tr>
</tbody>
</table>

Note. **a** - means the question is not applicable to the group. **b** mean of 2 family children who lived with relatives in the capital while their immediate family lived in the countryside.

3.4.2 Group differences

We calculated a MANOVA to assess our hypothesis that street children and former street children had been exposed to more traumatic events, more regular violence and insecurity during their lives and suffered more from symptoms of PTSD. At the same time, we assessed the differences in perpetrated offenses and the different forms of aggression. As
variables we used the sum of the traumatic life events list, the overall sum score of PTSD severity of the UCLA PTSD Index, the sum score of the regularly experienced violence of the Domestic and Community Violence Checklist, the number of recent offenses, the reactive aggression score of the Reactive-Proactive Aggression Questionnaire and the appetitive aggression sum score of the AAS-C. The statistical analysis revealed highly significant differences with strong effect sizes on the multivariate level \((F_{(18, 291.81)} = 5.20, \, p < .001, \, \eta^2_p = .23)\) and on the univariate level for the PTSD severity \((F_{(3, 108)} = 5.88, \, p = .001, \, \eta^2_p = .14)\), traumatic life events \((F_{(3, 108)} = 12.22, \, p = .001, \, \eta^2_p = .25)\), regularly experienced violence \((F_{(3, 108)} = 14.09, \, p < .001, \, \eta^2_p = .28)\), recent offenses \((F_{(3, 108)} = 20.15, \, p < .001, \, \eta^2_p = .36)\) and appetitive aggression \((F_{(3, 108)} = 7.25, \, p < .001, \, \eta^2_p = .17)\). Only the differences in reactive aggression \((F_{(3, 108)} = 3.07, \, p = .031, \, \eta^2_p = .08)\) had moderate effects sizes on the univariate level.

The results of the post hoc comparisons are illustrated in figure 3.1. Street children reported significantly higher values regarding all variables compared to former family children and family children. However, they differed only from the former street children in regularly experienced violence, recent offenses and appetitive aggression. The former street children suffered somewhat more from PTSD symptoms and had experienced somewhat more regular violence than family children. Furthermore, they had experienced more traumatic life events than both former family children and family children. The latter two groups differed only by tendency regarding the traumatic life events.
Figure 3.1. Group differences in PTSD severity, traumatic life events, regularly experienced violence, recent offenses, reactive aggression and appetitive aggression. Dotted lines ($p \leq .1$), solid lines ($p \leq .05$), 1 asterisk (*; $p \leq .01$) and 2 asterisks (**; $p \leq .001$) indicate the level of significance of the differences.

3.4.3 Aggression and PTSD

The different relationships between experienced violence, reactive aggression, appetitive aggression and PTSD symptoms were assessed with a multiple linear regression. PTSD severity was predicted with regularly experienced violence and violence experienced in the past three months because previous analysis had revealed that both of them had a strong impact on the PTSD symptoms regardless of the number of traumatic life events. Additionally the PTSD severity was predicted with reactive aggression and appetitive aggression. One participant with no traumatic life events was excluded from the regression.
Furthermore we excluded all children with more than 8 traumatic events assuming that the protective effect of appetitive aggression would become apparent only in participants with a low to moderate load of traumatic events. The excluded children consisted of the following: 1 former family child; 5 former street children; 3 street children; and 2 family children. In the remaining sample of 100 children with 1 to 8 traumatic life events, appetitive aggression was negatively associated with PTSD severity ($\beta = -0.227, p = .031$) while reactive aggression and PTSD symptom severity showed a positive relationship ($\beta = 0.304, p = .003$). Both the regularly experienced violence and violence experienced in the past three months contributed significantly to the explanation of the PTSD severity. The model explained 29% of the variance. As Cook’s distance only reached a maximum of .21, indicating no significant influence of outliers, no outlying cases were excluded (Tabachnick & Fidell, 2006).

3.4.4 Aggression and recent offenses

In order to explore how much appetitive aggression and reactive aggression contribute to the explanation of recently committed violence, we conducted a hierarchical linear regression model. In the first step we predicted the recent offenses of the children with reactive aggression. Adding appetitive aggression in the second step increased the explained variance significantly with a moderate effect size from 21% to 41% ($F_{(1, 109)} = 38.191, p < .001, K^2 = .25$). Furthermore appetitive aggression was a much stronger predictor of recently committed offenses than reactive aggression (see table 3.2). If taken as the only predictor, appetitive aggression explained 38% of the variance of the committed offenses.
Table 3.2

Regression analysis predicting recent offenses with reactive aggression and appetitive aggression

<table>
<thead>
<tr>
<th>Model</th>
<th>Predictors</th>
<th>β</th>
<th>p</th>
<th>Adj. R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Reactive aggression</td>
<td>.466</td>
<td>&lt;.001</td>
<td>.210</td>
</tr>
<tr>
<td>2</td>
<td>Reactive aggression</td>
<td>.203</td>
<td>.018</td>
<td>.410</td>
</tr>
<tr>
<td></td>
<td>Appetitive aggression</td>
<td>.522</td>
<td>&lt;.001</td>
<td></td>
</tr>
</tbody>
</table>

As Cook’s distance only reached a maximum of .15, indicating no significant influence of outliers, no outlying cases were excluded (Tabachnick & Fidell, 2006).

This regression model is supported by descriptions by Burundian youths of their own violent behavior:

In the beginning I was very angry and I wanted to punish him [the thief], but then I started to enjoy beating him. I felt the need to harm him. I took a hammer and a dull nail and started to torture him. I have beaten the nail again and again in his feet. I do not even know how often I did this. Every time he was screaming. I continued all night to beat him with a stick and to torture him with the hammer and the nail. He was bleeding everywhere and cried that we would kill him. I felt joy everywhere in my body and was very satisfied. I was pleased to hurt him. I felt powerful. The feeling was like winning a football game against a very strong team. I did not want to stop. (A young man, 21 years old, describes the punishment of a thief)
I was provoked by somebody else. I was tired and told him to stop. But he continued. Finally I became really angry and slapped him in the face. I took his shirt and slapped him again several times. He fell to the ground. I was satisfied. He was an impossible person. I was a little proud and at the same time still very angry. He tried to fight back but I continued to slap him. Finally other people separated us. His nose was bleeding. I was very satisfied. I was proud because he had misbehaved and I had corrected him. I felt strong in my arms. He wanted to continue but the others prevented him from doing so. I felt powerful and superior. I was ready to beat him up again. I was still angry but I felt also somehow happy. (A 17 year old describes a fight)

3.5 Discussion

In line with our hypothesis, the exposure to regular violence and traumatic life events was greatest in street children, followed by former street children, former family children and current family children. Even though not all differences were significant, the former street children were consistently the second most affected group. Hence we conclude that we included enough children from different backgrounds to guarantee sufficient variance for the regression analysis. The reactive aggression and the PTSD severity showed a similar pattern. While the former and current family children differed significantly from the current street children, the former street children did not. This result is in line with research suggesting that reactive aggression and PTSD are linked to each other (e.g., Marsee, 2008). However, in appetitive aggression the current street children differed from the other groups while those did not differ significantly from each other. Most likely two factors contributed to this. On average the former street children had already spent five years in the residential center and hence lived in a more controlled and somewhat safer environment with fewer opportunities to act violently than the current street children. As most of them had left the streets when they
were still small children they had not committed significantly more offenses than the former family children and current family children. This explanation is in line with studies that link the development of appetitive aggression with the number of committed offenses during the lifetime (Crombach, Weierstall, Hecker, Schalinski, & Elbert, 2013; Hecker et al., 2012). Additionally, research with former combatants indicates that appetitive aggression diminishes to some degree when they return to a context in which violent behavior is not useful (Hermenau, Hecker, Schaal, Maedl, & Elbert, 2013). Apparently living in the residential center does not provide many more opportunities to act violently than growing up in a family in Burundi. This idea is confirmed by the result that the children in the residential center had not committed more offenses in the past three months than the children living with families.

Another reason for the latter result could be that the children in the center were very mistrustful in the beginning and expected that the information gathered by the researchers would be used to decide which child would be reintegrated into the catastrophic conditions of their families. Hence some underreporting regarding the committed offenses might be expected.

