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Aggression, impulsivity, and symptom severity: an examination of risk factors for violent behaviors

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AGGRESSION, IMPULSIVITY, AND SYMPTOM SEVERITY: AN EXAMINATION OF RISK FACTORS FOR VIOLENT BEHAVIORS

by

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Dedications

I would like to dedicate this manuscript to my parents, Danielle Benbrahim and Faouzi Charfadi, for always believing in my ability to rise above adversity. Additionally, to my friends and loved ones (past and present), I dedicate this manuscript to you for staying by my side and providing me with the love and support needed to achieve my goals.

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Abstract

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This study sought to explore the relationship between psychopathology, aggression, and impulsivity. Two hypotheses were derived from the existing scientific literature: First, as a validity check, we anticipated that levels of psychopathology would be related to both aggression and impulsivity (as previously reported data suggests). Second, we anticipated that impulsivity would moderate the relationship between overall symptom severity and aggression. Finally, we constructed exploratory regression models to examine the contribution of specific types of impulsivity in the prediction of specific acts of aggression across BSI symptom groupings. Data was collected using Rowan University undergraduate students that completed an in-person battery of measures. The researchers did find many correlations between aggression and psychopathology levels as anticipate, however moderations were not found in the present study.

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Chapter 1

Introduction

Aggression has been defined as behaviors, or verbal exchanges, that are intended to upset or harm another person (Anderson & Bushman, 2002; Buss & Perry, 1992). Some theorists believe that aggression may have had evolutionary significance for humans who were competing for limited resources necessary for survival (Archer, 2009). However, in industrialized societies acts of aggression (especially physical) may actually decrease access to resources for the individual (e.g., being sentenced to a prison term; being fined or sued) and may present a number of serious problems for society as a whole (Archer, 2009; DeWall, Anderson, & Busman, 2011). Despite the problems associated with individual acts of aggression, the World Health Organization (WHO) reports a public crisis of increased violence and aggression on a global level in their 2002 publication of World Report on Violence and Health. In this publication, the WHO discussed the increased costs of violence on society. While the monetary costs of violence (e.g., cost of incarceration, missed wages) are estimated at billions of dollars per year, the WHO also cites the emotional and psychological costs of violence as the most imposing barrier for societal progress (WHO, 2002).

In their 2002 report, the WHO discussed "impulsivity" as a key factor in their etiological model of violence and aggression. Impulsivity involves an individual's level of "reactivity" to stimuli and the degree that they are able to inhibit responses to a perceived stimulus (Moeller, Barratt, Donald, Schmitz, & Swann, 2001). The WHO model posits that violence occurs as a result of an interaction of multiple factors starting with the individual, followed by social relationships, community, and society as a whole.

The first level of this model is that of the individual. The WHO reports that although biological and demographic factors play a large role, factors such as impulsivity, substance abuse, history of abuse and aggression also play vital roles in increasing the odds of an individual to act violently or be a victim of violence. This is important to note, as many psychiatric disorders have been linked to have some form of genetic heritability. The second level of the model is social relationships. Based on this model, relationships play an integral part of the expression of an individuals predisposed characteristics for violence and aggression. Further, the community in which the individual lives or interacts can also have an effect on an individual's violent expression which will ultimately effect society as a whole and the cycle continues.

Moreover, throughout the years psychiatric disorders were categorized by impulsive behaviors. For example, the American Psychiatric Association's (APA) Diagnostic and Statistical Manual of Mental Disorders (DSM) have frequently included impulsivity and impulsive behaviors as a criteria for diagnosis of several disorders. The DSM Fifth Edition (DSM-5) defines impulsivity as a "facet of the broad personality trait domain disinhibition" (APA, 2013). Impulsivity is a criterion for many disorders such as personality disorders, mood disorders, anxiety disorders, conduct and impulse control disorders, substance abuse, and developmental disorders (APA, 2013). The present study seeks to examine the role of impulsivity and aggression on mental illness. In the following portion of this paper I will review the various definitions of aggression in the academic literature and provide evidence for impulsivity as an important contributor to aggression.

Definitions of Aggression

Aggression has been described in different terms, creating inconsistencies throughout the body of literature. Anderson and Bushman (2002) describe aggression as "any behavior directed toward another individual that is carried out with the proximate (immediate) intent to cause harm". Likewise, Buss and Perry (1992) described physical and verbal aggression as an "instrumental or motor component of behavior" that is intended to harm others. Another study defined aggression as "any intentional behavior or threat to inflict bodily harm or violation on another individual against his or her will" (Bjørkly, 2013). Although the aforementioned definitions appear to be similar in nature, each study has broken aggression into subtypes. For example, Buss and Perry (1992) found that based on a questionnaire they formulated to assess aggressive traits, there appears to be four sub-traits of the trait of aggression (physical, verbal, anger, and hostility). As mentioned, Buss and Perry discussed physical and verbal aggression as the motor component of behavior. Anger is defined by Buss and Perry as the affective, or emotional, component of behavior in which the person prepares for aggression. Hostility is defined as the "cognitive component of behavior" in which the person feels a sense of "ill will and injustice" (Buss & Perry, 1992).

Furthermore, Anderson and Bushman (2002) discuss the difference between hostile and instrumental aggression. Hostile aggression was defined as being more impulsive in nature, usually motivated by anger or provocation by another, with intent to harm. On the other hand, instrumental aggression tends to be a planned way of obtaining a goal, "being proactive rather than reactive" (Anderson & Bushman, 2002). It should also be noted that some studies examine the aggression trait in individuals (Anderson &

Bushman, 2002; Bacskai, Czobor & Gerevich, 2011; Buss &Perry, 1992), while other studies examine aggressive acts(Barratt, Stanford, Dowdy, Liebman, & Kent, 1999; Daffern, Howells, Ogloff, & Lee, 2005; Dewall, Anderson & Bushman, 2011; Dvorak, Pearson & Kuvaas, 2013; Iancu, Bodner, Roitman, Sapir, Poreh & Kotler, 2010; Joyal, Cote, Meloche & Hodgins, 2011; Mehrabian, 1997). The lack of consensus regarding definitions and the tendency to conduct research with a unilateral focus (e.g., trait or acts), present challenges to this area of research.

In addition, the study of aggression and violence has yielded many gender differences throughout research (Archer, 2004; Anderson & Bushman, 2002; Buss & Perry, 1992). In a meta-analysis of sex differences in aggression types, Archer (2004) found that males were more prone to be more physically aggressive. This finding was generalized in both trait aggression and aggressive acts throughout the studies examined. Although males tend to be more physically aggressive, the study yielded little to no sex differences in the experience of anger. The study did however find a small sex difference in the expression of verbal aggression. Additionally, Buss and Perry (1992) found that males scored significantly higher on the physical aggression, verbal aggression, and hostility subscales of the Aggression Questionnaire (AQ); with the largest difference being observed in the physical aggression subscale. This finding is consistent with the clinical literature that reports males to have higher rates of violence and aggression in the general population (Archer, 2009; WHO, 2002), as well as with the expression of aggression explained in diagnostic disorders by the DSM-5 (APA, 2013).

Aggression and Psychiatric Disorders

There appears to be a general acceptance within our society, including among mental health professionals, that individuals with mental illnesses are more aggressive. However, aggression can be a debilitating trait of mental illness. For example, aggression has been thought to be the cause of large numbers of people with mental illness in correctional settings (Wolff, Morgan, & Shi, 2013). In fact, the number of people with mental illness is greater in the correctional setting than in the community (Pope et. al, 2013). The Bureau of Justice Statistics (BJS, 2006) reported that roughly 45% of people in federal prisons, 64% of people in jails, and 56% of people in state prisons have some form of mental illness. This number is alarming when considering the crimes for which they were incarcerated. The BJS (2006) reported that 43% of people with mental illness in state prisons had at least one violent offense and 19.3% had drug offenses. For these reasons, much research has been conducted in the area of violence and aggression in psychiatric disorders (Joyal, Cote, &Meloche, 2011; Monahan et al., 2001; Wolf, Morgan & Shi, 2013). What's more, research has linked aggression, violence, and incarceration to Severe Mental Illnesses (SMI) such as Schizophrenia (Swanson et al., 2008; Nedolf, Muris, & Hovens, 2013; Mason, Medford, & Peters, 2012; Daffern, Howells, Ogloff, & Lee, 2005; Link, Monahan, Stueve & Cullen, 1999), Depression (Dutton & Karakanta, 2013), Antisocial personality disorder (Moeller et al., 2001; Snowden & Gray, 2011), Substance abuse (Wolff, Morgan, & Shi, 2013; Bácskai, Czobor, & Gerevich, 2011; Elbogen & Johnson, 2009) and Bipolar affective disorders (Reddy et. al., 2014, Joyal, Cote, Meloche & Hodgins, 2011; Feldmann, 2001; Swanson et al., 1990). For example, one study found that people with schizophrenia and mood disorders were five times more

likely to have violent incidents and aggress towards others than people in the general population; this rate increasing drastically if the individual presented with comorbid substance use (Swanson et al., 1990). The higher rates in aggression and violence witnessed throughout the literature may be reduced if clinicians and researchers discover and implement better forms of intervention, as well as early intervention and identification techniques for those at risk for mental illness.

The majority of research examining the relationship between mental illness and aggression/violence has focused on schizophrenia. While certain research studies appear to provide evidence for higher rates of aggression in schizophrenia, there are also contrary reports. Studies that appear to confirm this link include a systematic review of 26 articles looking at violent behaviors in people with psychosis in clinical and forensic settings found that all the studies in their review showed patients with schizophrenia to have higher rates of aggression and violence (Nederlof, Muris, & Hovens, 2013). Additionally, one study discussed the difference in types of schizophrenia as it relates to violent acts (Cornaggia, Beghi, Pavone, & Barale, 2011). Cornaggia et al. (2011) report that a study by Tardiff (1998) found that although people with schizophrenia tend to be more aggressive as a whole, people with paranoid type tend to act more violently towards others with more severe consequences. Another study discussed the link between childhood conduct problems and violence and aggression in people with psychosis (Joyal, Cote, & Meloche, 2011).

On the other hand, a study by Daffern, Howells, Ogloff, and Lee (2005) that evaluated different psychiatric disorders in a forensic psychiatric hospital found that people without psychosis were more aggressive than people with psychosis. Other

research suggests that other factors such as personality disorders (Volavka & Citrome, 2011) or substance use (Elbogen & Johnson, 2009; Joyal, Cote, Meloche & Hogins, 2011; Swanson et al., 1990; Wolff, Morgan, & Shi, 2013) may be more predictive of aggression and violence. For example, Bácskai, Czobor, and Gerevich, (2011) found that patients with substance use disorder (SU) had significantly higher aggression scores on all four subscales of the aggression questionnaire than controls. This significant difference was more pronounced in the physical aggression, anger, and hostility subscales than the verbal subscale. They also found that males with SU displayed greater levels of physical aggression than females in the clinical group. Another study found that patients that engaged in one or more aggressive acts in a forensic psychiatric hospital, also had a higher total number of substances used in their past (Daffern, Howells, Ogloff, & Lee, 2005).

In addition, research has begun to examine the relationship between aggression and mood disorders. The research has been more extensive for disorders such as bipolar disorder which has been thought to be more characteristic of aggressive tendencies. This idea has stemmed from the notion that people experiencing manic episodes have much more energy to aggress. In fact, one of the diagnostic criteria for the diagnosis of mania includes "irritable mood" (APA, 2013). One study reported people with mood disorders, bipolar and unipolar depression, to have significantly higher life history of aggression scores than controls (Perroud, Baud, Mouthon, Courtet, Malafosse, 2011). There is some evidence that patients with bipolar (manic state) may be more violent than patients with schizophrenia during the first day of admission to a psychiatric facility (Feldmann, 2001). Advances in psychopharmacology can help manage these issues in clinical settings,

although individuals who are unware of their condition and have gone untreated may be at greater risk for engaging in violence and aggression (Feldmann, 2001).

Moreover, many people associate depression with a lack of energy and motivation which is contrary to what is expected of an aggressive individual. One would think that the internalization of anger, blame, and guilt, characteristics of depression (APA, 2013), would lead to instances of self-aggression rather than aggression towards others. However, a study of college students with sub-threshold depression found that higher depression scores were positively correlated with verbal aggression scores in females only (Yang et al., 2012). Some studies have suggested a lack of social support to be linked to aggressive tendencies (Twenge, Baumeister, Tice, & Stucke, 2001), although it cannot be determined whether aggressive traits lead to social isolation or vice versa. Twenge, Baumeister, Tice, and Stucke (2001) reported that people who had been excluded from social interactions or groups, report greater negative (anger and hostile) emotions toward the people who excluded them. This idea sheds light on the type of aggression experienced by some with major depressive disorder.

Impulsivity in Psychiatric Disorders

Impulsivity has been defined as "a predisposition toward rapid, unplanned reactions to internal or external stimuli without regard to the negative consequences of these reactions" (Moeller, Barratt, Donald, Schmitz, & Swann, 2001). Chamorro et al. (2012) examined impulsivity levels and presentations throughout the general population using U.S. adults. They reported that the general population exhibited a lifetime prevalence of impulsivity at 16.9%., with a significantly higher probability of younger

males acting impulsively than any other group. They also discovered that socio-economic status (SES) and education had a negative relationship with a person's level of impulsivity. The study of impulsivity has been conducted using two major types of measures, *self-reported "trait" measures* (i.e., people describing their impulsive tendencies) and *experimental "state" indicators (i.e., quantitative measurements of impulsivity)*. These different approaches appear to capture different facets of impulsivity and have contributed to inconsistencies in impulsivity literature (Bjørkly, 2013).

Although many people may have some moments of impulsivity, the impulsive trait has been linked to many different maladaptive behaviors and psychiatric disorders. For instance, impulsiveness is a basic component of the cluster B personality disorders (Wolff, Morgan, & Shi, 2013; APA, 2013; Moeller et al., 2001), substance use disorders (Moeller et al., 2001), and bipolar affective disorder (Wolff, Morgan, & Shi, 2013; APA, 2013; Powers et al. 2013). A study by Reddy et al (2014) and Powers et al., (2013) both found that there were significantly higher levels of impulsivity in people with bipolar affective disorder than controls. They further explained that there were no significant differences in rates of impulsivity between Bipolar I and Bipolar II disorders. However, they did discover that bipolar patients taking antipsychotic medications had lower impulsivity. On the other end of the mood spectrum, increased state and trait impulsivity levels have also been found in depressed bipolar, and depressed unipolar patients (Dutton & Karakanta, 2013). Although depression has been recognized as an internalized emotional disorder and impulsivity has widely been characteristic of externalized disorders, some research has found that impulsivity is also related to depression (Dutton & Karakanta, 2013). Powers et al. (2013) found that people with more severe depressive

symptomology had higher scores of trait impulsivity. Anxiety has also been found to have a relationship with impulsivity (Pawluk & Koerner, 2013).

