



Dynamics of Child soldiers' Psychosocial Rehabilitation and Well-being: Perspectives from Bioecological Systems Theory in the Democratic Republic of Congo

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Abstract

Background research on children associated with armed forces and armed groups (CAAFAG) and the analysis of how to facilitate their social reintegration and human development reveals a variety of complex individual and collective challenges with which they are confronted; however, their social and cultural environment, and the risks that may impede their future development and well-being, remain understudied. This empirical research reports the results of descriptive and correlational analyses of data emanating from author-administered interviews, and focus group discussions with 128 CAAFAG and two psychologists working with them in rehabilitation centers in the eastern Democratic Republic of Congo. The entire sample involved relatively young participants ($N = 130$, $M = 17.11$, $SD = 4.28$), with the youngest child aged 11. The outcomes sustain that the psychosocial rehabilitation programme framed within Urie Bronfenbrenner's bioecological systems theory shows promising effects in enhancing CAAFAG's well-being, human growth; and in reducing potential violent behavior.

Keyword Bioecological theory · Child soldiers' well-being · Democratic Republic of Congo · Human development · Psychosocial rehabilitation

Background

The impact of armed conflict on children is a well-documented humanitarian crisis affecting many children around the globe, and the failure to manage the post-conflict well-being of such children can stand as a social moratorium to their development. The definition of *child soldiers* in this study is borrowed from Article 2(1) of the Paris Principles [1], which does not limit the category of child soldiers to those having an active role in combat, but includes those who play ancillary roles during armed confrontations. According to the 2017–2018's Child Soldiers International's Annual Report, the recruitment of child soldiers continues to occur in many parts of the world with an estimated 56 armed groups and seven state forces that enlist and use children, as well as over 3000 cases of child recruitment by

armed groups in the Democratic Republic of Congo (DRC) [2]. Many of the children associated with armed forces and armed groups (CAAFAG) who exit hostilities are confronted by a myriad of challenges which are not limited to the risks of developing posttraumatic stress disorders (PTSD) [3–5]; mental health difficulties [6, 7]; responding to justice for those accused of violating international human rights and humanitarian law [8, 9]; and dealing with the adverse life conditions in which they find themselves when they return to their communities—a lack of education and job opportunities and livelihoods, and the risk of being rejected, marginalized and remobilizing [10]. These circumstances are risk factors that may jeopardize a meaningful reintegration into society.

Psychosocial Rehabilitation and Child Well-Being

Scholars such as Wessells [11], Coppens et al. [12], and Vindevogel et al. [13] have demonstrated the importance of psychosocial rehabilitation and the well-being of war-affected children including the CAAFAG. Wessells (p. 67) [11] advocates “an ecological systems orientation” as an essential component of the “community resilience

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approach”. This implies adopting a holistic approach that encompasses tackling multilayered risk factors that may maintain the condition of distress (shelter, nutrition, abject poverty, the loss of the family environment, etc.), creating opportunities such as education, and putting in place protective security measures and health facilities where professional medical personnel assist children in need [11]. In a similar vein, Coppens et al. [12] examined the conditions of psychosocial care in rehabilitation facilities where former child soldiers are looked after in the context of northern Uganda, and found that there exist ‘good practices’ and ‘bad practices’. ‘Good practices’ include the participation of family and community members, the use of cultural activities, making families and communities aware of the extreme suffering of former abducted children (FAC), and the provision of educational support and community-based support, while ‘bad practices’ refer to unrealistic promises made to children, staff exhaustion and their risk in undergoing traumas, the selective provision of support only to FAC (not to all children), and the lack of follow-ups for rehabilitation support [12].

Psychosocial rehabilitation constitutes a response to the children’s social environment and the variety of risks that may impede their protection, and promotes their resilience and well-being after witnessing war-related cruelty and the lack of perspectives for the future as they attempt to re-enter the scene of civilian life. These risks may be linked to their unhealthy mental and psychological condition, but above all the socio-economic constraints that they have to deal with in their civilian life [14]. A supportive system that includes family and community-based backing is instrumental in facilitating the reintegration of CAAFAG into society. This has been evidenced by a study conducted by Betancourt and her colleagues on former child soldiers in Sierra Leone, based on self-reported rates of PTSD symptoms which dropped from 32 to 16% after a period of four years after being exposed to traumatic events [14]. These authors aver that, to a certain degree, the improvement in PTSD features was attributed to family and community-based support, despite limited access to care.

However, in another study of the psychosocial rehabilitation of former child soldiers in northern Uganda, led by Vindevoel [13], it was found that a significant proportion of former child soldiers experienced ongoing symptoms of psychological and physical unwellness during the period in which they were followed in the community. In a final analysis, these authors observe that children who received support from interim rehabilitation centers still struggle to recover from physical injuries reportedly caused by “chest pain and unhealed wounds” as compared to other children who did not [13]. That shows how social layers are worth being considered to boost the capacity of centers to efficiently facilitate the rehabilitation and reintegration of former child

soldiers—by creating a welcoming environment where child soldiers feel accepted in their communities [13].

However, a positive element to acknowledge in CAAFAG is resilience. While many CAAFAG struggle with PTSD, others show posttraumatic resilience. Klasen et al. [15] investigated resilience through interviews with 330 former Ugandan child soldiers—ages ranged between 11 and 17, and 48.5% of the child soldiers were female. The findings revealed that despite exposure to severe trauma, 27.6% manifested posttraumatic resilience while “posttraumatic stress disorder, depression, and clinically significant behavioral and emotional problems” were non-existent ($p = 1096$) [15]. Among the factors that increased posttraumatic resilience in studied cases were “lower exposure to domestic violence, lower guilt cognitions, less motivation to seek revenge, better socioeconomic situation in the family, and more perceived spiritual support” ($p = 1096$) [15].

