

**Initial validation of a brief pictorial measure of caregiver aggression:  
The Family Aggression Screening Tool (FAST)**

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## **Abstract**

In the present study, we report on the development and initial psychometric properties of the Family Aggression Screening Tool (FAST). The FAST is a brief, self-report tool that makes use of pictorial representations to assess experiences of caregiver aggression, including direct victimization and exposure to intimate partner violence. It is freely available upon request and takes under five minutes to complete. Psychometric properties of the FAST were investigated in a sample of 168 high-risk youth aged 16-24. For validation purposes, maltreatment history was assessed using the Childhood Trauma Questionnaire (CTQ); levels of current psychiatric symptoms were also assessed. Internal consistency of the FAST was good. Convergent validity was supported by strong and discriminative associations with corresponding CTQ subscales. The FAST also correlated significantly with multi-informant reports of psychiatric symptomatology. Initial findings provide support for the reliability and validity of the FAST as a brief, pictorial screening tool of caregiver aggression.

**Keywords:** Family aggression, child maltreatment, victimization, intimate partner violence, validity, reliability, psychometric properties

**Abbreviations:** FAST, Family Aggression Screening Tool; IPV, intimate partner violence

## **Introduction**

Family aggression, including child maltreatment and exposure to intimate partner violence (IPV), represents a global phenomenon and a major public health concern (Gilbert et al., 2009). In the United Kingdom, it is estimated that as many as 5% to 15% of youth have experienced severe acts of family aggression while growing up, although the true prevalence is likely to be even greater (Radford et al., 2011). Youth who are exposed to family aggression are more likely to suffer from a wide range of psychosocial, emotional and behavioural difficulties, including post-traumatic stress, depression, anxiety, and conduct problems (Cicchetti & Toth, 2005). The effects of family aggression can be enduring and pervasive, increasing risk for psychiatric and medical disorders in adult life (Currie & Widom, 2010). As such, family aggression is recognized as a key developmental risk factor and as an important target for prevention and intervention efforts (Gilbert et al., 2009). In recent years, new screening tools have been developed to facilitate detection of family aggression (Ohan, Myers, & Collett, 2002; Rabin, Jennings, Campbell, & Bair-Merritt, 2009; Tonmyr, Draca, Crain, & MacMillan, 2011). Self-report instruments, in particular, have gained popularity as they are generally briefer, more cost-effective, easier to complete, and less invasive, compared to alternative methods (e.g. interview protocols). Despite these advantages, there are a number of methodological challenges that still need to be fully addressed in order to ensure more rapid, comprehensive and valid screening of family aggression.

First, the vast majority of existing instruments do not distinguish between experiences of childhood maltreatment and exposure to IPV (Gottlieb & Schrage, 2012). This is problematic, given that these two forms of family aggression have been shown to co-occur regularly. In particular, IPV exposure has been found to increase risk for childhood maltreatment (Herrenkohl, Sousa, Tajima, Herrenkohl, & Moylan, 2008). For example, in a recent nationally representative study (UK), youth who had experienced severe maltreatment by a caregiver were found to be almost three times more likely to experience IPV exposure compared to youth who were not severely maltreated (Radford et al., 2011). Similarly, another study found that more than half of those who had been exposed to IPV had also been maltreated (Hamby, Finkelhor, Turner, & Ormrod, 2010). Consequently, using screening tools that measure exclusively maltreatment or IPV exposure can hinder efforts to identify interrelationships between these two forms of family aggression. In a research context, screening for either maltreatment or IPV exposure can lead to

the overestimation of effects found, as it is not possible to isolate the unique effects of one form of family aggression, controlling for the other (Finkelhor, Ormrod, & Turner, 2007).

Furthermore, screening for either maltreatment or IPV limits the ability to examine cumulative and interactive effects that may arise from the experience of multiple forms of family aggression (Herrenkohl et al., 2008). Although it is entirely possible to address these limitations by using two separate measures of maltreatment and IPV exposure, the use of a single combined instrument may result in more efficient screening across both research and clinical settings.

Second, there is a lack of screening tools that enable the recording of specific characteristics of family aggression, such as perpetrator identity, number of perpetrators and directionality of aggression between family members. These characteristics can vary widely across families where aggression occurs, and may potentially influence the impact of family aggression on developmental outcomes (Appel & Holden, 1998; Holden, 2003). For example, incidents of IPV may involve either one partner as the sole perpetrator toward the other partner (i.e., the victim), or both partners engaging in mutual combat. Similarly, childhood maltreatment may occur at the hands of either one or both caregivers. Co-occurring patterns of maltreatment and IPV may also vary considerably. In some cases, one caregiver may aggress against both partner and child. Other times, aggression may occur sequentially, with one caregiver aggressing against the partner, and, in turn, the partner aggressing against the child. Screening for patterns of family aggression such as these may enable researchers and clinicians to identify subgroups of youth who are at increased risk of developing more severe or long-term difficulties. Indeed, in clinical settings, the ability to rapidly screen for patterns of family aggression may be particularly useful for informing risk assessment and treatment planning.

The third methodological issue relates to the fact that currently available assessment tools, when self-administered, tend to rely heavily on respondents possessing the necessary verbal skills to understand the questions presented, which may limit their applicability to a range of different populations. For example, evidence suggests that reading difficulties may be particularly prevalent among youth who have experienced family aggression. Maltreatment and IPV are more likely to occur in deprived neighborhoods characterized by higher levels of poverty and unemployment, poorer quality of schooling and lower educational attainment (Butchart, Phinney Harvey, Mian, Fürniss, & Kahane, 2006; Coulton, Korbin, Su, & Chow, 1995). Furthermore, numerous studies have shown that maltreatment and IPV are associated with

cognitive deficits, lower verbal ability, poorer literacy and difficulties in reading comprehension (e.g. Huth-Bocks, Levendosky, & Semel, 2001; Thompson & Whimper, 2010). Although it is often possible to administer questions by having them read aloud, this may feel uncomfortable for the respondent, eliciting feelings of shame, perceived stigma and socially desirable responding associated with non-disclosure (Meston, Heiman, Trapnell, & Paulhus, 1998). To our knowledge, no instrument to date has been designed to minimize verbal demands by combining pictorial and written elements in order to assess family aggression.