However, issues related to impulsivity may exist in psychiatric disorders that are not defined by impulsivity. For example, a study by Wolf et al., (2013) found some evidence that individuals with schizophrenia display higher levels of impulsivity. However, this finding appears to be inconclusive and may be due to the different forms by which impulsivity has been measured (i.e. trait vs. state) or mediated by other co-existing disorders (e.g., personality, substance use) (Barratt, Stanford, Dowdy, Liebman, & Kent, 1999; Camisa, Bockbrader, Lysaker, Rae, Brenner, & O'Donnell, 2005; Iancu, Bodner, Roitman, Piccone Sapir, Poreh, & Kotler, 2010). One study found evidence of a positive correlation between suicidality and impulsivity in schizophrenia (Iancu et al, 2010). This finding suggests the risk for other issues when impulsivity is found to be higher in people with SMI not indicative of impulsive traits and actions.

Impulsivity and Aggression

The study of impulsive traits and aggression has been long standing. Researchers and clinicians alike have assumed that there are some connections between the two constructs and studies have frequently found the relationship between them. A study by Houston and Stanford (2005) found that participants with higher impulsive trait scores endorsed significantly greater rates of aggression on both state and trait measures. In fact, some researchers have thought the link between impulsivity and aggression to be so profound that they define aggression in two terms, impulsive and non-impulsive, or premeditated aggression (Barrett et. al., 1999). Moreover, the connection between

impulsivity has not only been found in humans but also in animals (Coppens, de Boer, Buwalda, & Koolhaas, 2014).

As observed, many studies have shown a link between impulsively based psychiatric disorders and greater risk for violence and aggression. For example, some studies have implicated impulsivity to be a major contributor between suicidality and psychiatric disorders (Dutton, & Karakanta, 2013; Iancu et al., 2010, Hair & Hampson, 2006). This is important to note when discussing aggression because suicidality has been defined and discussed in the literature as a form of self-aggression (WHO, 2002). Additionally, some studies have suggested the link between impulsivity and aggression in other psychiatric disorders not otherwise categorized by impulsivity. For example, Volavka and Citrome (2011) discussed the lowered ability to cope with stress in a non-aggressive manner, experienced by people with schizophrenia due to lower impulse controls. In their study, Volavka and Citrome discuss that while most people will become more aggressive in stressful situations, people with schizophrenia may have an even more difficult time controlling their aggression due to their impulsivity and inability to accurately judge facial stimuli and social cues.

The Present Study

This study seeks to further explore the relationship between psychopathology, aggression, and impulsivity. This project does not (a priori) intend to show that people with mental health issues are more violent. Rather, we hope to address gaps in the present literature about specific factors that may be contributing to acts of violence beyond in those previously attributed to mental health disorders. These factors are

important to be aware of in order to better facilitate/implement rehabilitation programs, improve treatment, and improve early detection. In terms of aggression, this study will examine two forms (predispositions and actual acts). Additionally, for the purposes of this study violence, which has previously been defined by Anderson and Bushman (2002) as "aggression that has extreme harm as its goal", has been merged with the term aggressive acts. Aggression will be defined using a combination of definitions from other literature, defined here as any behavior intended to cause physical, emotional, or psychological harm to another.

Hypothesis 1 sought to replicate previous research. We anticipated the severity of overall psychopathological symptoms (Brief Symptom Inventory [BSI] total score) would be positively correlated to higher levels of aggression (aggressive traits and aggressive acts). As a sub-hypothesis (1a) we also anticipated a positive relationship would be found for hostility and the three schizophrenia-spectrum scales included in the study (i.e., SPQ, the Paranoid Ideation and Psychoticism subscales of the BSI). Additionally, based on prior research, males were expected to show higher rates of aggression (sub-hypothesis 1b).

Hypothesis 2 posited that impulsivity would moderate the relationship between overall symptom severity (BSI total score, SPQ total score and each subscale) and aggression. Based on prior literature, we anticipated that a significant moderation relationship would exist for the majority of the BSI subscales included in the study including all of the schizophrenia-spectrum subscales (i.e., SPQ, the Paranoid Ideation and Psychoticism subscales of the BSI).

Finally, we created exploratory regression models to examine the contribution of specific types of impulsivity in the prediction of specific acts of aggression (dependent variable) across BSI symptom groupings. This exploration was intended to further the understanding of the moderation effects of impulsivity on aggression. The exploratory aspect of this study was intended to aid in the understanding of pathways to specific aggression types as well as to clarify the relationship among the symptom clusters.

Chapter 2

Methods

Participants

Participants were 100 undergraduate students from a mid-sized Northeastern state university. Each student was enrolled in an entry-level psychology course and received course credit for participation in the study. The sample was comprised of mostly individuals that identified as Caucasian (70%), with the remaining sample identifying as African American (15%), Hispanic/Latino (8%), Asian-Pacific Islander (3%), other (2%), and multiple (2%). According to the US Census (2013), this number would be consistent with the general population's ethnic break up (77.7% White). Participants ranged in age from 18 to 51 years of age with a mean age of 19.79 years (SD=3.95) with the majority of the sample identifying as female at 66%.

Measures

Demographics. Information was requested from each participant in regards to their basic demographics. Participants were asked to identify their age, sex, and race, as well as a brief psychiatric history of themselves and/or family. Participants were asked to do this through a paper format demographic sheet.

Brief Symptom Inventory (BSI). The BSI (Derogatis, 1975) is a brief self-report measure used to identify psychopathological symptom severity. The measure is comprised of 53 items broken up into nine symptom clusters (Somatization, Obsessive-Compulsive, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid Ideation, and Psychoticism). Additionally, the instrument contains an extra four

questions that load onto multiple scales but pose clinical significance in each area (i.e. feelings of guilt) (Derogatis & Melisaratos, 1983). The BSI asks participants to rate their level of distress in the past seven days on a Likert scale from 0 (Not at all) to 4 (Extremely). Several studies have suggested the internal consistency of the measure range from a Cronbach's coefficient alpha as low as .71 on the psychoticism sub-scale to as high as .89 on the depression sub-scale (Boulet & Boss, 1991; Derogatis & Melisaratos, 1983). The measure has also shown good construct validity, convergent validity and discriminant validity (Derogatis & Melisaratos, 1983).

Schizotypal Personality Questionnaire – Brief Revised (SPQ-BR). The SPQ-BR (Cohen, Matthews, Najolia, & Brown, 2010) is a 32-item self-report measure used to measure the construct of schizotypy. The SPQ-BR is rated on a 5 point Likert scale, 1 being "not at all like me" to 5 being "very much like me". This measure has three subscales (interpersonal, cognitive-perceptual, and disorganized) that are representative of the three symptom clusters of schizophrenia (positive, negative, and disorganized). The measure has displayed convergent validity (Cohen et al., 2010). The measure also been reported to have good internal consistency with Cronbach's coefficient alpha's as low as .79 for the Cognitive-Perceptual scale and as high as .89 for the Interpersonal scale. The total Cronbach's coefficient alpha was reported at .90 (Cohen et al., 2010).

Buss-Perry Aggression Questionnaire (BPAQ). The BPAQ (Buss & Perry, 1992) is a 29-item self-report measure of trait aggression. The measure is a revision of The Hostility Inventory. The measure is rated on a 5 point Likert scale with 1 being "extremely uncharacteristic of me" and 5 being "extremely characteristic of me". The measure consists of four sub-types of aggression: Physical Aggression (PA), Verbal

Aggression (VA), Anger (A), and Hostility (H). These sub-types were formulated using a factor analysis in which all items loaded onto four factors; items that did not load onto these factors were excluded from the questionnaire during the development of the measure. The measure shows good internal consistency with Cronbach's coefficient alpha's at .85 for PA, .72 for VA, .83 for A, .77 for H and a total of .89. The measure also showed decent test-retest reliability, (PA .80, VA.76, A .72, H .72 and Total .80) (Buss & Perry, 1992). The BPAQ has also been found to be generalizable in not only college samples (Buss & Perry, 1992) but also foreign and non-clinical general population samples (Gerevich, J., Bacskai, E., & Czobor, P., 2007).

Stroop Color and Word Task: Adult Version. The Stroop Color and Word Task (Stroop, 1935) was used in this study as a measure of state impulsivity. The Stroop measures an individual's ability to overcome an automatic (learned) reaction. In this study the Stroop Task was administered in a timed manor (45 seconds) on a computer. There were three different tasks the participant was asked to complete, the first required the participant to read a color word and respond by pressing the corresponding color. The next task required the individual to look at the color of "XXXX" and respond by clicking the corresponding color on the key pad. The last stroop task required the participant to view a color word that was displayed in a different color than the word reads. The participant was required to click the corresponding color of the word rather than the word itself. If the participant chose incorrectly they were given the opportunity to try again until correct or until the 45 seconds have elapsed. The task was scored based on reaction time and number completed. Although the format to which the researchers used has not been validated, many studies have exemplified the reliability and validity of stroop task.

UPPS-P Impulsive Behavior Scale (UPPS-P). The UPPS-P (Whiteside, Lynam, Miller, & Reynolds, 2005; Whiteside & Lynam 2001) is a 59-item self-report measure of impulsive personality traits. The measure is broken into five subscales: urgency, premeditation (lack of), perseverance (lack of), sensation seeking, and positive urgency. The UPPS-P is rated on a 4-point Likert scale based off the last six months. This measure is an extension of the original four factor model of impulsive behavior, UPPS (Whiteside & Lynam, 2001). The scale showed good internal consistency with Cronbach's alpha's ranging from .82 for Perseverance to .95 for Urgency. The scale has also showed good convergent validity (Whiteside et al., 2005).

Alcohol, Smoking, and Substance Involvement Screening Test V3.0 (ASSIST V3.0). The ASSIST V3.0 (WHO, 2010; Humeniuk et al, 2008) was used to assess substance use in an adult population. The measure consists of eight questions evaluating 10 substance groups. This measure is conducted as an interview format in which the administrator asks questions and moves forward based off the response given. The ASSIST V3.0 measures risk for dependence and problems associated with substance use. The ASSIST V3.0 evaluates substance use in the past 3 months as well as lifetime use. Research has found the ASSIST to have high test-retest reliability (Humeniuk et al, 2008).

Specific Acts Questionnaire (SAQ). This measure was created by the researcher to measure and evaluate the aggressive acts rather than just the tendency towards aggression. The measure is based off questions asked in multiple different studies examining aggression and violent acts. The SAQ contains a total of 15 multi-level questions evaluating violent and aggressive acts throughout the past 12 months such as

"In the past 12 months have you hit, kicked, or punched a stranger out of anger with the intent to cause harm?" If the participant answered yes to any of the questions they are then prompted to indicate how many times they have acted that way on a five point Likert-type scale from 1-13+. The measure also includes two questions measuring the lifetime prevalence of acts such as number of physical fights and brief delinquency history.

Procedure

This study was part of a comprehensive study comprised of this and one other study. Participants in this study did not only complete the measures used for the purposes of this study but also additional measures. This study employed a within subjects, cross-sectional research design. Participants willing to volunteer for the study signed up for an available research time slot via an online participant pool (SONA). In this time the participant was connected with one of the two primary researchers or a trained research assistant.

Upon arrival of their scheduled participation time the participant was given, and read, an informed consent. The informed consent provided the participant with information regarding confidentiality, risks and benefits, the right to withdraw participation at any time, the purpose of the study, and information on ways to contact the counseling center or researchers for any additional information. Once the participant was thoroughly informed of necessary information and gave consent to participate, the researcher began the test battery. The battery consisted of a total of 12 measures, seven of which were discussed in the measures section of this paper. The total time to complete all

measures was 1.5 hours. Due to the length of the battery, the researchers formulated three different battery orders (A, B, & C) in which participants completed the study to avoid test-fatigue and its influences. Upon completion of the measures the researcher provided the participant with a copy of the informed consent and a debriefing statement. Additionally, each participant was asked if they have any additional questions to insure understanding and safety.

Chapter 3

Results

Preliminary Analyses

Data were collected from Fall 2014 through Spring 2015. The sample used for the purposes of this paper consisted of 100 participants, as collection was ongoing and persisted despite the conclusion of this study. Of the 100 participants, 87% endorsed some form substance use in the past three months and 90% endorsed lifetime use (see Figure 1). 10 participants endorsed a family history of mania with two of those endorsing manic symptoms experienced personally. Additionally, eight participants endorsed a family history of schizophrenia. There were no significant differences found between people that did endorse psychiatric history and those whom did not. Additionally, each measure/variable was tested for group differences, reliability, and distribution. To determine the normality of each measure and subscale, the researchers examined the skewness, kurtosis values, and histogram for each and found that the distribution of scores for all measures met the assumption of normality.

Group differences. The researchers employed an ANOVA (Analysis of Variance) to examine ethnicity group differences throughout each measure. African American individuals had significantly higher scores compared to Caucasians on the SPQ (M= 81.67and M=64.69) and BSI (M=1.07 and M=.61) measures; $F(5,94)=2.97$, $p=.016$ and $F(5,94)=2.52$, $p=.035$, respectively. More specifically, African Americans scored significantly higher than Caucasians on the psychoticism (M=1.13 and M=.35), $F(5,94)=6.49$, $p<.001$, Paranoid (M=1.47 and M=.59), $F(5,94)=2.09$, $p=.006$, and Somatization (M=1.00 and M=.47), $F(5,94)=2.45$, $p=.039$ subscales of the BSI.