Concerning the relationship between aggression and mental illness we provided evidence that appetitive aggression and reactive aggression are linked to PTSD symptom severity in opposing directions. While reactive aggression was elevated when children suffered from PTSD symptoms, appetitive aggression was diminished. This result is in line with both, studies linking PTSD with reactive aggression (e.g., Connor et al., 2003) and studies reporting that appetitive aggression protects against the development of PTSD (e.g., Weierstall et al., 2011). As in those studies, the protective effect of appetitive aggression showed only if the number of traumatic events experienced by the children and youths was below a certain threshold.
For the first time we provided evidence that the protective effects of appetitive aggression are not only limited to combatants but can be found in children growing up in insecure but not war-like environments. Hence appetitive aggression is a protective factor in all kinds of violent environments. As a protective factor of last resort it prevails even when risk factors for mental ill-health and personal integrity are too many and other protective factors are too few. If an individual experiences violence as appetitive, then cues associated with violence, such as pain, screams and blood will become processed in a positive association network, rather than a fear network (Elbert et al., 2010). Connecting positive feelings with cues of violent situations diminishes their impact on the already existing fear network and thereby increases the resilience of the child or the youth against violent experiences. This mechanism also explains why street boys seem to have a certain resilience against mental illness and are less affected than expected (Aptekar, 2004).

At the same time appetitive aggression was a much stronger predictor for recently committed violence than reactive aggression, although the latter still had some influence. This confirms our hypothesis that violent behavior is influenced by negative and positive emotions alike. Furthermore the results suggest that it may even be more important to focus on the emotional gain, i.e., appetitive aggression, than on reactive aggression when trying to prevent violent behavior in children and youths. While the latter is easier to access because having acted out of self-defense is commonly a well-accepted justification, our research shows that positive emotions are also linked to violent behavior and need to be addressed. Most violent situations include elements of reactive and appetitive aggression, the testimony of the two youths cited above illustrates this.

The study has some limitations though. Most importantly the data presented is correlational. Consequently, our causal interpretations of the relationships between predictors and dependent variables can be challenged. For example, it could be argued that while
recently committed violent acts increase appetitive aggression, appetitive aggression does not increase the probability of aggressive behavior. Previous research showed that appetitive aggression is strongly related to the number of offenses committed during the lifetime (e.g., Crombach, Weierstall, et al., 2013) and most likely increases if acts of violence are accompanied by feelings of control, power and enjoyment. However, it seems still very likely that an attraction towards violence increases violent behavior at the same time. Hence we expect both explanations to be true and to contribute to the cycle of violence. Furthermore it could be argued that appetitive aggression is not a protective factor but rather a coping strategy of affected individuals against PTSD. This is contradicted by the fact that healthy individuals experience appetitive aggression as well. Of course, once individuals have acquired a taste for violence and suffer from PTSD, they might also use it as a coping strategy. By behaving aggressively they can replace feelings of helplessness, fear and insecurity with feelings of control, power and security. In fact this flight into violence might be a common coping strategy amongst mentally ill individuals as research suggests that aggressive behavior is often motivated by a need to regain control and power (Gage, 2005; Guma & Henda, 2004). Hence appetitive aggression might be even an important factor explaining why PTSD is linked to aggressive behavior. The reactive aggression of affected individuals might be amplified by appetitive aggression as a way to cope with their helplessness and terror and to overcome traumatic stress (Schauer & Schauer, 2010).

Another limitation of this study is the use of self-reports for aggressive behavior. The assessment of aggression, particularly appetitive aggression, is thereby potentially diminished or biased as a consequence of norms of the society and the susceptibility to giving socially desirable answers to aggression questionnaires (Blümke & Zumbach, 2007). This might be especially true for the children in the center. They were afraid of suddenly being sent back to their families and of being abandoned to deal with their difficult life situations alone. Most of
them had learned to be mistrustful of others, especially adults. Hence the need to protect themselves could have distorted their reports, and consequently the real effects of aggressive attitudes may even be underestimated in this study.

Based on the results presented we conclude that appetitive aggression develops out of feelings of power and safety with the perpetration of violence in an insecure, unpredictable and violent environment. In such circumstances the enjoyment of violence is a useful adaption and serves as a protective factor against the development of mental illness because it increases the resilience against negative consequences of violent experiences. This effect is not limited to combatants but can also be found for children and adolescents growing up in insecure situations. Appetitive aggression is also a strong risk factor for future violent behavior. This result is in line with research from Hart and colleagues (2007), who identified “not having feelings of power and safety with the use of aggression and violence” (p. 377) as one factor reducing violent behavior in children. Hence preventive measures for violent behavior have to focus on appetitive aggression in order to successfully diminish violent behavior. This is particularly true for children who grew up in violent environments such as the streets of Bujumbura.
4 Controlling offensive behavior using Narrative Exposure Therapy: A randomized controlled trial of vulnerable children

“I am often laughing when I read my narration today. I can’t believe anymore that it was me who committed all these things. When we talked, my memories became more structured and distinct. It helped me to differentiate between good and bad.”

A young men, 21 years old, speaks about FORNET

4.1 Abstract

Reactive aggressive responding, such as fearful or angry impulsive behavior to perceived threats as well as appetitive aggression, i.e., violence-related feelings of power, excitement and pleasure, characterized by positive valence, increase the risk of engaging in routine violence. Insecure and violent environments foster both forms of aggressive behavior. We tested whether exposure to the memories of aggressive acts by means of Forensic Offender Rehabilitation Narrative Exposure Therapy (FORNET; 5 sessions) would reduce involvement in everyday violence and produce beneficial effects for mental and physical health. In a Burundian residential center for former street children, we identified a subset of 32 male youths (mean age 17 years) who scored highly in appetitive aggression. All of them had lived in the center for several years, had attended school with the aim of eventually being reintegrated into society. We conducted a randomized controlled trial assigning matched pairs to either receive FORNET or treatment as usual. During initial assessment and follow-up (4 - 7 months after completing treatment), we assessed appetitive aggression, recent
offenses, symptoms of posttraumatic stress disorder (PTSD) and physical health complaints. During the follow-up, the 16 youths who received FORNET reported having committed significantly fewer offenses \((Hedges \ g = 0.62)\) and presented with fewer physical health complaints \((Hedges \ g = 0.56)\) than their matched controls. However, they did not differ regarding appetitive aggression and PTSD symptom severity. In conclusion, FORNET reduces the vulnerability to stress-induced health complaints and is a promising approach to diminishing routine violence of male adolescents.

**Keywords:** violent behavior; Forensic; Narrative Exposure Therapy; appetitive aggression; traumatic stress

### 4.2 Introduction

Aggression is traditionally seen as being driven by negative emotional and motivational states. This could include anger, frustration, or anxiety as a result of exposure to threat, as well as emotional dysregulation in combination with model learning, and a lack of alternative strategies for dealing with adversity (Weaver et al., 2008). This *reactive* form of aggression emerges in response to perceived threats or provocations in the environment and has the objective of averting potential danger (Fontaine, 2007; Kempes et al., 2005; Weierstall & Elbert, 2012). However, recent research encompassing current and former street children as well as former combatants has shown that positive emotions, such as feelings of control, power and pleasure are also linked to violent behavior and thus pose a risk factor for future aggressive offenses. These initial field studies suggest that the perpetration of violence and/or the infliction of harm upon a victim for the purpose of experiencing violence-related enjoyment occurs frequently enough to be regarded an intrinsic part of war, as well as being present in civilian life. (e.g., Crombach & Elbert, in press; Crombach, Weierstall, et al., 2013; Elbert et al., 2010; Hecker et al., 2012). We refer to this form of aggression as *appetitive*
aggression. Interventions aiming to reduce violent behavior thus need to address both the reactive and appetitive form of aggression.

Elbert and colleagues (2010) suggested that memory representations in two different associative networks relate to aggression, the fear or trauma network and a hunting or appetitive network. The fear/trauma network builds up as memories of very stressful, frightening and traumatic experiences. Due to a strong physiological stress response, trauma-related perceptual cues, cognitions, emotions and physical reactions form an associative memory representation. With an increasing number of traumatic or fearful experiences, this network becomes disconnected from its original context, i.e., the location and time where the events happened. As each of the events relates to a different time, but all have similar cognitions and emotions, the ignition of just a few elements in the network, e.g., by everyday cues, may trigger the whole memory representation. The simultaneous lack of contextual representations evokes strong feelings of being under acute threat, helplessness, insecurity and fear within the individual and the symptoms of posttraumatic stress disorder (PTSD) arise as a consequence of this (e.g., Elbert et al., 2006). In the past few years research has provided substantial evidence that trauma-related mental disorders are associated with reactive aggression (Connor et al., 2003; Flannery et al., 2004; Moretti et al., 2006; Shields & Cicchetti, 1998; Shields & Cicchetti, 2001; Turner et al., 2006; Wood et al., 2002). The increasing strength of the associative fear network leads to emotional dysregulation in the form of diminished emotional control, affective instability, and impulsive angry reactions. Furthermore, it reduces the capacity of the individual to process social information. In consequence, affected individuals often perceive everyday cues as threatening and react with aggression characterized by anger and impulsivity (Ford, 2002; Marsee, 2008).

