

The Relationship Between Implicit and Explicit Violent Self-Concept and Violent Behaviour

by

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**Abstract**

Violent self-concept (i.e., the association between *self* and *violent*) has been found to be associated with acts of aggression (Gollwitzer et al., 2007) and violent behaviour (Nunes et al., 2015). The purpose of the current study was to examine the relationship between implicit and explicit violent self-concept and self-reported violent behaviour in 138 male undergraduate students. The Implicit Association Test (IAT; Greenwald et al., 1998) was adapted via pilot testing to assess implicit violent self-concept (VSC-IAT), whereas explicit violent self-concept and violent behaviour were each assessed with two self-report measures. Correlational analyses indicated that explicit violent self-concept was related to prior self-reported violent behaviour; however, implicit violent self-concept was not. These findings may provide valuable information regarding the measurement of implicit and explicit violent self-concept and the association between violent self-concept and self-reported violent behaviour.

*Key words:* violent, self-concept, implicit, explicit

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## The Relationship Between Implicit and Explicit Violent Self-Concept and Violent Behaviour

In 2018, the Violent Crime Severity Index (VCSI), a measure of police-reported crime, recorded 423, 767 violent offences in Canada; however, approximately only one-third of violent crimes are reported to police (Perrault, 2015). Violent behaviour poses a risk to public safety as victimization is associated with immeasurable and often indefinite psychological and physical distress (Miller et al., 1993). In an effort to understand the causes and correlates of violent behaviour, emphasis has been placed on identifying risk factors associated with violent behaviour in order to improve the assessment, detection, and treatment of violent individuals. Although there is no single cause of violent behaviour, there is substantial theoretical and empirical evidence to suggest that self-concept is a predictive and influential factor related to an array of behaviours, including violent behaviour (Bacchini et al., 2017). Self-concept refers to the association of self with a trait such as violence (e.g., I am violent vs I am not violent; McPhail et al., 2018). The current study aims to examine aggression and aggressive acts as an indicator of violence.

A basic tenet of early criminological theories suggests that cognitions such as identifying as a criminal (i.e., criminal self-concept) is related to criminal behaviour (Lemert, 1951; Mead, 1934). Within psychology, criminal self-concept is also considered an important risk factor related to the decision to engage in criminal behaviour (see Criminal Social Identity Theory; Boduszek & Hyland, 2011). Affiliation with a deviant group or merely identifying with prison subculture has been associated with criminal behaviour (Rubington & Weinberg, 2002). Furthermore, criminal self-concept is associated with and predictive of violent delinquency in youth who have been socially labelled a criminal (Chassin & Young, 1981). Social psychology

theories further suggest that violent cognitions (e.g., violent self-concept) can influence the commission of aggressive or violent behaviour (see General Aggression Model; Anderson & Bushman, 2002). Violence is characterized as aggression to inflict severe harm, whereas aggression is any behaviour directed toward an individual who is motivated to avoid it, with immediate intent to cause damage (Bushman & Anderson 2002; Baron & Richardson 1994; Berkowitz 1993). Moreover, the relationship between self-concept and aggressive behaviour has been examined, with studies finding a relationship between aggressive self-concept and trait aggressiveness (Hopkins, 1999) as well as general aggressiveness (Teubel et al., 2011). Other studies have focused more narrowly on violent behaviour and have found that violent self-concept, or the association between self and violence, is associated with behaviour that is strictly assaultive in nature (i.e., aggression; Nunes et al., 2015).

### **Implicit and Explicit Self-Concept**

Dual-process models (e.g., Strack & Deutsch, 2004; Wiers et al., 2007) have been expanded to describe two types of self-concept: implicit self-concept and explicit self-concept (Back et al., 2009). Implicit self-concept is defined as the faster, reflexive, and unconscious assessment of self with a trait or attribute (Greenwald et al., 2002) and is commonly evaluated by response latency measures such as the Implicit Association Test (IAT; Greenwald et al., 1998). In contrast, explicit self-concept is defined as the slower, reflective, and conscious assessment of self with a trait or attribute (Greenwald et al., 2002) and are typically assessed by self-report measures such as semantic differential scales and feeling thermometers (Gawronski & Bodenhausen, 2006). Research has indicated that implicit and explicit self-concept are related but unique constructs, and solely measuring explicit self-concept in the absence of implicit self-concept can lead to impaired information detection (Nosek & Smyth, 2007). Implicit techniques

are designed to measure and detect whether one construct can unconsciously activate another construct (Greenwald et al., 2002). This type of measurement provides complementary information that predicts behaviour (Nosek & Smyth, 2007). In considering these findings, the assessment of both implicit and explicit self-concept may be necessary to fully explain the nature of the relationship between self-concept and behaviour, including the relationship between violent self-concept and violent behaviour.

### **Self-Concept Theories of Crime**

#### **Criminal Social Identity Theory**

The criminal social identity theory (CSI; Boduszek & Hyland, 2011) is an application of both social identity theory (SIT; Tajfel & Turner, 1979) and self-categorization theory (SCT; Turner et al., 1987). Specifically, SIT suggests that individuals engage in criminal behaviour due to the presence of a persistent criminal self-concept that develops from a variety of psychological processes such as criminal associates. It is theorized that the characteristics of an individual's primary social group integrate as a part of one's self-concept (Tajfel & Turner, 2004). Furthermore, SCT posits that individuals place themselves and others in social categories which influence self-concept (Hogg & Reid, 2006). The categorization of self influences the self-concept of criminals in an attempt to match the identification of a specific criminal category. For instance, joining a criminal affiliation (e.g., gang membership) could create a self-conception of self as a criminal. For such an individual, being part of a criminal group becomes a central aspect of their criminal self-concept as depictions of known criminal associates are stored in their memory and become accessible to applicable situation cues. Once an individual commits a criminal act, they develop a mental association between their self-concept and criminality (Veysey & Rivera, 2017).

## **Labeling Theory**

Labeling theory outlines the role of social labeling in the development of crime and deviance. Specifically, labeling theory suggests that assigning the label of ‘criminal’ to an individual further fosters the integration of a criminal self-concept through the application of stereotyping and a self-fulfilling prophecy (Lemert, 1951; Mead, 1934). Once an individual is labeled or defined as a deviant or criminal, challenges arise due to negative stereotypes and stigmatization that are associated with the deviant or criminal label (Becker, 1963; Lemert, 1967). This negative stigmatization can lead to social exclusion by conventional others (e.g., peers, community members, employers) and may lead to social withdrawal because of anticipated rejection or devaluation (Goffman, 1963; Link et al., 1989). As a result, individuals may avoid routine social interactions that are critical for continuing social bonds to conventional groups and organizations (Bernburg, 2006; Winnick & Bodkin, 2008). Consequently, this can serve to increase the probability of stable and chronic deviant and criminal behaviour (Lemert, 1967).

Furthermore, social labeling endorses deviant behaviour through a self-fulfilling prophecy (Wells, 1978). A self-fulfilling prophecy is a process that results in an individual’s acceptance of the deviant or criminal label, thereby changing their self-concept to fit with their new perception of self, leading to an increase in criminal or deviant behaviour. Wells (1978) further suggests that deviant acts can influence ones self-concept through self-labeling (Becker, 1963). Self-labeling results in an individuals acceptance of the label and uses the label name to justify their deviant behaviour. Overall, labeling theory provides an explanatory framework regarding the relationship between criminal self-concept and involvement in criminal or deviant behaviour.

### **Criminal Self-Concept and Criminal Behaviour**

The criminological literature empirically supports the role of self-concept on criminal behaviour. Criminal behaviour has been operationalized in the literature as the involvement in criminal activity, considering both past and present recidivism. Studies have suggested that adopting a criminal self-concept or simply identifying with prison subculture may be related to criminal behaviour (Bryne & Trew, 2005; Wormith, 1984). A qualitative assessment of offending patterns in individuals with an age range from 19 to 45 years old with a history of incarceration ( $N = 18$ ; 9 males) revealed that criminal orientation (i.e., alignment of self and offending) was associated with a higher degree of offending (Bryne & Trew, 2005).

Furthermore, research on criminal identity change was assessed in a sample of 148 offenders at two-time points within a six-month interval through the administration of the Social Identity Questionnaire (SIQ; Cameron, 1999). The results suggest that individuals who spend six months or less in incarceration continued to develop their criminal identity over time, whereas individuals incarcerated for five years or more maintained a stable criminal status. It is suggested that the growth of a criminal identity in novice offenders can reinforce criminal behaviour (Walters, 2003). In addition, Wormith (1984) assessed the influence of a treatment program, self-esteem, criminal self-concept, and criminal attitudes on recidivism outcomes ( $N = 50$ ). Interestingly, the treatment program and an individual's criminal self-concept was not a significant predictor of recidivism. However, the results suggested that when criminal self-concept and self-esteem increased simultaneously, there was a significant impact on reoffending.

Furthermore, Simourd and Olver (2002) conducted an exploratory factor analysis to examine the relationship between criminal self-concept and criminal behaviour. The Criminal Sentiments Scale (CSS; Simourd & Olver, 2002), a measure of criminal thought content, was

administered to 381 violent male offenders. The factor identified as criminal self-concept included four items that were intended to reflect a criminal self-concept (e.g., "I'm more like other people who have trouble with the law"). The findings revealed that criminal self-concept was significantly associated with prior criminal participation ( $r = .21$ ), future criminal involvement (i.e., recidivism;  $r = .17$ ), and incarceration ( $r = .18$ ). These findings suggest that criminal self-concept is linked to criminal behaviour as it serves to predict criminal acts. The above findings support the notion that criminal self-concept is related to criminal behaviour.

### **Theories of Self-Concept and Violent Behaviour**

#### **The General Aggression Model**

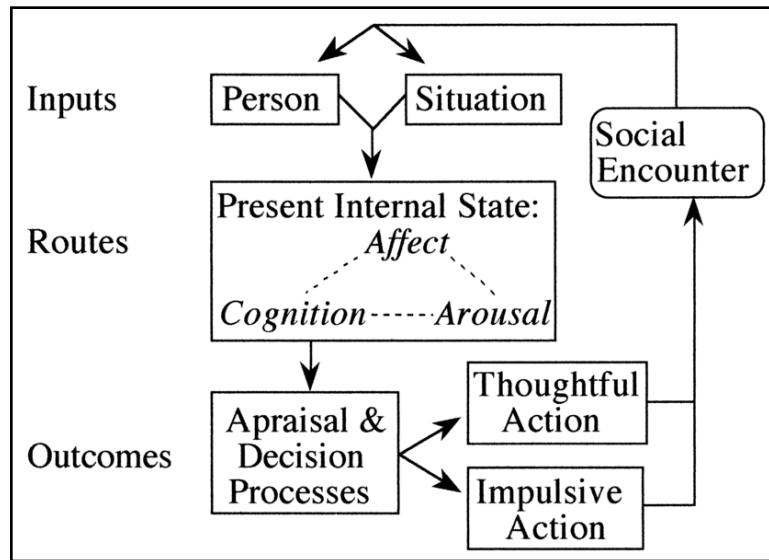
The general aggression model (GAM; Anderson & Bushman, 2002) is a violence specific model that describes how violent cognitions influence aggressive and violent behaviour. Specifically, GAM theorists posit that self-concept has an indirect influence on aggressive behaviour. The proximate processes of the GAM (see Figure 1) explain individual episodes of aggression using three stages: person and situation inputs, present internal states (i.e., cognition, arousal, affect), and outcomes of appraisal and decision-making processes. According to the GAM, various cognitive factors referred to as person inputs influence aggression, such as behavioural scripts. Drawing from script theory (Huesmann, 1988), behavioural scripts convey procedural knowledge and guide behaviour. This concept suggests that an individual relies on previous behavioural scripts to represent a situation in which they assume the actor's role or self-concept in that specific script. Increased rehearsal of an individual's behavioural script can serve to strengthen the likelihood that the individual will assume the role (i.e., self-concept) and behaviours associated with that situation. Furthermore, aspects of the specific situation may influence whether aggression occurs, referred to as situation inputs (e.g., pain, provocation,

frustration) and work in tandem with person inputs to increase or decrease the likelihood of aggressive behaviour through their combined influence on present internal state variables via three routes: cognition, arousal, and affect. Therefore, person and situation inputs provide the most direct pathway for aggressive and violent behaviour due to their influence on internal states.

The final element in the proximate processes of the GAM includes appraisal and decision processes that determine the outcome (i.e., behaviour). These processes include immediate appraisals, which are direct, rapid, and effortless, and reappraisals, which are more controlled and effortful. For instance, an immediate appraisal may occur when an individual perceives a serious threat (e.g., presence of a weapon), prompting a near-immediate violent action. However, reappraisals arise when the original outcome behaviour is both unsatisfying and important. The immediate appraisal may be viewed as inappropriate for the situation, influencing the individual to respond in a more controlled action. For instance, if the individual reappraises the immediate appraisal and determines the presence of a weapon is not a serious threat, the individual may choose a non-violent action. Whether the action (i.e., behaviour) is violent or non-violent, the subsequent behaviour has an impact on the ongoing social encounter due to a feedback loop. The social encounter will feed back into the situation input, which can influence future cycles of violence, which can produce a violence escalation cycle. Therefore, despite aggressive cognitive factors (e.g., aggressive behavioural scripts) being conducive to a violent outcome (i.e., behaviour), the situation dictates whether an individual will respond with violence.