Additionally, those identifying as "other" scored higher hostility (M=1.5) than Caucasian (M=.42) and Hispanic (.33) individuals, F(1,99)=3.13, p=.012. African American individuals also had a trend toward higher SAQ scores than Caucasians (M=4.40 and M=2.86) and Hispanics (M=4.40 and M=2.0), F(1,94)=2.51, p=.035. Asian Pacific Islander (M=1.73) had significantly higher scores on the psychoticism subscale of the BSI than Caucasians (M=.35), Hispanics (M=.40), and people who identified as multiple (.00). No other ethnicity differences were found.

Further, a Pearson bivariate correlation was used to examine age differences among the participants. The researchers found a significant positive correlation between lifetime substance use and age, $r(99)=.370$, $p>.001$. Additionally, there was a significant negative correlation between UPPS-P perseverance subscale and age, $r(99)=-.207$, $p=.040$. No other age differences were found. Gender differences were also examined using independent t-test's. Males (M=18.62, SD=5.56) reported higher physical aggression, $t(98)=3.39$, $p=.001$, than females (M=15.09, SD=4.58). Additionally, males (M=6.65, SD=4.70) endorsed greater substance use in the last three months than females (M=4.74, SD=3.43), $t(51.6)=2.09$, $p=.041$.No other gender differences were found.

Reliability. After data were collected the researchers tested each measure used in the present study for reliability. The ASSIST V3.0, used to measure substance use, was found to be highly reliable (8 items; α=.86). Cronbach's alphas for the measures of aggression, BPAQ (29 items) and SAQ, were α =.89 and α =.70 respectively. It should be noted, the test of reliability for the SAQ only consisted of the 15 yes/no questions and did not evaluate the quantitative factor of the measure (i.e. "if yes how many times"). The UPPS-P, measure of impulsivity, was found to be highly reliable (59 items; α=.90).

Finally, the Cronbach's alphas for the measures of psychopathology, BSI (53 items) and SPQ (32 items), were α=.96 and .93 respectively.

Hypothesis 1. *We anticipate the severity of overall psychopathological symptoms (Brief Symptom Inventory [BSI] total score) will be positively correlated to higher levels of aggression (aggressive traits and aggressive acts).* Pearson bivariate correlations were calculated to examine the relationship between symptom severity and aggression. As expected there was a statistically significant positive relationship between overall psychopathological symptoms (BSI total scores) and aggressive traits (BPAQ total scores), $r(100) = .360$, $p<0.001$, and between overall psychopathological symptoms (BSI total scores) and aggressive acts (SAQ total score), $r(100) = .243$, $p=0.015$.

Subhypothesis 1a. *We also examined the correlation between BSI subscales and aggression and we anticipated a positive relationship would be found for hostility and the three schizophrenia-spectrum scales included in the study (i.e., SPQ, the Paranoid Ideation and Psychoticism subscales of the BSI).* Similar to hypothesis one, a Pearson bivariate correlation was used to examine the relationship between BSI subscales and aggression. As anticipated the three schizophrenia-spectrum scales in the study were positively correlated with both hostility subscales used (see Table 1). Additionally, the researchers examined the relationships between the other BSI subscales (Somatization, Obsessive-Compulsive, Interpersonal Sensitivity, Depression, Anxiety, and Phobic Anxiety) and Aggression total scores (trait and acts) as well as the subscales of the BPAQ (See Table 2).

Table 1

Correlations of Hostility and Schizophrenia-Spectrum Relationship

	1	2	3	4	5
BSI Hostility (1)	---	---	---	---	---
BPAQ Hostility (2)	**.38****	---	---	---	---
SPQ (3)	**.38****	**.70****	---	---	---
BSI Paranoid Ideation (4)	**.57****	**.59****	**.64****	---	---
BSI Psychoticism (5)	**.53****	**.54****	**.64****	**.73****	---

** = $p < .01$.

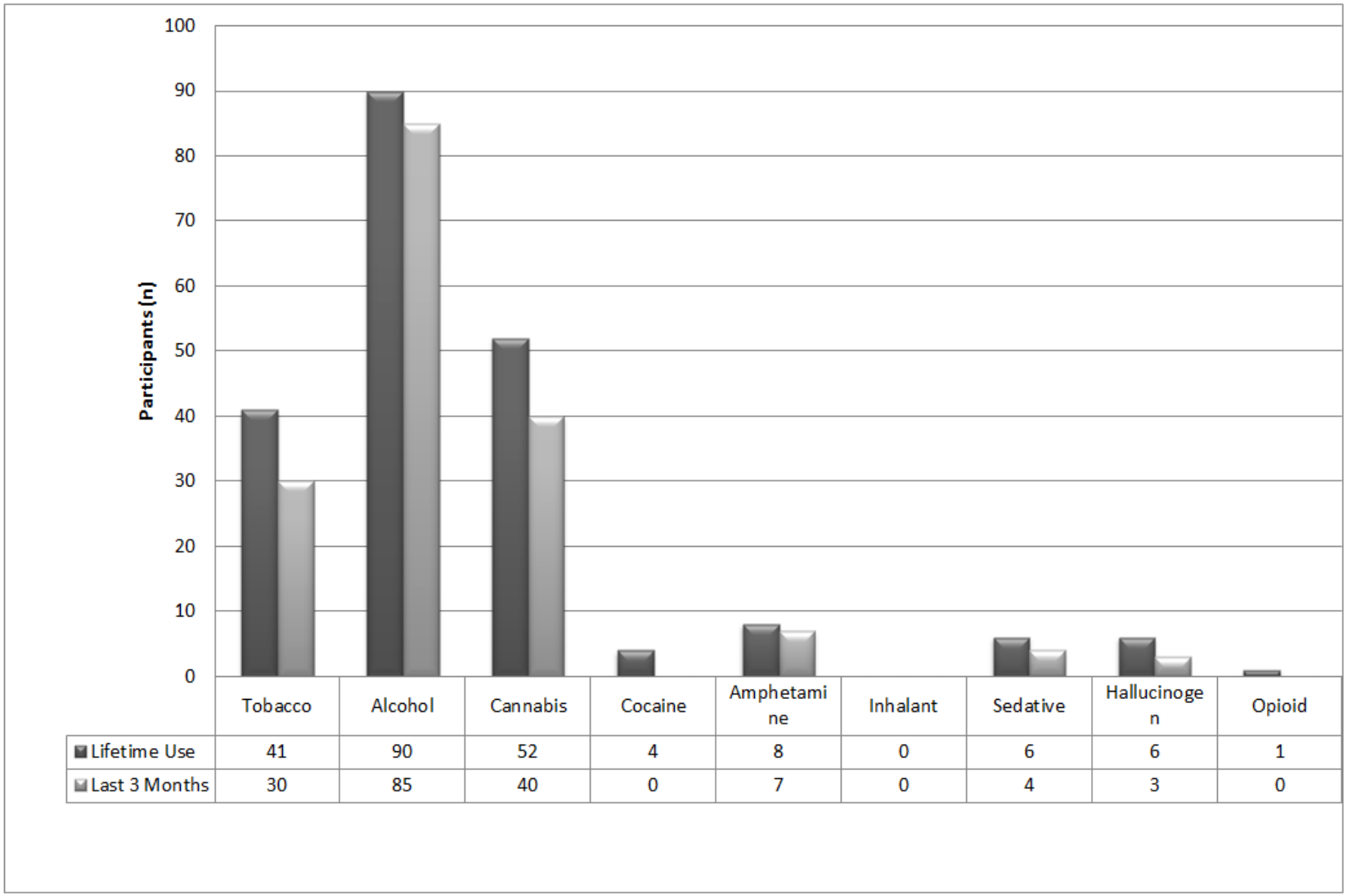
Subhypothesis1b. *The researchers expected males would show higher rates of aggression.* An independent samples t-test was used to examine the relationship between gender and aggression. As mentioned in the preliminary results, there was a significant difference found between males and females in relation to aggression. Males (M=18.62, SD=5.56) endorsed significantly higher physical aggression traits than females (M=15.09, SD=4.58), $t(98) = 3.39$, $p = .001$. However, males did not have significantly different rates of other trait aggression subtypes as expected. There was also no difference between males and females in regard to aggressive acts.

Hypothesis 2. *We anticipated impulsivity would moderate the relationship between overall symptom severity (BSI total score and SPQ total score) and aggression.* The researchers preformed a total of 12 multiple regressions to examine the moderating effect of impulsivity on the relationship between symptom severity and aggression. Each model consisted of a form of aggression (BPAQ total, SAQ, BPAQ subscales) as the dependent variable and impulsivity and psychopathology (BSI or SPQ) as the independent variables. Ethnicity and gender was placed in the first step of each model to control for those differences found. The second step consisted of impulsivity and either

the schizotypy or symptom severity scores. Finally, the interaction was placed in the third step. Most models showed significance in the second level as well as the ANOVA, however failed to show significance in the interaction.

The first model examined the moderation of impulsivity on the relationship between BSI and BPAQ total scores. This regression showed significance in the second step, $\Delta R^2 = .205$, $F(2, 95) = 12.755$, $p < .001$, meaning both symptom severity and impulsivity independently contributed to the model. However, the interaction (third step) did not moderate the relationship between psychopathology and aggression (see Table 3). Further, the second model examined the moderation of impulsivity on the relationship between SPQ and BPAQ total scores. This regression showed significance in the second step, $\Delta R^2 = .326$, $F(2, 95) = 24.088$, $p < .001$. Like the first model, psychopathology (SPQ) independently contributed to the model, $b = -.370$, $t(94) = 5.793$, $p < .001$. In this model however, impulsivity did not significantly contribute to the model, $b = -.131$, $t(94) = 1.858$, $p = .066$. Again, the interaction did not moderate the relationship between psychopathology and aggression, $\Delta R^2 = .012$, $F(1, 94) = 1.841$, $p = .178$.

The third and fourth models examined the moderation of impulsivity on the relationship between psychopathology (SPQ and BSI) and aggressive acts (SAQ). The third model, which examined the impulsivity moderation of the SPQ and SAQ, showed no significant moderation, $\Delta R^2 = .012$, $F(2, 95) = 1.262$, $p = .264$, nor were there any independent contributions in this regression model. The fourth model, which examined moderating effect of impulsivity on BSI and SAQ, found significance in the second level



	Tobacco	Alcohol	Cannabis	Cocaine	Amphetamine	Inhalant	Sedative	Hallucinogen	Opioid
Lifetime Use	41	90	52	4	8	0	6	6	1
Last 3 Months	30	85	40	0	7	0	4	3	0

Figure 1. Total endorsed substance use by substance and time frame used.

Table 2

Correlations between Psychopathological Symptoms and Aggression Subtypes

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
BPAQ Total (1)	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
BPAQ Physical (2)	**.747****	1	—	—	—	—	—	—	—	—	—	—	—	—	—
BPAQ Verbal (3)	**.661****	**.396****	1	—	—	—	—	—	—	—	—	—	—	—	—
BPAQ Anger (4)	**.841****	**.536****	**.480****	1	—	—	—	—	—	—	—	—	—	—	—
BPAQ Hostility (5)	**.785****	**.343****	**.327****	**.567****	1	—	—	—	—	—	—	—	—	—	—
SAQ Total (6)	**.345****	**.388****	.109	**.235***	**.273****	1	—	—	—	—	—	—	—	—	—
Somatization (7)	**.213***	.080	.038	.180	**.293****	.146	1	—	—	—	—	—	—	—	—
Obsessive-Compulsive(8)	**.240***	.071	-.005	.182	**.390****	.144	**.600****	1	—	—	—	—	—	—	—
Interpersonal Sensitivity (9)	**.321****	.016	.020	**.309****	**.521****	.187	**.536****	**.618****	1	—	—	—	—	—	—
Depression (10)	**.314****	.088	-.020	**.205***	**.544****	.180	**.535****	**.557****	**.693****	1	—	—	—	—	—
Anxiety (11)	**.299****	.092	.047	**.274****	**.415****	.196	**.691****	**.694****	**.724****	**.631****	1	—	—	—	—
Phobic Anxiety (12)	.110	-.069	-.035	.104	**.266****	.152	**.506****	**.517****	**.575****	**.580****	**.700****	1	—	—	—
Paranoid Ideation (13)	**.416****	**.197***	.154	**.212***	**.594****	**.343****	**.543****	**.564****	**.707****	**.693****	**.561****	**.451****	1	—	—
Psychoticism (14)	**.309****	.075	.042	.167	**.537****	**.227***	**.508****	**.563****	**.698****	**.779***	**.584****	**.561****	**.733****	1	—
SPQ (15)	**.568****	**.297****	**.254***	**.378****	**.696****	.152	**.404****	**.599****	**.585****	**.602****	**.552****	**.449****	**.642****	**.635****	1

**** Denotes $p < .01$, * Denotes $p = .05$**

(ΔR^2 = .088, F(1, 95) = 4.702, p = .011) but not in the third step (ΔR^2 = .015, F(1, 94) = 1.585, p = .211). In this model, the BSI did predict aggressive acts in both the second and third step, b = -.776, t(95) = 2.358, p =.020 and b = -.757, t(94) = 2.306, p =.023.

Table 3

Hierarchical Linear Regression Model: Moderation of Impulsivity between Symptom Severity (BSI Total) and Aggression (BPAQ Total)

	Model	B	Std. Error	Beta	T	Sig.
7	(Constant)	64.343	5.862		10.976	.000
	Ethnicity	1.262	1.191	.106	1.060	.292
	Gender	-4.478	3.155	-.139	-1.388	.168
8	(Constant)	65.452	5.276		12.406	.000
	Ethnicity	1.230	1.068	.103	1.152	.252
	Gender	-5.015	2.842	-.159	-1.765	.081
	BSI	8.557	2.333	.334	3.668	**.000****
	UPPS-P	.204	.071	.260	2.866	**.005****
9	(Constant)	65.857	5.251		12.543	.000
	Ethnicity	1.318	1.063	.111	1.240	.218
	Gender	-5.173	2.862	-.164	-1.830	.070
	BSI	8.402	2.321	.328	3.620	**.000****
	UPPS-P	.216	.071	.276	3.040	**.003****
	BSI*UPPS-P	-.170	.115	-.133	-1.475	.143

a. Dependent Variable: BPAQ
* = p < .05**, ** = p < .01**

The remaining eight models examined the moderation of impulsivity on the relationship between the four aggression subscales of the BPAQ and symptom severity (BSI and SPQ). The fifth and six regression models used physical aggression as the dependent variable. In both models, step one and two were significant (Model 5[BSI]: ΔR^2 = .124, F(2,97) = 6.869, p = .002 and ΔR^2 = .106, F(2, 95) = 6.525, p = .002; Model 6

[SPQ] $\Delta R^2 = .124$, $F(2, 97) = 6.896$, $p = .002$ and $\Delta R^2 = .129$, $F(2, 95) = 8.210$, $p = .001$), however the third step was not (Model 5: $\Delta R^2 = .000$, $F(1,94) = .004$, $p = .952$; Model 6: $\Delta R^2 = .002$ $F(1, 94) = .237$, $p = .627$), indicating impulsivity does not moderate the relationship between physical aggression and psychopathology (BSI or SPQ scores). It should be noted that gender significantly contributed to the models in all three steps of both. Additionally, impulsivity significantly contributed to both models, and SPQ to the sixth model (See table 4 & 5).