It becomes evident that efforts to holistically address the welfare of CAAFAG after exiting hostilities should not only focus on PTSD diagnosis and clinical interventions or possible mental deficiencies that they show, but also to comprehensively address issues pertaining to their psychosocial well-being and ensure their reintegration into society, delivering hope for the future. In the context of this study, psychosocial rehabilitation is conceptualized within Urie Bronfenbrenner’s bioecological systems theory.

Objectives and Rationale

The study aims—as a long-term envisioned benefit—to develop and suggest a more realistic a comprehensive intervention programme that could indiscriminately profit to former child soldiers regardless of the way in which they reintegrated into society. Based on the assumptions that CAAFAG who undergo psychosocial rehabilitation programme would be better equipped to face various socio-ecological challenges that may make their past experience in armed groups a social moratorium that could thwart their well-being and future development, the following questions are asked:

- (1) To which extent psychosocial rehabilitation programmes can be framed within bioecological systems theory to enhance CAAFAG’s well-being?
- (2) How does such intervention curb the tendency to perpetrate violent acts?
- (3) To which degree psychosocial rehabilitation of CAAFAG impact their human development?

While the literature reviewed serves as the basis for answer to the first question, this inquiry provides empirical qualitative evidence that supports the ongoing debate on the linkages between bioecological framework and rehabilitation programmes in interim centers. Pearson Chi-Square

Test of Independence is utilized to verify the null hypothesis (H_0) that states: Variable child soldiers who undergo psychosocial rehabilitation programs and those who do not, and variable involvement in violent action after exiting armed forces, are unrelated ($\alpha=0.05$). The impact of psychosocial rehabilitation on child development and well-being is discussed extensively here.

Theoretical Framework

This inquiry uses Urie Bronfenbrenner's bioecological systems theory as the conceptual framework to study, understand and improve the implementation of psychosocial rehabilitation programs for the future development and well-being of CAAFAG. Bronfenbrenner explains human person's development as being influenced by a multitude of factors—the interactions of external environmental structures and genetics [16, 17] which are made up of five layers: (1) microsystem, which refers to composite relations between the developing person and the environment where interrelationships exist in set-ups such as the family, workplace, etc.; (2) mesosystem, which entails the interrelations that exist among major settings in which the developing person finds himself or herself at a particular point in his or her life (family, school, camp, church, etc.); (3) exosystem, which is defined as an appendage of the mesosystem encompassing other specific social structures, either formal or informal, of which the developing person is not a part but which affect the immediate settings which accommodate that person, thereby exerting influence, delimiting, or even determining what takes place in the settings; and (4) macrosystem, which consists of “the overarching institutional patterns of the culture or subculture, such as the economic, social, educational, legal, and political systems, of which micro-, meso-, and exosystem are the concrete manifestations” (p. 515) [16]. Finally, (5), chronosystem, which examines the development of the person as influenced by “changes (and continuities) over time in the environments in which the person is living”, and it is also referred to as “life transition” (p. 724) [18].

In other words, the chronosystem is the socio-historical development of the person inasmuch as this is influenced by “external environments on the functioning of families as contexts of human development” (p. 724) [17]. There are four properties that define the bioecological model: (1) Process, (2) Person, (3) Context, and (4) Time” (p. 794) [17], which Tudge et al. [19] describe as the *essence* of this theory, which is embraced by several studies of the psychosocial rehabilitation of former child soldiers [11]. The leverage that social ecology holds in the mental recovery of CAAFAG is well-sustained by studies conducted by Betancourt et al. [6]; Kohrt [3]; and Kohrt et al. [20]. In addition, bioecological system framework of human development features in various rehabilitation programmes through

which CAAFAG are taken as a response to the various needs created in them as a result of participating in armed conflicts. Many rehabilitation centers have intervention scheme modeled on bioecological theory [12, 13], which the current work explores, particularly the “Person” level, the microsystem level, the mesosystem level, the exosystem level, the macrosystem level and the chronosystem level.

Design and Method

This cross-sectional exploratory and descriptive study used mixed methods. The Kiswahili local language was the primary medium utilized by the author to collect both quantitative and qualitative data, which he translated into English and later transcribed on datasets. The overall purpose of these approaches was to make as many children as possible participate by providing an in-depth understanding of psychosocial rehabilitation interventions and how that affect them and society.

Nonprobability sampling techniques were adopted, namely cluster sampling (by selecting psychosocial rehabilitation centers—commonly known as CTOs, in geographic sites where child soldiers have self-demobilized), and purposive sampling (identifying target populations and selecting those able to provide the information required for this study). All child soldiers available in CTOs, except one who showed severe mental difficulties; demobilized young soldiers found in a few schools, and in war-torn communities of the North and South Kivu who volunteered to participate were included in the sample. The average age of the child soldiers was 17.11 ($SD=4.28$) and the youngest child aged 11; 16 (74.4%) were between the ages of 11 and 17; 40 (25.6%) were between the ages of 18 and 31; 103 (66.0%) reintegrated after the psychosocial rehabilitation program, while 53 (34.0%) did not; and all were from the DRC. They originated from 46 of the most war-affected communities in North and South Kivu clustered here in seven centers (Bobandana, Goma, Masisi, Rutshuru, Kitchanga, Walikale, Kiwanja and Sake) in the DRC.