In summary: (i) few self-report instruments of family aggression assess both exposure to IPV and direct victimization, (ii) fewer still record characteristics of family aggression, such as number of perpetrators and directionality of aggression, and (iii) all rely exclusively on a verbal format, which may limit their applicability to a range of populations, including younger respondents, individuals with reading difficulties and non-native English speakers. Notable examples include three of the most widely used self-report instruments of family aggression: the Childhood Trauma Questionnaire (CTQ, Bernstein & Fink, 1998), the Adverse Childhood Experiences Study scale (ACE, Felitti, Anda, Nordenberg et al., 1998) and the Conflict Tactics Scale (CTS; Straus, 2000). The CTQ is one of the most frequently administered and extensively validated instruments of maltreatment in the world, and is often used as a criterion variable to validate newly developed screening tools (e.g. DiLillo et al., 2010; Lobbestael, Arntz, Harkema-Schouten, & Bernstein, 2009). The CTQ enables rapid assessment of multiple forms of child abuse and neglect using a simple Likert-type rating system; however, it does not record exposure to IPV and refers broadly to maltreatment experiences ‘while growing up’ (i.e. no perpetrator information). The ACE scale – another commonly used screening tool – records exposure to IPV, but only toward the mother. As such, it is not possible to assess other patterns of IPV, such as aggression toward fathers and mutual aggression between caregivers. The use of dichotomous items in the ACE also precludes the possibility of measuring exposure frequency. Finally, the CTS offers the possibility of recording both IPV exposure and direct victimization, as well as providing information about patterns of family aggression by distinguishing between aggression perpetrated by the mother versus father. However, different versions of the CTS are required for assessing exposure to IPV (CTS2-CA, 78 items) and direct victimization (PCCTS-CA, 62 items), increasing cost and time required. Of note, all three instruments exclusively make use a verbal format to assess experiences of family aggression.

In the present study we report on the developmental process and initial psychometric properties of the Family Aggression Screening Tool (FAST), a novel, self-report instrument that utilizes pictorial representations to assess multiple forms of caregiver aggression. Our goal was to develop an instrument that addresses limitations of existing self-report tools of family aggression, is quick to complete, easy to understand and freely available upon request. Consequently, we designed the FAST to incorporate the following features. First, the FAST measures both experiences of direct victimization and exposure to IPV. As such, the FAST may be used to identify interrelationships between both forms of caregiver aggression, as well as to examine unique, additive and interactive effects on developmental outcomes. Second, the FAST records information about specific characteristics of caregiver aggression, including whether one or both caregivers have engaged in aggressive acts as well as the directionality of aggression between these family members. Thus, the FAST may be helpful in detecting more complex family patterns and gain insight into dynamics of caregiver aggression. The FAST also assesses whether each form of aggression is still on-going, which is important for informing evaluation of a person's current risk status. Lastly, the FAST is the first instrument, to our knowledge, to make use of simple pictorial representations to assess experiences of caregiver aggression, thereby minimizing verbal demands on respondents. The FAST produces continuous severity scores, which have been shown to be more statistically powerful and qualitatively rich compared to frequently used dichotomous items. In summary, the FAST is the first instrument to have been developed with the aim of providing rapid and comprehensive screening of caregiver aggression using pictorial representations.

#### The present study

In order to be useful, the FAST must provide a valid and reliable way to assess an individual's experience of caregiver aggression. In the present study, we examined three psychometric properties of the FAST based on data drawn from a community sample of high-risk youth. First, we assessed reliability by examining internal consistency and inter-correlations between the FAST subscales. Second, we assessed convergent and discriminant validity by testing associations between the FAST and the Childhood Trauma Questionnaire (CTQ, Bernstein & Fink, 1998), a widely used and well-validated self-report measure of childhood maltreatment. We expected that the FAST and CTQ subscales would be positively related, with the strongest associations found between corresponding subscales (i.e. scales related to emotional and physical

victimization). Third, we further assessed construct validity by examining associations between the FAST and measures of psychiatric symptomatology, both self- and other-report. In line with previous studies, we expected that the FAST would be positively and significantly associated with severity of psychiatric symptoms across raters. It is important to note that because of sample size limitations, it was not possible to examine the specific characteristics of caregiver aggression recorded by the FAST (i.e. identity of perpetrator, directionality of aggression). As such, an examination of these more nuanced aspects of the FAST was beyond the scope of the initial validation described in the present study.

## **Methods**

### Instrument development

The development of the FAST proceeded in two main phases.

*Phase 1 – Development of the CMFV:* The first version of the instrument was originally developed as a self-report, pen-and-paper measure by Barker and Holden, under the name Children’s Memories of Family Violence (CMFV; Barker, 2003). The CMFV was created to examine patterns of physical aggression, based on Appel and Holden’s (1998) models of co-occurring spouse and physical child abuse. The CMFV used pictorial representations that depicted three characters – an adult male (father), and adult female (mother) and a child – in order to record both occurrences of (i) intimate partner violence exposure and (ii) direct victimization. The CMFV exclusively measured physical aggression and comprised of a larger number of representations, as it included both unidirectional (e.g. one parent perpetrating against the other) and bidirectional (e.g. reciprocal aggression between parents) scenarios. The CMFV was first piloted on a small number of college students (n = 5) and males attending a treatment program for domestic violence (n = 5). During the pilot, participants were asked to select one out of a pool of symbols that best represented physical aggression, defined as ‘pushing, slapping, hitting or anything worse’. Participants were also asked to comment on the clarity of the instrument in three main respects: (i) instructions; (ii) the ability to depict different patterns of physical aggression using pictorial representations (i.e. IPV and direct victimization toward the child), and (iii) the questions asked and scoring method used (i.e. ‘did this ever happened to you?’ [yes/no] and ‘how often did this happen?’ [6-point Likert scale ranging from ‘Never’ to ‘A

lot’]). Based on pilot data, it was deemed that the ‘jagged arrow’ symbol best represented physical aggression, and that the instrument was easy to complete and clearly understood in terms of instructions, pictorial depictions, questions asked and the rating method used. The final version of the CMFV was administered to two different samples in the United States to assess its psychometric properties (see Barker, 2003). In both cases, study procedures were approved by the Institutional Review Board (IRB) and informed consent was obtained from all participants (no compensation provided). First, 29 undergraduate students (mean age = 21; 83% female) attending a course on Family Violence were asked to complete the CMFV (30-day interval), in order to establish test-retest reliability. Average test-retest reliability was high, both in terms of whether the same item was endorsed across time points (i.e. yes/no; Kappa = .89), as well as the frequency of exposure reported (i.e. ordinal rating scale; Kendall’s tau-b = .91). Second, the CMFV was administered to 58 males attending a treatment program for wife and partner abuse who were recruited in the context of anger management sessions (mean age = 33.64; 89% court referred, 9% self-referred and 2% partner-requested) as well as a group of matched controls ( $n = 37$ ; mean age = 35.20; matched for ethnicity, average years of education and family income) who were recruited from the community (e.g. shopping centres). Within this study, convergent validity of the CMFV was assessed by examining associations with external measures of childhood adversity (Rohner, 1976) and current psychological functioning, including alcohol and drug abuse (Black, Heyman, & Slep, 2001), anger levels (Siegel, 1986), antisocial personality disorder symptoms (First et al., 1996), and borderline personality organization (Oldham, 1976). The CMFV correlated significantly with external measures of childhood adversity (e.g. parental rejection and hostility; self-reported physical abuse) as well as measures of current functioning, particularly anger levels and borderline personality organization.