The seventh and eighth regression models were set up in the same manner as the previous models, however verbal aggression was used as the dependent variable. The seventh model showed a significant interaction between impulsivity and BSI upon examination of the R^2 ($\Delta R^2 = .051$ $F(1,94) = 5.240$, $p = .024$), however the ANOVA reports an insignificant model, $F(5, 94) = 1.873$, $p = .106$. Upon further examination of the coefficients, it appears impulsivity, although not significant, is trending towards significance when the interaction is placed in the model. The eighth model examined the moderation of impulsivity on the relationship between schizotypy and aggression. This model was significant in the second step and showed a trend towards significance in the third step, $\Delta R^2 = .067$ $F(2,95) = 3.495$, $p = .034$ and $\Delta R^2 = .034$ $F(1,94) = 3.614$, $p = .060$. Further examination of the model showed significance of SPQ in the second and third step, $b = .039$, $t(95) = 2.130$, $p = .036$ and $b = .038$, $t(95) = 2.091$, $p = .039$, and a trend toward a significant interaction in the third step, $b = -.001$, $t(94) = -1.901$, $p = .060$ (see table 6).

Table 4

Hierarchical Linear Regression Model: Moderation of Impulsivity between Symptom Severity (BSI Total) and Physical Aggression

	Model	B	Std. Error	Beta	T	Sig.
1	(Constant)	21.096	1.926		10.955	.000
	Ethnicity	.571	.391	.139	1.459	.148
	Gender	-3.452	1.036	-.317	-3.331	**.001****
2	(Constant)	21.104	1.830		11.530	.000
	Ethnicity	.562	.371	.137	1.515	.133
	Gender	-3.448	.986	-.317	-3.498	**.001****
	BSI	.800	.809	.090	.988	.326
	UPPS-P	.081	.025	.299	3.281	**.001****
3	(Constant)	21.110	1.843		11.456	.000
	Ethnicity	.563	.373	.137	1.508	.135
	Gender	-3.451	.992	-.317	-3.479	**.001****
	BSI	.797	.814	.090	.979	.330
	UPPS-P	.081	.025	.300	3.248	**.002****
	BSI*UPPS-P	-.002	.040	-.006	-.061	.952

a. Dependent Variable: BPAQ Physical Aggression
* = p < .05**, ** = p < .01**

The ninth and tenth regression models examined the moderation of impulsivity on the relationship between symptom severity (BSI or SPQ) and hostility. In both models, symptom severity (BSI and SPQ) independently contributed to the model in both the second and third steps (Model 9[BSI]: $b = 5.804$, $t(95) = 6.385$, $p > .001$ and $b = 5.743$, $t(94) = 6.352$, $p > .001$; Model 10 [SPQ]: $b = .218$, $t(95) = 9.215$, $p > .001$ and $b = .217$, $t(94) = 9.193$, $p > .001$) however, no significant interaction was found for either (Model 9: $b = -.066$, $t(94) = -1.476$, $p = .143$; Model 10: $b = -.001$, $t(94) = -1.247$, $p = .215$).

Table 5

Hierarchical Linear Regression Model: Moderation of Impulsivity between Schizotypy (SPQ) and Physical Aggression (BPAQ-PA)

	Model	B	Std. Error	Beta	T	Sig.
1	(Constant)	21.096	1.926		10.955	.000
	Ethnicity	.571	.391	.139	1.459	.148
	Gender	-3.452	1.036	-.317	-3.331	**.001****
2	(Constant)	20.865	1.798		11.605	.000
	Ethnicity	.527	.365	.128	1.443	.152
	Gender	-3.270	.968	-.300	-3.377	**.001****
	SPQ	.048	.024	.189	1.993	**.049***
	UPPS-P	.067	.026	.249	2.633	**.010****
3	(Constant)	20.947	1.813		11.553	.000
	Ethnicity	.532	.367	.130	1.451	.150
	Gender	-3.284	.973	-.302	-3.376	**.001****
	SPQ	.047	.024	.187	1.966	.052
	UPPS-P	.070	.026	.260	2.661	**.009****
	SPQ*UPPS-P	-.001	.001	-.045	-.487	.627

a. Dependent Variable: BPAQ Physical Aggression

* = p < .05**, ** = p < .01**

Finally the eleventh and twelfth models examined the moderating effect of impulsivity on the relationship between symptom severity (BSI and SPQ) and anger. In the eleventh regression model, like many of the other models, symptom severity and impulsivity explained a significant proportion of variance in anger, $\Delta R^2 = .146$, $F(2,95) = 8.180$, $p = .001$, with significant independent contributions of BSI and impulsivity in the second, $b = 1.774$, $t(95) = 2.362$, $p = .020$ and $b = .066$, $t(95) = 2.881$, $p = .005$, and third step of the model, $b = 1.746$, $t(94) = 2.318$, $p = .023$ and $b = .068$, $t(94) = 2.593$, $p = .004$. There was no significant interaction, $\Delta R^2 = .006$, $F(1,94) = .672$, $p = .414$; b = -

.313, $t(94) = -.820$, $p = .414$. Similarly, in the twelfth regression model, schizotypy and impulsivity explained a significant proportion of variance in anger, $\Delta R^2 = .178$, $F(2,95) = 10.333$, $p > .001$, with significant independent contributions of SPQ and impulsivity in the second, $b = .068$, $t(95) = 3.077$, $p = .003$ and $b = .049$, $t(95) = 2.090$, $p = .039$, and third step of the model, $b = .067$, $t(94) = 3.046$, $p = .003$ and $b = .052$, $t(94) = 2.136$, $p = .035$. There was no significant interaction, $\Delta R^2 = .002$, $F(1,94) = .002$, $p = .630$; $b = .000$, $t(94) = -.483$, $p = .630$.

Table 6

Hierarchical Linear Regression Model: Moderation of Impulsivity between Symptom Severity (BSI) and Verbal Aggression

	Model	B	Std. Error	Beta	T	Sig.
1	(Constant)	12.098	1.433		8.445	.000
	Ethnicity	.358	.291	.124	1.231	.221
	Gender	.086	.771	.011	.111	.912
2	(Constant)	12.084	1.434		8.427	.000
	Ethnicity	.355	.290	.123	1.223	.225
	Gender	.097	.772	.013	.126	.900
	BSI	.179	.634	.029	.283	.778
	UPPS-P	.028	.019	.150	1.469	.145
3	(Constant)	12.252	1.405		8.720	.000
	Ethnicity	.391	.284	.136	1.375	.172
	Gender	.032	.756	.004	.042	.966
	BSI	.115	.621	.019	.185	.853
	UPPS-P	.034	.019	.177	1.766	.081
	BSI*UPPS-P	-.070	.031	-.228	-2.289	**.024***

a. Dependent Variable: BPAQ *Verbal Aggression*

* = p < .05**, ** = p < .01**

Exploratory regression. *Finally, we constructed exploratory regression models to examine the contribution of specific types of impulsivity in the prediction of specific acts of aggression (dependent variable) across BSI symptom groupings and SPQ.* The researchers performed a total of 17 hierarchical multiple regressions. Each model consisted of a form of aggression (BPAQ total, SAQ, BPAQ subscales) as the dependent variable and psychopathology (BSI, substance use, or SPQ) and the five types of impulsivity as the independent variables. Ethnicity and gender were placed in the first step of each model to control for those differences found. The second step consisted of either the symptom clusters (BSI subscales), schizotypy (SPQ), or substance use scores. Finally, the types of impulsivity (UPPS-P subscales) were placed in the third step. Because this element of the thesis is exploratory, we will only focus on the most prominent findings.

The regression model examining the BSI subdomains and total trait aggression (BPAQ total scores) revealed hostility predicts trait aggression in the second step of the model, $b = 8.300$, $t(87) = 2.346$, $p = .021$, with paranoia trending toward significance, $b = 5.033$, $t(87) = 1.746$, $p = .084$. However, Negative urgency predicts this relationship beyond hostility in the third step, $b = .957$, $t(82) = 3.335$, $p = .001$, accounting for more variance than the psychiatric symptoms, $\Delta R^2 = .128$, $F(5,82) = 3.594$, $p = .005$. This finding holds true for trait anger, where hostility predicts anger, $b = .2.466$, $t(84) = 2.138$, $p = .035$, but negative urgency accounts for more variance in the model, $\Delta R^2 = .183$, $F(5,82) = 4.789$, $p = .001$; $b = .318$, $t(82) = 3.500$, $p = .001$. Likewise, hostility predicts physical aggression, $b = 4.704$, $t(84) = 4.059$, $p > .001$, but negative urgency accounts for more variance in the model, $b = .196$, $t(82) = 1.999$, $p = .049$. Further,

paranoia significantly predicts hostility, b = 2.667, t(88) = 2.511, p = .014, with negative urgency predicting beyond paranoia, b = .285, t(83) = 2.570, p = .012. Verbal aggression was marginally predicted by paranoia, b = 1.429, t(88) = 1.831, p = .071, with a trend for negative urgency (b = .153, t(83) = 1.881, p = .063), perseverance (b = .168, t(83) = 1.684, p = .096), and positive urgency (b = -.128, t(83) = -1.903, p = .060), to account for greater variance in the model.

When looking at the prediction of schizotypy in relationship to aggression the researchers found similar findings. Schizotypy predicted total trait aggression, b = .407, t(96) = 6.712, p = .000, with negative urgency accounting for significantly more variance in the model, b = .800, t(91) = 3.343, p = .001, and lack of premeditation and positive urgency trending toward significance, b = .495, t(91) = 1.811, p = .073 and b = -.388, t(91) = -1.799, p = .075. Further, schizotypy predicted anger (b = .084, t(96) = 3.968, p > .001, with negative urgency accounting for more variance (b = .316, t(91) = 3.931, p > .001 and hostility, b = .210, t(96) = 9.465, p > .000, with negative urgency (b = .236, t(91) = 2.683, p = .009) and positive urgency (b = -.174, t(91) = -2.192, p = .031) accounting for significantly more variance, and sensation seeking marginally accounting for variance of the model (b = -.104, t(91) = -1.731, p = .087). Furthermore, schizotypy predicted physical aggression, b = .069, t(96) = 2.990, p = .004, with lack of premeditation significantly predicting physical aggression beyond schizotypy, b = .229, t(91) = 2.188, p = .031, and negative urgency marginally predicting physical aggression, b = .173, t(91) = 1.890, p = .062. Finally, schizotypy predicted verbal aggression, b = .045, t(96) = 2.597, p = .011, however impulsivity did not significantly predict the relationship further but there were marginal findings for lack of premeditation,

b = .151, *t*(91) = 1.883, *p* = .063, and positive urgency, *b* = -.122, *t*(91) = -1.937, *p* = .056.

In regard to total aggressive acts, substance use in the past three months marginally predicted aggression, *b* = .159, *t*(95) = 1.831, *p* = .070, however negative urgency and lack of perseverance did predict aggressive acts beyond substance use, *b* = .121, *t*(90) = 3.551, *p* = .001 and *b* = -.167, *t*(90) = -3.457, *p* = .001. Schizotypy also did not predict aggressive acts but when impulsivity was placed in the model, negative urgency and lack of perseverance did account for variance of the model, *b* = .115, *t*(91) = 3.092, *p* = .003 and *b* = -.128, *t*(91) = -2.563, *p* = .012 respectively. Finally, paranoia significantly predicted aggressive acts, *b* = 1.100, *t*(87) = 2.684, *p* = .009, with negative urgency and lack of perseverance significantly accounting for greater variance in the model, *b* = .121, *t*(82) = 2.948, *p* = .004 and *b* = -.134, *t*(82) = -2.632, *p* = .010. Finally, substance use did not predict any trait aggression scores. However, when impulsivity types were added to the model negative urgency predicted all trait aggression types beside verbal aggression (Total: *b* = 1.115, *t*(90) = 4.235, *p* > .001; Physical aggression: *b* = .225, *t*(90) = 2.501, *p* = .014; Hostility: *b* = .427, *t*(90) = 3.886, *p* > .001; Anger: *b* = .355, *t*(90) = 4.441, *p* > .001; and Verbal aggression: *b* = .108, *t*(90) = 1.541, *p* = .127).

Chapter 4

Discussion

The present study proposed two *a priori* hypotheses and exploratory analyses intended to identify elements underlying aggression. We were able to replicate previous research, demonstrating significant relationships between psychopathology, aggression, and violence. More specifically, total aggression scores were related to each psychiatric subdomain within the study with the exception of phobic anxiety. These findings strongly suggests that there may be an important role for *preventative* mental health care in the prevention of aggressive acts. For example, typically individuals do not seek mental health services until they are experiencing severe distress or impairment. This pattern is also reinforced by health insurance companies that typically only provide reimbursement if specific severity or risk factors are present. However, there may be great value in developing care models where therapists operate similar to primary care physicians where clients have regularly scheduled "well visits" and the goals are maintaining wellness. Within this type of model, mental health issues can receive attention prior to the manifestation of aggression.

The lack of relationship between phobic anxiety and aggression may be due to the avoidance behaviors that characterize that disorder. A study by Gresham, Melvin, and Gullone (2016) suggested that depressive symptoms associated with anxiety disorders contributed to the presentation of aggression and the emotion of anger. In their study, Gresham et. al. (2016), were also unable to correlate anger and aggression (indirect or direct) to phobic anxiety (more specifically social phobia) while using a similar means to measure phobic anxiety. Gresham et al (2016) suggested that the measure used in their

sample may have captured one of the two types of social anxiety which is "characterized by shy submissive behavior" as opposed to "aggressive and impulsive behavior".