Data Collection

Data was collected through author-administered structured interviews, focus group discussions and semi-structured interviews. Structured interviews were coded and transformed into surveys of 19 questions broken down into two clusters: (1) 13 questions based on demographic information, and (2) six questions focused on appraising the bioecological systems theory as a conceptual framework to study the overall psychosocial rehabilitation programs.

Quantitative Data Analysis

Descriptive statistics—establishing frequencies and percentages—were extracted from the researcher-administered survey questionnaires. Participants responded to the same questionnaire from which all information was captured on SPSS version 25 to make the sample datasets used to evaluate the dynamics of the psychosocial rehabilitation program framed within the bioecological systems theory and to determine the difference between CAAFAG who reintegrate into society via a rehabilitation center or not. Chi-Square Tests and Fishers' Exact Tests of Independence were employed using $\alpha=0.50$.

First, Cronbach's alpha, α (or coefficient alpha), was performed to measure the reliability, or internal consistency, of all questions rated at an ordinal scale: Cronbach's alpha = 0.701, which is an acceptable coefficient as the cut-off score for $\alpha=0.70$. Second, the assumptions to perform the Pearson Chi-Square Tests of Independence were met, namely: (1) two variables should be measured at an ordinal or nominal level (i.e. categorical data); and (2) two variables should consist of two or more categorical, independent groups.

Qualitative data Analysis and Interpretation

Coding data schemes were developed manually and followed the guidelines provided by Saldaña [21]. That consisted of two cycles: (1) identification of a word, sentence that assigned a summative characteristic for each section of the transcripts; and (2) using coded sections to make up the same units of analysis. A few interviewees' words reflecting different themes are cited in this report.

Coding reliability of qualitative analysis text data was considered. Campbell et al. [22] and Krippendorff [23] on the use of three types of measures namely *stability*, *accuracy*, and *reproducibility* also termed as *intercoder reliability*, and they argue that coding reliability gives credibility to research outcomes. However, the current paper benefited from Alasuutari [24], Talja [25], Zhang and Wildemuth [26], and Hsieh and Shannon [27] who elaborate on various analytical methods to study text data (information of verbal and written nature), and ensure validity and reliability of the results. Such approaches include qualitative content analysis and discourse analytical method which are applied to this paper. For instance, Zhang and Wildemuth [26] asserts: "the reliability of research results depends on how unbiased and accurate information the interview answers provide about the phenomenon studied" (p. 13). Besides, Zhang and Wildemuth [26] puts forward four criteria for evaluating interpretive research, namely "credibility, transferability, dependability, and confirmability" (p. 6) with which the findings of this inquiry are consistent.

Talja observes that the constructivist method of interpretation utilized in discourse analysis entails the interview discourse being "approached with very different expectations from how we have learned, as members of culture, to interpret people's talk in everyday life. Participants' accounts, or verbal expressions, are not treated as descriptions of actual processes, behavior, or mental events" (p. 461) [25]. This suggests that an interview answer does not provide a straightforward meaning, as a question of "external or internal reference", but is rather reliant upon "the local and broader discursive system in which the utterance is embedded" (Wetherell & Potter, 1988 as cited in Talja) (p. 461) [25]. Thus the interpretation of text data is *context-dependent* [26, 28]. Several consultations took place between the author and the psychologists working with CAAFAG to ensure research findings did not deviate from the real meaning conveyed by the interviewees' words. Since discourse analysis consists of producing interpretations which are "intrinsically macrosociological. This does not mean that the quantity of research data should be large. Even one interview may suffice to indicate what kinds of interpretations are possible" (p. 472) [25].

In Vivo citations selected from the transcripts are reported and were analyzed consistently with the interpretive methods elaborated here. Through triangulating various sources of data, methods and paradigms, the findings of this study meet reliability and generalizability standards, as supported by Hsieh and Shannon [27], citing Lincoln and Guba (1985) and Manning (1997): "Credibility can be established through activities such as peer debriefing, prolonged engagement, persistent observation, triangulation, negative case analysis, referential adequacy, and member checks" (p. 1280) [27].

Observed Ethical Standards

Despite increasing concerns and cautions borne by researchers dealing with children as a source of data, such as children's vulnerability, incompetence and powerlessness, it has been found that children are relevant *social actors in their rights and sources of valid data* in any project that intends to address their well-being [28]. However, a participatory approach whereby children expressed their desires and concerns while suggesting what should be pursued to attain their well-being is more appropriate in this instance. Such a participatory strategy has the potential to effect validity and reliability of the research outcomes, and is also a special feature on ethical standards of research with children [29, 30].

Gatekeepers were provided from the Caritas Goma office, and permission to access the center was granted by the caregivers and the supervisor (Caritas – Development Letter Ref. 244-05_ADM_CADEGO_2014). Ethical clearance was obtained from the Durban University of Technology (Faculty Research Ethics Committee FREC No 32_14FREC,

issued on 8 October 2014). Ethical consent was obtained from all participants in the study. Additionally, the following practices were maintained throughout the inquiry: freedom to participate or to withdraw from supplying data (autonomy); keeping the agreement between the researcher and participants as expressed in the information letter; sensitivity towards vulnerable participants by avoiding intrusive questions and ensuring the physical presence of the psychologist assigned to the interim care center; and ensuring that children felt safe in their own space where they were met by the author. Measures were well in place to ensure that a prompt and adequate response was provided in the unfortunate event of psychological discomfort experienced by CAAFAG. Once child was excluded from the study at Bobandana CTO, as the researcher judged him as not being mentally fit to participate.