**Figure 1**

*The General Aggression Model (GAM): Proximate Causes and Processes*

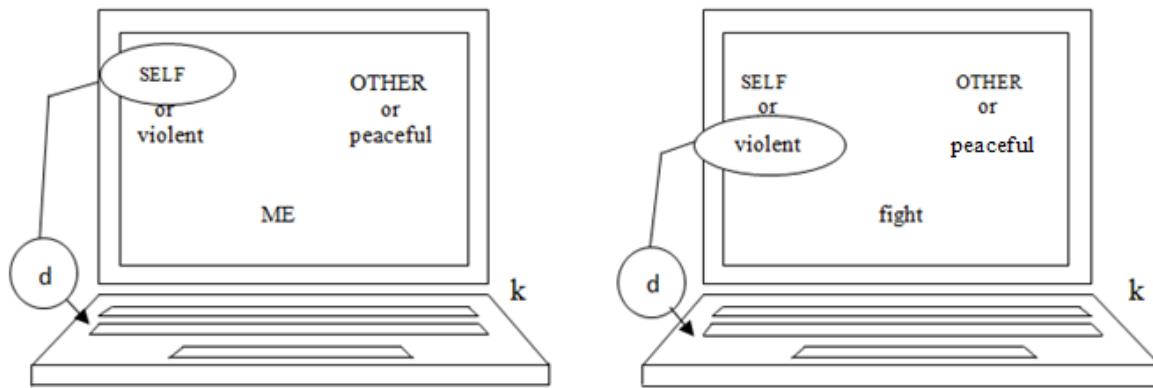


### Assessment of Self-Concept within Social Psychology

Within the social psychology literature, self-concept has been assessed with implicit self-concept measures such as the Implicit Association Test (IAT; Greenwald et al., 1998). Generally, IAT measures infer implicit cognitions from the speed at which an individual can sort stimuli into categories that are representative of associations between psychological constructs and attributes (McPhail et al., 2018). For example, an IAT measure adapted to assess violent self-concept is illustrated in Figure 2. Participants are instructed to sort each stimulus word into one of four categories by pushing either *d* or *k* on a computer keyboard. Two categories share one key, and the remaining two categories share the other key. These responses are examined by subtracting the mean response latency for one critical phase (e.g., *Self + Violent* and *Other + Peaceful*) from the other critical phase (e.g., *Self + Peaceful* and *Other + Violent*). Individuals who sort stimuli faster when self and violent share a response key have a stronger association between self and violent, indicating they have a violent self-concept.

**Figure 2**

*IAT Measure Adapted to Assess Implicit Violent Self-Concept*



### Aggressive Self-Concept

It has been suggested that aggression research would benefit from considering the implicit or automatic processes involved (e.g., Nunes et al., 2013; Richetin & Richardson, 2008). Researchers have suggested that the measurement of implicit cognition (e.g., self-concept) is vital to the assessment of cognitions related to sexually aggressive behaviour (Nunes et al., 2013; Richetin & Richardson, 2008). Aggression has been operationalized as a trait and measured through behavioural indicators (e.g., penalties in sports) and the Buss and Perry Aggression Questionnaire (BPAQ; Buss & Perry, 1992). For instance, Bluemke et al. (2010) analyzed the relationship between implicit aggressive self-concept, as measured by the IAT, and aggression, as measured by the BPAQ. The IAT measure administered included two attribute concepts (*Aggressive* and *Peaceful*) and two target categories (*Self* and *Other*). Participants were required to categorize 40 stimuli of both targets and attributes; that is, *Self + Peaceful* (and *Other + Aggressive*) and *Self + Aggressive* and (*Other + Peaceful*). Response latencies were recorded from the speed at which participants sorted the target words into categories. The IAT effect (i.e., the mean response latencies of the two critical blocks) was used to index the association of self

to the aggressive and peaceful concepts. Lower IAT scores indicated a more aggressive self-concept. The results revealed that the pre-test aggressiveness IAT was slightly correlated with BPAQ trait-aggressiveness ( $r = -.18$ ). Convergence was particularly apparent for the physical aggression subscale ( $r = -.22, p < .05$ ) and the anger subscale ( $r = -.24, p < .05$ ), but not for the verbal aggression subscale ( $r = .06$ ) or the hostility subscale ( $r = .001$ ). However, the post-test IATs did not correlate positively with BPAQ scores. A follow-up study by Bleumke and Zumbach (2012) found a similar result in a sample of 144 psychology undergraduate students. Their results indicated that implicit aggressive self-concept was significantly associated with the physical subscale of the BPAQ ( $r = -.14, p < .05$ ) as well as the hostility subscale ( $r = -.16, p < .05$ ) and the total score ( $r = -.17, p < .05$ ).

### **Aggressive Self-Concept and Aggressive Behaviour**

Research has also examined the association between aggressive self-concept and aggressive behaviour. Banse and Fischer (2002) assessed implicit aggressive self-concept and aggressive behaviour through sport by measuring the number of penalties a player collected over a 40-game period. Implicit aggressive self-concept, as measured by the IAT, was significantly related to the number of received penalties ( $r = .35$ ). However, these findings remain inconclusive as some studies have found that implicit aggressive self-concept was not related to penalties ( $r = -.04$ ) and is positively related to trait aggression as measured by the BPAQ ( $r = .29$ ; Teubel et al., 2011). However, more detailed insight has been obtained through laboratory studies.

Richetin et al. (2010) examined the extent to which implicit measures of aggressive self-concept predict actual aggressive behaviour in response to provocation. Participants were or were not exposed to an insult from the experimenter and then were instructed to evaluate the

performance of the experimenter, thereby creating an opportunity for aggressive behaviour. Two IAT measures were used to assess direct aggressive self-concept and indirect aggressive self-concept in 77 undergraduate psychology students. Both IAT measures included two target categories (*me* and *others*) and two attribute concepts (*harmful* and *harmless*). However, unlike other studies using an IAT self-concept, Richetin et al. (2010) did not use the typical items to represent the categories; rather, they used eight stimuli to identify each category; for instance, *Me* (e.g., PhD/student), *Harmless* (e.g., appreciate), *Harmful-direct* (e.g., brutalize), and *Harmful-indirect* (e.g., discredit). The order of presentation and the order of the two IATs were counterbalanced. The two IAT scores were computed by calculating the difference between the average response time for sorting words in the two critical steps (i.e., *Me + Harmful direct* vs *Harmless* and *Me + Harmful indirect* vs *Harmless*). A single IAT score was calculated by taking the mean of the two IATs scores and were transformed into the D algorithm with a penalty of 600 milliseconds for errors, per Greenwald et al. (2003).

Results revealed that when combined, the implicit measures of aggressiveness were significantly predictive of aggressive behaviour following provocation ( $\beta = .24, p = .02$ ). However, it was not significantly predictive in the absence of provocation ( $\beta = -.16, p = .08$ ). That is, participants who implicitly associated themselves with aggressiveness were more aggressive than participants who did not associate themselves with aggressiveness following provocation. Furthermore, explicit measures were not significantly predictive of aggressive behaviour regardless of whether the provocation was present or not. However, this finding is inconsistent with other laboratory studies that have successfully used explicit measures to predict direct aggressive behaviour (Bushman, 1995; Hammock & Richardson, 1992). A later study by Grumm et al. (2011) assessed aggressive self-concept and aggressive behaviour in children to

examine the predictive validity of implicit and explicit measures of aggression. Aggressive behaviour was measured by participant scores in a competitive computer game whereby participants were informed they could steal points from other players regardless of whether they required those points to win. Implicit aggressive self-concept was assessed using an IAT measure consisting of two attribute concepts (*Aggressive* and *Peaceful*) and two target categories (*Self* and *Other*). An IAT score was computed such that lower scores indicated a higher aggressive self-concept. In addition to the IAT, a German version of the aggression subscale of the Youth Self Report (YSR; Achenbach, 1991) was used to assess explicit aggressive self-concept. It was found that implicit aggressive self-concept independently predicted aggressive behaviour to a greater degree than explicit aggressive self-concept ( $\beta = .23, p = .02$ ). That is, a more aggressive self-concept was associated with more aggressive behaviour.

### **Violent Self-Concept and Self-Reported Violent Behaviour**

The measures of aggressiveness used in the research above tend to rely on indicators of aggressive behaviour but do not directly assess participant reported violent behaviour. Subsequently, the Violent Behaviour Scale (VBS; Nunes et al., 2015) was developed to examine the association between violent self-concept and self-reported violent behaviour. The VBS contains eight self-report items that were selected from other antisocial behaviour scales, including questions on arrest and conviction (e.g., Brown, 1992; Elliott et al., 1985; Smith & Thornberry, 1995). The items reflect a variety of violent behaviours and involvement with the criminal justice system for violent behaviour since the age of 16 (e.g., “From when you were 16 years old to today, how many times have you started a physical fight with someone?”). Each item is rated on a 10-point scale ranging from 0 (never) to 9 (9 times or more). The total score is calculated by summing the items. Scores can range from 0 to 72, with higher scores indicating

more violent behaviour. Relatively, few previous studies reviewed above looked specifically at violent behaviour. However, Nunes et al. (2015) examined violent behaviour and explicit violent self-concept. Violent behaviour was measured by the VBS, whereas explicit violent self-concept was measured through a semantic differential scale that included two items that evaluated identification of self as violent. The results showed a significant and positive correlation between the semantic differential items and violent behaviour ( $r = .45, p < .05$ ). Furthermore, significance was found among explicit violent self-concept related to positive attitudes towards violence ( $r = .46, p < .05$ ) and negatively related to self esteem ( $r = .51, p < .05$ ).

### Purpose and Conclusions

There is substantial theoretical and empirical evidence to suggest that self-concept, or the association of self with a trait, is a fundamental factor related to engagement in criminal behaviour (Bacchini et al., 2017; Bynum & Weiner, 2002; Nunes et al., 2013; Simourd & Olver, 2002). More specifically, research examining self-concept has revealed that maintaining an aggressive self-concept is associated with aggressive traits (Bluemke & Zumbach, 2012) and aggressive behaviour (Gollwitzer et al., 2007). Furthermore, violent self-concept (i.e., the association between self and violent) has also been found to associate with violent behaviour (Nunes et al., 2015). Although research is limited on the association between implicit violent self-concept and self-reported violent behaviour, it is expected that implicit and explicit violent self-concept will be associated with self-reported violent behaviour.

The literature suggests that implicit (i.e., automatic) and explicit (i.e., deliberate) self-concepts are related but distinct constructs (Greenwald & Farnham, 2000; Nosek et al., 2007). Implicit self-concept is commonly evaluated by response latency measures such as the Implicit Association Test (IAT; Greenwald et al., 1998). In contrast, explicit self-concept is typically

assessed by self-report measures such as semantic differential scales and feeling thermometers (Gawronski & Bodenhausen, 2006). Notably, measuring implicit self-concept with the IAT assesses a construct related to but distinct from explicit self-concept (Greenwald & Farnham, 2000). As such, it is anticipated that implicit violent self-concept, independent from explicit violent self-concept, will be related to violent behaviour.

Relatively few of the previous studies reviewed above specifically assessed violent behaviour; therefore, the purpose of the current study is to examine the relationship between implicit and explicit violent self-concept and self-reported violent behaviour among male undergraduate students at Carleton University. Specifically, the following was considered: (a) whether implicit and explicit measures of violent self-concept are related and whether they are associated with violent behaviour and (b) whether implicit and explicit violent self-concept are independently associated with violent behaviour. If both the implicit and explicit measures are significantly correlated with the violent behaviour measures, regression analyses will be conducted to test the extent to which they are independently associated with violent behaviour.

### **Pilot Study: Establishing Stimuli and Categories for Response Latency Measures**

Data were initially collected by the Aggressive Cognitions and Behaviour Research (ACBR) lab at Carleton University in Ottawa, Ontario, Canada. The current study analyzes a portion of the original dataset and is approved by the Carleton University Research Ethics Board-B (CURB-B; see Appendix A). The Implicit Association Test (IAT; Greenwald et al., 1998) was adapted for the current study and designed for the assessment of association strengths between categories of *self* and *other* and attributes of *violent* and *peaceful*. According to Nosek et al. (2007), the successful design of an IAT measure requires that the category membership of stimulus items be clear and identifiable as representing only one of the four categories. Failure to

do so may result in individual and unique participant sorting rules and undermine those intended for the design. Therefore, pilot testing was necessary to ensure the appropriate selection of category memberships and stimulus items in the development of the current design.

## **Method**

### ***Participants***

Data were collected from 254 Carleton University undergraduate students with exclusion criteria resulting in a final sample of 147 participants. Participants received 0.5% credit toward their final grade in PSYC 1001, 1002, 2001, 2002 and NEUR 1001 and 1002 for their participation. Participants were excluded if they identified as female, claimed they were unable to comprehend written and spoken English, or both. Furthermore, “quality control” questions were administered to detect participants who did not attend to or did not understand the items (e.g., “press number five”). The all-male sample ranged in age from 16 to 39-years-old with the majority (63.4%) of participants aged between 18 and 19-years-old.

### ***Measures***

#### **Stimuli Choice Measures**

***Stimuli Sorting Task.*** Three stimulus rating tasks were created for this study. Participants were instructed to categorize 135 words chosen from previous self-concept and IAT stimuli lists. Participants were asked to group each word into either violent or non-violent (see Appendix B), positive or negative (see Appendix C), and self or other (see Appendix D) categories. Synonym words were sorted for each scale to ensure that the category membership of stimulus items was clear and identifiable and representing only one of the four categories. Participants identified which words most clearly reflected violent words as violent (e.g., stab), non-violent words as non-violent (e.g., calm), self words as self (e.g., me), and other words as

other (e.g., their). The most frequently reported stimuli items were selected for use in the current study.

