

Appetitive aggression in former combatants—Derived from the ongoing conflict in DR Congo

Tobias Hecker*, Katharin Hermenau, Anna Maedl, Thomas Elbert, Maggie Schauer

Department of Psychology, University of Konstanz, Box 23/25, 78457 Konstanz, Germany

ABSTRACT

Soldiers and combatants often report that committing violence can be appealing, fascinating and exciting (Elbert, Weierstall, & Schauer, 2010). This appetite for aggression was investigated in a sample of 224 former combatants from different armed groups and forces in eastern DRC. In a semistructured interview they were questioned about their military history, exposure to violence and perpetrated violence. Appetitive aggression was assessed with a 15-item-scale (Weierstall & Elbert, 2011), which was successfully implemented in comparable samples (Weierstall, Schalinski, Crombach, Hecker, & Elbert, submitted for publication). A sequential multiple regression was conducted to determine possible predictors of appetitive aggression. Perpetrated violence types, recruitment type, and joining as a child were significant predictors and explained 26% of the variability in appetitive aggression. Duration or military rank within the armed group and exposure to violence did not play a significant role.

Thus, combatants reporting high levels of appetitive aggression are characterized by perpetrating a high number of violent acts, joining armed groups on their own accord and as children. Joining an armed group on one's own accord indicates pre-existing appetitive aggression. However, joining young and perpetrating violence on a regular basis seem to intensify the appetite for aggression.

Keywords:
Appetitive aggression
Violence
Combatants
DR Congo

1. Introduction

Soldiers and combatants often report that committing violence can be appealing, fascinating, and exciting (Konner, 2006; MacNair, 2006; Silva, Derecho, Leong, Weinstock, & Ferrari, 2001). This phenomenon has only recently gained attention in aggression research (Elbert, Weierstall, & Schauer, 2010). Commonly, human aggression is defined as any behavior towards another individual that includes the intention to harm (Berkowitz, 1993; Geen, 2001; Smith & Mackie, 2000). In addition, the perpetrator must willingly want to harm the victim and the victim must want to avoid this behavior (Bushman & Anderson, 2001). Violence, however, is an extreme form of aggression including for example raping or killing (Anderson & Bushman, 2002). The literature distinguishes consistently between two major forms of aggression: reactive and instrumental aggression (Fontaine, 2007; Kempes, Matthys, de Vries, & van Engeland, 2005; Vitiello & Stoff, 1997). Reactive aggression is also known as affective, impulsive, or hostile aggression. It can be conceived as being impulsive, driven by anger, and occurring as a reaction to some perceived provocation or threat (Anderson & Bushman, 2002; Hubbard et al., 2002). Instrumental aggression, however, is planned, purposeful and target- or goal-oriented. The literature also refers to it as proactive, goal-

oriented or predatory aggression (Elbert et al., 2010; Geen, 2001; Meloy, 1997; Nelson & Trainor, 2007). Anderson and Bushman (2002) emphasize that obtaining a goal other than harming the victim motivates the use of this form of aggression. Humans adopt instrumental aggression in order to achieve positive outcome and avoid negative consequences (Crick & Dodge, 1996; Fontaine, 2006; Schwartz et al., 1998). However, the pure dichotomy of these two types of aggression is questionable (Bushman & Anderson, 2001) as they are highly correlated (Card & Little, 2006) and often occur simultaneously in the real world (Kempes et al., 2005). Therefore, Anderson and Bushman (2002) distinguish between proximate and ultimate goals. All forms of aggression include the intention to harm others as a proximate goal. However, the ultimate goal might be different (Anderson & Bushman, 2002). For example while looting a village, a perpetrator might ultimately be more focused on external benefits than harming a victim, whereas another perpetrator, while physically assaulting someone, might be ultimately more focused on inflicting physical harm per se. Elbert et al. (2010) reported that child soldiers in Uganda perceived perpetrating violence as fascinating, appealing and even addiction-like. They assumed that harming or killing others might be rewarding in itself. Also Nell (2006) described that perpetrating violence and being cruel are perceived as rewarding in humans. The evolutionary development of men as hunters might explain these rewarding effects (Elbert et al., 2010; Jones, 2008). Normally, control mechanisms in the frontal lobe inhibit intraspecific violence (Kelly, 2005; Nelson & Trainor, 2007). However, dehumanization of the enemy (Staub, 2001, 2006) and