*Phase 2 – Development of the FAST:* In the second phase of development, we improved the CMFV in three main ways to create the FAST. First, based on accumulating evidence showing that (i) different forms of IPV and child maltreatment co-occur (e.g. Radford et al., 2011), and (ii) non-physical forms of aggression also impact significantly on development and mental health (e.g. Arata et al., 2007), we expanded the instrument to measure two additional forms of adversity – verbal aggression and emotional hurt. Other forms of adversity (e.g. sexual abuse and neglect), were not included due to difficulties in representing these types of maltreatment visually. Second, we cut down the number of representations for each type of aggression. While



the original CMFV included a scenario for each possible combination of aggression in the triad (unidirectional and bidirectional), we included only scenarios involving aggression between two of the three characters. For example, in the CMFV different representations were provided to indicate (a) aggression from father to mother, (b) aggression from mother to father, and (c) mutual aggression between father and mother. In the FAST, we removed the mutual aggression scenario (c), as we could obtain the same information simply by checking whether both unidirectional scenarios (a and b) were endorsed. This reduced the total number of representations per type of aggression from 12 to 4. Third, we decided to administer the FAST on computer so as to (i) apply a continuous sliding scale to the frequency item, in order to increase measurement precision, and (ii) minimize human error associated with manual data entry. We modified the title of the instrument from CMFV to FAST to (i) highlight the fact that it is designed to be quick to administer and complete, (ii) draw attention to its utility as a screening tool and (iii) broaden its potential application to a range of respondents (i.e. not exclusively limited to probing childhood memories in adults). Although aggression may be perpetrated by other family members, such as siblings or relatives, we decided to retain the caregiver-child triad configuration. This decision was informed by evidence showing that caregivers are typically the most common perpetrators of child victimization (Radford et al., 2011; Schnitzer & Ewigman, 2005). The selection of visual symbols to represent verbal aggression and emotional hurt proceeded in two steps. First, we created a pool of possible symbols with the expert advice of Prof McCrory, who has extensive experience working with maltreated children and youth as a Consultant Clinical Psychologist. Second, we asked 10 members from UCL's Developmental Risk and Resilience Unit (which features maltreatment as a core research topic) to choose which symbol most clearly represented these forms of aggression. The FAST was then piloted on the same group of people to obtain feedback regarding its clarity and ease of completion, in a similar way to the original CMFV. The pilot data was examined to test individual variability in responses, and check that the FAST subscales correlated with one another, as expected. To ensure that the FAST was clearly understood by the youth included in the present study, we also asked for respondent's feedback after the administration of the FAST. None of the young people reported difficulty in completing the FAST, including the symbols included, the questions asked and the rating system used.

### Participants

The current sample is drawn from a larger study ( $N = 204$ ) examining the effects of developmental adversity on individual functioning (Cecil, Viding, Barker, Guiney, & McCrory, 2014). The present sample includes only participants for whom data on the Family Aggression Screening Tool is available ( $n = 168$ ). A number of recruitment channels were used to include youth with varying levels of disadvantage and experience of developmental adversity. Forty-four percent of participants ( $n = 74$ ) were recruited at Kids Company, a charity that provides services and support to vulnerable inner-city youth. The other fifty-six percent of participants ( $n = 94$ ) were recruited via a number of London-based inner-city secondary schools ( $n = 66$ ) and websites ( $n = 28$ ). The majority (80%) of participants were under the age of 21 years ( $M = 18$ ; range = 16-24) and 49% were females ( $n = 83$ ). The sample was ethnically diverse with 47% self-identifying as Caucasian, 37% self-identifying as Black, and 16% other.

### Procedure

All procedures were approved by the University College London (UCL) Research Ethics Committee (ID No: 2462/001). Participants from Kids Company were introduced to the research by a member of staff, after which interested participants met with one of the research team who provided additional information about the study. After the testing session, a key worker from the charity who knew each participant well completed a short questionnaire booklet. A key worker is a Kids Company member of staff who is assigned to each client in order to assist in the delivery of services as well as to provide socio-emotional and practical support. Participants from schools received information about the research during a brief presentation and students interested in the research were provided with additional information. After the testing session, a teacher who knew each participant well completed the questionnaire booklet. Several websites, including Gumtree, Experimatch, and the UCL subject pool were also used to recruit participants. Interested individuals were asked to fill in a brief screening form, so that it could be ensured that only participants with similar socio-demographic characteristics to youth recruited in other sites (i.e. charity and schools) were included in the study (i.e. age, sex, ethnicity and level of neighbourhood deprivation). Participants who were eligible were then asked to select a time slot for the testing session. Participants who described themselves as students also provided the details of a teacher who knew them well, so that the questionnaire booklet could be completed. All participants provided informed consent prior to participation. Testing took place in a quiet

room within Kids Company, the young person's school or at UCL depending on recruitment source. Participants from Kids Company and from the websites were compensated for their time individually; however students recruited from school settings received group compensation for school equipment or a final year party in line with head-teacher preferences. Of all external ratings, 44% were provided by key workers and 56% were provided by teachers.

### Measures

*Family Aggression Screening Tool (FAST)*. The FAST consists of 12 pictorial representations that assess experience of different forms of direct victimization and exposure to IPV that may have occurred in the young person's house "while growing up" (see Figure 1). Each pictorial representation depicts three characters, an adult male (father), an adult female (mother) and a child. Depending on the form of aggression measured, each representation also includes one of three symbols: (i) a broken heart, to depict emotional hurt (e.g., doing or saying mean things, hurt feelings); (ii) a megaphone, to depict verbal aggression (e.g., shouting, threatening, swearing); and (iii) a jagged arrow, to depict physical aggression (e.g., slapping, hitting or anything worse). The direction of the symbols indicates who the perpetrator is (i.e., adult male or female) and who the victim is (i.e., adult male or female, or child). As a result, half of the 12 representations assess experience of direct victimization (i.e., emotional, verbal or physical victimization from adult male to child, or adult female to child), while the other six representations assess exposure to IPV (i.e. exposure to emotional, verbal or physical IPV from adult male to adult female, or from adult female to adult male).