However, perpetrating violence may also be exciting, pleasurable and fascinating. The release of hormones that cause euphoric emotional reactions and suppress pain (testosterone
and endorphins) in combination with stress-related hormones (e.g., cortisol) while overpowering and hurting or even killing an opponent promotes an appetitive processing of violent cues. In consequence, violent cues such as blood and pain of the victim become associated with feelings of control, self-efficacy, power, excitement and pleasure, building up to the aforementioned hunting or appetitive network. Regaining control in an insecure and violent environment may be the initial component of this associative memory representation. However, the repeated perpetration of violence becomes more and more fascinating, leading to an appetitive perception of aggression (Crombach, Weierstall, et al., 2013; Elbert et al., 2012; Hecker et al., 2012). In consequence, cues associated with violence become processed in a positive association network rather than the fear network. Hence an appetitive perception of violence might serve as protective factor against the development of trauma-related mental disorders and thereby be a useful adaption in violent and insecure environments (Hecker, Hermenau, Maedl, Schauer, et al., 2013; Weierstall, Hinsberger, et al., 2013; Weierstall et al., 2011; Weierstall et al., 2012).

Growing up in insecure and violent conditions seems to be a prerequisite for high levels of both reactive and appetitive aggression. Striving to experience positive feelings and self-efficacy in a detrimental environment, and the feelings of power and safety that come along with prevailing in fights, might foster an attraction to violence (Guma & Henda, 2004; Hart, O’Toole, Price-Sharps, & Shaffer, 2007). As appetitive aggression constitutes a major risk factor for future violent or bullying behavior, it will impede successful reintegration of former combatants, or former street children in post-conflict societies (Crombach & Elbert, in press). The higher plasticity of the brain in developing children would suggest that they are even more sensitive to acquire either a strong fear network or an extensive hunting network (Elbert et al., 2006). These two associative networks may even interact, thereby increasing the probability of aggressive behavior. For example, violence-affected children might feel
easily provoked and threatened by an everyday cue and therefore react aggressively to defend themselves. While defending themselves, the violent cues might induce an appetitive desire to hurt the opponent, thereby exaggerating the degree of cruelty of the situation. Figure 4.1 shows schematically how such an interaction might appear, using the example of a retaliation script. As the cognitive neo-association theory suggests: Behavioral scripts might become integrated into associative networks and be triggered when one of the networks is ignited. Every time the structure is triggered as a whole, the associations become stronger and more difficult to control (for details, see Anderson & Bushman, 2002).

Narrative Exposure Therapy (NET) has been effectively used over the past decade for children and adults (for details, see Neuner, Catani, et al., 2008; Schauer et al., 2011) to break down the fear network and thereby reduce or even eliminate trauma-related symptoms. The NET is a short-term intervention for individuals who suffer from PTSD and other trauma-related symptoms as a result of multiple traumatic experiences. Emerging evidence suggests that NET is effective even in volatile and insecure settings (for a review, see Robjant & Fazel, 2010). Trained local mental health care specialists have disseminated it successfully and laypeople can be trained to administer it. NET therapy can also be effective in a very short form of as little as 4 to 6 sessions. All these qualities make it ideal for implementation in post-conflict regions with little or no psychotherapeutic support structures (Neuner, Onyut, et al., 2008; Neuner et al., 2004; Jacob et al., 2013; Schaal, Elbert, & Neuner, 2009). Additionally, researchers have reported beneficial effects of NET on the physical health of patients (Neuner, Onyut, et al., 2008). Breaking down the fear network reduces the probability of triggering stress-related systems of the body. This prevents the continuous release of stress hormones, which impede the functioning of the immune system (Elbert & Schauer, 2002; Sapolsky, 2004).
Figure 4.1. Schematic representation of the interaction between the fear network and the hunting network triggering aggressive behavior using the example of a retaliation script. A fear/trauma network results from multiple fearful/traumatic experiences: The representation of a single event may well connect to the context and episode. If, however, the perception cues an already existing interconnected network of sensory, cognitive, emotional and physiological memory representations, it will gain mutual excitatory power, while the context gets lost, i.e., codes of the “where” and “when” are not consistently co-activated. Thus the fear/trauma network becomes disconnected from time and place, and the fear generalizes, giving rise to feelings of impending threat. Narrative Exposure Therapy is thought to reverse this process by contextualising the elements of the fear network.

NET works by anchoring the free floating sensational cues, cognitions, emotions and physiological reactions that make up the fear network in the temporal and spatial context of the specific traumatic event. Recounting the event whilst re-experiencing it in sensu allows
the individual to understand and to integrate these cues into autobiographical memory. The associations linked with a traumatic event are thus no longer reactivated and experienced as an ever present horror, but are rather anchored properly in a particular time and place in the patient’s autobiographical memory (Schauer et al., 2011).

We postulate that the sensations, cognitions, emotions and behavior associated with appetitive aggression are encoded in an analogous associative memory representation. Based on the assumption that narrative elaboration in sensu may also break down positive affective associations, we developed the Forensic Offender Rehabilitation Narrative Exposure Therapy (FORNET; Elbert et al., 2012; Hermenau et al., 2013). The FORNET is an extension of the NET. As an additional element, it also addresses the perpetration of violence by means of narrative exposure. This intervention aims to help perpetrators to regain control of their violent behavior. In the present study we aimed to test whether FORNET is also beneficial for those who were both victims and perpetrators in volatile and violent conditions, such as street children in post-conflict settings. For this we adapted the procedure of the FORNET to the needs of this population (for details see the method section 4.3.4).

Burundi is a small and densely populated country in East Africa. The country suffered a long and brutal, ethnically motivated civil war, which officially ended in 2006. The aftermath of this conflict still affects its population in the form of outbreaks of politically motivated violence and chronic severe poverty (Human Rights Watch, 2012; Uvin, 2009). As a consequence of disrupted family structures, intrafamilial property disputes and famine, the number of street children has increased greatly in of the capital, Bujumbura. Most of them are boys, who are more often forced to leave their homes, as they are potential heirs and have more difficulties than girls finding opportunities to help out as domestic workers (Crombach, Bambonyé, & Elbert, 2013; Veale & Dona, 2003; Watt, 2008). In the streets, the children struggle to survive and are exposed to high rates of violence (Ochola, 1996; Pinheiro, 2006;
Thomas de Benitez, 2007). Living in the streets also increases the risk of becoming actively involved in violent activities (Aptekar, 1994; Nsengiyumva, 2010). Hence they can be severely affected by both trauma-related mental disorders and appetitive aggression, augmenting their potential to engage in violent behavior (Connor et al., 2003; Crombach & Elbert, in press; Hart et al., 2007; McManus & Thompson, 2008).

Burundi does not have enough programs to take care of street children or other vulnerable children who grew up in similarly desperate conditions and risked exposure to the dangers of the streets. Only a few residential centers aim to help these children reintegrate back into society (Armstrong, 2011). However, in such institutions even minor offenses and trauma-related symptoms may put the success of the children in school at stake, thereby jeopardizing the foundation of a successful reintegration (Crombach, Bambonyé, et al., 2013). We implemented FORNET in an institution that took care of male children and adolescents who had either lived on the streets or in extremely vulnerable conditions before joining the center. In a randomized controlled trial we aimed to provide evidence that FORNET reduces appetitive aggression and involvement in everyday violence. Furthermore we explored beneficial effects for reducing both trauma-related symptoms and physical health complaints.