* Corresponding author. Tel.: +49 7531 882385; fax: +49 7531 884601.
E-mail address: tobias.hecker@uni-konstanz.de (T. Hecker).

initiation rites in armed groups can break learned moral standards and increase intraspecific violence (Engen, 2008; Gibson, 1991). Furthermore, killing is sometimes associated with positive feelings like joy or happiness (Konner, 2006; MacNair, 2006; Silva et al., 2001). Consequently, Elbert et al. (2010) introduced appetitive aggression, which has by definition the ultimate and intrinsic rewarding goal of harming others, as a subtype of instrumental aggression. Hence, appetitive aggression can be defined as perceiving aggressive behavior towards others as positive and fascinating even without gaining any external benefit.

A few studies focused on appetitive aggression recently. In samples with genocide perpetrators from Rwanda (Weierstall, Schaal, Schalinski, Dusingizemungu, & Elbert, 2011) and child soldiers from Uganda (Weierstall, Schalinski, Crombach, Hecker, & Elbert, submitted for publication) appetitive aggression was related positively to perpetrating violent acts and negatively to posttraumatic stress disorder (PTSD). Social status or military rank within the armed group correlated positively with appetitive aggression in Ugandan child soldiers (Crombach et al., submitted for publication). From an evolutionary perspective researchers expect a pre-existing appetite for aggression in all male humans (Elbert et al., 2010; Jones, 2008; Nell, 2006). Hence, it can be assumed that enlisting on one's own accord is positively related to appetitive aggression (Weierstall, Haer, Banholzer, & Elbert, submitted for publication).

Children commonly serve as combatants throughout many different armed conflicts worldwide (Wessells, 2006) and particularly in eastern Congo (Coalition to Stop the Use of Child Soldiers, 2010; Guy, 2009). Growing up in a violent environment (Waller, 2006) put child soldiers at high risk to be forced to perpetrate violence and also to adapt to perpetrating violence (Schauer & Elbert, 2010; Wessells, 2006). Considering the plasticity of the brain (Elbert, Rockstroh, Kolassa, Schauer, & Neuner, 2006), child soldiers are more likely to report appetitive aggression as they adapt best to the violent circumstances in armed groups (Hermenau, Hecker, Maedl, Schauer, & Elbert, submitted for publication).

Being a victim of violence in war or armed conflict, on the other hand, is closely related to mental illness (Amone-P'Olak, 2007; Bayer, Klasen, & Adam, 2007; Vinck, Pham, Stover, & Weinstein, 2007). Therefore, it is rather unlikely that experiencing violence as a victim is positively related to appetitive aggression.

The present study investigated appetitive aggression more closely in a sample of former combatants from different armed groups and forces in eastern Congo. The ongoing conflict in the provinces of North- and South-Kivu includes foreign armed groups, several local militias and the Congolese Government Army (Romkema, 2007).

We postulated that perpetrating violent acts correlates positively with appetitive aggression. Furthermore, we expected that joining an armed group on one's own accord and joining an armed group as a child (i.e. below the age of 18), as well as the duration within armed groups and holding a military rank have a positive link to appetitive aggression. Reasons for enlisting by one's own accord vary from seeking a better life to defending the family or ethnic group (Coalition to Stop the Use of Child Soldiers, 2010; Romkema, 2007). In this study the desire to become a fighter was also assessed in order to link the reason to enlist to appetitive aggression. On the other hand, we predicted that exposure to violence has no linear relation with appetitive aggression.

Combatants reporting high levels of appetitive aggression were expected to report more perpetrated violence in comparison to combatants reporting only low levels of appetitive aggression. Furthermore, they should have joined armed groups more often on their own accord and as children. Additionally, we expected that combatants reporting high levels of appetitive aggression held military ranks more often and stayed longer in an armed group. Again, no differences were expected in exposure to violent acts, but combatants reporting high levels of appetitive aggression were expected to show less PTSD symptom severity.

2. Method

2.1. Procedure

Four clinical psychologists and one western-trained nurse interviewed all participants with the help of three interpreters, who have all been trained in the concepts of mental disorders and aggression. Semistructured interviews were carried out in Kiswahili, Kinyarwanda or Lingala. The interviewers standardized the form of assessment by practicing in joint interviews to achieve a high inter-rater reliability. The translation was intensely discussed to guarantee a precise translation.