The FAST was presented on computer using Psytools software (Delosis Limited). Young people completing the FAST were first presented with a brief set of instructions on screen. Youth who experienced reading difficulties were assisted orally by a member of the research team. The instructions described the purpose of the measure and the meaning of each symbol, along with an example (see Appendix A). Upon seeing each representation, participants were asked three consecutive questions. First, participants were asked "*Did this ever happen to you?*" with the possibility of answering yes or no (i.e., binary item). If participants answered "no" they were automatically directed to the next representation. If participants answered "yes" to the first question, participants were asked the second question "*Has it ended?*" (yes/no). Third, participants were asked to rate "*How often did it happen?*" on a continuous sliding scale ranging from "never" (0) to "sometimes" (5) to "a lot" (10) (0.1 decimal increments). Completion time

was estimated using time stamp data. On average, it took 1.76 minutes for participants to read through the instructions (range: 1.12 – 2.97), and 1.21 minutes to complete the questions (range: .25 – 2.32) depending on how many questions were endorsed. Overall, total completion time was always under 5 minutes.

Scores derived from the 12 pictorial representations (i.e. in response to the question “*how often did it happen?*”) were summed to form six separate subscales, three indexing direct victimization, and the other three indexing IPV exposure (see Figure 1). For victimization items, scores indicating aggression from adult male to child, and from adult female to child were summed together to form three subscales (emotional, verbal, and physical victimization; range = 0 – 20). For the IPV exposure items, scores indicating aggression from adult male to adult female, and from adult female to adult male were summed to form the other three subscales (exposure to emotional, verbal, and physical IPV; range = 0 – 20). Additionally, the six subscales were summed to create a FAST total score, to provide an indicator of overall caregiver aggression (range = 0 – 120). Psychometric properties were examined using the 6 FAST subscales as well as the FAST total score. It is important to note here that the 12 individual representations can be used by researchers and clinicians to assess both individual characteristics and co-occurring patterns of family aggression; however, this was beyond the scope of the present study due to sample size limitations.

\*\*\*\*\* Figure 1 \*\*\*\*\*

*Childhood Trauma Questionnaire (CTQ)*. The Childhood Trauma Questionnaire (CTQ; Bernstein & Fink, 1998) is a self-report instrument that measures experiences of maltreatment “while growing up.” The CTQ originally included 70 items and was subsequently reduced to a 28-item instrument via exploratory and confirmatory factor analysis (Bernstein et al., 2003). The CTQ comprises five subscales measuring emotional abuse, physical abuse, sexual abuse, emotional neglect and physical neglect, in addition to three items measuring minimization/denial. Items are rated on a 5-point Likert scale ranging from ‘*never true*’ to ‘*very often true*’ (e.g. ‘people in my family hit me so hard that it left me with bruises or marks’). From the CTQ it is either possible to derive continuous scores (i.e., higher scores represent greater severity of maltreatment) or create dichotomous classifications based on one of three possible thresholds (Low, Moderate, Severe; Bernstein & Fink, 1998).

The psychometric properties of the CTQ have been well-documented. With regards to reliability, the CTQ subscales have shown adequate-to-excellent internal consistency ( $\alpha = .72 - .96$ ), test-retest reliability and measurement invariance across multiple validation samples of clinical and non-referred adolescents and adults (Bernstein & Fink, 1998). Overall, psychiatrically referred groups have been found to score higher on CTQ subscales than nonreferred groups. CTQ subscale scores have been compared to a number of external validation measures, including the Childhood Trauma Interview (CTI; Fink, Bernstein, Handelsman, Foote, & Lovejoy, 1995) in a sample of substance abusing adults, and therapist ratings in a sample of adolescent psychiatric inpatients (Bernstein, Ahluvalia, Pogge, & Handelsman, 1997). In both cases, convergent and discriminant validity were demonstrated via positive correlations that were stronger between corresponding scales than non-corresponding scales. Moderate to strong correlations with corresponding scales were found for all CTQ subscales, including the CTQ emotional abuse subscale (CTI:  $r = .42$ ; therapist ratings:  $r = .48$ ) and the CTQ physical abuse subscale (CTI:  $r = .48$ ; therapist ratings:  $r = .59$ ). Finally, construct validity of the CTQ has been shown via significant low-to-moderate positive correlations between the CTQ subscales and measures of trauma-related symptomatology, including depression, PTSD and dissociation ( $r = .13 - .38$ ) (Bernstein & Fink, 1998). Within our sample, alpha coefficients for the CTQ subscales ranged between  $\alpha = .70$  and  $.97$ .

*Psychiatric symptomatology.* Psychiatric symptoms were assessed using both self- and other-report measures. Participants completed the Trauma Symptom Checklist for Children (TSCC-A; Briere, 1996) to measure trauma-related symptoms. The TSCC-A is a 44-item self-report inventory that includes 5 clinical scales (anxiety, depression, post-traumatic stress, anger and dissociation) and 2 validity scales (under- and hyper-response). Items are rated on a 4-point scale from 'never' to 'almost all of the time'. Cronbach's alpha for the scales varied from  $.84$  to  $.87$  in our sample. Convergent, discriminant and predictive validity of the TSCC-A have been documented using child and adolescent samples (Briere, 1996; Sadowski & Friedrich, 2000). Teachers or key workers completed five subscales from the DSM-IV-referenced Adolescent Symptom Inventory (ASI-4; Gadow & Sprafkin, 2002) to assess symptoms of generalised anxiety disorder (GAD), major depressive disorder (MDD), attention-deficit hyperactivity disorder (ADHD), oppositional defiant disorder (ODD) and conduct disorder (CD). Each scale

contains between 7 and 18 items and is rated on a 4-point scale from ‘*never*’ to ‘*very often*’ ( $\alpha = .89 - .94$ ).

*Socio-demographic covariates.* Data on age, sex, ethnicity and IQ were collected from all participants. Cognitive ability was assessed using the two-subtest version of the Wechsler Abbreviated Scale of Intelligence (WASI; Wechsler, 1999). All participants scored between 70 and 125 on the WASI. Participant postcode information was used to obtain an Index of Multiple Deprivation (IMD, 2011) score, which is derived from population census data and encompasses multiple indicators of neighbourhood deprivation. Higher values indicate female gender, non-white ethnicity, older age, higher cognitive ability and greater neighbourhood deprivation.