The four ‘General Principles’ identified by the Committee on the Rights of the Child pursuant to the interpretation and implementation of all the rights contained in the United Nations were upheld, notably the Convention on the Rights of the Child (CRC) (1989) [31] and the CRC General Comment No. 12 relating to the Right to be Heard (2009) [32], most importantly: (i) Article 12(1)(2) of the CRC (1989) and Article 2 and 12 of The CRC-The Rights to be Heard (2009), on the consideration of the views expressed by children and their rights to be heard; (ii) Article 2(1)(2) of the CRC (1989), on non-discriminatory treatment of children and their protection required at all times; (iii) Article 3(1) of the CRC (1989), on the primacy of the best interests of the child; and (iv) Article 6(1)(2) of the CRC (1989), on the right to life, survival and development of the child. Furthermore, the recommendation from the UN study concerning the inclusion of vulnerable children in interview studies was observed, which suggests that no child involved in an inquiry should be identified [33]. Thus all CAAFAG in this study are reported with their pseudonyms.

Bless et al. [34] asserts: “the researcher might provide transport and child-care for subjects and even pay them to participate in the study. This ensures compliance with treatment and reduce attrition rates” (p. 94). Taking into consideration children’s vulnerability, the centers were shown gratitude by the author who gratified all children with a little cash as a token of appreciation and provided transport for CAAFAG who travelled from different communities to participate in this project. That was necessary to minimize attrition—such a practice is consistent with the ethics of research with children. There were no violations of the Nuremberg Standards [35].

This inquiry complies with all ethical standards and adheres to the Ethical Principles of The American Psychological Association and Code of Conduct, including beneficence and nonmaleficence, fidelity and responsibility, integrity, justice and fairness, upholding people’s

individual and collective rights and dignity [36]. CAAFAG were the primary beneficiaries of this project as it pursued their psychosocial rehabilitation and well-being. Sampling, data collection, analyses and reporting were carried out with honesty, truthfulness, accuracy, and with no discrimination. All child participants were treated with fairness and their rights and dignity were upheld. Finally there was no report suggesting that any child suffered re-traumatization as a result of being involved in this inquiry.

Results

Table 1 shows the main characteristics of the sample namely the key demographic features, the itinerary of reintegration into society.

Table 1 Demographic features of the sample

Characteristic	No	%
Main centers		
Goma	5	3.8
Masisi	40	30.8
Rutshuru	46	35.4
Kitshanga	1	.8
Kiwanja	4	3.1
Sake	34	26.2
Gender		
Male	125	96.2
Female	5	3.8
Age categorized into two (under 18 and 18 and above)		
Below age of 18	98	75.4
18 years old and above	32	24.6
Status before conflict or joining armed groups/forces		
Student	81	62.3
Doing nothing	49	37.7
Nature of recruitment/participation in hostilities		
Voluntary	58	44.6
Forced	72	55.4
Present status of participant in this inquiry		
Learner/student	13	10.0
Under psychosocial rehabilitation program	80	61.5
Doing nothing	35	26.9
Caregiver/psychologist	2	1.5
Itinerary of exit to reintegration		
Via rehabilitation center	79	60.8
Without rehabilitation support	51	39.2

Nature of Recruitment and Sustaining Factors

Child soldiers distinguish *kujibeba* [wilful enlistment] from *kukamata kwa nvugu* [forced recruitment, conscription or abduction].

Hoz_111, aged 17, was recruited at the age of 15 by the Nyatura militia and was released when he was 16. He narrates: “*Tunajibebaka* [We went to join] the armed group because of the Mai because they said that all Hutus should leave the DRC to return to Rwanda, which is why we went to take revenge” (Personal interview at Bobandana, 19 September 2018).

Zeze_109, aged 17 and who was conscripted by the Hutu-dominated armed group of the Democratic Forces for the Liberation of Rwanda (FDLR) at the age of 15. Nze, a 17-year-old male child soldier, was abducted at the age of 10 by the Mai Mai Mazembe, and was released when he was 17. He describes how he became involved in armed groups as follows:

I was with my older brother, my paternal uncle was very old and sent us to weed banana field. One day while working in the field the Mazembe soldiers who were brewing their *kasiksi* (local brew) in the field that was near ours. They forced us to transport local beer to their headquarter. When we arrived there, we found many children carrying weapons and I was also very happy and interested also to hold one. I immediately decided to stay with these rebels (Personal interview at Bobandana, 19 September 2018).

In all these circumstances, the mode of recruitment with the highest frequency involved abduction, with 72 cases (55.4%), and self-enlistment, with 58 cases (44.6%).

Experiences in Armed Groups and Forces

Despite the overwhelming narratives of hardships and brutalities, some children expressed that they enjoyed the free food, free drinks, access to cash from looting operations, and creating roadblocks (Focus group with CAAFAG at Bweremana, 19 September 2018). Other behaviors and practices associated with life in armed groups encompass both the beliefs and practices upon which child soldiers rely either as coping mechanisms or simply as self-indulging attitudes to confront the rough reality of life within armed groups; some had also developed intense sexual inclinations as a result of abusing substances that enhance the libido (Interview with the psychologist at Bobandana Center, 19 September 2018). Substances to which these young children are addicted and that boost lustful passions include *36 birds* and *leaves without reaming* (types of local leaves that have high narcotic properties and are believed by CAAFAG to enhance the libido).