4.3 Methods

4.3.1 Participants

The 32 participants in this study were male children and adolescents living in a residential center for former street children and other vulnerable children without proper homes in Bujumbura, the capital of Burundi. They were between 11 and 23 years old ($M = 17.0$ years; $SD = 2.8$ years) and had lived on average for 5.2 years ($SD = 1.9$ years; range = 2 - 10 years) in the residential center when this study started. On average they had successfully completed
6.3 classes ($SD = 2.4$ classes; range = 2 - 10 classes) in school. Seven participants from the control group and eight participants from the intervention group had spent up to 60 months in the streets (median 18 months). During initial assessment three participants met the diagnosis of PTSD. However, only 19% of the participants reported no symptoms at all. For reason of simplicity we will refer to all participants as children throughout methods and results.

### 4.3.2 Design and procedure

After an initial assessment of all 82 children within the center, we initially chose the 42 with the highest scores in appetitive aggression to potentially receive treatment. We matched them for appetitive aggression, PTSD symptom severity, the number of recently committed offense types, age and street experience. As can be seen in the consort flow chart of Figure 4.2, one of each pair was assigned randomly to the intervention group. The control group received treatment as usual in the residential center. This included educational advice by the educators and psychological counseling by the Burundian psychologist from the center when specific problems emerged. In four months, we conducted 16 therapies with the intervention group aiming to start with the children who scored highest in appetitive aggression. There were not sufficient resources to offer treatment to the remaining potential 5 pairs and they could thus not be included in further analyses. The follow-up assessment took place 4 to 7 months after the completion of the therapies and about 12 to 15 months after the initial assessment.
Figure 4.2. Flow of the participants through the study.

The first author of this article (living in Bujumbura before and during the period of the assessment and working as the supervising psychologist for the residential center) conducted the initial assessment and the therapies with the help of two German clinical psychologists, who had work experience in East Africa. In order to standardize the form of the assessment and of the intervention, the clinicians had practiced in joint interviews and interventions respectively. Two Norwegian licensed psychotherapists who are specialists in trauma treatment and who had extensive experience working with African asylum seekers in Norway
conducted the blind follow-up assessment. All interviews and therapies were realized with the help of local interpreters, who had received extensive training in the relevant concepts of mental disorders, aggression and FORNET. They translated from English or French to Kirundi. The Norwegian psychotherapists and their two local interpreters were not informed about the details of the design of the study and had no information about which intervention each child had received.

To guarantee precise translation, all instruments used in the two assessments were translated from a validated English or French version to Kirundi and back into English or French by different interpreters, and the results of the translation procedure were discussed in detail with the interpreters before the beginning of the data collection. To guarantee confidentiality, interviews and interventions were conducted individually in calm places in the residential center, in schools or rented houses. No other person was present or could listen to the sessions. The children were assured that everything they said during the interviews and therapies was confidential and that there would be no negative consequences or punishment for whatever information was given. The pairing of interviewers and translators was continuously rotated.

The study is registered at Clinical Trials (clinicaltrials.gov) with the registration number NCT01519193. The Ethical Review board of the University of Konstanz approved the study and the University Lumière of Bujumbura assisted with the implementation. All participants were appropriately informed about the objectives of the study, personal risks of participating, that participation was and remained voluntary throughout the study and that the data would be used anonymously for scientific publications. All participants gave informed consent before initial assessment and again before the follow-up assessment. Furthermore, the intervention group gave oral informed consent before starting the FORNET. They confirmed afterwards in writing that they were aware that their data might be used for
scientific purposes. In addition, the head of the reintegration center gave his informed consent for underage participants, as their caregivers had either died or were not available.

### 4.3.3 Measures

The same interview-set was used at both the initial assessment and the follow-up assessment, with minor changes to take the varying situational context of each assessment into account. The data of the initial assessment was used for the assignment to treatment and control group.

#### 4.3.3.1 Socio-demographics

The children were asked about their background as well as their current social situation. This included questions about their age, education, physical health complaints over the past four weeks (concerning cough/cold, stomach pain, tuberculosis, headache, malaria, pain, diarrhea, fever/shivering, skin rush/scabies, and vomiting; following Neuner, Onyut, et al., 2008), and contact with their family as well as time spent within the center and in the streets.

#### 4.3.3.2 PTSD severity

The University of California at Los Angeles PTSD Reaction Index (UCLA PTSD Index) for children and adolescents (Steinberg et al., 2004) was used in interview form to assess the exposure to traumatic events and the severity of symptoms of PTSD. The latter is assessed based on the frequency of symptoms reported by children. The occurrence of each DSM-IV symptom within the last month is scored on a scale from none of the time (0) to most of the time (4). Thus, an overall PTSD severity score can be calculated by summing up the symptom scores, which results in a maximum possible score of 68. A PTSD diagnosis was assumed if the DSM-IV criteria were fulfilled, including impairment in the daily
functioning of the children in response to traumatic stress. The UCLA PTSD Index shows good psychometric properties and has been successfully utilized and validated in low-income conflict regions (Catani et al., 2008; Elbert et al., 2009; Hermenau et al., 2011; Shaw & Harris, 2003).

4.3.3.3 Recent offenses

The recently committed offenses of the children were assessed with an offense checklist. The list consists of 18 items ranging from “I defended myself in a fight” to “I have hurt another person severely/killed another person”. In analogy to a traumatic event checklist, we assessed different categories of offenses and not the actual number over the previous three months. The sum score represents the number of different offense types and ranges from 0 to 18.

4.3.3.4 Appetitive aggression

The children’s propensity to perpetrate aggressive acts was assessed using the Appetitive Aggression Scale for Children (AAS-C) and rating how many positive emotions were triggered when the child remembered an offense committed in the past. The AAS-C is based on the Appetitive Aggression Scale for Combatants (AAS; Weierstall & Elbert, 2011), a semi-structured interview that has been validated with over 1,600 ex-combatants and has been proven to have good psychometric properties. It contains questions regarding the appetitive perception of aggression. Most of the items of the original version for combatants were rephrased to adapt them to a non-combatant setting and to facilitate the language for the children. Furthermore the AAS-C included two additional items. All items were asked in regard to the last month. Each item is scored on a five-point Likert scale ranging from 0 (I totally disagree) to 4 (I totally agree). In an assessment with 112 children in Burundi
Cronbach’s α coefficient as a measure for reliability of the scale was .80. In a principal-axis factor analysis, all items loaded statistically significantly onto a single factor accounting for 23% of the total variance (for details, see Crombach & Elbert, in press). The instrument is available from the authors upon request.

In order to assess the strength of the appetitive emotions, we attempted to trigger them by asking the boys to briefly describe a fight that they had most enjoyed remembering. Then we asked them 8 items ranging from feeling powerful to the desire to hurt someone and asked them to rate on a five-point Likert scale ranging from 0 (I totally disagree) to 4 (I totally agree) how strong they felt these emotions in this instant.

The total sum score of the 17-item scale of the AAS-C and the 8 items of the offense assessment represents the appetitive perception of aggression and ranges from 0 to 100.

4.3.4 FORNET for children and adolescents

So far the FORNET has been described only as a therapy for ex-combatants (Elbert et al., 2012; Hermenau et al., 2013). While we followed the same principle guidelines, we implemented a version of the FORNET adapted to the needs of the children in the residential center. For clarity, we detail our approach in the following section and point out the differences to the FORNET used for ex-combatants. As with Hermenau and colleagues’ (2013) study, the therapy consisted of 5 individual sessions. Each session lasted between one and two hours. In contrast to Hermenau and colleagues (2013), we modified the 5th and last session to address the need of the children to develop perspectives for the future and to reinforce an associative network of positive emotions with socially acceptable activities. Similar to the rationale of the NET, each child received a book with his personal history at the end of the therapy. While 5 sessions proved satisfactory for the majority of the children, we offered a 6th session to two of the children. One needed an extra session of
psychoeducation before we continued the therapy and another one reported the pressing need to complete his personal narration and add further details to his life story.

The first session of the intervention included psychoeducation as well as structuring and gaining an overview of every important emotional event in the life of the child with the help of a lifeline. Following NET (Schauer et al., 2011), the client symbolized every important experience from his birth to the present along a rope. Flowers represented happy major events and good times in life, while stones represented fearful and traumatic events. As a new element of the FORNET, the children also included situations from their lives in which they perpetrated or were attracted to physical violence of any kind. Those were represented by an additional, neutral symbol - a paper ball - to avoid any a priori moral judgment or imposing any particular emotional valence upon the violent acts. The therapists ensured that all kinds of violent acts were included, from small physical fights between children up to severe offenses. There was a special emphasis on the most severe violent situations and violent acts that were connected to strong positive (e.g., powerful, exciting) or negative (e.g., angry, fearful) emotions. If the children reported periods of perpetrating violence (e.g., repeated physical fights in the streets) the first, the most exciting and the last violent act were symbolized.