## Results

Analyses were performed on SPSS package v. 21 (2012). Descriptive statistics of the FAST subscales and correlations with socio-demographic characteristics are displayed in Table 1. As is common with maltreatment instruments, FAST scores were skewed towards the lower end of the scale, with a high proportion of 0 scores (i.e. reporting no caregiver aggression). However, 89% of sample reported occurrence of some form of caregiver aggression on the FAST total score (i.e. score > 0), and between 20% and 66% of sample reported occurrence of specific forms of family aggression on the individual FAST subscales, with verbal victimization being most common, and exposure to physical IPV the least common. The FAST subscales were significantly correlated with age and ethnicity, but not with participant sex, IQ or level of neighbourhood deprivation (i.e. IMD).

\*\*\*\*\* Table 1 \*\*\*\*\*

## Reliability

*Internal consistency and intercorrelations between FAST subscales (Aim 1).* The reliability of the FAST was tested in two ways. First, we calculated Cronbach’s alpha to measure internal consistency of the FAST total scale, whereby values  $\geq .90$  are considered excellent,  $\geq .80$  as good, and  $\geq .70$  as adequate (Kline, 1993). Internal consistency of the FAST was good ( $\alpha = .82$ ), indicating that it reliably measured overall caregiver aggression. Second, we examined how the FAST subscales were associated with one another (inter-item correlations) as well as with the total score (corrected item-total correlations) using Pearson correlation coefficients, where

coefficients  $\geq .50$  are considered strong,  $\geq .30$  as moderate, and  $\geq .10$  as weak (Cohen, 1988). Inter-item and item-total correlations between the FAST subscales are presented in Table 2. Correlations between subscales were significant and ranged from low to strong ( $r = .26 - .63$ ). The strongest associations were found between the verbal and physical aggression subscales (victimization dimension:  $r = .63$ ; exposure to IPV dimension:  $r = .59$ ). Corrected item-total correlations were strong across all subscales ( $r = .50 - .66$ ), indicating that each subscale reliably measured the same construct as the total score and that none of the subscales warranted removal.

\*\*\*\*\* Table 2 \*\*\*\*\*

### Validity

*Convergent and discriminant validity (Aim 2).* Convergent and discriminant validity were assessed by running Pearson correlations between subscales of the FAST and CTQ. Because FAST subscales were significantly associated with age and ethnicity, we also computed partial correlations controlling for these demographic variables. The scales were not significantly associated with participant sex, IQ or neighbourhood deprivation (IMD) (see Table 1). In order to examine unique associations between the subscales of the FAST and CTQ, we additionally ran a series of step-wise multivariate regressions to predict CTQ maltreatment scores, where (i) age and ethnicity were entered as covariates in the first step, and (ii) all FAST subscales were entered simultaneously as independent variables in the second step of the regression. It is important to note that out of the 6 FAST subscales, two (emotional and physical victimization) directly corresponded with CTQ subscales (emotional and physical abuse).

Associations between the FAST and CTQ are presented in Table 3. The FAST total score was strongly correlated with the CTQ total score ( $r = .70$ ). Zero-order bivariate Pearson correlations across the subscales were ranged from low to strong ( $r = .17 - .64$ ), with the strongest correlations found between corresponding subscales. For example, the FAST emotional victimization subscale was significantly correlated with the CTQ emotional abuse subscale ( $r = .58$ ). Similarly, the FAST physical victimization subscale was strongly associated with the CTQ physical abuse scale ( $r = .64$ ). Correlations between non-corresponding scales on the FAST and CTQ ranged from .17 to .55. Controlling for age and ethnicity did not change the overall pattern of results (see Table 3).

Results from the step-wise multivariate regression analyses show that the associations between corresponding subscales on the FAST and CTQ were unique (i.e. controlling for the

other significantly correlated subscales), supporting their respective convergent and discriminant validity (see Table 3). When entering all FAST subscales simultaneously as predictors of the CTQ subscales, emotional victimization was the only significant predictor of CTQ emotional abuse (*Std. B* = .39,  $p < .001$ ) and physical victimization was the strongest predictor of CTQ physical abuse (*Std. B* = .47,  $p < .001$ ). A number of non-corresponding FAST subscales were also predictive of the CTQ (see Table 3).

\*\*\*\*\* Table 3 \*\*\*\*\*

*Construct validity (Aim 3).* Construct validity was tested by examining associations between the FAST subscales and (self- and other-report) psychiatric symptomatology using both zero-order Pearson correlations, as well as partial correlations controlling for age and ethnicity (Table 4). The difference in sample size between self-report ( $n = 168$ ) and other-report outcomes ( $n = 125$ ) resulted from the fact that it was not possible to obtain teacher or key worker (i.e. for Kids Company) ratings for all participants in the study. The FAST total score was moderately associated with both self-report ( $r = .36$ ) and other-report ( $r = .37$ ) total symptomatology, supporting the construct validity of the FAST. Associations between the individual FAST subscales and the psychiatric symptom subscales ranged from .07 to .40. Emotional victimization was moderately associated with all self- and other-report clinical subscales, the strongest associations being with self-report anxiety, depression and PTSD symptoms. Exposure to emotional and physical IPV was also significantly associated with clinical symptoms across subscales. The remaining FAST subscales were significantly associated with some, but not all psychiatric symptom subscales. The overall pattern of results was consistent when controlling for age and ethnicity (see Table 4).

\*\*\*\*\* Table 4 \*\*\*\*\*

## **Discussion**

The purpose of the current study was to report on the development and initial psychometric properties of the FAST, a brief screening tool of family aggression (specifically caregiver aggression), which combines written and pictorial elements to minimize verbal demands on respondents. Internal consistency of the FAST was good. The six FAST subscales (i.e. emotional, verbal, and physical victimization; exposure to emotional, verbal and physical IPV) were all strongly associated with the FAST total score. Inter-correlations between the FAST subscales were moderate-to-strong, indicating that forms of aggression measured by the FAST



were distinct from one another but also related. This is consistent with previous studies showing that (i) maltreatment subtypes co-occur (Edwards, Holden, Felitti, & Anda, 2003; Finkelhor et al., 2007), and (ii) maltreatment is closely associated with exposure to IPV (Hamby et al., 2010; Holt, Buckley, & Whelan, 2008).