All interviews were conducted in Goma, in the province of North Kivu in eastern DRC. In total, 72% ($N = 152$) of the interviews took place at the demobilization camp of the United Nations, 27% ($N = 56$) were conducted at a training center for former combatants and child soldiers and 1% at the military detention facility. The demobilization camp is a transition camp. Participants normally stayed only between 20 and 72 h in the demobilization camp before being sent to other places. In rare cases, this led to the termination of the interview. In the training center a Congolese non-governmental non-profit organization offers skills training to former child soldiers. One interviewer and one translator interviewed each interviewee individually in a calm setting. The interview took, on average, one and a half hours.

2.2. Participants

In total 224 interviews were conducted. Out of these 213 were completed. The 11 interviews that could not be completed were all held at the demobilization camp. The analyses included only former combatants who reported combat experience ($N = 200$). All participants were male. They were between 15 and 50 years old with a mean age 24;6 years ($SD = 7$ years). Participants belonged to a variety of armed groups and forces. In total 5% ($N = 9$) were member of the Congolese Government Army (FARDC), 42% ($N = 84$) of rebel forces from Rwanda, i.e. Forces Démocratiques pour la Libération du Rwanda (FDLR), and 53% ($N = 107$) of rebel forces from Congo, i.e. different Mai-Mai groups ($N = 73$), Congrès National pour la défense du peuple (CNDP, $N = 21$), or Patriotes résistants congolais (Pareco, $N = 13$). In total, 45% of the combatants who joined on their own accord reported the desire to become a fighter as one reason for enlisting.

The Ethical Review board of the University of Konstanz approved the study and all participants gave their informed consent verbally. In addition, the facilities gave their informed consent for the interviews of underage participants. Participants received financial compensation of about two U.S. Dollars.

2.3. Material

All instruments were applied as an interview and the same interview-set was used in all interview settings. The first part of the interview consisted of socio-demographic information, e.g. place and year of birth as well as educational background. The former combatants were interviewed about their military career, e.g. its duration, their highest rank in the armed group and the manner in which they joined the armed group.

Exposure to violence was assessed with a checklist of 30 war- and non-war-related potentially traumatic events, e.g. assault with a weapon, rape, life-threatening accidents. This check-list included events from the checklist of the Posttraumatic Stress Diagnostic Scale (Foa, Cashman, Jaycox, & Perry, 1997) and was closely oriented on a checklist (Neuner et al., 2004), which had previously shown a high test-retest reliability ($r = 0.73$, $p < 0.001$) and significant accordance with the event list of the Composite International Diagnostic Interview in a study in Uganda (Ertl et al., 2010). The number of

times a specific event had been experienced was not assessed, as distorted memory in PTSD renders this measure unreliable (Elbert & Schauer, 2002; Kolassa & Elbert, 2007; McNally, 2006). For the analysis we further distinguished between the sum score of self-experienced violence types (range: 0 to 7), i.e. being physically or sexually assaulted, and the sum score of witnessed violence types (range: 0 to 9), i.e. witnessing others being physically or sexually assaulted, as well as the sum score of perpetrated violence types (range: 0 to 9), like assaulting someone else physically or sexually.

Appetitive aggression was assessed with the 15-item Appetitive Aggression Scale (AAS; Weierstall & Elbert, 2011), which was successfully implemented in comparable samples in Uganda, Rwanda and DRC (Weierstall et al., 2011, submitted for publication, in preparation). A statement regarding the perception of violence or appetitive aggression was given to the participant in each item (e.g. *Is it exciting for you if you make an opponent really suffer? Once fighting has started do you get carried away by the violence? or Is fighting the only thing you want to do in life?*). Participants had to rate on a five-point Likert scale ranging from disagree (0) to agree (4) on how much they personally agreed with a given statement. The items were based on the definition of the instrumental aggression subtype according to Vitiello and Stoff (1997) and the ICD-10 addiction criteria. Further items were compiled on basis of interviews with perpetrators about the appetitive experience of violence (Elbert et al., 2010). For the analyses a sum score of all 15 items was computed. It ranges from 0 to 60.