Furthermore as expected, the researchers also found significant positive relationships between schizotypy (psychosis spectrum risk) and aggression (overall and BPAQ). These findings were consistent with Nedrerlof, Muris, and Hovens (2013) findings, in that those with psychotic disorders have higher rates of aggression and violence. Further, the researchers also found a positive relationship between recent acts of violence (SAQ) and the BSI subdomain of paranoia and psychoticism, congruent with Tardiff's (1998) findings in which people with paranoid type schizophrenia displayed significantly more aggressive and violent behaviors than those with schizophrenia as a whole, and the other types of schizophrenia. This finding is consistent with many studies suggesting that positive symptoms of schizophrenia, more specifically paranoia and hallucinations, are commonly associated with the link between schizophrenia and aggressive and/or violent acts (Joyal, Côté, Meloche, & Hodgins, 2011; Nedrerlof, Muris, & Hovens, 2013; Nedrerlof, Muris, & Hovens, 2011). For example, Joyal, Côté, Meloche, and Hodgins (2011) found a subgroup of individuals in their study that were more likely to endorse positive symptoms as a group that displayed greater violence with a weapon, toward family, and were more likely to be found in a correctional/forensic facility. The findings may be explained by the symptoms one experiences in paranoid type schizophrenia such as delusions and hallucinations. For example, Nederlof, Muris, and Hovens (2011) found threat symptoms significantly contributed to the relationship between aggression and psychosis beyond the positive and control-override symptoms also examined in the study of patients with schizophrenia and a history of aggressive

behaviors. The findings of Nederlof et al. (2011) account for the perceived threat to ones safety via positive symptoms which may trigger an evolutionary response to threat (i.e. fight/flight) resulting in aggression as a means of protection and safety.

Additionally, individuals that were once classified as schizophrenia-paranoid type in the earlier versions of the DSM may also experience command type auditory hallucinations. Command hallucinations can be of concern to individuals experiencing psychotic symptoms as they may lack the insight to recognize command hallucinations as a symptom and may be compelled to act upon the command. A study by Birchwood et al. (2014) used of cognitive behavioral therapy to address command hallucinations to aid patients in identifying the four beliefs of voice power, "the voice has absolute power and control; the individual must comply or appease or be severely punished; the identity of the voice (eg, the Devil); and the meaning attached to the voice (eg the individual is being punished for a past misdemeanor)." In their study, the therapists conducted therapy with individuals with command hallucinations which entailed reality monitoring; "The essence of the therapy is to test the perceived power of the voice by assessment of evidence for the omniscience of the voice, the apparent ability tof the voice to predict the future and deliver it's threats, and the voice hearer's perceived lack of control over the voice" (Birchwood et al, 2014). In their study, Birchwood et al. (2014) had a significantly lower rate of voice compliance compared to those who were just receiving "treatment as usual". As mentioned, the current findings of the present study show significant correlations between aggression and paranoid ideation. With the discussed information in mind, it may be beneficial to study and implement increased reality monitoring in those

already diagnosed and those at risk for schizophrenia spectrum disorders to decrease lifetime rates of aggression and violence.

In contrast, the researchers did not find a relationship for people at risk for schizophrenia and recent acts of violence (SAQ). This finding is of particular interest when examining previous literature; it is important to note, while the SPQ-BR measures at risk individuals for psychosis, it more specifically identifies schizotypal personality disorder. With the aforementioned distinction in mind, it should be noted that although previous research finds a link between violence and schizophrenia, from what the researchers found, there seems to be a lack of literature examining the relationship between violent or aggressive acts and schizotypy. Future studies may benefit from examining the relationship between people at risk for psychosis and aggressive acts as the findings of such may aid in our understanding of early interventions for people at risk.

Further, the subdomain of hostile aggression (hostility) was related to all other domains in the study. This finding was congruent with prior research in all BSI subdomains. For example, the researchers particularly found hostility to be associated with internalized disorders such as depression and somatization. Prior research discussed hostility as a contributing factor to the severity of self-reported depression in both males and females (Moreno, Selby, Fuhriman, & Laver, 1994). Additionally, another study by Waldron, Scarpa, Lorenzi and White (2015) suggested that negative self-perception in relation to perceived social rejection may increase the possibility of feelings of ill will or injustice (hostility). The present findings, as well as prior research, may suggest that individuals with internalized disorders may benefit from specialized treatment applications such as increased focus on strengthening internal reward systems and self-

acceptance. A study by Lahera et al (2015) suggests that people with schizophrenia and bipolar may have an attributional style deficit in which they tend to identify ambiguous situations as hostile. Lahera et al (2015) explained that the hostile attributions as well as anger, aggression, and blame attribution (to name a few), were related to depressive symptoms within the psychiatric illness. With the aforementioned information in mind, clinicians may seek to incorporate increased focus on Cognitive Behavioral Therapy to address irrational beliefs, dysfunctional and irrational beliefs, focusing on increased interpersonal skills and strategies.

Whereas hostility speaks to the cognitive aspect of aggression, anger alludes to the emotional piece. The authors of this paper found that the anger subdomain of the BPAQ was related to the interpersonal sensitivity, depression, anxiety, and paranoid ideation subdomains of the BSI, as well as the SPQ total score. The results were partially congruent with previous literature in that the hypothesized domains correlated to anger with the exception of psychoticism. As discussed previously, a study by Twenge, rt al. (2001) examined the relationship between social exclusion and greater negative emotion. Our results further suggest the internalization of anger relates to the self-reported symptom severity of psychopathology, more specifically, depression, anxiety, and interpersonal sensitivity. In contrast, we expected to find that anger was related to all three schizophrenia-spectrum sub-domains but this was not the case. The lack of relationship between anger and psychoticism will be discussed further in the limitations section of this paper related to the scale used to measure those two constructs (see limitations).

As also expected, physical aggression was found to be correlated with the schizophrenia-spectrum sub-domains. However, this correlation was only found in two of the three schizophrenia-spectrum sub-domains (Paranoid Ideation and SPQ). The finding is partially congruent with prior research which has historically suggested that those on the psychosis spectrum are more likely to aggress towards others than the general population. It should however be noted that the present study theoretically should have found a significant relationship between the psychoticism subdomain and aggression which, as mentioned, was not found. As with anger, it may be possible that the lack of relationship between psychoticism and physical aggression may be related to the issues within the definition of the construct and the sample used. Moreover, in regard to physical aggression, the present study found a significant relationship between gender and physical aggression, in that males reported significantly higher rates of physical aggression than females. This finding is congruent with prior research by Buss and Perry (1992) in which males scored significantly higher on the physical aggression subdomain of the BPAQ. The study of gender difference in aggression has been a long standing one in which many theories have been formulated. Some studies have suggested that "male depression" has been categorized by its externalizing symptoms rather than internalizing symptoms that are frequently reported and recognized in females (Möller-Leimkühle, A., Yücel, M., 2009 & Genuchi, M., 2015). Others argue that the evolutionary need to compete for female reproduction, sexual selection theory, is the major drive behind increased physical aggression in males (Trivers, 1972 & Archer, 2009). While another school of thought, social role theory, suggests that the masculine social norms are the major components driving increased male aggression (Bettencourt & Kernahan, 1997). It

is difficult to ascertain the most accurate reason behind increased physical aggression in males as the field has been debating its origin for over 40 years, however it is imperative that clinicians recognize that difference exists. With that in mind, it may be beneficial to evaluate males differently when treating psychopathology. Early intervention may also be beneficial for those who have shown increased aggression at an early age in that it may benefit the youth and deter the onset of clinical psychopathologies later in life.

In regard to Hypothesis 2, we found consistent evidence that impulsivity predicted the relationship between psychopathology and aggression, although there was no evidence for moderation (i.e. interaction effects were not significant). Although the insignificant finding was unexpected, the finding should be taken into account as it has not been previously examined in the literature. Insignificant findings may also be due to the way in which we isolated impulsivity as a trait. For instance, in the present study, impulsivity was measured using the UPPS-P scale which has not been widely used or studied. Additionally, the UPPS-P measures the personality trait of impulsivity rather than expressed impulsivity. However, it should be noted that impulsivity did correlate with aggression in all domains. This is important to note as impulsivity has historically been noted to be a component of aggressive acts. The researchers further examined the relationship between impulsivity and aggression in the exploratory section of the study.

The exploratory component of this study was intended to illuminate how types of impulsivity associated with different symptom clusters predicted aggression. In doing so, the researchers found that negative urgency predicted aggression in most of the models examined. Negative urgency has been defined as "the tendency to engage in rash action in response to extreme negative affect" (Cyders &Smith, 2007). With that in mind, it is

not surprising that negative urgency was the most salient predictor of aggression throughout the study. Many studies have examined the role of negative urgency in relation to problem behaviors such as self-injury, substance abuse, and binge eating (Cyders & Smith, 2007; Anestis & Joiner, 2011). In relation to this present study, it can be speculated that each domain of psychopathology in which negative urgency predicted is typically accompanied with high levels of negative affect predicting the aggressive acts examined. For example, in question 17 of the UPPS-P ("When I feel bad, I will often do things I later regret in order to make myself feel better now.") one dealing with paranoid ideation may aggress towards someone they love due to fear. Further, Liu and Kleiman (2012) discussed the stress generation hypothesis in relation to negative urgency. In their study, Lui and Kleiman found that females and those endorsing depressive symptoms had the highest rates of "negative dependent events" such as cheating on their significant other, among other findings. This finding is important in relation to aggression as the individuals appear to be engaging in self-sabotaging behaviors. In relation to aggression, one may infer that individuals endorsing high levels of symptom severity might engage in aggressive behaviors for a multitude of reasons when negative urgency is present. This finding may assist clinicians in aiding individuals prevent self-sabotaging behaviors as well as impulsive aggression related to high negative emotion.

In summation, the results of the present study have many implications that can be related to the clinical realm. In regard to the relation between higher symptom severity and greater aggression rates, new preventative (primary care) mental health models may decrease the manifestation of aggressive behavior. In addition, clinicians should incorporation a more nuanced account of the individual's coping skills. For example,

prior research suggests that internalized disorders correlate with higher rates of self-aggression and/or hostility towards others. If a clinician were to focus on an individual's coping skills and ability to regulate internalization of psychopathologies such as depression and self-hatred, one might in turn be able to alleviate displayed aggression towards the individual or others. Additionally, in recognizing at-risk traits for individuals, such as high expressed emotions within a household, a clinician might be able to intervene prior to the expression of aggression. Further, recognition of impulsive traits such as substance abuse, in at risk individuals might assist in early intervention strategies to aid in the prevention of aggressive acts. As previously mentioned, the researchers did not find impulsivity to be a moderating effect in the relationship between psychopathology; however the study did find that impulsivity was related to both. The relationship should be considered when working on treatment or prevention interventions strategies for an individual.

Further, the findings in the present study of negative urgency predicting multiple facets of aggression should be utilized and incorporated throughout treatment interventions. Much research in the negative urgency trait has focused on its relation and importance in the development and treatment of eating disorders and substance abuse; however the present study suggests that the trait may relate to greater issues such as aggression (both covert and overt) and should be examined further in order to formulate more comprehensive treatment protocols. In the continued study and formulation of incorporative treatment interventions, clinicians and researchers may aid in the safety of individuals and clinicians in a treatment setting, as well as in the general population, in turn alleviating some of the pre-existing stigmatization of psychopathology.

Limitations and Future Directions

The present study, like any other, did have some limitations to be aware of. First, the researchers used a non-clinical convenience sample of college aged individuals in an intro to psychology class. Although the demographics show that the ethnic breakdown of individuals used in the present study is similar to that of the general population in the United States, the reader should be aware that the convenience sample used may not be generalized to the overall population in question. For example, 66% of participants in the present study identified as female. The rate of females to males in the present study may have potentially skewed the data as prior research has suggested that males endorse higher rates of physical aggression as well as higher rates of impulsivity (Archer, 2004; Buss & Perry, 1992; & WHO, 2002). Moreover, the mean age (19.79) of the sample used in the present study is not consistent with the clinical population.

Furthermore, the researchers were unable to use the Stroop task in the study due to researcher error causing the state impulsivity domain to remain unstudied. The lack of data in the area may be a contributor to the insignificant findings regarding impulsivity as a moderating factor between psychopathology and aggression. Prior to conducting the study researchers formulated a computerized version of the Stroop which was supposed to measure impulsivity as well as another factor in the conjoining study however, the researcher failed to configure the Stroop to measure response error. Due to the researcher error and lack of foresight, the researchers were unable to calculate response time by error thus finding the impulsivity rate of one's responses.

Further, the study may have been affected by computer issues encountered throughout the collection process. It should be noted however, the present study did not use any data collected via computer thus making error caused by split participation minimal. Another issue to consider in regard to the present study are the measures used to evaluate specific subdomains within the study. For example, the BSI was used to evaluate the symptom severity in a nonclinical sample; however within the BSI certain subdomains may not have measured the current understanding of those traits. As mentioned previously in this paper, the schizophrenia-spectrum traits of the BSI may have inaccurately measured the expected traits within the sample as they may have been misunderstood by participants or it may have measured different constructs all together. For example the BSI psychoticism subdomain asks about symptoms that may be seen as constructs of depression ("Feeling lonely even when you are with people" and "The idea that you should be punished for your sins"). Additionally, some questions may be more prevalent in the sample used due to their current status as young individuals in a college setting, i.e. the paranoid ideation sub domain inquires about "Others not giving you proper credit for your achievements", as those individuals may present after a failed exam or a hard semester in which they believed they should have gotten more recognition for their work or efforts. In their research regarding the reliability and validity of the scale, Boulet and Boss (1991) discussed the potential issue that each measure has similarities with other constructs in the assessment as well as the MMPI. For example, psychoticism was moderately correlated to the schizophrenia (r = .51), Psychasthenia (r = .50), and Paranoia (r = .49), however it was also moderately correlated to depression (r = .46), social introversion (r = .40) and psychopathic deviate (r = .38). Additionally, in their

study, it should be noted that each subdomain had a moderate to strong correlation to the paranoia and schizophrenia scales (Boulet, J. & Boss, M., 1991). Further research should consider either using a newer version of the BSI or a different measure of psychopathology to examine the results further.