In order to test convergent validity, we examined associations between the FAST and the CTQ, a widely used and extensively validated measure of childhood maltreatment. Total scores on the FAST and CTQ were highly associated. This is noteworthy, given the limited number of corresponding scales between these two instruments and the use of markedly different approaches to assess childhood experiences. While the FAST makes use of visual symbols to depict forms of aggression, the CTQ uses multiple verbal items that generally describe behaviourally specific events. Yet, despite these differences, the current results indicate that both instruments are measuring largely overlapping constructs.

In line with expectations, associations between corresponding scales on the FAST and CTQ were stronger than those found between non-corresponding scales, supporting the ability of the FAST to discriminate between forms of caregiver aggression. Importantly, the magnitude of correlations between corresponding scales was equivalent to that reported in previous studies comparing the CTQ against other measures of maltreatment, including the Childhood Trauma Interview (Fink et al., 1995), therapist ratings (Bernstein et al., 2003), as well as a number of recently developed verbal self-report instruments (e.g. DiLillo et al., 2010; Lobbestael et al., 2009). Furthermore, subscales on the FAST were found to uniquely predict corresponding scales on the CTQ, providing additional support for the discriminant validity of the FAST.

Construct validity of the FAST was demonstrated by significant associations with psychiatric symptoms, both self- and other- report. The strength of these associations was comparable to that reported by previous studies examining correlations between the CTQ and similar indices of psychopathology (e.g. Bernstein & Fink, 1998; Goldstein et al., 2011). Emotional victimization was the strongest correlate of symptom severity across the majority of psychiatric domains. These findings are consistent with mounting evidence pointing to emotional abuse as an important risk factor for developmental maladjustment (Wekerle, 2011). In contrast, verbal victimization was associated with a smaller subset of psychiatric domains. The findings raise the question as to whether emotional hurt may exert stronger or broader effects than the experience of verbal aggression alone. This is of interest given that emotional and verbal abuse

are seldom examined separately in the maltreatment literature, so that the extent to which they may overlap with one another, or uniquely affect outcomes is currently unclear.

Physical victimization was weakly associated with externalizing problems, which is somewhat inconsistent with studies linking physical abuse to conduct problems and antisocial behaviour (e.g. Litrownik et al., 2005). One possibility is that, in addition to measuring physical abuse (as indicated by the strong correlation with the CTQ physical abuse scale), the physical victimization subscale may also capture more ‘normative’ parental behaviours (e.g. corporal punishment as a means of obtaining discipline), thereby resulting in weaker associations with psychiatric symptoms. This will need to be further explored in future studies.

In summary, these preliminary findings indicate that the FAST is a valid and reliable measure of caregiver aggression. Nevertheless, the FAST is characterised by a number of limitations. First, the use of generic visual symbols is designed to provide an initial ‘snapshot’ into patterns of caregiver aggression, and as such is unable to provide specific detail of the young person’s experience of victimization and IPV exposure. Because of the use of pictorial representations, the FAST also relies on subjective conceptualizations to a greater extent than do other verbal measures of caregiver aggression, which may lead to differences in measurement. Nevertheless, strong associations between the FAST and CTQ indicate that these two instruments are measuring largely overlapping constructs. This is further supported by the fact that associations between the FAST and CTQ were comparable to those reported using other verbal instruments of maltreatment (e.g. DiLillo et al., 2010; Lobbestael et al., 2009). Furthermore, subjective appraisals of maltreatment experiences have been found to be a powerful predictor of poor mental health functioning (e.g. McGee, Wolfe, & Wilson, 1997). The use of pictorial representations may actually be advantageous for detecting emotional abuse, as it is notably more challenging to operationalize than other forms of victimization, such as physical abuse (Tonmyr et al., 2011). Second, the FAST does not incorporate sexual abuse or neglect as a result of difficulties in representing these forms of maltreatment visually. Interestingly, however, emotional victimization on the FAST uniquely predicted scores across CTQ subscales, including sexual abuse, emotional neglect and physical neglect. This suggests that emotional hurt on the FAST may be reported by youth who have experienced either acts of commission (i.e. abuse) or omission (i.e. neglect). As a result, the FAST may be helpful in initially detecting possible experience of emotional hurt, which can then be further explored using a more in-depth

assessment tool or interview protocol. Third, while the FAST assesses whether the individual is currently experiencing each form of family aggression, it does not provide details regarding timing or duration of exposure. It is important to note, however, that estimations of age of onset and duration of caregiver aggression may be particularly unreliable in self-report instruments, due to recall biases and inability to accurately report exposure to aggression that may have occurred during early childhood (Fallon et al., 2010). Finally, the FAST adopts largely a pictorial format to assess experiences of caregiver aggression in order to minimize verbal demands on respondents. However, it is not completely free of verbal content (e.g. instructions), and as such may still prove challenging for respondents with difficulties in verbal comprehension. In future, it will be important to test to what extent this measure is easier to comprehend and complete compared with other instruments of caregiver aggression.

Aside from the limitations of the FAST outlined above, there are a number of methodological limitations in the present study that will need to be addressed in future. The use of the CTQ as a validity criterion meant that we were unable to establish convergence of all FAST subscales, except emotional and physical victimization (i.e. corresponding scales). It will be important in future to establish the full psychometric properties of *all* FAST subscales, which will require the use of validated measures assessing verbal victimization as well as exposure to verbal, emotional and physical IPV. The CTQ was chosen as a validity criterion due to its known psychometric properties. However, like all self-report instruments it is potentially susceptible to recall biases and non-disclosure, and as such does not represent a ‘gold standard’ against which to validate the FAST. The comparison of the FAST to different measures of maltreatment and IPV exposure (both self- and other-report, e.g. therapist ratings, case files) will ultimately provide further information regarding the validity of the FAST. Unfortunately, it was not possible to administer the FAST at multiple time points, which means that we were unable to establish the test-retest reliability of this measure. It will be important in future to test this psychometric property. Furthermore, findings regarding the psychometric properties of the FAST were based on a relatively small community sample of high-risk youth. As a result, it will be important to establish to what extent reliability, validity and diagnostic accuracy of the FAST may vary across adolescent populations (e.g. psychiatric inpatients vs low-risk community). It will also be interesting to establish the validity and potential applicability of the FAST to hard-to-screen populations that may particularly benefit from tools that minimize verbal demands,

including youth with reading difficulties, non-native English speakers and younger respondents. Finally, due to sample size limitations it was not possible to perform item response theory analysis. In future, such an approach may lend further insight into the psychometric properties of the FAST. The small sample size also meant that we were unable to examine each pictorial representation separately so as to explore associations between caregiver aggression characteristics (i.e. identity of victim and perpetrator; directionality of aggression between family members) and psychiatric symptomatology. Future studies will be needed to examine whether these characteristics, as recorded by the FAST, moderate the impact of caregiver aggression on mental health outcomes. It will also be important to establish whether these characteristics may be clinically useful for informing risk assessment and treatment formulation. We hope that by making this measure freely available, researchers may examine the properties of the FAST with a range of populations and thus help address the above limitations.