***Opposite of Violent Task.*** Research suggests that the IAT may be ineffective when attributes of the category memberships are presented as a contrasting prefix label (e.g., violent and non-violent; Gawronski & Bodenhausen, 2006). Therefore, participants were instructed to independently identify and report a word that is an opposite representation of the word violent (see Appendix E). In total, 17 unique words were generated in which the most frequently identified word (i.e., *peaceful*) was selected to represent the attribute category opposite to *violent*.

### **Measures of Self-Reported Violent Behaviour**

***Violent Behaviour Scale (VBS).*** The VBS (Nunes et al., 2015; see Appendix F) is an 8-item self-report questionnaire designed to measure a range of violent behaviour and involvement with the criminal justice system for violent behaviour since age 16 (e.g., “From when you were 16 years old to today, how many times have you threatened to physically hurt someone?”). The questionnaire operates on a 10-point Likert scale ranging from 0 (never) to 9 (9 times or more). The total score is computed by summing the items with scores ranging from 0 to 72. A higher score is indicative of more prior violent behaviour. The internal consistency of the VBS was moderate to high (Robinson et al., 1991) for the pilot study ( $\alpha = .65$ ;  $n = 147$ ) and primary study ( $\alpha = .80$ ;  $n = 138$ ).

***Generality of Violence Questionnaire-R (GVQ-R).*** The GVQ-R (see Appendix G) is a 12-item modified version of the Generality of Violence Questionnaire (GVQ; Holtzworth-Munroe et al., 2000). The GVQ was originally designed to measure engagement in physical acts of aggression toward a spouse through self-report; however, the GVQ-R was adapted for the

current study to measure acts of aggression more generally. Thus, three items from the GVQ on spousal assault were removed. Each item from the GVQ-R operates on a 10-point Likert scale with a score range of 0 to 108. The items measure how frequently an individual has engaged in an array of aggressive behaviour (e.g., hitting, punching, or kicking someone), with higher scores representative of more previous aggressive behaviour. The internal consistency of scores were high for the pilot study ( $\alpha = .85$ ;  $n = 146$ ) and the primary study ( $\alpha = .86$ ;  $n = 138$ ).

### ***Procedure***

Participants were recruited through SONA, an online student participation pool designed for researchers to recruit participants (see Appendix H). The pilot study was completed through Qualtrics, an online research platform designed to conduct survey research and evaluation. Upon consent, participants were provided with an online Qualtrics link. Participants were asked to complete a series of questionnaires and tasks, including a demographic questionnaire (see Appendix I), the stimuli sorting task (see Appendix B, C, and D), and the opposite of violence task (see Appendix E). Furthermore, the VBS and the GVQ-R were administered to examine the willingness of participants to self-report the frequency of violent behaviours. The measures were counterbalanced to safeguard against order effects on the results of the study.

## **Results**

### ***Stimuli Sorting Task***

For stimuli to be chosen to represent their hypothesized groups, 80% or more of the participants were required to report that they belonged to that category. Furthermore, stimuli that were chosen by more than 60% of participants as belonging to non-hypothesized (or opposite) groups were removed. As seen in Table 1, this generated 21 *violent* words, six *non-violent* words, six *self* words, and five *other* words.

**Table 1**

*Self, Other, Non-Violent, and Violent Stimuli and the Correct Categorization Rate*

<i>Self</i>	<i>%</i>	<i>Other</i>	<i>%</i>	<i>Non-Violent</i>	<i>%</i>	<i>Violent</i>	<i>%</i>	<i>Violent continued</i>	<i>%</i>
Me	100	Others	88	Cuddle	96	Attack	92	Choke	96
Self	97	They	88	Love	96	Torture	100	Violence	96
I	93	Their	92	Harmony	90	Killer	100	Murderer	96
My	90	Them	93	Serenity	94	Brawl	98	Murder	95
Myself	95	Other	95	Make Peace	92	Assault	98	Violent	94
Mine	95			Sympathetic	81	Punch	98	Hit	92
						Beat Up	98	Kill	92
						Stab	96	Smack	92
						Strangle	96	Shove	92
						Fight	96	Kick	90
						Suffocate	90		

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Note.  $N = 147$ .

*Opposite of Violent*

To represent the opposite of the word violent, participants generated 17 unique words. The word most frequently reported by participants was ‘peaceful’ at 34%, followed by ‘gentle’ at 15%. Therefore, the word peaceful was used as the category opposite to violent on the VSC-IAT.

### **Primary Study**

As previously mentioned, data were initially collected by the Aggressive Cognitions and Behaviour Research (ACBR) lab at Carleton University in Ottawa, Ontario, Canada. The current study analyzes a portion of the original dataset and is approved by the Carleton University Research Ethics Board-B (CURB-B; see Appendix A).

### **Method**

#### *Participants*

Participants were male students in psychology undergraduate courses at Carleton University. Participants received 1% credit toward their final grade in PSYC 1001, 1002, 2001, 2002 and NEUR 1001 and 1002 for their participation. Of the 141 participants who consented, two participants were excluded for having response times faster than 300 milliseconds on more than 10% of the IAT trials. The survey contained three “quality control” questions to identify participants who did not attend to or did not understand the questions (e.g., “please select five as the correct response”). Of the 139 participants who consented and did not have response times greater than 300 milliseconds on more than 10% of the IAT trials, one participant was excluded for answering one of the three quality control questions incorrectly. Of the 139 participants who consented, did not have response times greater than 300 milliseconds on more than 10% of the IAT trials and answered all three quality control questions correctly, 138 had complete data on the GVQ-R, VBS, semantic differential scales, and the VSC-IATD. However, eight participants did not have complete data on the feeling thermometer, and listwise deletion was used to remove

these participants resulting in a sample of 130 when this variable was being analyzed. Therefore, the final sample was made up of 138 participants (unless examining the feeling thermometer;  $n = 130$ ), with every participant reporting that they understand spoken and written English. The majority of the sample reported that they were single (66.7%) and were 18 years old (59.4%) with an age range of 18 to 23 years old.

### **Measures**

The Violent Behaviour Scale (VBS; Nunes et al., 2015) and the Generality of Violence Questionnaire-R (GVQ-R) were administered in addition to the measures described below. For measure descriptions, refer to pilot testing.

#### **Implicit Violent Self-Concept**

***Violent Self-Concept Implicit Association Test (VSC-IAT).*** The Implicit Association Test (IAT; Greenwald et al., 1998) was adapted for the current study and designed for the assessment of association strengths between categories of *self* and *other* and attributes of *violent* and *peaceful*. The strength of automatic associations between the categories of self and violence or self and peaceful, as well as other and violence or other and peaceful, is assessed by how quickly participants sort the target words into the categories of *Self + Violence* and *Self + Peaceful*, or *Other + Violence* and *Other + Peaceful*. Target words were classified into these four categories by pressing one of two keys on a computer keyboard (*d* and *k*), with two of the categories represented by one key and the other two categories represented by the other key (see Figure 1 for illustration). The IAT data were collected and recorded by the program E-prime 2.0 (Schneider et al., 2002). The program documented the response latency for each trial and the number of mistakes made for each participant. It is expected that response times will depend on the extent to which the categories sharing the same key are associated in memory.

The VSC-IAT consisted of seven blocks. In block one, participants practiced sorting target stimuli into *self* and *other* categories alone. In block two, participants practiced sorting the stimuli into *violence* and *peaceful* categories alone. In block three, participants sorted 20 trials of stimuli, while an attribute and target shared one response key (e.g., *Self + Peaceful*) and the residual attribute and target shared the other response key (e.g., *Other + Violent*); whereas block four remained the same but with 40 trials. Block five served as another practice allowing participants to adjust to the attribute switching response keys (e.g., *Self + Violent* and *Other + Peaceful*). Block six and seven followed the same procedure as block three and four, with the attributes now paired with the opposite response key. The order of critical blocks (i.e., block three, four, six, and seven) are used to score the IAT responses and were counterbalanced to safeguard against order effects on the results of the study. The difference between the average response times for the two blocks that are compatible with viewing the self as violent (e.g., *Self + Violent* and *Other + Peaceful*) and the two blocks that are compatible with viewing the self as peaceful (e.g., *Self + Peaceful* and *Other + Violent*) creates the index used (i.e., the IAT effect). The IAT effect value is designed according to the D algorithm outlined by Greenwald et al. (2003), and it is used to transform raw data into the IAT effect value. This score represents the VSC-IATD and is frequently used to compare participant reactions on the IAT. Higher scores on the VSC-IATD indicate a stronger association between *self* and *violent* rather than *self* and *peaceful*.

The VSC-IAT is a novel measure; thus, the psychometric properties are currently unknown. The internal consistency of the VSC-IAT was computed by calculating Cronbach's alpha for two *D* scores. The first *D* score was computed from blocks 3 and 6 and the second *D* score was computed from blocks 4 and 7. The internal consistency of those two *D* scores was

computed and the internal consistency of the VSC-IAT was acceptable ( $\alpha = .72$ ;  $n = 138$ ). Similar applications of the IAT designed to measure aggressive self-concept have reported an acceptable split-half correlation ( $r = .74$ ; Grumm et al., 2011) with Cronbach's alpha of .78 (Gollwitzer et al., 2007) to .91 (Richetin & Richardson, 2008). The above studies suggest that the IAT has acceptable reliability. To date, the construct validity is currently unknown.

### **Explicit Violent Self-Concept**

**Semantic Differential Scales.** Two semantic differential scales developed by Nunes et al. (2015) were used to assess violent self-concept (see Appendix J). Each scale is a one-item self-report measure on a 7-point Likert scale. Two opposing adjectives (i.e., bipolar adjectives) defined the opposite ends of each scale with scale anchors as *peaceful* (1) and *violent* (7) and *gentle* (1) and *aggressive* (7). Total scores were computed by averaging the item scores for each scale. Scores can range from -3 to +3, with a higher score associated with greater explicit violent self-concept. Due to the limited number of items, the internal consistency of the semantic differential score could not be calculated. Furthermore, there is no evidence for the construct validity of scores.

**Feeling Thermometer.** A revised version of the feeling thermometer by Uhlmann and Swanson (2004) was an additional one item self-report measure used to assess explicit violent self-concept (see Appendix K). Participants rated themselves on a scale from 0 (not at all violent) to 100 (extremely violent), with total scores ranging from 0 to 100. A higher overall score is indicative of a greater explicit violent self-concept. Similar to the semantic differential scale, the internal consistency of the feeling thermometer could not be calculated due to the one item limitation. Furthermore, there is no evidence for the construct validity of scores.

### **Calculating the IATD**

Data for the IAT were collected by the program E-prime 2.0 (Schneirder et al., 2002), which recorded each participant response times and the number of errors. The order of presentation and the order of the two IATs were counterbalanced. Per Greenwald et al. (2003), data were used from block 3 and block 4 (i.e., *Self + Peaceful* or *Self + Violent*) and block 6 and block 7 (i.e., *Self + Violent* or *Self + Peaceful*). Participants with response latencies greater than 10,000 milliseconds and participants who had more than 10% of trials with a latency less than 300 milliseconds were eliminated. The mean of the correct latencies for each block was then computed, followed by the calculation of the pooled standard deviation for blocks 3 and 4 and the pooled standard deviation for blocks 6 and 7. The average of the resulting values was then calculated for each of the four blocks, followed by calculating the two differences between block 6 and block 3 and block 7 and block 4. Each difference was then divided by its associated pooled trials standard deviation. The average of the two quotients was then calculated, representing the IATD score. Higher scores on the IATD represent a stronger association between self and violent compared to self and peaceful.

### ***Procedure***

Participants were recruited through SONA, an online student participation pool designed for researchers to recruit participants (see Appendix L for SONA recruitment notice). Participants were male students in psychology undergraduate courses at Carleton University. They were awarded 1% toward their course grade for participation. Participants were asked to complete a series of questionnaires. Each survey began with a demographic questionnaire (see Appendix M) followed by the semantic differential scales (see Appendix J), the feeling thermometer (see Appendix K), the Violent Behaviour Scale (see Appendix F), and the

Generality of Violence Questionnaire (see Appendix G). The order of measures was counterbalanced, and the order of items within each measure was randomized in order to safeguard against order effects on the results of the study. Before participation, all participants were required to consent to the study (see Appendix N). The consent form notified participants that the current study was approved by the Carleton University Research Ethics Board (see Appendix A). Upon completion, participants were given a debriefing form (see Appendix O).

## Results

### ***Data Screening***

Prior to running analyses, data were screened for missing data, out of range values, univariate and multivariate outliers, and violations of the statistical assumptions of correlation and regression analysis. First, missing data were examined on each variable of interest (i.e., VSC-IATD total scores, feeling thermometer total scores, semantic differential scales total scores, GVQ-R total scores, and VBS total scores). Eight participants were missing total scores on the feeling thermometer; therefore, missing value analysis was conducted to assess whether these values were missing at random. *T*-tests were conducted comparing participants with missing and non-missing values on age, VSC-IATD total scores, semantic differential scale total scores, GVQ-R total scores, and VBS total scores. None of the *t*-tests were significant; therefore, participants with and without missing data did not differ significantly from one another on the continuous variables. A chi-square test was conducted to assess whether those with and without missing values on the total score of the feeling thermometer differed significantly on relationship status and English proficiency (i.e., if they understood written and spoken English). Participants with and without missing values on the total score of the feeling thermometer did not differ significantly from one another on relationship status or English proficiency. However, no

participants reported that they could not understand written and spoken English, therefore missing value analysis could not be completed for this demographic variable. The results of the analysis of the missing value suggested that the eight participants with missing values on the total score of the feeling thermometer were missing completely at random. As a result, listwise deletion was used, resulting in a sample of 130 for these analyses.