The symptom severity of post-traumatic stress disorder (PTSD) was determined using the PTSD Symptom Scale-Interview (PSS-I; Foa, Riggs, Dancu, & Rothbaum, 1993). The PSS-I assesses the 17 DSM-IV symptom criteria for PTSD and refers to symptoms experienced in the previous month. Each of the items was answered on a 4-point scale ranging from *not at all/only one time* (0) to *five or more times per week/almost always* (3). Additionally, general functionality was assessed. The PSS-I comes with good psychometric properties and is widely used to diagnose PTSD (Foa & Tolin, 2000; Foa et al., 1993). A PTSD symptom severity score (possible scores range from 0 to 51) was computed by adding all symptom scores.

2.4. Analyses

First, a multiple sequential regression analysis was conducted to find possible predictors of appetitive aggression (AAS score). In the first step, only perpetrated violence types were included as a predictor in the analysis. In the second step, recruitment type (abducted: 0; nonabducted: 1) was added and joining as child (≥ 18 : 0; < 18 : 1) was then added in the third step. Neither the duration of staying in the armed group nor having a rank in the armed group could explain significantly more variance, which means that these two factors could not improve the prediction of the AAS score. This was also true for witnessed violence types and self-experienced violence types.

Furthermore, two groups were computed by using only the fourth ($N = 51$) and the first ($N = 52$) quartile of the AAS score. A MANOVA was conducted to compare combatants reporting a high level of appetitive aggression (HLAA) and reporting only a low level (LLAA) in reported perpetrated, witnessed, and self-experienced violence types, as well as the PSS-I score. They were also compared in recruitment type, joining as children (i.e. below the age of 18), holding a military rank in the armed group and the duration within the armed group. All variables were normally distributed. Neither univariate nor multivariate outliers could be identified and variance-covariance matrices showed homogeneity. Subsequently, a Roy-Bargmann Stepdown Analysis was performed to investigate the contribution of each dependent variable. All analyses were computed two-tailed on an alpha-level of $\alpha = .05$. Concerning the effect size, $\eta^2 = .01$ indicates a small effect, $\eta^2 = .06$ a medium effect, and $\eta^2 = .14$ a large effect.

3. Results

3.1. Predictors of appetitive aggression

The first regression model with the score of perpetrated violence types as the only predictor explained 22% of the variability in the AAS score ($R = .47$, $F_{(1, 198)} = 55.92$, $p < .001$). After the recruitment type was added as another predictor, the second model could explain 25% of the variance. The change in R^2 was significant ($\Delta R^2 = .04$, $F_{(1, 197)} = 9.69$, $p < .01$). The third model, which additionally included joining as a child, explained 26% of the variability in the AAS score. Again the change in R^2 was significant ($\Delta R^2 = .02$, $F_{(1, 196)} = 4.48$, $p = .04$). No other predictor could significantly improve the prediction of the AAS score. The third model fulfilled all necessary quality criteria for linear regression analyses. The residuals showed normality, linearity and homoscedasticity. Neither univariate nor multivariate outliers could be identified and the maximum Variance Inflation Factor did not exceed 1.1. Hence, multicollinearity could be neglected. As shown in Fig. 1, the sum score of perpetrated violence types was the strongest predictor of the AAS score ($\beta = .40$, $t = 6.27$, $p < .001$).

Both, recruitment type ($\beta = .20$, $t = 3.25$, $p = .001$) and joining as a child ($\beta = .14$, $t = 2.12$, $p = .04$) were positively related to the AAS score. Fig. 2 shows the partial relation between the sum score of perpetrated violence types to the AAS score in a partial scatter plot.

3.2. Differences between combatants reporting high (HLAA) or low (LLAA) levels of appetitive aggression

Table 1 shows all descriptive data concerning HLAA and LLAA. Wilks' criterion showed a significant multivariate group difference between HLAA and LLAA ($F_{(8, 94)} = 7.64$; $p < .001$; $\eta^2 = .39$). Perpetrated violence types (stepdown $F_{(1, 101)} = 46.16$; $p < .001$, $\eta^2 = .31$), recruitment type (stepdown $F_{(1, 100)} = 7.27$; $p < .01$, $\eta^2 = .07$) and joining as a child (stepdown $F_{(1, 99)} = 3.87$; $p = .05$, $\eta^2 = .04$) made unique contributions to the composite dependent variable that distinguished between the two groups. HLAA reported more perpetrated violence types than LLAA (see Table 1). HLAA were also more likely to join on their own accord and as a child (see Table 1). Neither the duration (stepdown $F_{(1, 98)} = 0.22$; $p = .64$, $\eta^2 < .01$) nor the rank in armed groups (stepdown $F_{(1, 97)} = 0.67$; $p = .42$, $\eta^2 < .01$) made any unique contributions or differed significantly between HLAA and LLAA (see Table 1). As expected, both witnessed (stepdown $F_{(1, 96)} < 0.01$; $p = .98$, $\eta^2 < .01$) and experienced violence types (stepdown $F_{(1, 95)} = 0.66$; $p = .42$, $\eta^2 < .01$) made no further unique contribution to the composite DV that distinguished between the two groups. This was also true for the PSS-I score (stepdown $F_{(1, 94)} = 0.01$; $p = .93$, $\eta^2 < .01$).