Many children were forbidden to bath with soap and were asked to use *matumbitum* (local natural detergent) by armed groups commanders. When asked about the rituals and customary prohibitions, young returnee soldiers responded that these practices were imposed on them by their superiors in armed groups, and they were severely warned to comply with the rules of war as breaking them was punishable by death (Personal interview with the psychologist at Bobandana Center, 19 September 2019). To enforce these narratives, commanders make children wear amulets and bracelets believed to confer invincibility and invulnerability in the face of heavily-armed opponents. Children who were accustomed to these acquired habits remained under considerable psychological pressure, resenting giving up those beliefs for fear of being harmed.

Fetish Management

Fetish management was mentioned mostly by children associated with Mai Mai fighters. For instance, Nze, a 17-year-old male child soldier mentioned earlier, was involved with both the Patriots for the Defense of the Innocent (UPDI) and the Mai Mai Mazembe. He narrates:

They made me the guardian of fetishes such as *andecha*, *Bisulanindi*, *Mubiriri*, *Mutchembe*, and *Mabingande* which are believed to confer invulnerability against bullets from enemies. These plants were mixed with parts of ferocious animals. Once blended together, the product was put in a can and the lower part of this container was cut. The medicine container was placed in a river where the water ran inside and that was used by the Mai Mai fighters for bathing.

Ka_B, aged 15, was recruited by the Mai Mai at the age of 14 and was released at the age of 15. He tells his story: “[...] I was used the guardian of fetishes. These fetishes protected us against bullets fired by enemies. The fetishes were made out of plants named *Matumbitumbi*, *Ndecha*, ... One day I arrived in Chanika village and escaped to get to the CTO (Personal interview, Bobandana, 19 September 2019).

Modes of Exiting Armed Groups

The main modes of exit from armed groups and forces are formal or official demobilization, disarmament and reintegration (DDR) and self-demobilization, with the latter becoming the more common way since 2014 when the DDR stalled due to the lack of funds and the disagreement between the DRC government and donors. Since then, many children and young soldiers join up, are conscripted and auto-demobilize using their own strategies. Maj_112, aged 17 and who was enlisted at the age of 14 by the FDLR-FOKA, explains:

I suffered and lacked the means to live in the bush. One day we were told that the general had been killed in the frontline. We took that opportunity to flee to Bukondo village where the government troops disarmed us and handed us over to the troops of the United Nations Organization Stabilization Mission of the Democratic Republic of Congo (MONUSCO). Then the MONUSCO sent me to the CTO at Masisi where I feared my life. I was afraid to be killed or dying in bad conditions (Interview with Major, a former child soldier, Bobandana, 31 July 2019).

Kas_13 (aged 13 and who was abducted by the Nyatura militia) was asked about what he liked and disliked about life with the Nyatura. He answered:

I was abducted by the Nyatura fighters. *Balikuwaka wakali* [there were very brutal]. There was nothing good but suffering. I escaped and travelled alone for about 50 km in the jungle until I reached Masisi. My family in Kanyarutshinya village organized a party for me because they saw me alive.

Among the many circumstances that present themselves to occasion for children's escape are the defeat of one's armed group by either the government forces or rival fighting groups or militias, the death of the leader or commander of the group that the child is associated with, being wounded in battle, taking a wounded friend to a hospital/clinic, voluntary release by armed group commanders with the intervention of local traditional leaders, and desertion by the child or young fighters (Focus group with child soldiers at Bweremana, 19 September 2018).

Experiences in Interim Care Centers

Children received in the CTOs do not undergo PTSD diagnostics but are rather interned under the assumption that they need psychological support because of the general understanding that they have witnessed traumatic events during their time in armed groups and forces. It was reported that some children display withdrawal tendencies, a refusal to talk, a refusal to eat, and eating excessively (gluttony and abnormal appetite); some have nightmares, insomnia, and brawls; and some show feelings of despair, aggressiveness, discouragement, frustration, anxiety and anger etc., which are especially perceptible in children whose families cannot be retrieved etc. (Interview with the psychologist of Bobandana Center, 31 July 2019). Children are also sent to CTOs for protection against retaliation from persons and families affected by alleged 'war crimes' of which some CAAFAG are accused. Lastly, CAAFAG are required to obtain a *kibali* (certificate of the child exit form armed groups and armed forces, which is issued by the Department of Defense and

Ex-combatants) to keep them safe and spare them police and security services' harassment and unlawful treatments.

CAAFAG who leave armed groups and forces are expected to spend between three to six months in a CTO during which they undergo a psychosocial rehabilitation program while their families are traced for their reunification. The narratives of child soldiers depict a wide range of activities and opportunities that they are offered. Some children showed a visceral fear of strangers and some sites, such as rivers and bridges, which reminded them of where they used to dump dead bodies (Focus group with CAAFAG, Bobandana, 19 September 2018). A case in point is that of Kai_117 (aged 17) who exited an unidentified armed group with severe mental defects epitomizing an unhealthy state of mind (Interview with the psychologist at Bobandana Center, 19 September 2018).

Psychosocial Rehabilitation Programme

CAAFAG have reported that they have enjoyed friendly relationships with their peers in CTOs. Through collective activities such as worship, group counselling, games and sports activities. Child soldiers' perception of life and fellowship in CTOs inspired sympathy and conviviality. It was observed that rehabilitation centers combine Western psychology approaches of healing with local initiatives. The Western-oriented model includes nursing wounded children in the clinic using psychotherapy, counselling, occupational therapy—helping children to recover, ameliorate their situation, and also to develop the skills needed for their future, such as vocational training—and referral to professional psychiatric facilities. For instance, children who show severe mental health problems are referred to the *Centre de Santé Tulizo Letu* [meaning Our Relief/Consolation or Our Comfort, in the local Kiswahili medium]. The assistance provided to these children includes occupational therapy, by involving them in activities related to the empowerment of the person, and also recreational occupations such as sports and repeated participation in Group-Awareness (Interview with the psychologist at Bobandana Center, 19 September 2018).