Additionally, due to the nature of the study, social desirability biases may have played a large role in the low rates of substance use and aggression reported in the study. One study found that social desirability significantly influences the responses of individuals on aggression scales such as the BPAQ (Vigil-Colet, A., Ruiz-Pamies, M., Anguiano-Carrasco, C., & Lorenzo-Seva, U., 2012). The researchers cautioned readers and other researchers to consider the issue when reporting data obtained from self-reported measures specifically measuring aggression and other undesirable traits. Although the researcher did attempt to counteract this issue by adding less invasive questionnaires within the study, the researchers recognize that the college age sample used might have engaged in the biased reporting. Finally, the researchers of the present study created a measure, SAQ, to evaluate state aggression. Although the researchers examined the validity of the measure it should be noted that the measure has not been examined and validated on a larger or more diverse sample.

Future studies might utilize a more clinical sample of individuals since results may implicate a greater significance and could assist with a broader understanding of specific behaviors. Furthermore, the implications of a clinical sample would be beneficial in developing more specialized interventions to maintain the safety of both the individual as well as the clinician. Future studies might also replicate the study using other validated measures of violence and/or aggressive acts to examine whether results remain

consistent. The present study used trait measures as well as a created measure to examine aggression however in a clinical sample future studies might use observed violence as well as collateral reports. Further studies might also examine the created SAQ scale used within the present study to continue to examine the validity of the measure. Finally, a more diverse examination of impulsivity, both trait and state, would benefit the overall understanding of the relationship between the domains studied in the present study.

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Appendix

Sample Questionnaire Battery

Participant #_____

Demographic and Personal/ Family History Questionnaire

Please take the time to complete the following questions regarding your demographics, and personal/ family history. Thank you.

1. What is your current age? _____

2. What is your gender?
   - ☐ Male
   - ☐ Female

3. What is your ethnicity/ race?
   - ☐ White, Non-Hispanic
   - ☐ African American
   - ☐ Hispanic/ Latino
   - ☐ Asian-Pacific Islander
   - ☐ Native American
   - ☐ Other: _____

4. Have you or a biological relative (e.g., parents, siblings, grandparents, aunts/ uncles, etc.) ever received mental health treatment or care for mania (see description below). This includes any hospitalizations, counseling/ therapy, or medication treatments.

Mania is defined as a period of elevated or irritated mood for a period of **1 week or longer** that is accompanied by difficulties in work/ social settings, hospitalization, or delusions and/or hallucinations. It also includes at least **NUMBER** of the following symptoms: decreased need for sleep (i.e., only 3 hours to feel rested), ideas running quickly and constantly through your mind ("flight of ideas"), the need to speak often and for long periods of time ("pressured speech"), difficulty concentrating, engaging in pleasurable activities that may be high-risk (i.e., spending more money than you have), engaging in repetitive and unintentional movements that have no purpose ("psychomotor agitation"), and increased self-esteem.

☐ Yes

☐ No -- If **NO**, have you or your biological relative ever experienced a period like this lasting **4 days or longer** that did **NOT** result in work or social difficulties, hospitalization, or delusions and/or hallucinations?

☐ Yes

☐ No

Participant #_____

5. Have you or a biological relative (e.g., parents, siblings, grandparents, aunts/ uncles, etc.) ever received mental health treatment or care for a psychosis spectrum disorder (e.g., schizophrenia, schizoaffective disorder, brief psychotic disorder, delusional disorder, schizophreniform disorder, schizotypal personality disorder)? This includes any hospitalizations, counseling/ therapy, or medication treatments.

A psychosis spectrum disorder may consist of several of the following symptoms: seeing things that others say aren't there (hallucinations), having very strongly held beliefs held despite evidence proving it untrue (delusions), disorganized thinking or speech, disorganized or abnormal body movements, being unable to experience pleasure, experiencing little or no emotions, lack of facial expression, and feeling unmotivated to do anything.

☐ Yes

☐ No

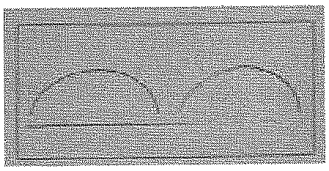
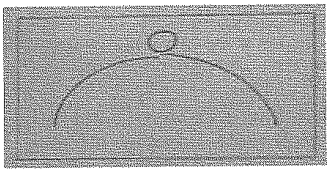
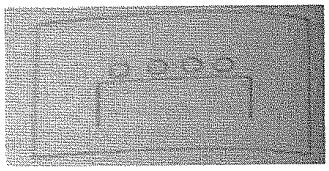
Wallach-Kogan Creativity Tests (WKCT)

"The next 30 minutes involve solving three word and six figural problems that are open-ended. These problems are called divergent thinking problems, and require you to think creatively. That is, there is no correct answer to each problem and you should try and think of several responses to each item. Each response you think of will be scored for originality, and we will also keep track of how many items you type up, so try and be creative but also try and think of several different kinds of responses."

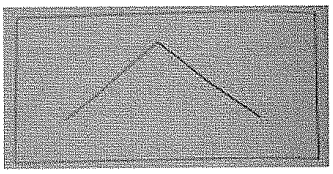
Alternate Uses Task

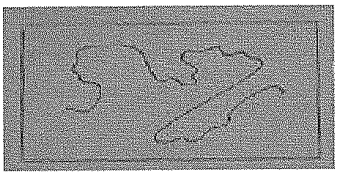
1. Tell me all the different ways you could use a newspaper.
2. Tell me all the different ways you could use a knife.
3. Tell me all the different ways you could use a chair.

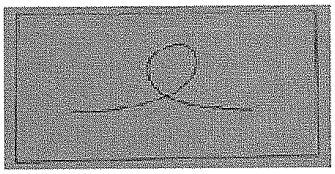
Pattern Meanings

1. 
2. 
3. 

Line Meanings

1. 

2. 

3. 

STROOP

COLOR AND WORD TEST

ADULT VERSION

Name: _____

Age: _____ **Sex:** _____ **Date:** _____

FOR PROFESSIONAL USE ONLY

	Raw Score	Age/Ed. Predicted*	Residual	T-Scores**
Word Score (W)				
Color Score (C)				
Color-Word Score (CW)				
CW - Predicted = Interference (Table V) ____ - ____ = _____				

* This comes from Tables I - III.
** This should come from Table IV or VI.

DO NOT OPEN THE BOOKLET UNTIL YOU ARE INSTRUCTED TO DO SO

#30150A REV. 01/07

RED	BLUE	GREEN	RED	BLUE
GREEN	GREEN	RED	BLUE	GREEN
BLUE	RED	BLUE	GREEN	RED
GREEN	BLUE	RED	RED	BLUE
RED	RED	GREEN	BLUE	GREEN
BLUE	GREEN	BLUE	GREEN	RED
RED	BLUE	GREEN	BLUE	GREEN
BLUE	GREEN	RED	GREEN	RED
GREEN	RED	BLUE	RED	BLUE
BLUE	GREEN	GREEN	BLUE	GREEN
GREEN	RED	BLUE	RED	RED
RED	BLUE	RED	GREEN	BLUE
GREEN	RED	BLUE	RED	GREEN
BLUE	BLUE	RED	GREEN	RED
RED	GREEN	GREEN	BLUE	BLUE
BLUE	BLUE	RED	GREEN	RED
RED	GREEN	BLUE	RED	GREEN
GREEN	RED	GREEN	BLUE	BLUE
RED	BLUE	RED	GREEN	RED
GREEN	RED	GREEN	BLUE	GREEN

XXXX	XXXX	XXXX	XXXX	XXXX
XXXX	XXXX	XXXX	XXXX	XXXX
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RED	BLUE	GREEN	RED	BLUE
GREEN	GREEN	RED	BLUE	GREEN
BLUE	RED	BLUE	GREEN	RED
GREEN	BLUE	RED	RED	BLUE
RED	RED	GREEN	BLUE	GREEN
BLUE	GREEN	BLUE	GREEN	RED
RED	BLUE	GREEN	BLUE	GREEN
BLUE	GREEN	RED	GREEN	RED
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RED	BLUE	RED	GREEN	BLUE
GREEN	RED	BLUE	RED	GREEN
BLUE	BLUE	RED	GREEN	RED
RED	GREEN	GREEN	BLUE	BLUE
BLUE	BLUE	RED	GREEN	RED
RED	GREEN	BLUE	RED	GREEN
GREEN	RED	GREEN	BLUE	BLUE
RED	BLUE	RED	GREEN	RED
GREEN	RED	GREEN	BLUE	GREEN

Participant #_____

UPPS-P

Below are a number of statements that describe ways in which people act and think. For each statement, please indicate how much you agree or disagree with the statement. If you **Agree Strongly** circle **1**, if you **Agree Somewhat** circle **2**, if you **Disagree somewhat** circle **3**, and if you **Disagree Strongly** circle **4**. Be sure to indicate your agreement or disagreement for every statement below. Also, there are questions on the following pages.

	Agree Strongly	Agree Some	Disagree Some	Disagree Strongly
1. I have a reserved and cautious attitude toward life.	1	2	3	4
2. I have trouble controlling my impulses.	1	2	3	4
3. I generally seek new and exciting experiences and sensations.	1	2	3	4
4. I generally like to see things through to the end.	1	2	3	4
5. When I am very happy, I can't seem to stop myself from doing things that can have bad consequences.	1	2	3	4
6. My thinking is usually careful and purposeful.	1	2	3	4
7. I have trouble resisting my cravings (for food, cigarettes, etc.).	1	2	3	4
8. I'll try anything once.	1	2	3	4
9. I tend to give up easily.	1	2	3	4
10. When I am in great mood, I tend to get into situations that could cause me problems.	1	2	3	4
11. I am not one of those people who blurt out things without thinking.	1	2	3	4
12. I often get involved in things I later wish I could get out of.	1	2	3	4
13. I like sports and games in which you have to choose your next move very quickly.	1	2	3	4
14. Unfinished tasks really bother me.	1	2	3	4
15. When I am very happy, I tend to do things that may cause problems in my life.	1	2	3	4
16. I like to stop and think things over before I do them.	1	2	3	4
17. When I feel bad, I will often do things I later regret in order to make myself feel better now.	1	2	3	4
18. I would enjoy water skiing.	1	2	3	4
19. Once I get going on something I hate to stop.	1	2	3	4
20. I tend to lose control when I am in a great mood.	1	2	3	4
21. I don't like to start a project until I know exactly how to proceed.	1	2	3	4

Please go to the next page

Participant #_____

	Agree Strongly	Agree Some	Disagree Some	Disagree Strongly
22. Sometimes when I feel bad, I can't seem to stop what I am doing even though it is making me feel worse.	1	2	3	4
23. I quite enjoy taking risks.	1	2	3	4
24. I concentrate easily.	1	2	3	4
25. When I am really ecstatic, I tend to get out of control.	1	2	3	4
26. I would enjoy parachute jumping.	1	2	3	4
27. I finish what I start.	1	2	3	4
28. I tend to value and follow a rational, "sensible" approach to things.	1	2	3	4
29. When I am upset I often act without thinking.	1	2	3	4
30. Others would say I make bad choices when I am extremely happy about something.	1	2	3	4
31. I welcome new and exciting experiences and sensations, even if they are a little frightening and unconventional.	1	2	3	4
32. I am able to pace myself so as to get things done on time.	1	2	3	4
33. I usually make up my mind through careful reasoning.	1	2	3	4
34. When I feel rejected, I will often say things that I later regret.	1	2	3	4
35. Others are shocked or worried about the things I do when I am feeling very excited.	1	2	3	4
36. I would like to learn to fly an airplane.	1	2	3	4
37. I am a person who always gets the job done.	1	2	3	4
38. I am a cautious person.	1	2	3	4
39. It is hard for me to resist acting on my feelings.	1	2	3	4
40. When I get really happy about something, I tend to do things that can have bad consequences.	1	2	3	4
41. I sometimes like doing things that are a bit frightening.	1	2	3	4
42. I almost always finish projects that I start.	1	2	3	4
43. Before I get into a new situation I like to find out what to expect from it.	1	2	3	4
44. I often make matters worse because I act without thinking when I am upset.	1	2	3	4
45. When overjoyed, I feel like I can't stop myself from going overboard.	1	2	3	4

Please go to the next page

Participant #_____

	Agree Strongly	Agree Some	Disagree Some	Disagree Strongly
46. I would enjoy the sensation of skiing very fast down a high mountain slope.	1	2	3	4
47. Sometimes there are so many little things to be done that I just ignore them all.	1	2	3	4
48. I usually think carefully before doing anything.	1	2	3	4
49. Before making up my mind, I consider all the advantages and disadvantages.	1	2	3	4
50. When I am really excited, I tend not to think of the consequences of my actions.	1	2	3	4
51. In the heat of an argument, I will often say things that I later regret.	1	2	3	4
52. I would like to go scuba diving.	1	2	3	4
53. I tend to act without thinking when I am really excited.	1	2	3	4
54. I always keep my feelings under control.	1	2	3	4
55. When I am really happy, I often find myself in situations that I normally wouldn't be comfortable with.	1	2	3	4
56. I would enjoy fast driving.	1	2	3	4
57. When I am very happy, I feel like it is ok to give in to cravings or overindulge.	1	2	3	4
58. Sometimes I do impulsive things that I later regret.	1	2	3	4
59. I am surprised at the things I do while in a great mood.	1	2	3	4

Participant #_____

Scoring Instructions

This is a revised version of the UPPS Impulsive Behavior scale (Whiteside & Lynam, 2001). This version, UPPS+P, assesses an additional personality pathway to impulsive behavior, Positive Urgency (Cyders & Smith, 2007), in addition to the four pathways assessed in the original version of the scale-- Urgency (now Negative Urgency), (lack of) Premeditation, (lack of) Perseverance, and Sensation Seeking. The scale uses a 1 (agree strongly) to 4 (disagree strongly) response format. Because the items from different scales run in different directions, it is important to make sure that the correct items are reverse-scored. We suggest making all of the scales run in the direction such that higher scores indicate more impulsive behavior. Therefore, we include the scoring key for, (Negative) Urgency, (lack of) Premeditation, (lack of) Perseverance, Sensation Seeking, and Positive Urgency. For each scale, calculate the mean of the available items; this puts the scales on the same metric. We recommend requiring that a participant have at least 70% of the items before a score is calculated.