Furthermore, out of range values were screened for scores on all variables. All scores appeared to be within the range of possible scores for each variable. Univariate outliers were examined through the inspection of *z*-scores on each variable. *Z*-scores were created and examined for any *z*-score exceeding +/-3.29. There was one extreme univariate outlier on the GVQ-R and one on the VBS. Rank order was maintained, and the highest score on both the GVQ-R and the VBS were reduced to bring them closer to the rest of the variables in the distribution. Once transformed, *z*-scores for each new variable were examined again to ensure that no outlying values remained. No other univariate outliers were found for each variable (i.e., GVQ-R and VBS). The data were then examined for multivariate outliers using Mahalanobis distance values. For correlational analysis, no Mahalanobis distance values exceeding the cut off value of 13.82 for two predictors (Tabachnick & Fidell, 2007) were found when examining the correlations between implicit and explicit violent self-concept or self-reported violent behaviour. In addition, skew and kurtosis ratios were examined to check for the normality of each variable in order to fulfil the assumptions of Pearson's *r* correlation. *Z*-scores exceeding +/-3.29 were considered significantly skewed and kurtotic and were calculated by dividing the skewness and kurtosis by their respective standard error. The distributions for variables were not significantly kurtotic; however, the GVQ-R and the VBS were considered to be positively skewed. Linearity

and homoscedasticity were visually examined using scatter plots. All relationships appeared to be homoscedastic, and all relationships appeared to be linear.

Mahalanobis distance values were also examined for the possible regression analyses run by comparing each distance to a cut off score of 16.27 for three variables (Tabachnick & Fidell, 2007). No Mahalanobis distance values were found to exceed 16.27 for any of the regression analyses; therefore, no multivariate outliers were found. In addition, the assumptions of regression analyses were checked to ensure they were upheld for the hierarchical multiple regressions that were run. All variable combinations to be entered into the regression analysis were screened for multicollinearity by examining correlations and variance inflation factors (VIF). None of the regression combinations produced a VIF statistic below 10, suggesting the assumption was not violated. None of the bivariate correlations exceeded .70; thus, collinearity between predictors was not a concern (Tabachnick & Fidell, 2013). Homoscedasticity and linearity of the relation between the independent variables (i.e., total scores on the VSC-IATD, feeling thermometer, and semantic differential scales) and the outcomes (i.e., total scores on the GVQ-R and the VBS) were assessed using scatter plots of the standardized residuals on the y-axis and standardized predicted values on the x-axis. Visual inspection of the scatter plots showed that the relationship between the set of predictors and the outcomes appeared linear for all regression combinations. The errors for each regression appeared to have an even spread across all values of each predictor variable. This suggests that homoscedasticity was upheld.

The independence of residuals was examined using Durbin-Watson values. A score close to 2 is assumed to signify the independence of residuals. Independence of residuals was found for the hierarchical regression that included VSC-IATD total scores and total scores on the feeling thermometer as predictors and total scores on the GVQ-R as the outcome (Durbin-

$\text{Watson} = 2.07$ ). Again, independence of residuals was found for the hierarchical regression that included total scores on the VSC-IATD and total scores on the semantic differential scales as predictors and total scores on the GVQ-R as the outcome ( $\text{Durbin-Watson} = 1.92$ ). However, independence of residuals was not found for the hierarchical regressions, including total scores on the VSC-IATD and total scores on the feeling thermometer or total scores on the semantic differential scales as predictors and total scores on the VBS as the outcome (i.e., Durbin-Watson values were 1.88 and 1.70, respectively). Last, the normality of residuals was examined using scatterplots to screen for violations of homoscedasticity. Possible homoscedasticity was found for each regression; however, transformations were not conducted as regression tends to be robust to this violation.

#### ***Relationship Between Implicit Violent Self-Concept and Violent Behaviour***

Pearson  $r$  correlations between the VSC-IATD total scores and the total scores on the GVQ-R and the VBS were independently conducted to assess the relationship between implicit violent self-concept and violent behaviour. As seen in Table 2, no significant correlation was found between implicit violent self-concept, as assessed by the VSC-IATD total scores, and self-reported violent behaviour, as assessed by total scores on the GVQ-R ( $p > .05$ ) and total scores on the VBS ( $p > .05$ ). Because the VSC-IATD is not significantly correlated with the violent behaviour measures, regression analyses will not be conducted to test the extent to which implicit and explicit violent self-concept are independently associated with violent behaviour.

#### ***Relationship Between Explicit Violent Self-Concept and Violent Behaviour***

Pearson  $r$  correlations between total scores on the feeling thermometer and semantic differential scales and total scores on the GVQ-R and VBS were conducted to examine the relationship between explicit violent self-concept and violent behaviour. As seen in Table 2, a

significant, positive, and strong correlation was found between total scores on the feeling thermometer and total scores on the GVQ-R, as well as total scores on the feeling thermometer and total scores on the VBS. Another significant, positive, and moderate correlation was found between total scores on the violent semantic differential scale and total scores on the GVQ-R, as well as the aggressive semantic differential scale and total scores on the GVQ-R. Furthermore, a significant positive and moderate correlation was found between total scores on the violent semantic differential scale and total scores on the VBS, as well as the aggressive semantic differential scale and total scores on the VBS.

### ***Relationship Between Implicit and Explicit Violent Self-Concept***

Pearson  $r$  correlations between the VSC-IATD total scores and the total scores on the feeling thermometer and the two semantic differential scales were conducted to assess the relationship between implicit and explicit violent self-concept. As can be seen in Table 2, a non-significant, weak, and positive correlation was found between implicit violent self-concept, as assessed by the VSC-IATD total scores, and explicit violent self-concept as assessed by the feeling thermometer ( $p > .05$ ) and the violent and aggressive semantic differential scales ( $p > .05$ ).

**Table 2**

*Correlations Between Total GVQ-R Scores, Total VBS Scores, Total Semantic Differential Scales Scores, Total Feeling Thermometer Scores, and Total VSC-IATD Scores*

Measure	GVQ-R	VBS	SD-V	SD-A	FT	VSC-IATD
GVQ-R	-					
VBS	.68***	-				
SD-V	.32***	.42***	-			
SD-A	.43***	.48***	.72***	-		
FT	.53***	.51***	.59***	.67***	-	
VSC-IATD	.10	.13	.03	.09	.002	-
<i>M</i>	18.59	6.50	2.60	2.78	27.60	-.48
<i>SD</i>	17.19	6.66	1.09	1.21	19.04	.45

*Note.* GVQ-R = total scores on the Generality of Violence Questionnaire-Revised. VBS = total scores on the Violent Behaviour Scale. SD-V = total scores on the Violent Semantic Differential Scale. SD-A = total scores on the Aggressive Semantic Differential Scale. FT = total scores on the Feeling Thermometer. VSC-IATD = Violent Self-Concept Implicit Association Test *D*. *M* = mean. *SD* = standard deviation.

\**p* < .05. \*\**p* < .01. \*\*\**p* < .001.

## Discussion

The purpose of this study was to gain a better understanding of the relationship between implicit and explicit violent self-concept and self-reported violent behaviour. In a sample of 138 male undergraduate students at Carleton University in Ottawa, Ontario, Canada, implicit violent self-concept was not related to self-reported violent behaviour; however, more positive explicit violent self-concept was related to more prior self-reported violent behaviour. Therefore, these hypotheses were only partially supported as it was expected that more positive implicit violent self-concept would be related to more prior self-reported violent behaviour. Furthermore,

implicit violent self-concept and explicit violent self-concept were not related to one another. This hypothesis was not supported as it was expected that more positive implicit violent self-concept and more positive explicit violent self-concept would be related to one another. It was further expected that implicit and explicit violent self-concept would account for incremental variance in self-reported violent behaviour. However, because only the explicit measures of violent self-concept were significantly correlated with the violent behaviour measures, regression analyses were not conducted to test the extent to which implicit and explicit violent self-concept are independently associated with violent behaviour. Thus, no support was found for this hypothesis.

The results imply that implicit violent self-concept may not be associated with self-reported violent behaviour as significance was not found on any analyses involving the implicit violent self-concept measure (i.e., VSC-IATD) and correlations were close to zero. It remains subject to debate whether IATs truly measure associations as alleged by Greenwald et al. (1998) or additional unknown processes (for an overview, see Gawronski et al., 2011). The IAT used in this study is based on the assumption that self-concept can be defined as the association between concepts and is designed to measure the relative strength of that association (Greenwald et al., 2002). Critics of the IAT have suggested that the difficulty of the classification task may confound IAT findings (Brendl et al., 2001); however, the pilot study that was conducted ensured that stimulus words were classified with ease. This served to increase the accuracy of results and to reduce error in the design. By reducing ambiguity when classifying stimuli, a faster reaction time is produced and decreases error variance. A decrease in error variance makes it easier to determine if implicit violent self-concept is truly related to self-reported violent behaviour. Although, response patterns may be confounded with other factors such as a

participant's cognitive ability (McFarland & Crouch, 2002). Despite the need for more solid psychometric footing, there is a growing body of evidence for the divergent and predictive validity of IATs (for an overview, see Greenwald et al., 2009). Moreover, data were directly collected using the same computer-based platform, ensuring the computer speed and web browser chosen were identical for each participant to reduce the external influence on the IAT data. However, an alternative explanation for this finding may be related to the validity of scores on both self-reported violent behaviour measures. The GVQ-R was a modified version of the Generality of Violence Questionnaire (GVQ; Holtzworth-Munroe et al., 2000), and the Violent Behaviour Scale (VBS; Nunes et al., 2015) is a relatively new measure. Neither measure have had its validity tested; therefore, it remains possible that the self-reported violent behaviour measures may not truly reflect violent behaviour and thus did not properly test the proposed research questions. Although the VBS has not been validated *per se*, it has been administered in prior studies to assess self-reported violent behaviour (Nunes et al., 2015).

The results of this research provide supporting evidence of a significant relationship between explicit violent self-concept and self-reported violent behaviour. Our findings highlight that more positive explicit violent self-concept was related to more self-reported violent behaviour. More specifically, there was a medium but positive correlation between the semantic differential scales and self-reported violent behaviour for both self-reported outcomes. Nevertheless, it is not possible to draw conclusions regarding the direction of the association between explicit violent self-concept and self-reported violent behaviour as the current study was cross-sectional in nature. To this extent, there are three plausible interpretations of the results: (1) explicit violent self-concept had a causal influence on self-reported violent behaviour; (2) self-reported violent behaviour had a causal influence on explicit violent self-concept; (3) something

else had a causal influence on both explicit violent self-concept and self-reported violent behaviour, such that explicit violent self-concept did not have a causal influence on self-reported violent behaviour. Furthermore, when self-report data are used, it introduces the possibility of social-desirability bias, where participants want to ‘look good’ in the survey, even if the survey is anonymous. Relying on an individual to self-report may be problematic because violent behaviour is stigmatized in most societies; therefore, individuals may be inclined to minimize or deny any violent thoughts. However, most participants reported at least some violent behaviour indicating that social-desirability bias was not an issue in the self-report measures of violent behaviour. In an effort to promote sincere responses on self-report measures in the current study, anonymity and confidentiality of participants’ identity was protected by ensuring that identifying information (e.g., name) was not on any materials or data collected, and the list of recruited participants was stored separately.

In addition to social-desirability bias, the numerical rating scales used on the explicit violent self-concept measures may also be inexact and subject to individual inclination to give an extreme or middle response to all questions (Moors, 2008). In spite of self-report skepticism, there is evidence that violent behaviour can be assessed accurately with self-report measures, indicating a high agreement between self-reported and official criminal records (Kroner et al., 2007; Thornberry & Krohn, 2000; Woods et al., 2011). This finding is supported when predicting violent recidivism (Kuriychuk, 1990) and general recidivism (Huizinga & Elliot, 1986; Jones & Miller, 2012). Moreover, explicit violent self-concept, as assessed by the semantic differential scale and feeling thermometer, and measures of self-reported violent behaviour, as assessed by the GVQ-R and VBS, were significantly related to one another. This provides

evidence of the association between explicit violent self-concept and self-reported violent behaviour.

Minimal research has been conducted on the tandem use of violent self-concept IATs and measures of self-reported violent behaviour. Our pattern of results is somewhat inconsistent with the limited previous literature. For instance, Bleumke and Zumbach (2012) found that an aggressiveness-IAT was related to the Buss and Perry (1992) aggression questionnaire (BPAQ), a direct self-report measure of aggressiveness. This was found for the physical subscale, hostility subscale, and the total score in a sample of 144 male psychology undergraduate students. This finding is of particular interest as it is remarkably similar to the current sample of 138 male psychology undergraduate students. The disagreement in findings with the present study may be attributed to the fact that Bleumke and Zumbach (2012) administered a single target IAT (ST-IAT; Wigboldus et al., 2004) as opposed to the original IAT used in this study. The ST-IAT largely follows the same logic as the IAT, but instead of two target categories (e.g., *Self-Other*), it is limited to one target category with *Me, I, Mine* as stimuli representing the *Self* category. Furthermore, Banse et al. (2015) found that after controlling for self-report measures of aggressiveness, the aggressiveness IAT accounted for 9-15% of the variance in three different indicators of self-reported aggressive behaviour.

However, in line with the present findings, Richetin et al. (2010) found that the implicit measure of aggressiveness was not associated with aggressive behaviour; although, it was significantly associated in response to provocation. Thus, future studies may want to consider provocation as a moderator in the relationship between implicit violent self-concept and self-reported violent behaviour. It is important to note, however, that Richetin et al. (2010) did not use the typical items to represent IAT categories. Rather, they used eight stimuli to identify each

category; for instance, *Me* (e.g., PhD/student), *Harmless* (e.g., appreciate), *Harmful-direct* (e.g., brutalize), and *Harmful-indirect* (e.g., discredit). As mentioned, the selection of IAT categories can possibly alter the IAT effect, and future studies may want to keep this in mind.