The following three sessions continued the NET process (Schauer et al., 2011), as the children were encouraged by the therapist to report their most arousing experiences in chronological order from birth to present. The therapists slowed the speed of the narration when talking either about a traumatic event (stone) or a violent incident (paper ball). By encouraging the participants to recall and verbalize the traumatic events and violent acts in detail from the beginning until the end, the therapists aimed to activate the related associative network (fear network or appetitive network). In this manner, the sensory cues, emotional responses, physiological reactions and cognitions were embedded in the context and time
period of the particular event and hence disconnected from the corresponding associative network. At the same time, this procedure ensured an exposition in sensu of the specific events. During the detailed exposure, the therapists assisted the clients in experiencing emotions, physiological responses and cognitions, pointing out the similarities and the differences between the present and the past. Recalling a certain event triggered similar emotions, physiological reactions and cognitions, e.g., “I feel strong and happy even now when I recall this fight.” or “Even now my voice is getting rough when I talk about it.” as well as different kinds of feelings as the following statement illustrates: “Thinking back is not exciting anymore, it is painful.” Key elements of this therapeutic approach include expressing and accepting unconditionally every emotion - positive or negative - even when the worst offenses were recalled. The therapists supported the clients and did not judge any emotion or action. Neither did he reinforce emotions or actions. Furthermore, the exposure had to be as lively and exciting as possible. Hence the therapists asked about many details such as colors of the clothes, where somebody got injured, or how exactly the blood flowed. Moreover, the therapists ensured that the clients talked through the event until its conclusion, so that the peak of the intense fear, arousal or excitement was over and that they did not end the session with these intense emotions still churning within them. This procedure ensured that cues of the fear network or the appetitive network were embedded in context and time period and hence when activated were understood as reminders of past events and not actual reasons for becoming aroused. Due to the limited number of sessions, the therapists and the clients had to choose the most important, exciting and terrifying events for detailed exposures. Every intervention included at least one exposure of each category.

In the 5th and last session the therapists aimed to reinforce feelings of self-efficacy and to link these ideas, as well as feelings of power, enjoyment, pride and control to socially accepted cues/activities instead of violent ones. In order to reinforce a non-violent positive
association network and integrate positive feelings that had been part of the appetitive network, the therapists used a reversed approach of NET. They encouraged the child to talk about a recent and very exciting moment of their lives in which they felt exhilarated, strong and powerful. Together with the client, they chose a socially appropriate situation, such as shooting a goal in a football match or having succeeded in a school test. However, instead of telling the story until the end, the therapists stopped the narration at the most exciting moment when the child felt most enthusiastic. In such an emotional state environmental cues of the past and the present become integrated in an associative network (Elbert et al., 2012). Hence these positive emotions should become more easily accessible, triggered by socially accepted cues because they are not anchored to any specific time and context, and a generalization in non-violent surroundings takes place. While in the three preceding sessions, the cues of the appetitive network were strongly associated with a certain context and the combination of cues was made as complex as possible, during the last session we aimed to relate these appetitive emotions to socially accepted cues to reinforce a positive non-violent network.

This reversed exposure was part of developing plans for the future and discussing perspectives with the children. The 5th session followed the elaboration of the following questions: (1) “What aims and wishes do you have for your future?” (2) “What difficulties and obstacles do you see?” (3) “What are your personal strengths that will help you to overcome the obstacles and achieve your goals?” During the elaboration of the last question, the therapists encouraged the children to do the reversed exposure as described above. At the end of the 5th session the therapists summarized the personal strengths of the child and gave a positive feedback to give the child a feeling of support and to increase his self-esteem.
CHAPTER 4: USING FORNET TO CONTROL OFFENSIVE BEHAVIOR

4.3.5 Data analysis

The statistical analysis was carried out using SPSS 20.0 (IBM Corporation, Armonk, New York, USA). We used repeated measures analysis of variance to evaluate group differences regarding changes in the number of offense types, appetitive aggression, PTSD severity and physical health between the initial and the follow-up assessment. To analyze group differences for the follow-up assessment we used t-tests and analysis of covariance (ANCOVA). Due to the directional hypotheses regarding the effects of the intervention, analyses of interactions and group differences were computed one-tailed on an alpha-level of .05. The effect size for pairwise comparisons was estimated for our sample size using Hedge’s g (Hedges, 1981). In order to provide statistics for changes on the individual level, we calculated reliable change indices (RCI; Jacobson & Truax, 1991) when the interaction effects were significant. We reported the number of cases whose individual scores changed significantly according to the RCI separately for each group. Due to directional hypotheses, RCIs higher than 1.65 were counted as significant.

4.4 Results

Figure 4.3 summarizes the relevant results of the intervention effects. The interaction of time and group effects was significant for recent offenses ($F_{(1, 30)} = 3.29; p = .040; \eta^2_p = .10$) indicating that the intervention group had committed significantly less recent offenses than the control group during follow up ($t_{(19,26)} = .72; p = .043$). The effect size, as measured with Hedges $g = 0.62$ was medium sized. Across measurements, appetitive aggression tended to decrease in both groups, as indicated by a weak main effect ($F_{(1, 30)} = 3.98; p = .055; \eta^2_p = .12$) and a non-significant interaction of time and group effects ($F_{(1, 30)} = .72; p = .80; \eta^2_p = .02$).
Figure 4.3. Group differences in the follow-up assessment and in the development patterns of the sum scores of recent offenses (a), appetitive aggression (b), PTSD severity (c) and physical health (d) between the initial assessment and the follow-up. Means and standard errors are displayed for each group at both time points. Asterisks (*) indicate significant differences.
The group difference for PTSD severity (interaction time x group $F_{(1, 30)} = 1.09; p = .15; \eta^2_p = .04$) did not reach significance and a time main effect ($F_{(1, 30)} = 6.97; p = .013; \eta^2_p = .19$) indicates that trauma symptoms were rated as more severe during follow-up than during the initial assessment.

The physical health of the control group had worsened severely ($Hedges\ g = 1.15$), while there was no such change in the intervention group during follow-up assessment (interaction of time x group: $F_{(1, 30)} = 5.54; p = .016; \eta^2_p = .14$; time main effect for physical health: $F_{(1, 30)} = 12.30; p \leq .001; \eta^2_p = .29$). As the groups were not perfectly matched for physical health complaints, we assessed the difference in the follow-up with an ANCOVA, taking into account the number of physical health complaints at the initial assessment as a covariate. As predicted, the intervention group suffered significantly less from physical health complaints than the control group ($F_{(1, 29)} = 3.56; p = .035; \eta^2_p = .11$). This effect was large enough to make a difference in daily life, as confirmed by the medium effect size of $Hedges\ g = 0.56$.

We found similar results on the individual level: In the intervention group, five participants reported a significant reduction of committed recent offenses during the follow-up assessment. Only two reported significantly more recent offenses. In the control group three significantly improved, while five had committed more offenses than during the initial assessment. Regarding physical health, seven individuals in the intervention group reported amelioration and eight individuals reported deterioration. However, within the control group no one reported amelioration, and 13 reported suffering significantly more from physical complains than during initial assessment.
4.5 Discussion

4.5.1 Effects of the FORNET on violent behavior and appetitive aggression

The results of the study indicate that FORNET is a potentially effective intervention for reducing violent behavior. The recent involvement in different kinds of violent behavior was significantly reduced within the children and youths who had received the specific treatment compared to those who did not. Hence this study shows that a detailed discussion of violent behavior without judging or stressing moral opinions is not only possible with children and adolescents but in fact reduces their involvement in everyday violence.

While the effects of the intervention were as expected on the behavioral level, the children and youths of the treatment group did not significantly differ in the change of appetitive aggression from the controls. So while groups still rate aggressive acts as equally appetitive during follow-up, it seems that the treatment group simply would not act upon it. Possibly, children and youths who received FORNET became more aware of their partially positive emotions regarding violent behavior as they were talking about them during the intervention. Even though they reported a similar attraction to aggression as the controls, the awareness of their emotional responses might have helped them to better control their violent behavior, which would be reflected by their lower involvement in recent violence. The finding is in line with the results of Hermenau and colleagues (2013), who also did not observe a FORNET-dependent change on the appetitive aggression scale among former child-soldiers. It is possible that passion for violence can be channeled away from violent acts and into more socially acceptable forms like sports.