In conclusion, the FAST is the first instrument, to our knowledge, to use pictorial representations to screen for experiences of caregiver aggression. It is briefly administered, easy to use, minimally invasive and freely available upon request. The present findings provide initial support for its validity and reliability in detecting multiple forms of caregiver aggression. The FAST has the potential to be widely applicable in both research and clinical settings. By recording both forms of victimization and IPV exposure, it may be used to conduct research into the unique, additive and interactive effects of distinct forms of caregiver aggression on developmental outcomes. As a screening tool, the FAST can be used to obtain a ‘snapshot’ of caregiver aggression patterns, and inform the need of more comprehensive follow-up assessments. The use of pictorial representations may also provide a means for clinicians to initiate a dialogue regarding the young person’s history of exposure in a way that is potentially less invasive than verbal screening tools. As it is designed to minimize verbal demands, the FAST may also prove useful in facilitating assessment in hard-to-screen populations (e.g. youth with poor literacy, non-native English speakers, younger respondents) – although this has yet to be tested empirically. Taken together, findings from the present study indicate that the FAST shows promise as a novel tool for the rapid detection of caregiver aggression.

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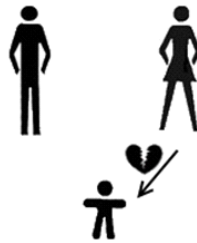
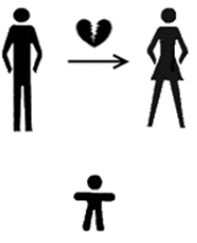
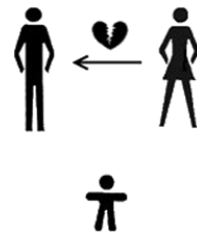
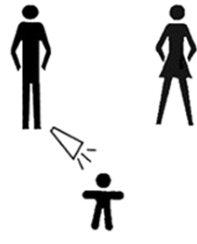
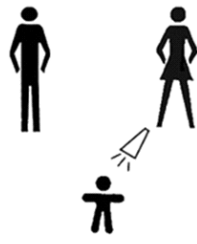
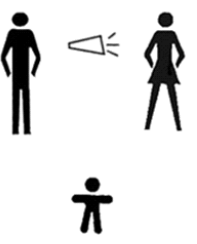
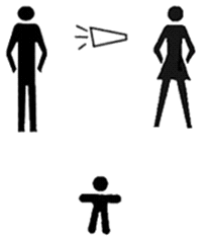

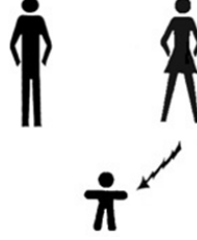
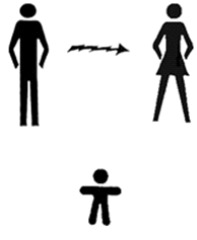
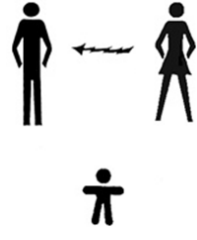
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**Figure 1.** Layout of pictorial representations included in the Family Aggression Screening Tool (FAST) and corresponding subscales.

	Victimization <sup>a</sup>		Exposure to interparental violence (IPV) <sup>b</sup>	
	Adult male → Child	Adult female → Child	Adult male → Adult female	Adult female → Adult male
Emotional hurt	FAST Subscale 1. Emotional victimization		FAST Subscale 4. Exposure to Emotional IPV	
				
Verbal aggression	FAST Subscale 2. Verbal victimization		FAST Subscale 5. Exposure to Verbal IPV	
				
Physical aggression	FAST Subscale 3. Physical victimization		FAST Subscale 6. Exposure to Physical IPV	
				

<sup>a</sup> Victimization subscales are created by summing the 'Adult male → Child' and 'Adult female → Child' items for each form of aggression.

<sup>b</sup> IPV exposure subscales are created by summing the 'Adult male → Adult female' and 'Adult female → Adult male' items for each form of aggression.

**Table 1.** Descriptives and correlations with socio-demographic characteristics

FAST subscales	M (SD)	Ethnicity <sup>a</sup>				Sex	Age	IQ	IMD
		White	Black	Mixed	Asian				
<b>Victimization</b>									
Emotional	3.33 (4.47)	-.18*	.15*	.06	.00	.06	.07	-.08	.05
Verbal	5.13 (5.32)	-.21**	.16*	.08	.01	-.09	.18*	.10	.10
Physical	2.48 (4.20)	-.23**	.20**	-.01	.09	.12	.24**	.07	.11
<b>IPV Exposure</b>									
Emotional	3.33 (4.19)	-.17*	.11	.12	-.04	.12	.19*	-.04	.12
Verbal	4.44 (5.40)	-.10	.02	.09	.06	.05	.21**	.00	.05
Physical	1.53 (3.77)	-.16*	.20**	.02	-.10	.08	.15	-.11	.11
<b>FAST Total</b>	20.28 (20.09)	-.24**	.18*	.09	.01	.07	.25***	.00	.14

*N.B.* Bivariate correlations significant at: \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

<sup>a</sup> Ethnicity: White (yes = 1; no = 0); Black (yes = 1; no = 0); Mixed (yes = 1; no = 0); Asian (yes = 1; no = 0).

**Table 2.** Inter-item and item-total correlations among the FAST subscales

FAST subscales	1	2	3	4	5	Item-Total
<b>Victimization</b>						
1. Emotional	–					.50
2. Verbal	.45	–				.65
3. Physical	.48	.63	–			.64
<b>IPV Exposure</b>						
4. Emotional	.41	.30	.26	–		.51
5. Verbal	.29	.58	.43	.50	–	.66
6. Physical	.29	.36	.53	.47	.59	.60

*N.B.* all correlations,  $p < .001$ .