Meta-analytic research has found that implicit and explicit self-concept are related but unique constructs, and when combined, they provide complementary information that predicts behaviour (Nosek & Smyth, 2007). However, the present study is inconsistent with this claim as implicit and explicit violent self-concept was not found to be related. Although, the current finding is somewhat similar to that of Banse et al. (2015), who found that an aggressive self-concept IAT was associated with aggressive behaviour as measured by penalty time-outs of rough ice hockey players, though explicit measures were not associated. However, the measures of self-reported aggressiveness used in the research above tend to rely on indicators of aggressive behaviour. The extent to which these measures directly assess self-reported aggressive behaviour is unclear and may explain the discrepancy in findings.

In line with previous evidence, explicit violent self-concept was related to self-reported violent behaviour. This pattern of results is consistent with Nunes et al. (2015), who found that explicit violent self-concept, as measured by semantic differential scales, was substantially related to self-reported aggressive behaviour, as measured by the Violent Behaviour Scale (VBS; Nunes et al., 2015). However, Richetin et al. (2010) found that explicit measures of self-concept were not significantly predictive of aggressive behaviour in 77 undergraduate psychology students. However, the current study had a larger sample size ( $N = 138$ ) than that of Richetin et al. (2010), which may explain the divergence in findings. However, other laboratory studies have successfully found an association between explicit measures and direct aggressive behaviour (Bushman, 1995; Hammock & Richardson, 1992).

The current findings provide further support for the relevance of cognitions and self-reported violent behaviour from the theories mentioned previously. For example, the general aggression model (GAM; Anderson & Bushman, 2002) suggests that person and situation inputs provide the most direct pathway for aggressive and violent behaviour due to their influence on internal states. More specifically, aggressive individuals are more likely to retrieve aggressive behavioural scripts for social behaviour and assume the role (i.e., aggressive self-concept; Huesmann, 1998). This was demonstrated when explicit violent self-concept was correlated with self-reported violent behaviour. Although this was not true for implicit violent self-concept, these findings still may support the GAM. The GAM posits that aspects of a specific situation may influence whether aggression occurs (i.e., situation inputs). Richetin et al. (2010) found that an implicit measure of aggressiveness was significantly predictive of aggressive behaviour following provocation. This concept suggests that an individual relies on previous behavioural scripts to represent a situation in which they assume the actor's role or self-concept in that specific script, and the situation dictates where the outcome of violence is likely.

The only implication that followed logically from the results of the study with regard to self-concept was that more rigorous research should be done to determine if implicit and explicit violent self-concept has any causal influence on self-reported violent behaviour as causation could not be inferred. As a result, the results do not suggest that implicit or explicit violent self-concept is an important factor when assessing, detecting, and treating violent individuals. In addition, the results do not suggest that a change in implicit and explicit violent self-concept can predict, change, or reduce the likelihood of violent behaviour. More rigorous research should be completed on varying populations (e.g., criminal offenders) and age groups to strengthen the external validity.

There are some limitations of the current study that need to be acknowledged. As mentioned, the internal validity of the current study is weak as a causal conclusion regarding the relationship between implicit and explicit violent self-concept and self-reported violent behaviour could not be inferred as the research design was cross-sectional and retrospective in nature. The variables for implicit and explicit violent self-concept were not manipulated; therefore, inferences cannot be made to determine whether implicit or explicit violent self-concept caused self-reported violent behaviour. It remains a possibility that prior violent behaviour causes more implicit or explicit violent self-concept, although this too remains undetermined. Moreover, confounds were not controlled for, and an alternative explanation such as cognitive ability (McFarland & Crouch, 2002) or provocation (Richetin et al., 2010) may be the cause. However, the self-report measures used to assess violent behaviour increase the confidence that the data obtained is accurate because self-report measures are associated with violent behaviour (Bushman, 1995; Hammock & Richardson, 1992) and may allow for greater variance than that of offender data (e.g., criminal records).

Furthermore, interpretation of the results needs to be tempered by the use of a student sample as it is presumed that a student sample would report fewer instances of violent behaviour than that of an offender sample. Therefore, there is no way to determine whether the same relationship or lack of relationship would be found among offenders when assessing the relationship between implicit and explicit violent self-concept and self-reported violent behaviour. However, a number of the studies mentioned above use a student sample. As such, these results may be generalized to a male undergraduate student population. There is also minimal direct evidence regarding the construct validity of the implicit and explicit measures of violent self-concept. Another limitation is derived from the lack of significant findings when

assessing scores on the IAT. Unlike the two explicit measures used in the study, the IAT was the only measure administered to assess implicit violent self-concept. Unfortunately, this did not allow for comparisons to determine whether scores on the implicit violent self-concept measure converged with additional measures designed to assess implicit violent self-concept. It remains possible that the IAT measure selected for this study did not assess implicit violent self-concept. However, the methodology used to assess implicit and explicit self-concept in the current study is frequently used in social psychology research and has demonstrated good reliability (Grumm et al., 2011; Richetin & Richardson; 2008). Another limitation is that some of the measures used were revised or newly created (i.e., the GVQ-R and the VBS, respectively). However, the GVQ-R and the VBS displayed moderate to high internal consistency for both the pilot and primary studies. Although, based on the data analysis, it can be determined with confidence that the results accurately reflect the statistical significance, or lack thereof, and strength of the association between implicit and explicit violent self-concept and self-reported violent behaviour. The VBS and the GVQ-R did show one extreme outlier each; however, the scores were successfully transformed to reduce them. Furthermore, the sample size ensured adequate power for a correlation with a moderate effect size.

To improve causal conclusions regarding the association between implicit and explicit violent self-concept and self-reported violent behaviour, more informative future research is needed. For instance, future research should focus on longitudinal research designs to allow for a stronger predictive conclusion. Collecting data for a significant portion of a participant's life span would allow a change in implicit and explicit violent self-concept to be assessed and determine the correlation to future violent behaviour. Furthermore, the use of randomized experiments would allow for the manipulation and control of variables (e.g., implicit violent self-

concept) for a more causal interpretation to be drawn. In addition, the sample should include greater diversity beyond male undergraduate students and include a sample of offenders who are presumably more likely to have committed violent acts. Future studies should also attempt to match participant groups on as many key characteristics as possible to control for confounding in the study (e.g., cognitive ability). Furthermore, future studies should include additional implicit violent self-concept measures in an attempt to test the convergent validity of scores on the current IAT measure with scores on additional measures designed to assess implicit violent self-concept.

Moreover, future research should assess the constructs that are being assessed by the implicit and explicit measures of violent self-concept by using factor analysis to assess whether the current measures load onto the same factor as other measures known to assess implicit and explicit violent self-concept. This would help to determine whether the implicit and explicit measures used in the current study assess a construct similar to self-reported violent behaviour. Future research questions should attempt to examine confounds related to implicit violent self-concept and self-reported violent behaviour, such as deficits in cognitive ability (McFarland & Crouch, 2002). As mentioned, if participants experience ambiguity when classifying stimuli, it will produce slower reaction times and increase the error variance. Furthermore, moderators related to this relationship, such as the situation, setting, or social context in which the violent behaviours occur, should be further investigated. For instance, theories such as the GAM highlight the importance of situation inputs and provocation has been shown to influence violent behaviour (Richetin et al., 2010).

### **Summary and Conclusions**

The purpose of the current study was to examine the relationship between implicit and explicit violent self-concept and self-reported violent behaviour. Analyses were conducted in an attempt to extend findings from prior studies assessing implicit and explicit violent self-concept and self-reported violent behaviour to determine whether implicit and explicit measures of violent self-concept are related and whether they are associated with violent behaviour and whether implicit and explicit violent self-concept are independently associated with violent behaviour. It was expected that implicit and explicit measures of violent self-concept would be related and would be associated with self-reported violent behaviour and that implicit violent self-concept, independent from explicit violent self-concept, would be related to self-reported violent behaviour. The results of the current study suggest that implicit and explicit violent self-concepts are not related. Furthermore, implicit violent self-concept was not associated with violent behaviour on either of the self-report measures. As a result, the extent to which implicit and explicit violent self-concepts are independently associated with violent behaviour could not be assessed. However, both explicit measures of violent self-concept were found to be associated with both measures of self-reported violent behaviour.

These findings provide a more comprehensive understanding of the role that violent self-concept plays in the commission of violent behaviour and suggests that implicit violent self-concept may not be an important risk factor associated with self-reported violent behaviour. Future research should be done to replicate these findings by including additional implicit violent self-concept measures in an attempt to test the convergent validity of the IAT measure in order to verify these results. However, explicit violent self-concept does appear to play an important role in the commission of self-reported violent behaviour. Moreover, these findings shed light on the

association between implicit and explicit violent self-concept and suggest that implicit and explicit measures of violent self-concept are not related. Future research should extend these findings by assessing whether the implicit and explicit measures used in the current study assess a construct similar to self-reported violent behaviour. In conclusion, the present study adds to the literature by extending the limited research conducted to date on the relationship between implicit and explicit violent self-concept and self-reported violent behaviour.

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## Appendix A

### Certification of Institutional Ethics Clearance



Office of Research Ethics  
4500 ARISE Building | 1125 Colonel By Drive  
Ottawa, Ontario K1S 5B6  
613-520-2600 Ext: 2517  
[ethics@carleton.ca](mailto:ethics@carleton.ca)

#### CERTIFICATION OF INSTITUTIONAL ETHICS CLEARANCE

The Carleton University Research Ethics Board-B (CUREB-B) has granted ethics clearance for the changes to protocol to research project described below and research may now proceed. CUREB-B is constituted and operates in compliance with the *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans* (TCPS2).

**Ethics Clearance ID:** Project # 105032 14-052

**Principal Investigator:** Kevin Nunes

**Co-Investigator(s) (If applicable):** Kevin Nunes (Primary Investigator)  
Maya Atlas (Student Researcher)  
Heather Burke (Student Research: Master's Student)

**Project Title:** The relationship between implicit and explicit violent self-concept and violent behaviour

**Funding Source:**

Effective: December 10, 2020

Expires: January 31, 2021.

**This certification is subject to the following conditions:**

1. Clearance is granted only for the research and purposes described in the application.
2. Any modification to the approved research must be submitted to CUREB-B via a Change to Protocol Form. All changes must be cleared prior to the continuance of the research.
3. An Annual Status Report for the renewal or closure of ethics clearance must be submitted and cleared by the renewal date listed above. Failure to submit the Annual Status Report will result in the closure of the file. If funding is associated, funds will be frozen.
4. During the course of the study, if you encounter an adverse event, material incidental finding, protocol deviation or other unanticipated problem, you must complete and submit a Report of Adverse Events and Unanticipated Problems Form.
5. It is the responsibility of the student to notify their supervisor of any adverse events, changes to their application, or requests to renew/close the protocol.

6. Failure to conduct the research in accordance with the principles of the *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans 2nd edition* and the *Carleton University Policies and Procedures for the Ethical Conduct of Research* may result in the suspension or termination of the research project.

**Special requirements for COVID-19:**

If this study involves in-person research interactions with human participants, whether on- or off-campus, the following rules apply:

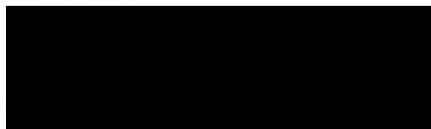
1. Upon receiving clearance from CUREB, please seek the approval of the relevant Dean for your research. Provide a copy of your CUREB clearance to the Dean for their records. See [Principles and Procedures for On-campus Research at Carleton University](#) and note that this document applies both to on- and off-campus research that involves human participants. Please contact your Dean's Office for more information about obtaining their approval.
2. Provide a copy of the Dean's approval to the Office of Research Ethics prior to starting any in-person research activities.
3. If the Dean's approval requires any significant change(s) to any element of the study, you must notify the Office of Research Ethics of such change(s).

Upon reasonable request, it is the policy of CUREB, for cleared protocols, to release the name of the PI, the title of the project, and the date of clearance and any renewal(s).

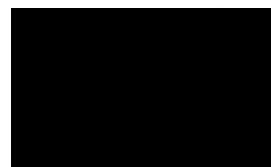
Please email the Research Compliance Coordinators at [ethics@carleton.ca](mailto:ethics@carleton.ca) if you have any questions.