(Negative) Urgency (all items except 1 are reversed)
items 2 (R), 7(R), 12 (R), 17 (R), 22 (R), 29 (R), 34 (R), 39 (R), 44 (R), 51 (R), 54, 58 (R)

(lack of) Premeditation (no items are reversed)
items 1, 6, 11, 16, 21, 28, 33, 38, 43, 48, 49.

(lack of) Perseverance (two items are reversed)
items 4, 9 (R), 14, 19, 24, 27, 32, 37, 42, 47 (R)

Sensation Seeking (all items are reversed)
items 3 (R), 8 (R), 13 (R), 18 (R), 23 (R), 26 (R), 31 (R), 36 (R), 41 (R), 46 (R), 52 (R), 56 (R)

Positive Urgency (all items are reversed)
items 5 (R), 10 (R), 15 (R), 20 (R), 25 (R), 30 (R), 35 (R), 40 (R), 45 (R), 50 (R), 53 (R), 55 (R), 57 (R), 59 (R)

(R) indicates the item needs to be reverse scored such 1=4, 2=3, 3=2, and 4=1.

BSI-Brief Symptom Inventory

Participant #_____

Below is list of problems people sometimes have. Read each one carefully and circle the number of the response that best describes **HOW MUCH THAT PROBLEM HAS DISTRESSED OR BOTHERED YOU DURING THE PAST 7 DAYS INCLUDING TODAY.** Circle only one number for each problem (0 1 2 3 4) and do not skip any items. If you change your mind, draw an X through your original answer and then circle your new answer.

HOW MUCH WERE YOU DISTRESSED OR BOTHERED BY:	Not at all	A little bit	Moderately	Quite a bit	Extremely
1. Nervousness or shakiness inside	0	1	2	3	4
2. Faintness or dizziness	0	1	2	3	4
3. The idea that someone else can control your thoughts	0	1	2	3	4
4. Feeling others are to blame for most of your troubles	0	1	2	3	4
5.Trouble remembering things	0	1	2	3	4
6. Feeling easily annoyed or irritated	0	1	2	3	4
7. Pains in heart or chest	0	1	2	3	4
8. Feeling afraid in open spaces or on the streets	0	1	2	3	4
9. Feeling that most people cannot be trusted	0	1	2	3	4
10. Poor appetite	0	1	2	3	4
11. Suddenly scared for no reason	0	1	2	3	4
12. Temper outbursts that you could not control	0	1	2	3	4
13. Feeling lonely even when you are with people	0	1	2	3	4
14. Feeling blocked in getting things done	0	1	2	3	4
15. Feeling lonely	0	1	2	3	4
16. Feeling blue	0	1	2	3	4
17. Feeling no interest in things	0	1	2	3	4
18. Feeling fearful	0	1	2	3	4
19. Your feelings being easily hurt	0	1	2	3	4
20. Feeling that people are unfriendly or dislike you	0	1	2	3	4
21. Feeling inferior to others	0	1	2	3	4
22. Nausea or upset stomach	0	1	2	3	4
23. Feeling that you are watched or talked about by others	0	1	2	3	4
24. Trouble falling asleep	0	1	2	3	4
25. Having to check and double-check what you do	0	1	2	3	4
26. Difficulty making decisions	0	1	2	3	4
27. Feeling afraid to travel on buses, subways, or trains	0	1	2	3	4
28. Trouble getting your breath	0	1	2	3	4
29. Hot or cold spells	0	1	2	3	4
30. Having to avoid curtain things, places, or activities because they frighten you	0	1	2	3	4
31. Your mind going blank	0	1	2	3	4
32. Numbness or tingling in parts of your body	0	1	2	3	4
33. The idea that you should be punished for your sins	0	1	2	3	4
34. Feeling hopeless about the future	0	1	2	3	4
35. Trouble concentrating	0	1	2	3	4
36. Feeling weak in parts of your body	0	1	2	3	4
37. Feeling tense or keyed up	0	1	2	3	4
38. Having urges to beat, injure, or harm someone	0	1	2	3	4
39. Having urges to break or smash things	0	1	2	3	4

HOW MUCH WERE YOU DISTRESSED OR BOTHERED BY:	Not at all	A little bit	Moderately	Quite a bit	Extremely
40. Feeling very self-conscious with others	0	1	2	3	4
41. Feeling uneasy in crowds, such as shopping or at a movie	0	1	2	3	4
42. Never feeling close to another person	0	1	2	3	4
43. Spells of terror or panic	0	1	2	3	4
44. Getting into frequent arguments	0	1	2	3	4
45. Feeling nervous when you are left alone	0	1	2	3	4
46. Others not giving you proper credit for your achievements	0	1	2	3	4
47. Feeling so restless you couldn't sit still	0	1	2	3	4
48. Feelings of worthlessness	0	1	2	3	4
49. Feeling that people will take advantage of you if you let them	0	1	2	3	4
50. Feelings of guilt	0	1	2	3	4
51. The idea that something is wrong with your mind	0	1	2	3	4

CAQ

I. *Place a check mark beside the areas in which you feel you have more talent, ability, or training than the average person.*

___ visual arts (painting, sculpture)
___ music
___ dance
___ individual sports (tennis, golf)
___ team sports
___ architectural design
___ entrepreneurial ventures
___ creative writing
___ humor
___ inventions
___ scientific inquiry
___ theater and film
___ culinary arts

II. *Place a check mark beside ALL of the sentences that apply to you. Next to sentences with an asterisk (*), write the number of times this sentence applies to you.*

A. Visual Arts (Painting, sculpture)

___0. I have no training or recognized talent in this area (Skip to Music).
___1. I have taken lessons in this area.
___2. People have commented on my talent in this area.
___3. I have won a prize or prizes at a juried art show.
___4. I have had a showing of my work in a gallery.
___5. I have sold a piece of my work.
___6. My work has been critiqued in local publications.
*___7. My work has been critiqued in national publications.

B. Music

___0. I have no training or recognized talent in this area (Skip to Dance).
___1. I play one or more musical instruments proficiently.
___2. I have played with a recognized orchestra or band.
___3. I have composed an original piece of music.
___4. My musical talent has been critiqued in a local publication.
___5. My composition has been recorded.
___6. Recordings of my composition have been sold publicly.
*___7. My compositions have been critiqued in a national publication.

C. Dance

___0. I have no training or recognized talent in this area (Skip to Architecture).
___1. I have danced with a recognized dance company.
___2. I have choreographed an original dance number.
___3. My choreography has been performed publicly.
___4. My dance abilities have been critiqued in a local publication.
___5. I have choreographed dance professionally.
___6. My choreography has been recognized by a local publication.
*___7. My choreography has been recognized by a national publication.

D. Architectural Design

___0. I do not have training or recognized talent in this area (Skip to Writing).
___1. I have designed an original structure.
___2.A structure designed by me has been constructed.
___3. I have sold an original architectural design.
___4. A structure that I have designed and sold has been built professionally.
___5. My architectural design has won an award or awards.
___6. My architectural design has been recognized in a local publication.
*___7. My architectural design has been recognized in a national publication.

E. Creative Writing

___0. I do not have training or recognized talent in this area (Skip to Humor).
___1. I have written an original short work (poem or short story).
___2. My work has won an award or prize.
___3. I have written an original long work (epic, novel, or play).
___4. I have sold my work to a publisher.
___5. My work has been printed and sold publicly.
___6. My work has been reviewed in local publications.
*___7. My work has been reviewed in national publications.

F. Humor

___0. I do not have recognized talent in this area (Skip to Inventions).
___1. People have often commented on my original sense of humor.
___2. I have created jokes that are now regularly repeated by others.
___3. I have written jokes for other people.
___4. I have written a joke or cartoon that has been published.
___5. I have worked as a professional comedian.
___6. I have worked as a professional comedy writer.
*___7. My humor has been recognized in a national publication.

G. Inventions

___0. I do not have recognized talent in this area.
___1. I regularly find novel uses for household objects.
___2. I have sketched out an invention and worked on its design flaws.
___3. I have created original software for a computer.
___4. I have built a prototype of one of my designed inventions.
___5. I have sold one of my inventions to people I know.
*___6. I have received a patent for one of my inventions.
*___7. I have sold one of my inventions to a manufacturing firm.

H. Scientific Discovery

___0. I do not have training or recognized ability in this field (Skip to Theater).
___1. I often think about ways that scientific problems could be solved.
___2. I have won a prize at a science fair or other local competition.
___3. I have received a scholarship based on my work in science or medicine.
___4. I have been author or coauthor of a study published in a scientific journal.
*___5. I have won a national prize in the field of science or medicine.
*___6. I have received a grant to pursue my work in science or medicine.
___7. My work has been cited by other scientists in national publications.

I. Theater and Film

___0. I do not have training or recognized ability in this field.
___1. I have performed in theater or film.
___2. My acting abilities have been recognized in a local publication.
___3. I have directed or produced a theater or film production.
___4. I have won an award or prize for acting in theater or film.
___5. I have been paid to act in theater or film.
___6. I have been paid to direct a theater or film production.
*___7. My theatrical work has been recognized in a national publication.

J. Culinary Arts

___0. I do not have training or experience in this field.
___1. I often experiment with recipes.
___2. My recipes have been published in a local cookbook.
___3. My recipes have been used in restaurants or other public venues.
___4. I have been asked to prepare food for celebrities or dignitaries.
___5. My recipes have won a prize or award.
___6. I have received a degree in culinary arts.
*___7. My recipes have been published nationally.

K. Please list other creative achievements not mentioned above.

III. *Place a check mark beside sentences that apply to you.*

___ One of the first things people mention about me when introducing me to others is my creative ability in the above areas.

___ People regularly accuse me of having an "artistic" temperament.

___ People regularly accuse me of being an "absent-minded professor" type.

HCL-32

1. First of all, how are you feeling today compared to your usual state:
   (Please mark only ONE of the following)

Much worse than usual	Worse than usual	A little worse than usual	Neither better nor worse than usual	A little better than usual	Better than usual	Much better than usual
☐	☐	☐	☐	☐	☐	☐

2. How are you usually compared to other people?
   Independently of how you feel today, please tell us how you are normally compared to other people, by marking which of the following statements describes you best.

   Compared to other people my level of activity, energy, and mood...
   (Please mark only ONE of the following)

... is always rather stable and even	... is generally higher	... is generally lower	... repeatedly shows periods of ups and downs
☐	☐	☐	☐

3. Please try to remember a period when you were in a "high" state.
   How did you feel then? Please answer all these statements independently of your present condition.

   In such a state:

		Yes	No
1.	I need less sleep	☐	☐
2.	I feel more energetic and more active	☐	☐
3.	I am more self-confident	☐	☐
4.	I enjoy my work more	☐	☐
5.	I am more sociable (make more phone calls, go out more)	☐	☐
6.	I want to travel and/or do travel more	☐	☐
7.	I tend to drive faster or take more risks when driving	☐	☐
8.	I spend more money/ too much money	☐	☐
9.	I take more risks in my daily life (in my work and/or other activities)	☐	☐
10.	I am physically more active (sports etc.)	☐	☐
11.	I plan more activities or projects	☐	☐
12.	I have more ideas, I am more creative	☐	☐
13.	I am less shy or inhibited	☐	☐
14.	I wear more colorful and more extravagant clothes/ make-up	☐	☐

		Yes	No
15.	I want to meet or actually do meet more people	☐	☐
16.	I am more interested in sex, and/or have increased sexual desire	☐	☐
17.	I am more flirtatious and/or am more sexually active	☐	☐
18.	I talk more	☐	☐
19.	I think faster	☐	☐
20.	I make more jokes or puns when I am talking	☐	☐
21.	I am more easily distracted	☐	☐
22.	I engage in lots of new things	☐	☐
23.	My thoughts jump from topic to topic	☐	☐
24.	I do things more quickly and/or more easily	☐	☐
25.	I am more impatient and/or get irritable more easily	☐	☐
26.	I can be exhausting or irritating for others	☐	☐
27.	I get into more quarrels	☐	☐
28.	My mood is higher, more optimistic	☐	☐
29.	I drink more coffee	☐	☐
30.	I smoke more cigarettes	☐	☐
31.	I drink more alcohol	☐	☐
32.	I take more drugs (sedatives, anxiolytics, stimulants...)	☐	☐

4. Did the questions above, which characterize a "high," describe how you are...
(Please mark only ONE of the following)

... sometimes? ☐⇨*if you mark this box, please answer all questions 5 to 9*

... most of the time? ☐⇨*if you mark this box, please answer only questions 5 and 6*

I have never experienced such a "high" ☐⇨*if you mark this box, please stop here*

5. Impact of your "highs" on various aspects of your life:

	Positive and negative	Positive	Negative	No impact
Family life	☐	☐	☐	☐
Social life	☐	☐	☐	☐
Work	☐	☐	☐	☐
Leisure	☐	☐	☐	☐

6. Other people's reactions and comments to your "highs."

How did people close to you react to or comment on your "highs"?
(Please mark ONE of the following)

Positively (encouraging or supportive)	Neutral	Negatively (concerned, annoyed, irritated, critical)	Positively and negatively	No reactions
☐	☐	☐	☐	☐

7. Length of your "highs" as a rule (on the average):
(Please mark ONE of the following)

☐ 1 day	☐ Longer than 1 week
☐ 2-3 days	☐ Longer than 1 month
☐ 4-7 days	☐ I can't judge/ don't know

8. Have you experienced such "highs" in the past twelve months?

Yes ☐ No ☐

9. If yes, please estimate how many days you spent in "highs" during the last twelve months:
Talking all together: ☐☐☐ about days

O-LIFE

(Shorter version: Mason, Linney, & Claridge, 2005)

Please read through the following questions and circle the answer that applies.