4.5.2 Effects of the FORNET on mental and physical health

According to the results of the study, many children and adolescents reported more PTSD symptoms and more physical health complaints during the follow-up assessment. However,
the participants who received a FORNET suffered less from physical health complaints than the control group at the follow-up assessment. At least on the descriptive level we could observe a similar pattern for the PTSD symptoms.

We had not expected to find an overall deterioration in mental and physical health between the two assessment periods. One major factor was probably the different degree of openness of the children between the initial assessment and the follow-up. Moreover, an increased feeling of general insecurity during the period of the follow-up assessment might have driven the overall increase in PTSD symptoms. The center was preparing to move to another location at the end of the school year. This was also the period for reintegration. Many children and adolescents felt severely threatened by these events. This might have triggered and reinforced their current PTSD symptoms (Crombach, Bambonyé, et al., 2013).

Considering mental and physical health, we could provide evidence for some beneficial effects of FORNET. Regarding the PTSD symptoms, we found that participants who received FORNET seemed less affected in the follow-up assessment than the participants in the control group. However, it should be noted that children and adolescents were chosen because of their high scores in appetitive aggression, irrespective of PTSD symptom levels. The significantly reduced number of physical health complaints of the children and adolescents in the FORNET group compared to those of the control group is in line with previous observations that narrative trauma interventions may have beneficial effects on physical health, even in unstable and insecure environments (Neuner, Onyut, et al., 2008; Pennebaker, 1997). Traumatized children and youths feel easily threatened by daily hazards due to a diminished ability to process social information and a very sensitive stress response system (Ford, 2002). In consequence, insecure environments would maintain the stress response system in a state of continuous activation. The prolonged exposure to stress related hormones and especially glucocorticoids would then lead to a suppression of the
CHAPTER 4: USING FORNET TO CONTROL OFFENSIVE BEHAVIOR

immune system and in consequence to an increased risk for physical illness (Gunnar &
Quevedo, 2007; Miller & Rasmussen, 2010; Sapolsky, 2004). The FORNET reduces the
sensitivity of the stress response system by embedding trauma-cues in a specific context and
time period and by diminishing the stress reaction to certain cues through exposure in sensu.
By disconnecting cues from the fear/trauma network, it prevents daily stressors and minor
violent experiences from reactivating trauma related emotions, cognitions and physical
reactions (Crombach, Bambonyé, et al., 2013). In consequence, the stress response system is
no longer continuously activated and physical health improves.

4.5.3 Limitations

While this study provides evidence that FORNET can be an effective approach for reducing
the involvement of children and adolescents in everyday violence, the exact mechanism by
which this has been achieved remains to be detailed. Apart from addressing appetitive
aggression, FORNET also aimed to reduce the severity of stress reactions and thereby
emotional dysregulation in the form of irritability and impulsive aggressive behavior. Hence,
the effect on the behavioral level might just be a reflection of perceiving the environment as
being less threatening.

Furthermore we cannot exclude the possibility that the expectations of improvement
were different for both groups, even though the control group received some treatment, i.e.,
the usual care by educators and the psychologist of the residential center. Unfortunately, we
failed to control for expectations, which in turn makes it possible that some of the effects
result from a placebo effect.
4.5.4 Conclusions

In this randomized control trial, we provided evidence that encouraging detailed narration of personally perpetrated violent acts or offenses from the perpetrator’s perspective is not only possible with male children and adolescents but in fact reduces their involvement in everyday violence. Exploring the aversive and pleasurable aspects of their violent offenses, accepting all kind of experienced emotions without judging or stressing moral opinions, and reinforcing positive but socially accepted association networks seem to be the key to success. In addition, the FORNET had beneficial effects on the mental and physical health of the participants. Specific trauma-related mental health interventions improve the ability to deal with stressful living conditions and in consequence strengthen the physical health (Neuner, 2010; Neuner, Onyut, et al., 2008). Hence the FORNET is a promising approach to reducing violent behavior and improving mental and physical health, which may contribute to the successful reintegration into society of those young boys and adolescents who grew up in violent, abusive and insecure circumstances.
5 General conclusions

5.1 Overview of the empirical results

This thesis provided insight into the different psychological aspects of the cycle of violence and highlighted their importance for the functionality and well-being of vulnerable children. In chapter 2, the negative effects of currently experienced violence on mental health and in turn performance in school were explored in a sample of children and adolescents who lived in a residential center. The results showed that even recently experienced minor maltreatment and neglect exacerbated the PTSD symptom severity of children and adolescents who had previously experienced traumatic events, and who grew up in adverse family and street environments. PTSD symptoms were strongly associated with the degree of violence the children had experienced over the past three months. The more children suffered from PTSD symptoms, the less advanced they were in school. Hence being exposed to physical and psychological violence committed by educators, teachers and peers severely reduced the functionality of the children. Consequently, trauma-related distress undermined the efforts of the residential center to provide them with a good school education that would enable them to integrate better into society. However, results also showed that the children and adolescents within the residential center had more access to school education and were less affected by substance dependence than current street children.

In chapter 3, the implications of growing up in adverse and violent environments for the development of aggressive attitudes among children and adolescents were investigated. The results showed that children and adolescents growing up in violent environments also acquire a taste for violent behavior, i.e., they experience violence-related excitement,
fascination and feelings of control. Unlike reactive aggression, this appetitive form of aggression was negatively associated with PTSD symptom severity. Hence, appetitive aggression has to be considered as a functional adaption of children to violent environments. However, appetitive aggression was also strongly associated with current involvement in everyday violence. It most likely constitutes a major risk factor for future violent acts, thereby helping to perpetuate the cycle of violence.

In chapter 4, FORNET was evaluated to assess its capacity to halt the cycle of violence in insecure environments, and to reverse the negative impact of violence on children and adolescents. In comparing the intervention group, which received FORNET, with the control group, which received treatment as usual, we found that FORNET reduced the involvement in everyday violence. Furthermore, the intervention group reported fewer physical health problems, which is a strong indicator of a reduced strain on their biological stress-response system. Levels of PTSD in the treatment vs. control group did not differ in the follow-up assessment. This is probably because reported PTSD symptom severity was low among the children and adolescents included in the study at the initial assessment. Furthermore, at this initial stage of testing, we do not know exactly how FORNET works to reduce violent behavior. We suggested that a raised awareness of the appetitive perception of violence reduced the involvement in everyday violence. Other possible explanations include an improved capacity to regulate impulsive emotions or the strengthened association of appetitive emotions with socially accepted behavior.

5.2 Discussion of the empirical results

The overall results of the empirical studies suggest that violence has a far-reaching impact that stretches beyond its initial physical and psychological trauma. This involves deleterious effects on the social integration of vulnerable children and adolescents. The finding that
maltreatment was associated with PTSD symptoms and that this had long-term effects upon progress in school is congruent with results of other studies in this field, showing that PTSD symptoms and exposure to violence lead to poor school performance (Catani et al., 2010; Elbert et al., 2009; Mathews et al., 2009). All together, these results suggest that trauma-related mental ill-health prevents affected children from successfully completing their education. This is especially detrimental for children and adolescents growing up in residential care, as progress in school is crucial for integration into post-war societies. The higher their educational level, the higher their chances of attaining access to jobs, which are key to their independence and survival in society (Betancourt et al., 2008; Uvin, 2009). In Burundi, even access to vocational training is limited to those who have achieved a certain educational level. The minimum prerequisite for vocational training is graduation from the 6th grade. However, a still higher educational training gains the children access to better vocational training, which in turn increases the chances of employment, a point reinforced in the following comment from Uvin (2009):

…”education makes a serious difference in Burundians’ life only if they reach at least the tenth grade. Whether they [former child soldiers] have four years of education while others have six years does not really make that much of a difference - you remain on the farm or in the informal sector regardless. (p. 87-88)

Furthermore, PTSD symptoms and emotional dysregulation lead to higher levels of reactive aggression, and are risk factors for current violent behavior of children and adolescents. As those are common among individuals who have been exposed to traumatic experiences and maltreatment, peer victimization may further contribute to impaired academic functioning (Schwartz et al., 2005; Weaver et al., 2008). However, appetitive
aggression has been found to be even more strongly associated with current violent behavior and bullying among children and adolescents than reactive aggression. While appetitive aggression in children seems to serve as a protective factor against mental ill-health and helps them to stay functional in adverse environments, it also contributes to more violent and more insecure living conditions in general. A very recent study with war veterans and active soldiers in Burundi confirmed that violent environments and in particular childhood maltreatment foster both PTSD and appetitive aggression (Nandi, Crombach, Bambonyé, Elbert, & Weierstall, 2013). In the absence of other rewarding mechanisms such as parental support, emotional closeness and recognition, children and adolescents may strive for other rewarding feelings such as violence-related enjoyment and feelings of security. As the rewarding feeling of winning a fight or intimidating somebody is experienced immediately, controlling everyday violence becomes almost an impossible challenge in larger groups of children who grew up in adverse conditions.