**CLEARED BY:**

**Date: December 10, 2020**



Bernadette Campbell, PhD., Chair, CUREB-B



Natasha Artemeva, PhD, Vice-Chair, CUREB-B

## Appendix B

### Stimuli Ratings for Violent and Non-Violent Words

**Please rate whether the following words are “violent” or “non-violent”:**

**1) ATTACK**

Violent	Neither	Non-violent
---------	---------	-------------

**2) HIT**

Violent	Neither	Non-violent
---------	---------	-------------

**3) HURT**

Violent	Neither	Non-violent
---------	---------	-------------

**4) KILL**

Violent	Neither	Non-violent
---------	---------	-------------

**5) MURDER**

Violent	Neither	Non-violent
---------	---------	-------------

**6) STAB**

Violent	Neither	Non-violent
---------	---------	-------------

**7) STRANGLE**

Violent	Neither	Non-violent
---------	---------	-------------

**8) CLUB**

Violent	Neither	Non-violent
---------	---------	-------------

**9) SCREAM AT**

Violent	Neither	Non-violent
---------	---------	-------------

**10) THREATEN**

Violent	Neither	Non-violent
---------	---------	-------------

**11) QUARREL**

Violent	Neither	Non-violent
---------	---------	-------------

**12) ANGRY WITH**

Violent	Neither	Non-violent
---------	---------	-------------

**13) AGGRESSIVE**

Violent	Neither	Non-violent
---------	---------	-------------

**14) FIGHT**

Violent	Neither	Non-violent
---------	---------	-------------

**15) BLOW**

Violent	Neither	Non-violent
---------	---------	-------------

**16) REVENGE**

Violent	Neither	Non-violent
---------	---------	-------------

**17) BRAWL**

Violent	Neither	Non-violent
---------	---------	-------------

**18) ASSAULT**

Violent	Neither	Non-violent
---------	---------	-------------

**19) PUNCH**

Violent	Neither	Non-violent
---------	---------	-------------

	Violent	Neither	Non-violent
20) <b>SMASH</b>	Violent	Neither	Non-violent
21) <b>INJURE</b>	Violent	Neither	Non-violent
22) <b>SMACK</b>	Violent	Neither	Non-violent
23) <b>SCRAP</b>	Violent	Neither	Non-violent
24) <b>BEAT UP</b>	Violent	Neither	Non-violent
25) <b>KICK</b>	Violent	Neither	Non-violent
26) <b>CHOKE</b>	Violent	Neither	Non-violent
27) <b>SHOVE</b>	Violent	Neither	Non-violent
28) <b>TORTURE</b>	Violent	Neither	Non-violent
29) <b>YELL</b>	Violent	Neither	Non-violent
30) <b>SMOTHER</b>	Violent	Neither	Non-violent
31) <b>LYNCH</b>	Violent	Neither	Non-violent
32) <b>SUFFOCATE</b>	Violent	Neither	Non-violent
33) <b>VIOLENCE</b>	Violent	Neither	Non-violent
34) <b>VIOLENT</b>	Violent	Neither	Non-violent
35) <b>CALM</b>	Violent	Neither	Non-violent
36) <b>DOVE</b>	Violent	Neither	Non-violent
37) <b>PEACE</b>	Violent	Neither	Non-violent
38) <b>QUIET</b>	Violent	Neither	Non-violent
39) <b>REST</b>	Violent	Neither	Non-violent
40) <b>SLEEP</b>	Violent	Neither	Non-violent

41) <b>TRANQUIL</b>	Violent	Neither	Non-violent
42) <b>WHISPER</b>	Violent	Neither	Non-violent
43) <b>CARESS</b>	Violent	Neither	Non-violent
44) <b>CUDDLE</b>	Violent	Neither	Non-violent
45) <b>LAUGH</b>	Violent	Neither	Non-violent
46) <b>TALK</b>	Violent	Neither	Non-violent
47) <b>LOVE</b>	Violent	Neither	Non-violent
48) <b>TRUST</b>	Violent	Neither	Non-violent
49) <b>SETTLE</b>	Violent	Neither	Non-violent
50) <b>CALM DOWN</b>	Violent	Neither	Non-violent
51) <b>PEACEFUL</b>	Violent	Neither	Non-violent
52) <b>COMPROMISE</b>	Violent	Neither	Non-violent
53) <b>AGREE</b>	Violent	Neither	Non-violent
54) <b>RECONCILIATION</b>	Violent	Neither	Non-violent
55) <b>GIVE IN</b>	Violent	Neither	Non-violent
56) <b>MAKE PEACE</b>	Violent	Neither	Non-violent
57) <b>SERENITY</b>	Violent	Neither	Non-violent
58) <b>HARMONY</b>	Violent	Neither	Non-violent
59) <b>PATIENCE</b>	Violent	Neither	Non-violent
60) <b>SCREAMING</b>	Violent	Neither	Non-violent
61) <b>YELLING</b>	Violent	Neither	Non-violent
62) <b>ANGRY</b>			

	Violent	Neither	Non-violent
63) <b>KILLER</b>	Violent	Neither	Non-violent
64) <b>MURDERER</b>	Violent	Neither	Non-violent
65) <b>FIGHTER</b>	Violent	Neither	Non-violent
66) <b>BRAWLER</b>	Violent	Neither	Non-violent
67) <b>HOSTILE</b>	Violent	Neither	Non-violent
68) <b>VICIOUS</b>	Violent	Neither	Non-violent
69) <b>MALICIOUS</b>	Violent	Neither	Non-violent
70) <b>AGREEABLE</b>	Violent	Neither	Non-violent
71) <b>COMPASSIONATE</b>	Violent	Neither	Non-violent
72) <b>EMPATHETIC</b>	Violent	Neither	Non-violent
73) <b>SYMPATHETIC</b>	Violent	Neither	Non-violent
74) <b>PLEASANT</b>	Violent	Neither	Non-violent
75) <b>PASSIVE</b>	Violent	Neither	Non-violent
76) <b>PACIFIST</b>	Violent	Neither	Non-violent
77) <b>HELPFUL</b>	Violent	Neither	Non-violent
78) <b>RELAXED</b>	Violent	Neither	Non-violent
79) <b>PATIENT</b>	Violent	Neither	Non-violent
80) <b>AGGRESSION</b>	Violent	Neither	Non-violent
81) <b>CANCER</b>	Violent	Neither	Non-violent
82) <b>DISASTER</b>	Violent	Neither	Non-violent
83) <b>POLLUTION</b>	Violent	Neither	Non-violent

<b>84) POVERTY</b>	Violent	Neither	Non-violent
<b>85) SICKNESS</b>	Violent	Neither	Non-violent
<b>86) UGLY</b>	Violent	Neither	Non-violent
<b>87) VOMIT</b>	Violent	Neither	Non-violent
<b>88) STINK</b>	Violent	Neither	Non-violent
<b>89) POISON</b>	Violent	Neither	Non-violent
<b>90) ILL</b>	Violent	Neither	Non-violent
<b>91) DECEITFUL</b>	Violent	Neither	Non-violent
<b>92) DISEASE</b>	Violent	Neither	Non-violent
<b>93) UNLOYAL</b>	Violent	Neither	Non-violent
<b>94) MEAN</b>	Violent	Neither	Non-violent
<b>95) EVIL</b>	Violent	Neither	Non-violent
<b>96) ROTTEN</b>	Violent	Neither	Non-violent
<b>97) HONEST</b>	Violent	Neither	Non-violent
<b>98) JOKE</b>	Violent	Neither	Non-violent
<b>99) LAUGH</b>	Violent	Neither	Non-violent
<b>100) LUCKY</b>	Violent	Neither	Non-violent
<b>101) JOY</b>	Violent	Neither	Non-violent
<b>102) NICE</b>	Violent	Neither	Non-violent
<b>103) LAUGHTER</b>	Violent	Neither	Non-violent
<b>104) PLACID</b>	Violent	Neither	Non-violent
<b>105) LOVE</b>	Violent	Neither	Non-violent

	Violent	Neither	Non-violent
106) <b>PRESENT</b>	Violent	Neither	Non-violent
107) <b>HOPE</b>	Violent	Neither	Non-violent
108) <b>HEALTH</b>	Violent	Neither	Non-violent
109) <b>GIFTED</b>	Violent	Neither	Non-violent
110) <b>HAPPY</b>	Violent	Neither	Non-violent
111) <b>VACATION</b>	Violent	Neither	Non-violent
112) <b>SMILE</b>	Violent	Neither	Non-violent
113) <b>RAINBOW</b>	Violent	Neither	Non-violent
114) <b>SUNSHINE</b>	Violent	Neither	Non-violent
115) <b>PARADISE</b>	Violent	Neither	Non-violent
116) <b>FREEDOM</b>	Violent	Neither	Non-violent
117) <b>BEAUTIFUL</b>	Violent	Neither	Non-violent
118) <b>GOOD</b>	Violent	Neither	Non-violent
119) <b>ACCIDENT</b>	Violent	Neither	Non-violent
120) <b>THEY</b>	Violent	Neither	Non-violent
121) <b>MY</b>	Violent	Neither	Non-violent
122) <b>THEM</b>	Violent	Neither	Non-violent
123) <b>MYSELF</b>	Violent	Neither	Non-violent
124) <b>IT</b>	Violent	Neither	Non-violent
125) <b>MINE</b>	Violent	Neither	Non-violent
126) <b>THEIR</b>	Violent	Neither	Non-violent

<b>127) SELF</b>	Violent	Neither	Non-violent
<b>128) ME</b>	Violent	Neither	Non-violent
<b>129) OTHERS</b>	Violent	Neither	Non-violent
<b>130) OWN</b>	Violent	Neither	Non-violent
<b>131) YOU</b>	Violent	Neither	Non-violent
<b>132) OTHER</b>	Violent	Neither	Non-violent
<b>133) YOURS</b>	Violent	Neither	Non-violent
<b>134) I</b>	Violent	Neither	Non-violent
<b>135) YOUR</b>	Violent	Neither	Non-violent

**Stimuli:**

Violent: Attack, hit, hurt, kill, murder, stab, strangle, club, scream at, threaten, quarrel, angry with, aggression, aggressive, fight, blow, revenge, brawl, assault, punch, smash, injure, smack, scrap, beat up, kick, choke, shove, torture, yell, lynch, smother, suffocate, violence, violent, screaming, yelling, angry, killer, murderer, fighter, brawler, hostile, vicious, malicious.

Non-violent: Calm, dove, peace, peaceful, quiet, rest, sleep, tranquil, whisper, caress, cuddle, laugh, talk, love, trust, settle, calm down, compromise, agree, reconciliation, give in, make peace, serenity, harmony, patience, placid, agreeable, compassionate, empathetic, sympathetic, pleasant, passive, pacifist, helpful, relaxed, patient.

Negative: Accident, cancer, disaster, pollution, poverty, sickness, ugly, vomit, stink, poison, ill, deceitful, disease, unloyal, mean, rotten, evil.

Positive: Beautiful, good, honest, joke, laugh, lucky, joy, nice, laughter, love, happy, present, hope, health, gifted, vacation, rainbow, smile, sunshine, paradise, freedom.

Self: Me, mine, self, I, own, my, myself.

Other: Others, you, yours, they, their, them, it, your, other.

## Appendix C

### Stimuli Ratings for Positive and Negative Words

Please rate whether the following words are “positive” or “negative”:

<b>1) ATTACK</b>		
Positive	Neither	Negative
<b>2) HIT</b>		
Positive	Neither	Negative
<b>3) HURT</b>		
Positive	Neither	Negative
<b>4) KILL</b>		
Positive	Neither	Negative
<b>5) MURDER</b>		
Positive	Neither	Negative
<b>6) STAB</b>		
Positive	Neither	Negative
<b>7) STRANGLE</b>		
Positive	Neither	Negative
<b>8) CLUB</b>		
Positive	Neither	Negative
<b>9) SCREAM AT</b>		
Positive	Neither	Negative
<b>10) THREATEN</b>		
Positive	Neither	Negative
<b>11) QUARREL</b>		
Positive	Neither	Negative
<b>12) ANGRY WITH</b>		
Positive	Neither	Negative
<b>13) AGGRESSIVE</b>		
Positive	Neither	Negative
<b>14) FIGHT</b>		
Positive	Neither	Negative
<b>15) BLOW</b>		
Positive	Neither	Negative
<b>16) REVENGE</b>		
Positive	Neither	Negative
<b>17) BRAWL</b>		
Positive	Neither	Negative
<b>18) ASSAULT</b>		
Positive	Neither	Negative

19) <b>PUNCH</b>		
Positive	Neither	Negative
20) <b>SMASH</b>		
Positive	Neither	Negative
21) <b>INJURE</b>		
Positive	Neither	Negative
22) <b>SMACK</b>		
Positive	Neither	Negative
23) <b>SCRAP</b>		
Positive	Neither	Negative
24) <b>BEAT UP</b>		
Positive	Neither	Negative
25) <b>KICK</b>		
Positive	Neither	Negative
26) <b>CHOKE</b>		
Positive	Neither	Negative
27) <b>SHOVE</b>		
Self	Neither	Other
28) <b>TORTURE</b>		
Positive	Neither	Negative
29) <b>YELL</b>		
Positive	Neither	Negative
30) <b>SMOTHER</b>		
Positive	Neither	Negative
31) <b>LYNCH</b>		
Positive	Neither	Negative
32) <b>SUFFOCATE</b>		
Positive	Neither	Negative
33) <b>VIOLENCE</b>		
Positive	Neither	Negative
34) <b>VIOLENT</b>		
Positive	Neither	Negative
35) <b>CALM</b>		
Positive	Neither	Negative
36) <b>DOVE</b>		
Positive	Neither	Negative
37) <b>PEACE</b>		
Positive	Neither	Negative
38) <b>QUIET</b>		
Positive	Neither	Negative
39) <b>REST</b>		
Positive	Neither	Negative
40) <b>SLEEP</b>		

	Positive	Neither	Negative
41) <b>TRANQUIL</b>	Positive	Neither	Negative
42) <b>WHISPER</b>	Positive	Neither	Negative
43) <b>CARESS</b>	Positive	Neither	Negative
44) <b>CUDDLE</b>	Positive	Neither	Negative
45) <b>LAUGH</b>	Positive	Neither	Negative
46) <b>TALK</b>	Positive	Neither	Negative
47) <b>LOVE</b>	Positive	Neither	Negative
48) <b>TRUST</b>	Positive	Neither	Negative
49) <b>SETTLE</b>	Positive	Neither	Negative
50) <b>CALM DOWN</b>	Positive	Neither	Negative
51) <b>PEACEFUL</b>	Positive	Neither	Negative
52) <b>COMPROMISE</b>	Positive	Neither	Negative
53) <b>AGREE</b>	Positive	Neither	Negative
54) <b>RECONCILIATION</b>	Positive	Neither	Negative
55) <b>GIVE IN</b>	Positive	Neither	Negative
56) <b>MAKE PEACE</b>	Positive	Neither	Negative
57) <b>SERENITY</b>	Positive	Neither	Negative
58) <b>HARMONY</b>	Positive	Neither	Negative
59) <b>PATIENCE</b>	Positive	Neither	Negative
60) <b>SCREAMING</b>	Positive	Neither	Negative
61) <b>YELLING</b>	Positive	Neither	Negative