As far as local approaches of healing are concerned, collective engagement is often utilized such as playing soccer with community members. Sport is a powerful instrument in allowing children to talk, socialize, and exercise their freedom to freely celebrate, without the fear of being punished. Relaxation promenades, walking children along the bush and crossing bridges were the means used to boost their confidence and remove their visceral fears from being exposed to traumatic experiences such as burning houses and dumping dead bodies in the river and other sites. To heal their memories and transform the meaning of those places associated with their traumatic experiences, the psychologist

made them participate in community events and took them around areas and certain spaces such as rivers, valleys and bridges to help them reconnect with these environments in a more peaceful way.

Experience in the Community

The members of a community-based child protection network (RECOPE) at Bweremana village proceed with door-to-door visits in search of children who have returned from armed groups and who have reintegrated into the community without having gone through a proper rehabilitation program—this involves story-telling, where young soldiers narrate the circumstances that led them to join fighting forces and how they exited these forces. These conversations proved to be beneficial to them and their communities. Unfortunately, the cases of several children reveal desperation in the event that their families cannot be retrieved and for those who are deeply traumatized. Such children remain in the rehabilitation facilities for a longer period and may leave after completing professional training and finding a job. Unfortunately, despite children’s efforts to take constructive responsibility in their communities in the aftermath of violent conflicts, the lack of livelihoods, education and job opportunities, and the absence of supervision and monitoring mechanisms to ensure that they do not return to armed groups means that some children remain vulnerable to re-recruitment because of active armed groups that continue to surround their villages (Interview with Map_80, a 27-year-old former child soldier, at Sake Center, 19 September 2018).

RECOPE has initiated a project called *Hope for the Future*, a farming venture which consists of agro-pastoralist activities such as growing bananas and breeding pigs, rabbits and chickens, and providing diverse vocational training that focuses on sewing, carpentry, welding, hairdressing and the manufacture of soaps (Focus group discussion with former child soldiers at Bweremana, 19 September 2018). Such enterprises would create jobs for CAAFAG. However, in most instances, children’s time in rehabilitation and the vocational training that they receive are more aligned with occupational therapy rather than preparing these young soldiers to join the workforce for the local labor market. This entails creating jobs and economic opportunities for CAAFAG and other youth in their communities.

Challenges Faced by CTOs

It emerged during focus group discussions that the main difficulties faced by CTOs is to build a developmental foundation and ensure they become stable in society, particularly those whose families and relatives cannot be traced in the context of mass displacements of people. Financial

constraints are also a notable factor, as the CTOs rely upon charity from Caritas, which is the actual meaning of *caritas* (Focus groups discussions with child soldiers and psychologists at Bweremana, 19 September 2018). Developing large-scale income-generating activities or professional training are challenged by the lack of funding.

The use of sedatives when children are in CTOs remains a serious concern of leaders at CTOs. Another factor to address is how to contain and handle those with hypersexual and compulsive sexual drives before they return to the community. A CTO can only provide a temporary solution by removing that which was used immediately by children to release their sexual tensions and monitoring their movements in order that they do not go into the bush to collect sedative agents. Unrestrained libido can be dangerous to society. This is imperative to prevent the recurrence of harmful sexual practices when they return to the community, especially sexual violence.

Table 2 includes an assessment of the extent to which psychosocial rehabilitation can deter the violent conduct of former child soldiers after exiting armed groups and forces. Respondents were asked the following question: Have you committed any act of violence after exiting armed groups

Table 2 Cross-tabulation: impact of psychosocial rehabilitation program on perpetration of violence

	Itinerary of exit to reintegration		
	Via rehabilitation center	Without rehabilitation	Total
Perpetration of violence post-exit			
Yes			
Count	4	27	31
Expected Count	18.8	12.2	31.0
% within Perpetration of violence	12.9%	87.1%	100.0%
% within Itinerary of exit	5.1%	52.9%	23.8%
% of Total	3.1%	20.8%	23.8%
No			
Count	75	24	99
Expected Count	60.2	38.8	99.0
% within Perpetration of violence	75.8%	24.2%	100.0%
% within Itinerary of exit	94.9%	47.1%	76.2%
% of Total	57.7%	18.5%	76.2%
Total			
Count	79	51	130
Expected Count	79.0	51.0	130.0
% within Perpetration of violence	60.8%	39.2%	100.0%
% within Itinerary of exit	100.0%	100.0%	100.0%
% of Total	60.8%	39.2%	100.0%

and forces (fighting, beating, looting, causing injuries or killing).

From Table 2, it appears that an important percentage of child soldiers who reintegrated into society without benefiting from psychosocial rehabilitation support (87.9%) had committed violent acts after reintegration, while 12.9% of those who transited via a rehabilitation center responded ‘yes’ to the perpetration of violence.

Impact of psycho-social rehabilitation on perpetration of violence

Hypotheses Statement

- (1) The null hypothesis (H_0) holds that child soldiers who undergo a psychosocial rehabilitation program and those who do not, and variable involvement in violent action after exiting armed forces, are unrelated.