4. Discussion

Results showed that only perpetrating violent acts, recruitment type and joining as a child correlated positively with appetitive aggression. Consistent with our assumptions and prior findings (Weierstall et al., 2011, submitted for publication), perpetrating violent acts had a strong relationship with appetitive aggression. HLAA reported significantly more perpetrated violence types.

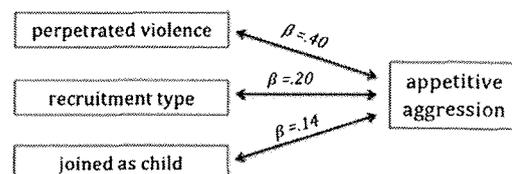


Fig. 1. Significant correlations of appetitive aggression.

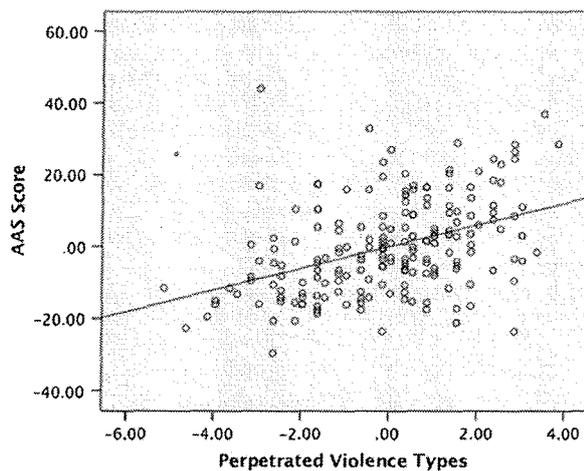


Fig. 2. Prediction of AAS score by the sum score of perpetrated violence types in a partial scatter plot based on the third regression model.

Furthermore, the recruitment type correlated positively with appetitive aggression. Combatants, who joined on their own accord and were not abducted, were more likely to report high levels of appetitive aggression. In a study with child soldiers in DRC, Weierstall et al. (submitted for publication) found similar results. These results indicate that pre-existing appetitive aggression might lead to the decision to join an armed group. Evolutionary perspective supports the assumption that especially men show an innate disposition of appetitive aggression (Elbert et al., 2010; Jones, 2008; Nell, 2006). Yet, this correlation should be interpreted with caution, as reasons to enlist might vary. Common reasons in the present sample did not differ from prior findings (Coalition to Stop the Use of Child Soldiers, 2010; Romkema, 2007) and included, among others, seeking a better life, defending the family or ethnic group or avoiding forced recruitment from another armed group. However, even if the decision to join resulted in some cases from the circumstances in a region of instability, these combatants might feel more in control of their lives than abducted combatants. If armed groups are seen as hope for security and a better life (Coalition to Stop the Use of Child Soldiers, 2010), they are not perceived as threatening as when being abducted. Furthermore, 45% of the combatants who joined on their own accord reported the desire to become a fighter as one reason for enlisting. Hence, we assume that combatants reporting joining on their own accord may be more fascinated by violence and by being member of an armed group before joining than combatants reporting forced recruitment.

The duration within the armed group was not linked to appetitive aggression and did not differ between HLAA and LLAA. These findings support the assumption that some combatants exhibit pre-existing

appetitive aggression as some combatants reported high and other low levels of appetitive aggression independent from their duration within the armed group.

Joining as a child correlated positively with appetitive aggression and the rate of child soldiers was higher among HLAA. Many child soldiers seem to adapt well to the violent environment of armed groups (Waller, 2006). The plasticity of the brain and the ongoing development of a moral mindset probably enhance the the development or the increase of appetitive aggression under the circumstances of armed conflict (Elbert et al., 2006; Maedl, Schauer, Odenwald, & Elbert, 2010). Hermenau et al. (submitted for publication) concluded that child soldiers reporting high levels of appetitive aggression adapted best to the circumstances in armed groups.