In fact, small offenses among vulnerable children as well as bullying behavior are most likely risk factors for maintaining trauma-related symptoms. Unfortunately these are difficult to detect and to address (Beran, 2006; Neuner, 2010). In consequence, establishing a secure and violence-free environment for these children becomes even more challenging. This might be particularly true in residential care centers, where vulnerable children and adolescents live in overcrowded conditions and are supervised by an insufficient number of educators (Thomas de Benitez, 2007). Moreover, the educators working in residential centers are often not trained to adequately deal with vulnerable children and adolescents. Suffering from trauma-related symptoms is often associated with behavioral difficulties such as aggressive behavior. As dealing with affected children is very challenging, educators use physical punishment and threats to establish their authority. However, this further exacerbates psychological ill-health among the children.
In such conditions, FORNET proved to be a promising psychotherapeutic approach for reducing aggressive behavior and the reactivity of the children’s biological stress-response system. In addition to minimizing the everyday involvement in violent behavior, it also improved their physical health. The latter result highlights the impact trauma-related interventions can have on the reduction of daily stressors and on improving the abilities of children to deal with them. As the FORNET is based on the same principles as the NET, it is reasonable to postulate that these effects will be long-term improvements in the resilience of the children and adolescents (Robjant & Fazel, 2010). This underlines once again the necessity of including psychotherapeutic approaches from the start in aid programs that aim to help war and violence affected populations. Integrating the FORNET as a standard treatment into the programs of residential centers would most likely reduce daily stressors in the form of violence and physical health complaints to which the children are exposed. In turn, providing them with a secure and stable environment will become less challenging for the educators.

5.3 Implications for research and praxis

Residential care facilities have often been criticized as having detrimental effects on the psychological well-being of children. In particular younger children are strongly affected by lack of attachment and individual support, which reduces their chances of a successful cultural and social integration into society (Hermenau et al., 2011). However, residential care is not the only potentially psychologically harmful environment. Results of a few studies showed that informal foster care in low-income countries and post-conflict regions might be at least as detrimental to the psychological well-being of children as residential care (Schaal & Elbert, 2006; Shibuya & Taylor, 2013; Whetten et al., 2009). In any case, the key features of good care seem to be close relationships and caring parenting styles, because they buffer
CHAPTER 5: CONCLUSIONS

detrimental mental health effects and even prevent the development of aggressive behavior among children and adolescents (Dvir et al., 2012; Qouta et al., 2008; Smyke et al., 2012). The empirical data of the present thesis highlighted the necessity of trauma-aware care arrangements to prevent further exposure to physical and psychological violence and neglect. A sufficient number of well-trained educators are part of the solution to provide vulnerable children with a secure and stable environment. A best educational practices training program would need to be established and evaluated.

Specific trauma-related psychological interventions have to be provided to the children. Scientific evidence for long-lasting amelioration of mental health problems strongly supports the idea of addressing psychological issues instead of ignoring them out of fear of stigmatizing children (Schauer & Schauer, 2010). A combination of specific evidence-based treatment approaches and establishing secure and stable living conditions would most likely be the best solution to address their psychological difficulties. The relatively secure environment of a residential center may temporarily buffer against emerging trauma-related symptoms, however once these children and adolescents leave the center and are confronted once more with difficult living conditions, these trauma symptoms are likely to reemerge. Moreover, it is necessary to bear in mind that the psychological suffering of children may also be displayed in physical health complaints instead of proper descriptions of mental health diagnoses. Emotional numbing, avoidance, trust issues and developmental delay due to early traumatic experiences and a lack of family support may prevent children from being able to properly describe their stress related psychological symptoms (Cook-Cottone, 2004). Fear of stigmatization and cultural beliefs that discourage sharing personal problems with other persons need to be considered as well when assessing trauma-related symptoms and aggressive behavior in Burundi (Uvin, 2009).
CHAPTER 5: CONCLUSIONS

This thesis has important implications in regard to aggressive behavior among children and adolescents, specifically the importance of considering positive, rewarding emotions as a primary motivation for current aggressive behavior. Appetitive aggression is not limited to heavy-offender populations. In consequence, we need a shift in perception away from explaining violent behavior only as maladaptive and a consequence of emotional distress. Additionally, taking internal rewarding mechanisms into account will lead to a better understanding of why violent offenses are happening. The implications for research are extensive.

The interaction between social and biological reward mechanisms contributing to the development of an appetitive perception of violence needs to be assessed in detail. Candidate social factors include self-committed offenses, exculpatory believes and violence accepting environments. We hypothesize that these factors can have an effect at any time of life, but have a particularly strong impact during childhood. Biological reward mechanisms related to dopamine, endorphins and testosterone would need to be assessed regarding their association with appetitive aggression (Elbert et al., 2012; Elbert et al., 2010). For example, Singer and colleagues (2006) demonstrated that the activation of empathy-related areas was reduced in men’s brains while the activation of the reward-related area nucleus accumbens was increased when they succeeded against someone perceived to have perpetrated a wrong. However, as violence-related enjoyment is a particular social taboo in most societies, the assessment instruments need to be refined and if possible, measurable biological correlates need to be established (Hermenau et al., 2013). In addition, the importance of appetitive aggression for female children and adolescents has to be assessed as research thus far has focused almost exclusively on males.

Furthermore, appetitive aggression has to be factored into interventions aiming to reduce violent behavior. FORNET has proven to be a promising approach. However, the
exact mechanisms of its effects have to be assessed in more detail. Future investigations need to assess whether the reduction of involvement in everyday violence is due to a raised awareness of appetitive emotions towards aggression or due to an improved ability to regulate emotions. Moreover, the impact of reconnecting appetitive emotions with socially accepted activities on aggressive behavior has to be evaluated. Future studies testing FORNET, need to evaluate the feasibility of dissemination techniques such as train-the-trainer models.

5.4 Final conclusions

Growing up in adverse environments such as the streets of Bujumbura or very fragile and violent family settings makes children vulnerable to trauma-related ill-health. In consequence, residential care facilities aiming to reintegrate and educate these children are confronted with the very difficult challenge of providing a secure environment. However, even minor violent events or neglect exacerbate trauma symptoms and undermine progress in school. As an additional consequence of growing up in violent settings, children can acquire an appetitive perception of violence. This adaption helps them to stay functional in adverse living situations and protects them against symptoms of PTSD. However, appetitive aggression is one factor, together with reactive aggression, that increases the probability of current violent behavior, thereby contributing to the violence in the environment of the children and adolescents.

These results highlight the need for mental health programs and interventions that address trauma-related distress based on solid scientific research with proven effectiveness even in insecure environments and feasibility in particular cultural settings (Onyut et al., 2004). In addition, the results show that aggressive behavior has to be addressed in order to interrupt the cycle of violence and prevent children and adolescents from engaging in future
delinquent behavior. FORNET has proven to be a promising approach for addressing violent behavior among children and adolescents in post-conflict countries. It has beneficial effects even in not entirely secure environments and thereby adds to necessary, research-based interventions for youths who have lived on the streets or suffered other adverse life circumstances (e.g., McCay & Aiello, 2013). Clinical psychological interventions and in particular narrative approaches may be usefully implemented in difficult and insecure post-conflict settings. They efficiently contribute to overcoming mental health problems and aggressive behavior, thereby boosting the effectiveness of reintegration programs for children and youths who grew up in adverse environments.
6 Submitted manuscripts that form part of the doctoral thesis

6.1 Shattered by violence, poverty and insecurity: A study on reintegration of street children in Burundi

Authors: Anselm Crombach, Manassé Bambonyé and Thomas Elbert

*Manuscript submitted for publication*

6.1.1 Personal contributions

I designed the study and coordinated the cooperation with the local NGO Fondation Stamm and with University Lumière. I recruited the participants and carried out a large number of interviews in Burundi. I prepared the database and performed the statistical analyses. Furthermore I prepared the manuscript under supervision of Prof. Dr. Thomas Elbert.