Decision and Conclusion

- There is very strong evidence of a relationship between the itinerary of exit from armed conflict and the perpetration of violence: $X^2(2, N=130)=39.121, p<0.000$. The size effect measured using Cramer’s V is $V=0.549$. This value is a confirmation of the strong association between the variable child soldiers’ way of exiting hostilities and the possibility of perpetrating violence once they have exited armed conflict.
- It is therefore justifiable to confidently conclude that children who exit armed forces and armed groups without benefiting from psychosocial rehabilitation support are more likely to commit acts of violence in their post-soldiering life than those who transit via rehabilitation centers. This is illustrated in Fig. 1.

The percentages in Fig. 1 represent only children who participated in this inquiry, all of whom were available at the time of data collection, while the number of children who have passed through these psychosocial rehabilitation centers are much greater.

Discussion

The overall approach adopted in psychosocial rehabilitation support program fits within the bioecological systems framework. The linkages between the biological assets of children and the social ecology where they transit from soldiering to civilian life can be framed in the six points given in the following section.

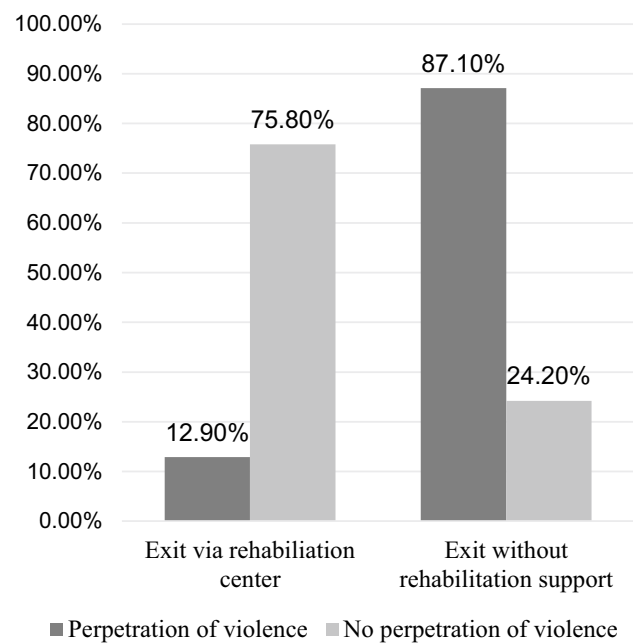


Fig. 1 Perpetration of violence by itinerary of reintegration

Evaluation of Psychosocial Rehabilitation with Bioecological Systems’ Parameters

At The ‘Person’ level

The first agents concerned with person growth here are CAAFAG who self-demobilize and find their way to a rehabilitation center. The narrative of exit demonstrates clear planning, weighing the perilous consequences of desertion should one be caught, and confronting the adversities on a lone escape through the jungle and getting back to one’s family or to the MONUSCO and later to the CTO. It is plausible to attribute such endurance to CAAFAG’s resolve which emanates from their biological qualities and characteristics. Because the journey from deserting armed groups and militias is not without risks. It involves making very difficult choices, namely the decision by child soldiers to break free from hostilities by undertaking solitary journeys through fields, forests and even national parks of the DRC which house wild life; or that of remaining entangled in extremely violent armed conflicts.

While many demobilized child soldiers avoid transiting via a psychological and social rehabilitation facility, others expressed that these interim facilities are rather helpful because of the teleological dimension of the programme—seeking a personal and collective reform in CAAFAG before they go back to their communities; nurturing self-confidence and esteem to embrace life of civility; and empowering them to contribute to their own growth and to the welfare of their communities. To achieve that the process of identity

change—moving from the condition of helplessness to becoming mentally-fit-for transformative action in society is fundamental. This transition is perceived as one important determinant of psychosocial rehabilitation [37]. CAAFAG's positive aptitude to self-exit armed groups should be acknowledged as positive individual asset that may make them even more productive if further developed and supported by psychosocial rehabilitation programmes.

At Microsystem Level

Features of microsystem encompass interactions among children, provision of health care services through Tulizo Letu Mental Hospital. That is currently the only psychiatric clinic in north-eastern DRC to welcome and treat patients, from all over the region, who continue to be traumatized by the conflicts since the 1990s [38]. In addition to the availability of medical support, children enjoy dancing, singing and playing soccer. The role of dances in healing is supported by Harris [39] who utilized kinaesthetic movements and dances which arose empathy in former child soldiers in Sierra Leone. Interactions among child soldiers and recon-nections with peers in a friendlier environment—away from mortar shelling on the front lines—are incentivized by a socialization feature among psychosocial rehabilitation set-ups which CAAFAG enjoy.

At Mesosystem Level

This phase refers to the interrelations occurring among major settings to which a developing person is exposed, in a specific environment such as the family, school, camp, church, etc. where the person develops. Such interrelations are found in psychosocial rehabilitation centers between CAAFAG's families and psychosocial rehabilitation centers; between families and traditional/tribal authorities; and the cooperation between parents/guardians and soccer teams' leaders in charge of children. To illustrate this point, Wessells [11] notes that family support is an important factor that sustains the psychosocial well-being and the community resilience approach of CAAFAG. It is necessary to open access to livelihoods, jobs and education opportunities in order to prevent banditry among CAAFAG and ease their social reintegration.