As HLAA adapted well to circumstances in armed groups, they may face difficulties in reintegration to civil life after leaving the armed group. To date, reintegration programs effectively addressing mental ill-health are rare (Maedl, Schauer, Odenwald, & Elbert, 2010; Schauer & Elbert, 2010). However, as HLAA seem to be most likely to return to an armed group on their own accord, programs for former combatants focusing on reintegration should include aspects of mental health and in particular focus on appetitive aggression.

Holding a military rank was neither related to appetitive aggression nor differed between HLAA and LLAA. In contradiction to our results, Crombach et al. (submitted for publication) found a positive relation between military rank and appetitive aggression. However, a positive relation might be true only for combatants who joined as children, as Hermenau et al. (submitted for publication) showed for the present sample. Adult combatants are more likely to start with higher ranks depending on educational background or age, whereas child soldiers commonly begin their military career from the bottom. Consequently, joining as a child leads more likely to the development or the increase of appetitive aggression. Dehumanization of the victims (Staub, 2001, 2006) and initiation rites (Engen, 2008; Gibson, 1991) probably promote the development or increase of appetitive aggression particularly in child soldiers.

Exposure to violence and PTSD symptom severity were also not related to appetitive aggression. Moreover, HLAA and LLAA did not differ in exposure to violence and PTSD symptom severity. Although prior findings suggest a negative relation between PTSD symptom severity and appetitive aggression (Weierstall et al., 2011, submitted for publication), the present study could not replicate this negative relation. Elbert et al. (2010) highlighted that appetitive aggression might only be negatively related to PTSD symptom severity, if combatants do not exceed a certain threshold of self-experienced traumatic events. Yet, this might be the case in this study.

The degree to which the results of this study can be generalized is limited. First, the cross-sectional study design does not allow any conclusion about causality. Combatants from different armed groups and forces were interviewed. Although the armed groups did not differ obviously, e.g. concerning reported levels of aggression or perpetrated violence, minor differences might influence the results. The same might be true for the varying interview settings. Moreover, the sample consists mainly of deserters, who may not be comparable to active combatants. Furthermore, the instruments were not validated for combatants in DRC. Nonetheless, they were implemented as structured interviews by psychologists with extensive experience in aggression and mental health research in low-income countries and have been successfully tested before in other Sub-Saharan African conflict settings. Future research should investigate the causal relations of appetitive aggression; for example, whether pre-existing appetitive aggression leads to join on one's own accord or whether the violent environment in armed groups and perpetrating violence on a regular basis enhance the development of appetitive aggression. Results of this study indicate that both may be the case.

Table 1

Descriptive data: differences between combatants reporting high (HLAA) and low (LLAA) levels of appetitive aggression.

	HLAA (N=51)	LLAA (N=52)
Holding military rank	45% (N=23)	35% (N=18)
Joined as child	78% (N=40)	42% (N=22)
Recruitment type: nonabducted	69% (N=35)	36% (N=19)
Duration within armed group (in years)	M=6;9 (SD=5;8)	M=7;0 (SD=5;6)
Experienced violence types	M=4.59 (SD=1.02)	M=3.90 (SD=1.19)
Witnessed violence types	M=7.16 (SD=1.30)	M=5.65 (SD=1.70)
Perpetrated violence types	M=6.12 (SD=1.62)	M=3.63 (SD=2.06)
PSS-I score	M=11.67 (SD=10.17)	M=7.88 (SD=8.03)

5. Conclusions

Combatants reporting high levels of appetitive aggression (HLAA) are characterized by having joined the armed group more often on their own accord and as children. They perpetrated more acts of violence than combatants reporting low levels of appetitive aggression (LLAA). Whether or not this is the cause or the consequence of appetitive aggression cannot be conclusively answered with the design of the present study. However, the fact that combatants joined the armed group on their own accord and that the duration in the armed group had no influence, suggests that combatants with high levels of appetitive aggression at the time of the study already had appetite for aggression before joining the armed group. Yet, joining young and perpetrating violence on a regular basis seem to intensify appetitive aggression.

Competing interests

The authors declare that they have no competing interests.

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