6.2 The benefits of aggressive traits: A study with current and former street children in Burundi

Authors: Anselm Crombach and Thomas Elbert

*Manuscript accepted for publication in Child Abuse and Neglect*

6.2.1 Personal contributions

I designed the study and coordinated the cooperation with the local NGO Fondation Stamm and with University Lumière. I recruited the participants and carried out a large number of interviews in Burundi. I prepared the database and performed the statistical analyses. Furthermore I prepared the manuscript under supervision of Prof. Dr. Thomas Elbert.
6.3 Controlling offensive behavior using Narrative Exposure Therapy: A randomized controlled trial of vulnerable children

Authors: Anselm Crombach and Thomas Elbert

Manuscript submitted for publication

6.3.1 Personal contributions

I designed the treatment study and coordinated the cooperation with the local NGO Fondation Stamm. I recruited the participants and carried out a large number of the interventions. I coordinated the follow-up assessment and prepared the database. I performed the statistical analyses and prepared the manuscript under supervision of Prof. Dr. Thomas Elbert.
7 References


REFERENCES


REFERENCES


REFERENCES


REFERENCES


Kidd, S. A., & Davidson, L. (2007). "You have to adapt because you have no other choice": The stories of strength and resilience of 208 homeless youth in New York City and Toronto. Journal of Community Psychology, 35(2), 219-238.


REFERENCES


REFERENCES


REFERENCES


Ramphele, M. A. (1997). Adolescents and violence: "adults are cruel: "they just beat, beat, beat!". *Social Science & Medicine, 45*(8), 1189-1197.

REFERENCES


REFERENCES


REFERENCES


REFERENCES


Appendix

Appetitive Aggression Scale for Children (AAS-C)

**Instructions:** The following questions concern the experience of committing violence. The questions include the experiences of other persons who were involved in violent actions. Please tell me, if you have had any of these experiences in the **past four weeks** or not. Please remember that there is no right or wrong answer – whatever you think is okay. Please answer honestly. Do not spend a lot of time thinking about the questions - just give your first response.

<table>
<thead>
<tr>
<th>In the past four weeks did you experience or have the feeling that…</th>
<th>Disagree</th>
<th>Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. …you were interested if someone was telling you a story of how he/she has attacked or hurt others?</td>
<td>0</td>
<td>1  2  3  4</td>
</tr>
<tr>
<td>2. ... the more often you heard stories or saw pictures of injured people, the more exciting you found them?</td>
<td>0</td>
<td>1  2  3  4</td>
</tr>
<tr>
<td>3. …if you fought with others, you mostly expected to win?</td>
<td>0</td>
<td>1  2  3  4</td>
</tr>
<tr>
<td>4. …you felt strong and powerful because you attacked someone?</td>
<td>0</td>
<td>1  2  3  4</td>
</tr>
<tr>
<td>5. …the pleasure of harming others was greater if it was difficult to defeat them?</td>
<td>0</td>
<td>1  2  3  4</td>
</tr>
<tr>
<td>6. …it was exciting, if someone was injured in a fight?</td>
<td>0</td>
<td>1  2  3  4</td>
</tr>
<tr>
<td>7. ...if you injured others, you mostly prepared yourself for it?</td>
<td>0</td>
<td>1  2  3  4</td>
</tr>
<tr>
<td>8. ... fighting could be like hunting?</td>
<td>0</td>
<td>1  2  3  4</td>
</tr>
<tr>
<td>9. …you encouraged others to gang up on someone else?</td>
<td>0</td>
<td>1  2  3  4</td>
</tr>
<tr>
<td>10. ...you teased others so they would fight against you?</td>
<td>0</td>
<td>1  2  3  4</td>
</tr>
<tr>
<td>11. …sometimes you really wanted to fight?</td>
<td>0</td>
<td>1  2  3  4</td>
</tr>
<tr>
<td>12. ... someone who was defeated has to bleed or to suffer?</td>
<td>0</td>
<td>1  2  3  4</td>
</tr>
<tr>
<td>13. …you found it satisfying to imagine how another person was harmed?</td>
<td>0</td>
<td>1  2  3  4</td>
</tr>
<tr>
<td>14. …once you started beating another person it was difficult to stop?</td>
<td>0</td>
<td>1  2  3  4</td>
</tr>
<tr>
<td>15. …you harmed others because you wanted to do it?</td>
<td>0</td>
<td>1  2  3  4</td>
</tr>
<tr>
<td>16. ... if you imagined going to fight, you felt an urge for it in your body and you wanted to unleash it?</td>
<td>0</td>
<td>1  2  3  4</td>
</tr>
<tr>
<td>17. …sometimes you wanted to fight/watch a fight, even though you knew that you could be hurt?</td>
<td>0</td>
<td>1  2  3  4</td>
</tr>
<tr>
<td>18. …you spent a lot of time daydreaming about fighting or hurting someone?</td>
<td>0</td>
<td>1  2  3  4</td>
</tr>
</tbody>
</table>
Introduction

The Appetitive Aggression Scale for Children (AAS-C) is based on the Appetitive Aggression Scale for Combatants (AAS; Weierstall & Elbert, 2011). The AAS-C was adapted and designed as a semi-structured interview to allow researchers and clinicians who have expertise in the concept of appetitive aggression, to assess the attraction to violence of children and adolescents. Appetitive aggression is defined as the perpetration of violence and/or the infliction of harm upon a victim for the purpose of experiencing violence-related enjoyment. For a more detailed definition see Weierstall and Elbert (2011).

Adaptations

Most of the items of the original version for combatants were rephrased to adapt them to a non-combatant setting and to simplify the language for the children. Item 12 of the AAS, “Do you know what it is like to feel the hunger/thirst to fight?”, was replaced with the items 11 and 16. Additionally the items 4 and 10 were added to the AAS-C even though there is no equivalent in the AAS.

Quality criteria

So far the AAS-C has only been used in a sample of 112 children and adolescents in Burundi. In this sample an initial factor analysis provided evidence for unidimensionality. The first factor (Eigenvalue 3.84) accounted for 23 % of the variance. The questionnaire showed sufficient internal consistency; Cronbach’s α = .80. Further studies need to be conducted to confirm the structure and the validity of this instrument.

Administration/Scoring Rules

1. Use the prompt questions as written in the questionnaire; use additional questions as needed to accurately determine the degree to which the item applies to the child.
2. If the participants states that the item is referring to a situation s/he did not experience during the past month, ask if s/he thinks the item might still apply to her/him: “Can you imagine that it could be true for you…”
3. Keep in mind that reporting appetitive aggression is socially undesirable; don’t judge but normalize positive emotions that may be related to violent behavior
4. Focus on the situation the question is referring to and not on the social evaluation
5. It is appropriate to use information that arises later in the interview to modify earlier rating
6. Take also your observations and the body language of the participant into account to rate the degree of agreement with each item.
   0 = Disagree: Participant does not know the feeling; avoids such situations
   1 = Agree a little bit: Participant knows the feeling a little bit; does not act on it; does not avoid the situations but is not excited
   2 = Agree moderately: Participant knows the feeling and gets a little bit excited; may act because of the feeling but not regularly
   3 = Agree strongly: Participant knows the feeling very well and gets excited; enjoys the feeling and looks forward to experiencing it
   4 = Agree very strongly: Participant passionately enjoys the feeling and actively tries to trigger it
Time frame
The interviewer has to ensure that the participant talks about current feelings and experiences. Hence the questions refer to the past month or if the participant thinks it still applies.

Degree of appetitive perception of violence
Select either item 11 or item 16 depending upon the item that scored higher. Calculate the total sum score by summing up the sum scores of the selected item and of all remaining items. The total sum score ranges from 0 to 68.

Languages
The AAS-C is available in English, German, French and Kirundi

Correspondence to:
Dipl.-Psych. Anselm Crombach
University of Konstanz, Department of Psychology
Box 23, 78457 Konstanz, Germany
Phone: +497531884003
Fax: +497531885702
E-mail: anselm.crombach@uni-konstanz.de

Reference