**Table 3.** Associations between FAST subscales and CTQ subscales

FAST subscales	CTQ Subscales														
	Emotional Abuse			Physical Abuse			Sexual Abuse			Emotional Neglect			Physical Neglect		
	<i>r<sup>a</sup></i>	partial <i>r<sup>b</sup></i>	Std. <i>B<sup>c</sup></i>	<i>r<sup>a</sup></i>	partial <i>r<sup>b</sup></i>	Std. <i>B<sup>c</sup></i>	<i>r<sup>a</sup></i>	partial <i>r<sup>b</sup></i>	Std. <i>B<sup>c</sup></i>	<i>r<sup>a</sup></i>	partial <i>r<sup>b</sup></i>	Std. <i>B<sup>c</sup></i>	<i>r<sup>a</sup></i>	partial <i>r<sup>b</sup></i>	Std. <i>B<sup>c</sup></i>
<b>Victimization</b>															
Emotional	<u>.58***</u>	<u>.58***</u>	<u>.39***</u>	.55***	.55***	.33***	.28***	.28***	.09	.48***	.49***	.30***	.53***	.53***	.35***
Verbal	.48***	.46***	.13	.35***	.34***	-.16*	.26***	.25***	.07	.42***	.38***	-.04	.37***	.34***	-.18*
Physical	.51***	.48***	.15	<u>.64***</u>	<u>.63***</u>	<u>.47***</u>	.35***	.34***	.23*	.53***	.51***	.37***	.58***	.56***	.38***
<b>IPV Exposure</b>															
Emotional	.36***	.33***	.05	.34***	.32***	.05	.26***	.24**	.16	.26***	.24**	.02	.33***	.30***	-.00
Verbal	.38***	.35***	.04	.32***	.30***	-.07	.17*	.15	-.15	.34***	.31***	.10	.41***	.38***	.16
Physical	.37***	.35***	.07	.53***	.52***	.26***	.27***	.26***	.11	.32***	.30***	-.02	.47***	.45***	.13

*N.B.* \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ . Underlined coefficients represent associations between corresponding subscales across the FAST and CTQ. For simplicity, non-significant coefficients are shown in grey.

<sup>a</sup> Zero-order bivariate correlations ( $N = 166$ ).

<sup>b</sup> Partial correlations controlling for age and ethnicity ( $N = 162$ )

<sup>c</sup> Step-wise multivariate regression analyses controlling for age and ethnicity. Standardized estimates are presented as a measure of effect size ( $N = 162$ ).

**Table 4.** Associations between FAST subscales and measures of psychiatric symptomatology

FAST subscales	Self-report (TSCC)										Other-report (ASI)										
	Anxiety		Depression		Anger		PTSD		Dissociation		GAD		MDD		ADHD		ODD		CD		
	<i>r</i> <sup>a</sup>	<i>partial r</i> <sup>b</sup>	<i>r</i> <sup>a</sup>	<i>partial r</i> <sup>b</sup>	<i>r</i> <sup>a</sup>	<i>partial r</i> <sup>b</sup>	<i>r</i> <sup>a</sup>	<i>partial r</i> <sup>b</sup>	<i>r</i> <sup>a</sup>	<i>partial r</i> <sup>b</sup>	<i>r</i> <sup>a</sup>	<i>partial r</i> <sup>b</sup>	<i>r</i> <sup>a</sup>	<i>partial r</i> <sup>b</sup>	<i>r</i> <sup>a</sup>	<i>partial r</i> <sup>b</sup>	<i>r</i> <sup>a</sup>	<i>partial r</i> <sup>b</sup>	<i>r</i> <sup>a</sup>	<i>partial r</i> <sup>b</sup>	
<b>Victimization</b>																					
Emotional	.40***	.39***	.36***	.26***	.28***	.29***	.38***	.37***	.28***	.29***	.36***	.31***	.30***	.25**	.30***	.27**	.31***	.28**	.23**	.19*	
Verbal	.12	.11	.16*	.14	.28***	.30***	.28***	.27***	.24***	.25***	.17	.11	.19*	.13	.09	.04	.17	.14	.14	.09	
Physical	.12	.11	.15*	.13	.11	.13	.24***	.22**	.14	.15*	.29***	.23*	.29***	.23**	.19*	.14	.22*	.18*	.14	.07	
<b>IPV Exposure</b>																					
Emotional	.25***	.24**	.24**	.22**	.23**	.25***	.26***	.25***	.17*	.17*	.28**	.24**	.23**	.20*	.26**	.24**	.33***	.31***	.35***	.31***	
Verbal	.07	.06	.19*	.17*	.21**	.24**	.21**	.19*	.21**	.22**	.25**	.22*	.25**	.23**	.20*	.18*	.26**	.24**	.20*	.17	
Physical	.15	.14	.24**	.23**	.24**	.26***	.26***	.25***	.21**	.23**	.38***	.35***	.36***	.33***	.30***	.27**	.36***	.35***	.31***	.28**	
<b>FAST Total</b>	.24***	.24**	.30***	.28***	.31***	.34***	.37***	.35***	.29***	.31***	.37***	.32***	.35***	.30***	.29***	.25**	.36***	.33***	.29***	.25**	

*N.B.* \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ . Non-significant coefficients are shown in grey. PTSD = post-traumatic stress disorder; GAD = generalized anxiety disorder; MDD = major depressive disorder; ADHD = attention-deficit/hyperactivity disorder; ODD = oppositional defiant disorder; CD = conduct disorder.

<sup>a</sup> Zero-order bivariate correlations (self-report  $N = 164$ ; other-report  $N = 120$ ).

<sup>b</sup> Partial correlations controlling for age and ethnicity (self-report  $N = 162$ ; other-report  $N = 118$ ).

## Appendix A. Family Aggression Screening Tool (FAST) instructions

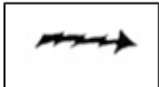
These drawings show different types of aggression that can happen in homes. We would like to know whether any of these happened between you and the adults in your household when you were growing up. In the drawings below you will see:



A **heart** - this means that there were hurt feelings in the house (such as saying or doing mean things)



A **megaphone** - this means that there was verbal aggression in the house (such as shouting, threatening, swearing)



An **arrow** - this means that there was physical aggression in the house (such as slapping, hitting, or anything worse)

Here is an example - This drawing shows a father (or adult male) being verbally aggressive to a mother (or adult female). The person completing this questionnaire remembered this happening when they were growing up, so they checked the box that says **YES**. The person was then asked whether this type of aggression has ended, and they checked the box that says **YES**, because it does not happen anymore. The person was then asked to select a point anywhere along the line that best describes how often this type of aggression happened in the past, from never to a lot.

Did this ever happen?  Yes  No  
 Has it ended?  Yes  No  
 How often did it happen?  
 Never  Sometimes A lot

Now have a look at each of the drawings that come after this example. Look at the direction the hearts, megaphones and arrows are pointing and see if you remember this kind of aggression happening in your house when you were growing up. If you have no memory of this happening, you can check the box **NO** and move on to the next picture.