At Exosystem Level

Centers are faced with the critical responsibility to trace the families of received children. It is believed at this level that the displacement of people during war; the destruction of child supportive structures (hospitals/clinics, schools, playgrounds, etc.); the loss of neighborhoods and the means of communication; and the lack of socio-economic

infrastructure to provide social services can impede CAAFAG's well-being, resilience and meaningful reintegration. In addition, socio-economic reintegration is viewed as part of a comprehensive intervention to give hope for the future to the CAAFAG who return to their respective communities. This is an important aspect of the psychosocial rehabilitation of former child soldiers. In this regard, Cherry [37] asserts that work has an advantageous influence on mental well-ness and can instill the feeling of being productive, and this is why vocational training is a valuable asset of psychosocial rehabilitation. This is not exclusive of social justice but rather part of its objective. Finally, the mediation between alleged child offenders and victims which is facilitated by care centres' management, and the involvement of the local traditional authority are very important to ease children's return home and prevent their remobilization.

At Macrosystem Level

At the macro-level, the interplay of faith practice or religious beliefs and socialization can induce the acceptance of values and embracing new meanings of life such as a culture of conviviality as opposed to the culture of violence instilled in CAAFAG during the soldiering life. The role of local and traditional jurisprudence such as the *Baraza*—a locally-based conflict resolution intervention and traditional jurisprudence [40]—can play a role in supporting and encouraging social reintegration and societal harmony between CAAFAG and their respective communities. At the same time, political sensitization against the use of child soldiers is necessary to counter ethnic, ideological and politico-religious propagandas used to entice children to enlist in armed groups and forces.

At Chronosystem Level

At this level, CAAFAG who are received in rehabilitation centers for psychosocial rehabilitation are supported over time by interactions with the external environmental settings and the time factor, which are meaningful in their transition to civilian life and their future development. Time allows progressive healing and transformation to take place. The need to supervise and monitor former child soldiers during this period is evident. This requires breaking the communication between children in CTOs and their peers who are still entangled in the bush, and preventing communication between children and armed group commanders, as well as ensuring that children who have exited with weapons hand them over to the Center's manager, who takes them to MONUSCO which issues a notification that protects children against armed groups from which they have exited. Over time, children in CTOs are assisted to deal with the wrongful sexual and addictive practices, and to unlearn

the culture of violence before they are taken back to the community.

Evaluation of Psychosocial Rehabilitation with Bioecological Systems' Parameters

Perpetration of Violence

In the sample dataset, respondents were asked about the way in which they reintegrate into the community via psychosocial rehabilitation programs or not, and whether or not this was related to the perpetration of violent acts. Chi-Square Tests were performed to determine whether these two variables were associated, using $\alpha=0.05$. The null hypothesis was rejected, and an alternative hypothesis was accepted that a psychosocial rehabilitation program has the potential to deter the propensity to commit violent acts after CAAFAG have exited hostilities and reintegrated into society, because child soldiers who reintegrate into society without undergoing a rehabilitation program perpetrate violence more than those who obtain psychosocial support before returning to the community (Table 2; Fig. 1).

Limitations

The shortcomings of this study comprise:

- (1) The study relied substantively on the experiences of many children who were still involved in rehabilitation programs—80 children (61.5%)—where the propensity to commit acts of violence could be restricted because they were closely monitored and supervised by caregivers and psychologists in the centers. The fact that the participants in the study came from 46 different communities from North Kivu and South Kivu meant that tracking them for a follow-up evaluation of their conduct outside the centers was unrealistic. However, the statistics on the likelihood to perpetrate violent acts by those who did not benefit from adequate psychosocial support may be indicative of what could be expected of the general population of CAAFAG who do not transit via CTOs.
- (2) The goals of psychosocial rehabilitation were not statistically measured, namely hopefulness about the future; feeling empowered to set one's own goals and endowed with the autonomous ability to pursue self-set objectives; being skilled (having the ability to manage personal circumstances and live the life of one's own choice), and finally being supported (having received the help to rebuild relationships and make social reconstructions in one's own community), according the cri-

teria envisioned by Cherry [37]. The fact that children were still in the process of rehabilitation made an adequate evaluation impossible, since such an intervention would have demanded a systematic investigation by giving each child the opportunity to evaluate the impact of the time spent in the rehabilitation center, instead of reporting on a simple qualitative observation and letting them return home.

The above-mentioned two points remain important areas for further studies.

Summary

This empirical research sought to determine the impact of psychosocial rehabilitation of children formerly associated with armed groups and armed forces — based on bioecological systems theory — to enhance their well-being, to support their human development and help them refrain from carrying out violent acts. Despite a few limitations identified either in the methodology or in assessing the final impact of psychosocial rehabilitation programmes on CAAFAG, it is important to assert that it has attained its objectives of appraising how the psychosocial rehabilitation program of CAAFAG can be framed within the bioecological systems theory and contribute to restoring the former capacity, standing, rights, privileges, reputation and well-being of former child soldiers. The asymmetries between those who benefit from psychosocial rehabilitation and those who do not, and how this affects their perception of the support provided by centers and the perpetration of violence, were systematically analyzed. Therefore, it is imperative to provide psychosocial rehabilitation support to all former child soldiers before reintegrating them into their respective communities and, possibly, also after they have returned home and are back in society. This helps prevent them from the further perpetration of violence and committing of antisocial acts. A model of such a psychosocial program intending to restore CAAFAG to a condition of good health, the ability to work, and of productivity could be framed with the bioecological parameters. Finally, the reintegration of CAAFAG into society demands a comprehensive intervention that allows the maturation of ecological factors along with child soldiers' 'genetics' (biological qualities and characteristics that prompt resilience); it should be progressive, sustainable, and inclusive of all categories of CAAFAG.

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Compliance with Ethical Standards

Conflict of interest The author submits that there is no conflict of interest that would affect the credibility and impartiality of this study. All ethical standards pertaining to the involvement of children as source of information were observed and are dully explained in the design and method section.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

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