<b>62) ANGRY</b>		
Positive	Neither	Negative
<b>63) KILLER</b>		
Positive	Neither	Negative
<b>64) MURDERER</b>		
Positive	Neither	Negative
<b>65) FIGHTER</b>		
Positive	Neither	Negative
<b>66) BRAWLER</b>		
Positive	Neither	Negative
<b>67) HOSTILE</b>		
Positive	Neither	Negative
<b>68) VICIOUS</b>		
Positive	Neither	Negative
<b>69) MALICIOUS</b>		
Positive	Neither	Negative
<b>70) AGREEABLE</b>		
Positive	Neither	Negative
<b>71) COMPASSIONATE</b>		
Positive	Neither	Negative
<b>72) EMPATHETIC</b>		
Positive	Neither	Negative
<b>73) SYMPATHETIC</b>		
Positive	Neither	Negative
<b>74) PLEASANT</b>		
Positive	Neither	Negative
<b>75) PASSIVE</b>		
Positive	Neither	Negative
<b>76) PACIFIST</b>		
Positive	Neither	Negative
<b>77) HELPFUL</b>		
Positive	Neither	Negative
<b>78) RELAXED</b>		
Positive	Neither	Negative
<b>79) PATIENT</b>		
Positive	Neither	Negative
<b>80) AGGRESSION</b>		
Positive	Neither	Negative
<b>81) CANCER</b>		
Positive	Neither	Negative
<b>82) DISASTER</b>		
Positive	Neither	Negative
<b>83) POLLUTION</b>		

	Positive	Neither	Negative
84) <b>POVERTY</b>	Positive	Neither	Negative
85) <b>SICKNESS</b>	Positive	Neither	Negative
86) <b>UGLY</b>	Positive	Neither	Negative
87) <b>VOMIT</b>	Positive	Neither	Negative
88) <b>STINK</b>	Positive	Neither	Negative
89) <b>POISON</b>	Positive	Neither	Negative
90) <b>ILL</b>	Positive	Neither	Negative
91) <b>DECEITFUL</b>	Positive	Neither	Negative
92) <b>DISEASE</b>	Positive	Neither	Negative
93) <b>UNLOYAL</b>	Positive	Neither	Negative
94) <b>MEAN</b>	Positive	Neither	Negative
95) <b>EVIL</b>	Positive	Neither	Negative
96) <b>ROTTEN</b>	Positive	Neither	Negative
97) <b>HONEST</b>	Positive	Neither	Negative
98) <b>JOKE</b>	Positive	Neither	Negative
99) <b>LAUGH</b>	Positive	Neither	Negative
100) <b>LUCKY</b>	Positive	Neither	Negative
101) <b>JOY</b>	Positive	Neither	Negative
102) <b>NICE</b>	Positive	Neither	Negative
103) <b>LAUGHTER</b>	Positive	Neither	Negative
104) <b>PLACID</b>	Positive	Neither	Negative

105) <b>LOVE</b>		
Positive	Neither	Negative
106) <b>PRESENT</b>		
Positive	Neither	Negative
107) <b>HOPE</b>		
Positive	Neither	Negative
108) <b>HEALTH</b>		
Positive	Neither	Negative
109) <b>GIFTED</b>		
Positive	Neither	Negative
110) <b>HAPPY</b>		
Positive	Neither	Negative
111) <b>VACATION</b>		
Positive	Neither	Negative
112) <b>SMILE</b>		
Positive	Neither	Negative
113) <b>RAINBOW</b>		
Positive	Neither	Negative
114) <b>SUNSHINE</b>		
Positive	Neither	Negative
115) <b>PARADISE</b>		
Positive	Neither	Negative
116) <b>FREEDOM</b>		
Positive	Neither	Negative
117) <b>BEAUTIFUL</b>		
Positive	Neither	Negative
118) <b>GOOD</b>		
Positive	Neither	Negative
119) <b>ACCIDENT</b>		
Positive	Neither	Negative
120) <b>THEY</b>		
Positive	Neither	Negative
121) <b>MY</b>		
Positive	Neither	Negative
122) <b>THEM</b>		
Positive	Neither	Negative
123) <b>MYSELF</b>		
Positive	Neither	Negative
124) <b>IT</b>		
Positive	Neither	Negative
125) <b>MINE</b>		
Positive	Neither	Negative
126) <b>THEIR</b>		

	Positive	Neither	Negative
127) <b>SELF</b>	Positive	Neither	Negative
128) <b>ME</b>	Positive	Neither	Negative
129) <b>OTHERS</b>	Positive	Neither	Negative
130) <b>OWN</b>	Positive	Neither	Negative
131) <b>YOU</b>	Positive	Neither	Negative
132) <b>OTHER</b>	Positive	Neither	Negative
133) <b>YOURS</b>	Positive	Neither	Negative
134) <b>I</b>	Positive	Neither	Negative
135) <b>YOUR</b>	Positive	Neither	Negative

**Stimuli:**

Violent: Attack, hit, hurt, kill, murder, stab, strangle, club, scream at, threaten, quarrel, angry with, aggression, aggressive, fight, blow, revenge, brawl, assault, punch, smash, injure, smack, scrap, beat up, kick, choke, shove, torture, yell, lynch, smother, suffocate, violence, violent, screaming, yelling, angry, killer, murderer, fighter, brawler, hostile, vicious, malicious.

Non-violent: Calm, dove, peace, peaceful, quiet, rest, sleep, tranquil, whisper, caress, cuddle, laugh, talk, love, trust, settle, calm down, compromise, agree, reconciliation, give in, make peace, serenity, harmony, patience, placid, agreeable, compassionate, empathetic, sympathetic, pleasant, passive, pacifist, helpful, relaxed, patient.

Negative: Accident, cancer, disaster, pollution, poverty, sickness, ugly, vomit, stink, poison, ill, deceitful, disease, unloyal, mean, rotten, evil.

Positive: Beautiful, good, honest, joke, laugh, lucky, joy, nice, laughter, love, happy, present, hope, health, gifted, vacation, rainbow, smile, sunshine, paradise, freedom.

Self: Me, mine, self, I, own, my, myself.

Other: Others, you, yours, they, their, them, it, your, other.

**Appendix D**  
**Stimuli Ratings for Self and Other Words**

**Please rate whether the following words are related to “self” or “other”:**

1) <b>ATTACK</b>	Self	Neither	Other
2) <b>HIT</b>	Self	Neither	Other
3) <b>HURT</b>	Self	Neither	Other
4) <b>KILL</b>	Self	Neither	Other
5) <b>MURDER</b>	Self	Neither	Other
6) <b>STAB</b>	Self	Neither	Other
7) <b>STRANGLE</b>	Self	Neither	Other
8) <b>CLUB</b>	Self	Neither	Other
9) <b>SCREAM AT</b>	Self	Neither	Other
10) <b>THREATEN</b>	Self	Neither	Other
11) <b>QUARREL</b>	Self	Neither	Other
12) <b>ANGRY WITH</b>	Self	Neither	Other
13) <b>AGGRESSIVE</b>	Self	Neither	Other
14) <b>FIGHT</b>	Self	Neither	Other
15) <b>BLOW</b>	Self	Neither	Other
16) <b>REVENGE</b>	Self	Neither	Other
17) <b>BRAWL</b>	Self	Neither	Other
18) <b>ASSAULT</b>	Self	Neither	Other
19) <b>PUNCH</b>		Neither	Other

	Self	Neither	Other
20) <b>SMASH</b>	Self	Neither	Other
21) <b>INJURE</b>	Self	Neither	Other
22) <b>SMACK</b>	Self	Neither	Other
23) <b>SCRAP</b>	Self	Neither	Other
24) <b>BEAT UP</b>	Self	Neither	Other
25) <b>KICK</b>	Self	Neither	Other
26) <b>CHOKE</b>	Self	Neither	Other
27) <b>SHOVE</b>	Self	Neither	Other
28) <b>TORTURE</b>	Self	Neither	Other
29) <b>YELL</b>	Self	Neither	Other
30) <b>SMOTHER</b>	Self	Neither	Other
31) <b>LYNCH</b>	Self	Neither	Other
32) <b>SUFFOCATE</b>	Self	Neither	Other
33) <b>VIOLENCE</b>	Self	Neither	Other
34) <b>VIOLENT</b>	Self	Neither	Other
35) <b>CALM</b>	Self	Neither	Other
36) <b>DOVE</b>	Self	Neither	Other
37) <b>PEACE</b>	Self	Neither	Other
38) <b>QUIET</b>	Self	Neither	Other
39) <b>REST</b>	Self	Neither	Other
40) <b>SLEEP</b>	Self	Neither	Other

41) <b>TRANQUIL</b>	Self	Neither	Other
42) <b>WHISPER</b>	Self	Neither	Other
43) <b>CARESS</b>	Self	Neither	Other
44) <b>CUDDLE</b>	Self	Neither	Other
45) <b>LAUGH</b>	Self	Neither	Other
46) <b>TALK</b>	Self	Neither	Other
47) <b>LOVE</b>	Self	Neither	Other
48) <b>TRUST</b>	Self	Neither	Other
49) <b>SETTLE</b>	Self	Neither	Other
50) <b>CALM DOWN</b>	Self	Neither	Other
51) <b>PEACEFUL</b>	Self	Neither	Other
52) <b>COMPROMISE</b>	Self	Neither	Other
53) <b>AGREE</b>	Self	Neither	Other
54) <b>RECONCILIATION</b>	Self	Neither	Other
55) <b>GIVE IN</b>	Self	Neither	Other
56) <b>MAKE PEACE</b>	Self	Neither	Other
57) <b>SERENITY</b>	Self	Neither	Other
58) <b>HARMONY</b>	Self	Neither	Other
59) <b>PATIENCE</b>	Self	Neither	Other
60) <b>SCREAMING</b>	Self	Neither	Other
61) <b>YELLING</b>	Self	Neither	Other
62) <b>ANGRY</b>			

	Self	Neither	Other
63) <b>KILLER</b>	Self	Neither	Other
64) <b>MURDERER</b>	Self	Neither	Other
65) <b>FIGHTER</b>	Self	Neither	Other
66) <b>BRAWLER</b>	Self	Neither	Other
67) <b>HOSTILE</b>	Self	Neither	Other
68) <b>VICIOUS</b>	Self	Neither	Other
69) <b>MALICIOUS</b>	Self	Neither	Other
70) <b>AGREEABLE</b>	Self	Neither	Other
71) <b>COMPASSIONATE</b>	Self	Neither	Other
72) <b>EMPATHETIC</b>	Self	Neither	Other
73) <b>SYMPATHETIC</b>	Self	Neither	Other
74) <b>PLEASANT</b>	Self	Neither	Other
75) <b>PASSIVE</b>	Self	Neither	Other
76) <b>PACIFIST</b>	Self	Neither	Other
77) <b>HELPFUL</b>	Self	Neither	Other
78) <b>RELAXED</b>	Self	Neither	Other
79) <b>PATIENT</b>	Self	Neither	Other
80) <b>AGGRESSION</b>	Self	Neither	Other
81) <b>CANCER</b>	Self	Neither	Other
82) <b>DISASTER</b>	Self	Neither	Other
83) <b>POLLUTION</b>	Self	Neither	Other

<b>84) POVERTY</b>	Self	Neither	Other
<b>85) SICKNESS</b>	Self	Neither	Other
<b>86) UGLY</b>	Self	Neither	Other
<b>87) VOMIT</b>	Self	Neither	Other
<b>88) STINK</b>	Self	Neither	Other
<b>89) POISON</b>	Self	Neither	Other
<b>90) ILL</b>	Self	Neither	Other
<b>91) DECEITFUL</b>	Self	Neither	Other
<b>92) DISEASE</b>	Self	Neither	Other
<b>93) UNLOYAL</b>	Self	Neither	Other
<b>94) MEAN</b>	Self	Neither	Other
<b>95) EVIL</b>	Self	Neither	Other
<b>96) ROTTEN</b>	Self	Neither	Other
<b>97) HONEST</b>	Self	Neither	Other
<b>98) JOKE</b>	Self	Neither	Other
<b>99) LAUGH</b>	Self	Neither	Other
<b>100) LUCKY</b>	Self	Neither	Other
<b>101) JOY</b>	Self	Neither	Other
<b>102) NICE</b>	Self	Neither	Other
<b>103) LAUGHTER</b>	Self	Neither	Other
<b>104) PLACID</b>	Self	Neither	Other
<b>105) LOVE</b>			

	Self	Neither	Other
106) <b>PRESENT</b>	Self	Neither	Other
107) <b>HOPE</b>	Self	Neither	Other
108) <b>HEALTH</b>	Self	Neither	Other
109) <b>GIFTED</b>	Self	Neither	Other
110) <b>HAPPY</b>	Self	Neither	Other
111) <b>VACATION</b>	Self	Neither	Other
112) <b>SMILE</b>	Self	Neither	Other
113) <b>RAINBOW</b>	Self	Neither	Other
114) <b>SUNSHINE</b>	Self	Neither	Other
115) <b>PARADISE</b>	Self	Neither	Other
116) <b>FREEDOM</b>	Self	Neither	Other
117) <b>BEAUTIFUL</b>	Self	Neither	Other
118) <b>GOOD</b>	Self	Neither	Other
119) <b>ACCIDENT</b>	Self	Neither	Other
120) <b>THEY</b>	Self	Neither	Other
121) <b>MY</b>	Self	Neither	Other
122) <b>THEM</b>	Self	Neither	Other
123) <b>MYSELF</b>	Self	Neither	Other
124) <b>IT</b>	Self	Neither	Other
125) <b>MINE</b>	Self	Neither	Other
126) <b>THEIR</b>	Self	Neither	Other

127) <b>SELF</b>	Self	Neither	Other
128) <b>ME</b>	Self	Neither	Other
129) <b>OTHERS</b>	Self	Neither	Other
130) <b>OWN</b>	Self	Neither	Other
131) <b>YOU</b>	Self	Neither	Other
132) <b>OTHER</b>	Self	Neither	Other
133) <b>YOURS</b>	Self	Neither	Other
134) <b>I</b>	Self	Neither	Other
135) <b>YOUR</b>	Self	Neither	Other

**Stimuli:**

Violent: Attack, hit, hurt, kill, murder, stab, strangle, club, scream at, threaten, quarrel, angry with, aggression, aggressive, fight, blow, revenge, brawl, assault, punch, smash, injure, smack, scrap, beat up, kick, choke, shove, torture, yell, lynch, smother, suffocate, violence, violent, screaming, yelling, angry, killer, murderer, fighter, brawler, hostile, vicious, malicious.

Non-violent: Calm, dove, peace, peaceful, quiet, rest, sleep, tranquil, whisper, caress, cuddle, laugh, talk, love, trust, settle, calm down, compromise, agree, reconciliation, give in, make peace, serenity, harmony, patience, placid, agreeable, compassionate, empathetic, sympathetic, pleasant, passive, pacifist, helpful, relaxed, patient.

Negative: Accident, cancer, disaster, pollution, poverty, sickness, ugly, vomit, stink, poison, ill, deceitful, disease, unloyal, mean, rotten, evil.

Positive: Beautiful, good, honest, joke, laugh, lucky, joy, nice, laughter, love, happy, present, hope, health, gifted, vacation, rainbow, smile, sunshine, paradise, freedom.

Self: Me, mine, self, I, own, my, myself.

Other: Others, you, yours, they, their, them, it, your, other.

**Appendix E**  
**Opposite of Violence Task**

- 1) What is the opposite of violence?**
- 2) What is the opposite of violent?**
- 3) Rate which of the following you feel best represents the opposite of violence.**

Peace, Peaceful, Positive, Good, non-violent.

- 4) Rate which of the following you feel best represents the opposite of violent.**

Peace, Peaceful, Positive, Good, non-violent.

**Appendix F****Violent Behaviour Scale****Response Scale****1=Once****2=Twice****3=Three times****4=Four times****5=Five times****6=Six times****7=Seven times****8=Eight times****9=Nine times or more****0=Never**

---

**From when you were 16-years old to today, how many times have you:**

---

1. Started a physical fight with someone?
  2. Threatened to physically hurt someone?
  3. Hit someone with the intention of hurting them?
  4. Thrown objects such as rocks or bottles at someone with the intention of hurting them?
  5. Used a weapon or force to make someone give you money or items?
  6. Injured someone on purpose (e.g., left bruises, caused visible bleeding or broken bones, etc.)?
  7. Ever been arrested for a violent offence (e.g., assault)?
  8. Ever been convicted of a violent offence (e.g., assault)?
-

**Appendix G**  
**Generality of Violence Questionnaire-R**

**Response Scale**

- 1=Once**
- 2=Twice**
- 3=Three times**
- 4=Four times**
- 5=Five times**
- 6=Six times**
- 7=Seven times**
- 8=Eight times**
- 9=Nine times or more**
- 0=Never**

---

**From when you were 16-years old to today, how many times have you intentionally (other than while playing a sport):**

---

- 1. Pushed someone?
  - 2. Shoved someone?
  - 3. Grabbed someone?
  - 4. Slapped someone?
  - 5. Threw something at someone?
  - 6. Punched someone?
  - 7. Bit someone?
  - 8. Hit someone?
  - 9. Kicked someone?
  - 10. Slammed someone against a wall?
  - 11. Stabbed someone?
  - 12. Choked someone?
-

## Appendix H

### Pilot Study SONA Recruitment

**Study Name:** Identifying Violent Words and Behaviour

**Seeking Participants:** Adult male participants who are fluent in English

**Abstract:** In this online survey, you will be asked to put words into groups, such as “violent” and “non-violent”. You will also be asked to complete some questionnaires about your own violent behaviour. Because some of the questions ask about violent behaviour, some people may find them embarrassing or otherwise disturbing. For example, some questions ask whether you have ever punched someone. This study has been approved by the Carleton University Ethics Committee for Psychological Research (11-xxx).

**Web Study:** This is an online study. Participants are not given the study URL until after they sign up.

**Website:** [View Study Website]

**Eligibility Requirements:** None.

**Duration:** 45 minutes

**Percentage:** 0.5%

**Researcher:** Kevin Nunes

E-mail: [kevin\\_nunes@carleton.ca](mailto:kevin_nunes@carleton.ca)

Mandie Woods

E-mail: [mandiewoods@cmail.carleton.ca](mailto:mandiewoods@cmail.carleton.ca)

Sacha Maimone

E-mail: [sachamaimone@cmail.carleton.ca](mailto:sachamaimone@cmail.carleton.ca)

**Participant Sign-Up Deadline:** 12 hours before study is to occur.

**Participant Cancellation Deadline:** 12 hours before study is to occur.

**Appendix I**  
**Pilot Study Demographic Questionnaire**

What is your gender? (Male/ Female)

How old are you? (16-17, 18-19, 20-24, 25-29, 30-34, 35-39, 40-49, 50-59, 60 or older)

Do you speak English fluently? (yes/no)

Do you understand written English? (yes/no)

Do you understand spoken English? (yes/no)

Is English your first language? (yes/no)

Did you attend an English grade school (grades 1 to 8)? (yes/no)

Did you attend an English high school? (yes/no)

**Appendix J****Semantic Differential Measure of Violent and Aggressive Self-Concept**

---

**I am:**

-3

-2

-1

0

1

2

3

Very Peaceful Peaceful Somewhat Peaceful Neither Somewhat Violent Violent Very Violent

-3

-2

-1

0

1

2

3

Very Gentle Gentle Somewhat Gentle Neither Somewhat Aggressive Aggressive Very Aggressive

**Appendix K****Feeling Thermometer**

---

**I am:**

*Not at all violent*                    *Extremely violent*

0    100

## Appendix L

### Primary Study SONA Recruitment Notice

**Study Name:** Violent Self-Concept and Behaviour

**Seeking Participants:** Adult male participants who are fluent in English

**Abstract:** In this study, you will be asked to complete grouping tasks and measures about how you see yourself. You will also be asked to complete some questionnaires about your own violent behaviour. Because some of the questions ask about violent behaviour, some people may find them embarrassing or otherwise disturbing. For example, some questions ask whether you have ever punched someone. This study has been approved by the Carleton University Ethics Committee for Psychological Research (13-XXX).

**Eligibility Requirements:** Male participants only.

**Duration:** 35 minutes

**Percentage:** 1%

**Researcher:** Kevin Nunes

E-mail: [kevin\\_nunes@carleton.ca](mailto:kevin_nunes@carleton.ca)

Mandie Woods

E-mail: [mandiewoods@cmail.carleton.ca](mailto:mandiewoods@cmail.carleton.ca)

**Participant Sign-Up Deadline:** 12 hours before study is to occur.

**Participant Cancellation Deadline:** 12 hours before study is to occur.

**Appendix M****Primary Study Demographic Questionnaire**

What is your gender? (Male/ Female)

How old are you? (17 or younger, 18-19, 20-24, 25-29, 30-34, 35-39, 40-49, 50-59, 60 or older)

Do you speak English fluently? (yes/no)

Do you understand written English? (yes/no)

## Appendix N

### Primary Study Consent Form

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#### Violent Self-Concept and Behaviour Study

A consent form tells you what we want you to do as a participant and allows you to make an informed decision about whether you want to participate or not. Consent forms also list any potential bad consequences and they tell you who to contact in case you have any questions or concerns after the research is finished or in case you have any questions or concerns that cannot be answered by the researcher.

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In this study, you will be asked to complete some questionnaires and tasks designed to measure violent thoughts and behaviour. The purpose of the study is to examine the relationship between these measures. Participation takes about 35 minutes and will be completed at Carleton University. All of your answers will be confidential, meaning no one will know how you responded to our questions. You will receive 1% credit for participating in this study.

Because some of the questions ask about violent behaviour, some people may find them embarrassing or otherwise disturbing. For example, some questions ask whether you have ever punched someone. You are free to stop the survey at any time, not participate, or refuse to answer any of the questions **without penalty**. More specifically, full credit (1%) will be granted for starting the survey, whether or not you answer all the questions or finish it.

Your participation is confidential and your responses are **anonymous**, meaning only researchers associated with the research project will know you participated in the study and no one will know how you responded to the questions asked. All of the measures will be administered via computer, and you will be alone in the room when you complete the measures. Your name will not be connected to your responses and will not appear anywhere in the data collected.

Your answers will be used only for research and teaching purposes and your confidentiality will be respected and protected. No one will know you participated in the publication or presentation of the results. The information collected will be kept in a secure manner at Carleton University on password-protected computers and will be accessible only to the researchers working on this project. Five years after publication of the final report for this project, we will destroy the information you provided.

The present study is being conducted by Mandie Woods (Masters student, Department of Psychology, Carleton University, 613-520-2600 ext. 2261, [mandiewoods@cmail.carleton.ca](mailto:mandiewoods@cmail.carleton.ca)) under the supervision of Dr. Kevin Nunes (Professor, Department of Psychology, Carleton University, 613-520-2600, ext 1545; [kevin\\_nunes@carleton.ca](mailto:kevin_nunes@carleton.ca)). If you have any questions or concerns about this study please contact Mandie Woods or Kevin Nunes. If you are concerned about the ethics of this study, please contact Dr. Shelley Brown, at [Shelley\\_Brown@carleton.ca](mailto:Shelley_Brown@carleton.ca)

(613-520-2600 ext. 1505). For any other concerns, please contact, Dr. Anne Bowker (Chair, Department of Psychology, 613-520-2600, ext. 8218, [psychchair@carleton.ca](mailto:psychchair@carleton.ca)).

This study has been approved by the Carleton University Ethics Committee for Psychological Research (11-xxx).

#### Signatures

*I have read the above form and understand the conditions of my participation. My participation in this study is voluntary, and I understand that if at any time I wish to leave the experiment, I may do so without having to give an explanation and with no penalty whatsoever. Furthermore, I am also aware that the data gathered in this study are confidential and anonymous with respect to my personal identity. My signature indicates that I agree to participate in this study.*

Participant's Name: \_\_\_\_\_ Participant's Signature: \_\_\_\_\_

Researcher's Name: \_\_\_\_\_ Researcher's Signature: \_\_\_\_\_

Date: \_\_\_\_\_

## Appendix O

### Primary Study Debriefing Form

*Thank you very much for participating in this study. We hope the following information addresses any questions you may have.*

#### **What Are We Trying to Learn in this Research?**

The aim of this study was to examine the relationship between identifying oneself as violent—or violent self-concept—and violent behaviour. Additionally, we want to determine what measures are most related to violent behaviour and how they relate to one another.

#### **Why Is This Important to Scientists or the General Public?**

Assault is a serious violation that has many negative consequences for victims. Studying the factors that are related to engaging in violent behaviour increases our understanding of the causes of violence and, ultimately, may help to reduce this harmful behavior.

#### **Where Can I Learn More?**

Below is a short list of articles that provide information about violence and violent self-concept. All of the articles are available through Google Scholar (<http://scholar.google.ca/schhp?hl=en&tab=ws>). The link for each article is also provided below each reference.

##### **Violence in general:**

Anderson, C. A., & Bushman, B. J. (2002). Human aggression. *Annual Review of Psychology*, 53, 27-51. doi: 10.1146/annurev.psych.53.100901.135231

<http://neuron4.psych.ubc.ca/~schaller/Psyc591Readings/AndersonBushman2002.pdf>

##### **Violent self-concept and violent behaviour:**

Bluemke, M., & Zumbach, J. (2012). Assessing aggressiveness via reaction times online. *Cyberpsychology: Journal of Psychosocial Research on Cyberspace*, 6(1). doi: [10.5817/CP2012-1-5](https://doi.org/10.5817/CP2012-1-5)

<http://www.cyberpsychology.eu/view.php?cisloclanku=2012042902&article=1>

**What if I Have Questions Later?**

The present study is being conducted by Mandie Woods (Masters student, Department of Psychology, Carleton University, 613-520-2600 ext. 2261, [mandiewoods@cmail.carleton.ca](mailto:mandiewoods@cmail.carleton.ca)) under the supervision of Dr. Kevin Nunes (Professor, Department of Psychology, Carleton University, 613-520-2600, ext 1545; [kevin\\_nunes@carleton.ca](mailto:kevin_nunes@carleton.ca)). If you have any questions or concerns about this study please contact Mandie Woods or Kevin Nunes. If you are concerned about the ethics of this study, please contact Dr. Shelley Brown, at [Shelley\\_Brown@carleton.ca](mailto:Shelley_Brown@carleton.ca) (613-520-2600 ext. 1505) or Dr. Anne Bowker (Chair, Department of Psychology, 613-520-2600, ext. 8218, [psychchair@carleton.ca](mailto:psychchair@carleton.ca)). If you are upset or anxious after completion of this study please contact Carleton University's Health and Counselling Services (613-520-6674).

Thank you very for making this research possible