1. When in the dark do you often see shapes and forms even though there is nothing there?	YES	NO
2. Are your thoughts sometimes so strong that you can almost hear them?	YES	NO
3. Have you ever thought that you had special, almost magical powers?	YES	NO
4. Have you sometimes sensed an evil presence around you, even though you could not see it?	YES	NO
5. Do you think that you could learn to read other's minds if you wanted to?	YES	NO
6. When you look in the mirror does your face sometimes seem quite different than usual?	YES	NO
7. Do ideas and insights sometimes come to you so fast that you cannot express them all?	YES	NO
8. Can some people make you aware of them just by thinking about you?	YES	NO
9. Does a passing thought ever seem so real it frightens you?	YES	NO
10. Do you feel that your accidents are caused by mysterious forces?	YES	NO
11. Do you ever have a sense of vague danger or sudden dread for reasons that you do not understand?	YES	NO
12. Does your sense of smell sometimes become unusually strong	YES	NO
13. Are you easily confused if too much happens at the same time?	YES	NO
14. Do you frequently have difficulty in starting to do things?	YES	NO
15. Are you a person whose mood goes up and down easily?	YES	NO
16. Do you dread going into a room by yourself where other people have already gathered and are talking?	YES	NO
17. Do you find it difficult to keep interested in the same thing for a long time?	YES	NO
18. Do you often have difficulties in controlling your thoughts?	YES	NO
19. Are you easily distracted from work by daydreams?	YES	NO
20. Do you ever feel that your speech is difficult to understand because the words are all mixed up	YES	NO

and don't make sense?

21. Are you easily distracted when you read or talk to someone? YES NO

22. Is it hard for you to make decisions? YES NO

23. When in a crowded room, do you often have difficulty in following a conversation? YES NO

24. Are there very few things that you have ever enjoyed doing? YES NO

25. Are you much too independent to get involved with other people? YES NO

26. Do you love having your back massaged? YES NO

27. Do you find the bright lights of a city exciting to look at? YES NO

28. Do you feel very close to your friends? YES NO

29. Has dancing or the idea of it always seemed dull to you? YES NO

30. Do you like mixing with people? YES NO

31. Is trying new foods something you have always enjoyed? YES NO

32. Have you often felt uncomfortable when your friends touch you? YES NO

33. Do you prefer watching television to going out with people? YES NO

34. Do you consider yourself to be pretty much an average sort of person? YES NO

35. Would you like other people to be afraid of you? YES NO

36. Do you often feel the impulse to spend money which you know you can't afford? YES NO

37. Are you usually in an average kind of mood, not too high and not too low? YES NO

38. Do you at times have an urge to do something harmful or shocking? YES NO

39. Do you stop to think things over before doing anything? YES NO

40. Do you often overindulge in alcohol or food? YES NO

41. Do you ever have the urge to break or smash things? YES NO

42. Have you ever felt the urge to injure yourself? YES NO

43. Do you often feel like doing the opposite of what other people suggest even though you know they are right? YES NO

SPQ

Please respond to each statement by circling the number that best represents your personal experience. Circling a **high** number indicates that the statement is very descriptive of you or that you agree with the statement. Circling a **low** number indicates that the statement is not very descriptive of you or that you disagree with the statement.

Not at all like me		*Somewhat like me*		*Very much like me*
1	2	3	4	5

1. I sometimes avoid going to places where there will be many people because I will get anxious.	1	2	3	4	5
2. Other people see me as slightly eccentric (odd).	1	2	3	4	5
3. Do you believe in telepathy (mind-reading)?	1	2	3	4	5
4. People sometimes comment on my unusual mannerisms and habits.	1	2	3	4	5
5. I sometimes jump quickly from one topic to another when speaking.	1	2	3	4	5
6. I am not good at expressing my true feelings by the way I talk and look.	1	2	3	4	5
7. When you look at a person or yourself in a mirror, have you ever seen the face change right before your eyes?	1	2	3	4	5
8. I sometimes forget what I am trying to say.	1	2	3	4	5
9. I rarely laugh and smile.	1	2	3	4	5
10. Do you sometimes get concerned that friends or co-workers are not really loyal or trustworthy?	1	2	3	4	5
11. I get anxious when meeting people for the first time.	1	2	3	4	5
12. Do you believe in clairvoyance (psychic forces, fortune telling) ?	1	2	3	4	5
13. I often hear a voice speaking my thoughts aloud.	1	2	3	4	5
14. I find it hard to be emotionally close to other people.	1	2	3	4	5

	Not at all like me		Somewhat like me		Very much like me
	1	2	3	4	5
15. I often ramble on too much when speaking.	1	2	3	4	5
16. Do you often feel nervous when you are in a group of unfamiliar people?	1	2	3	4	5
17. Do you feel that there is no one you are really close to outside of your immediate family, or people you can confide in or talk to about personal problems?	1	2	3	4	5
18. When shopping do you get the feeling that other people are taking notice of you?	1	2	3	4	5
19. I feel very uncomfortable in social situations involving unfamiliar people.	1	2	3	4	5
20. Have you had experiences with astrology, seeing the future, UFO's, ESP, or a sixth sense?	1	2	3	4	5
21. Do everyday things seem unusually large or small?	1	2	3	4	5
22. I find that I often walk with a limp, which is the result of a skydiving accident.	1	2	3	4	5
22. Have you ever felt that you are communicating with another person telepathically (by mind-reading)?	1	2	3	4	5
23. Do you tend to wander off the topic when having a conversation?	1	2	3	4	5
24. I often feel that others have it in for me.	1	2	3	4	5
25. Do you sometimes feel that other people are watching you?	1	2	3	4	5
26. Do you sometimes feel that people are talking about you?	1	2	3	4	5
27. Are your thoughts sometimes so strong that you can almost hear them?	1	2	3	4	5
28. Do you often have to keep an eye out to stop people from taking advantage of you?	1	2	3	4	5
28. I believe that most light bulbs are powered by electricity.	1	2	3	4	5
29. Do you feel that you cannot get "close" to people.	1	2	3	4	5
30. I am an odd, unusual person.	1	2	3	4	5
31. I have some eccentric (odd) habits.	1	2	3	4	5
32. I tend to keep my feelings to myself.	1	2	3	4	5

A. WHO - ASSIST V3.0

INTERVIEWER ID		COUNTRY		CLINIC	
PATIENT ID		DATE			

INTRODUCTION *(Please read to patient)*

Thank you for agreeing to take part in this brief interview about alcohol, tobacco products and other drugs. I am going to ask you some questions about your experience of using these substances across your lifetime and in the past three months. These substances can be smoked, swallowed, snorted, inhaled, injected or taken in the form of pills (show drug card).

Some of the substances listed may be prescribed by a doctor (like amphetamines, sedatives, pain medications). For this interview, we will not record medications that are used as prescribed by your doctor. However, if you have taken such medications for reasons other than prescription, or taken them more frequently or at higher doses than prescribed, please let me know. While we are also interested in knowing about your use of various illicit drugs, please be assured that information on such use will be treated as strictly confidential.

NOTE: BEFORE ASKING QUESTIONS, GIVE ASSIST RESPONSE CARD TO PATIENT

Question 1
(if completing follow-up please cross check the patient's answers with the answers given for Q1 at baseline. Any differences on this question should be queried)

In your life, which of the following substances have you ever used? *(NON-MEDICAL USE ONLY)*	No	Yes
a. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)	0	3
b. Alcoholic beverages (beer, wine, spirits, etc.)	0	3
c. Cannabis (marijuana, pot, grass, hash, etc.)	0	3
d. Cocaine (coke, crack, etc.)	0	3
e. Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)	0	3
f. Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	3
g. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)	0	3
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	0	3
i. Opioids (heroin, morphine, methadone, codeine, etc.)	0	3
j. Other - specify:	0	3

Probe if all answers are negative:
"Not even when you were in school?"

If "No" to all items, stop interview.
If "Yes" to any of these items, ask Question 2 for each substance ever used.

Question 2

In the past three months, how often have you used the substances you mentioned *(FIRST DRUG, SECOND DRUG, ETC)*?	Never	Once or Twice	Monthly	Weekly	Daily or Almost Daily
a. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)	0	2	3	4	6
b. Alcoholic beverages (beer, wine, spirits, etc.)	0	2	3	4	6
c. Cannabis (marijuana, pot, grass, hash, etc.)	0	2	3	4	6
d. Cocaine (coke, crack, etc.)	0	2	3	4	6
e. Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)	0	2	3	4	6
f. Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	2	3	4	6
g. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)	0	2	3	4	6
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	0	2	3	4	6
i. Opioids (heroin, morphine, methadone, codeine, etc.)	0	2	3	4	6
j. Other - specify:	0	2	3	4	6

If "Never" to all items in Question 2, skip to Question 6.

If any substances in Question 2 were used in the previous three months, continue with Questions 3, 4 & 5 for each substance used.

Question 3

During the past three months, how often have you had a strong desire or urge to use *(FIRST DRUG, SECOND DRUG, ETC)*?	Never	Once or Twice	Monthly	Weekly	Daily or Almost Daily
a. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)	0	3	4	5	6
b. Alcoholic beverages (beer, wine, spirits, etc.)	0	3	4	5	6
c. Cannabis (marijuana, pot, grass, hash, etc.)	0	3	4	5	6
d. Cocaine (coke, crack, etc.)	0	3	4	5	6
e. Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)	0	3	4	5	6
f. Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	3	4	5	6
g. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)	0	3	4	5	6
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	0	3	4	5	6
i. Opioids (heroin, morphine, methadone, codeine, etc.)	0	3	4	5	6
j. Other - specify:	0	3	4	5	6

Question 4

During the past three months, how often has your use of *(FIRST DRUG, SECOND DRUG, ETC)* led to health, social, legal or financial problems?	Never	Once or Twice	Monthly	Weekly	Daily or Almost Daily
a. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)	0	4	5	6	7
b. Alcoholic beverages (beer, wine, spirits, etc.)	0	4	5	6	7
c. Cannabis (marijuana, pot, grass, hash, etc.)	0	4	5	6	7
d. Cocaine (coke, crack, etc.)	0	4	5	6	7
e. Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)	0	4	5	6	7
f. Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	4	5	6	7
g. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)	0	4	5	6	7
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	0	4	5	6	7
i. Opioids (heroin, morphine, methadone, codeine, etc.)	0	4	5	6	7
j. Other - specify:	0	4	5	6	7

Question 5

During the past three months, how often have you failed to do what was normally expected of you because of your use of *(FIRST DRUG, SECOND DRUG, ETC)*?	Never	Once or Twice	Monthly	Weekly	Daily or Almost Daily
a. Tobacco products					
b. Alcoholic beverages (beer, wine, spirits, etc.)	0	5	6	7	8
c. Cannabis (marijuana, pot, grass, hash, etc.)	0	5	6	7	8
d. Cocaine (coke, crack, etc.)	0	5	6	7	8
e. Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)	0	5	6	7	8
f. Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	5	6	7	8
g. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)	0	5	6	7	8
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	0	5	6	7	8
i. Opioids (heroin, morphine, methadone, codeine, etc.)	0	5	6	7	8
j. Other - specify:	0	5	6	7	8

Ask Questions 6 & 7 for all substances ever used (i.e. those endorsed in Question 1)

Question 6

Has a friend or relative or anyone else ever expressed concern about your use of *(FIRST DRUG, SECOND DRUG, ETC.)?*	No, Never	Yes, in the past 3 months	Yes, but not in the past 3 months
a. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)	0	6	3
b. Alcoholic beverages (beer, wine, spirits, etc.)	0	6	3
c. Cannabis (marijuana, pot, grass, hash, etc.)	0	6	3
d. Cocaine (coke, crack, etc.)	0	6	3
e. Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)	0	6	3
f. Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	6	3
g. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)	0	6	3
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	0	6	3
i. Opioids (heroin, morphine, methadone, codeine, etc.)	0	6	3
j. Other – specify:	0	6	3

Question 7

Have you ever tried and failed to control, cut down or stop using *(FIRST DRUG, SECOND DRUG, ETC.)?*	No, Never	Yes, in the past 3 months	Yes, but not in the past 3 months
a. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)	0	6	3
b. Alcoholic beverages (beer, wine, spirits, etc.)	0	6	3
c. Cannabis (marijuana, pot, grass, hash, etc.)	0	6	3
d. Cocaine (coke, crack, etc.)	0	6	3
e. Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)	0	6	3
f. Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	6	3
g. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)	0	6	3
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	0	6	3
i. Opioids (heroin, morphine, methadone, codeine, etc.)	0	6	3
j. Other – specify:	0	6	3

Question 8

	No, Never	Yes, in the past 3 months	Yes, but not in the past 3 months
Have you ever used any drug by injection? *(NON-MEDICAL USE ONLY)*	0	2	1

IMPORTANT NOTE:

Patients who have injected drugs in the last 3 months should be asked about their pattern of injecting during this period, to determine their risk levels and the best course of intervention.

PATTERN OF INJECTING		INTERVENTION GUIDELINES
Once weekly or less Fewer than 3 days in a row	or	→ Brief Intervention including "risks associated with injecting" card
More than once per week 3 or more days in a row	or	→ Further assessment and more intensive treatment*

HOW TO CALCULATE A SPECIFIC SUBSTANCE INVOLVEMENT SCORE:

For each substance (labelled a. to j.) add up the scores received for questions 2 through 7 inclusive. Do not include the results from either Q1 or Q8 in this score. For example, a score for cannabis would be calculated as: **Q2c + Q3c + Q4c + Q5c + Q6c + Q7c**

Note that Q5 for tobacco is not coded, and is calculated as: **Q2a + Q3a + Q4a + Q6a + Q7a**

THE TYPE OF INTERVENTION IS DETERMINED BY THE PATIENT'S SPECIFIC SUBSTANCE INVOLVEMENT SCORE:

	Record specific substance score	no intervention	receive brief intervention	more intensive treatment *
a. tobacco		0 - 3	4 - 26	27+
b. alcohol		0 - 10	11 - 26	27+
c. cannabis		0 - 3	4 - 26	27+
d. cocaine		0 - 3	4 - 26	27+
e. amphetamine		0 - 3	4 - 26	27+
f. inhalants		0 - 3	4 - 26	27+
g. sedatives		0 - 3	4 - 26	27+
h. hallucinogens		0 - 3	4 - 26	27+
i. opioids		0 - 3	4 - 26	27+
j. other drugs		0 - 3	4 - 26	27+

NOTE: *FURTHER ASSESSMENT AND MORE INTENSIVE TREATMENT may be provided by the health professional(s) within your primary care setting, or, by a specialist drug and alcohol treatment service when available.

Participant #_____

THE AGGRESSION QUESTIONNAIRE

Rate each of the following items in terms of how characteristic they are of you. Use the following scale:

1	2	3	4	5
Extremely uncharacteristic of me				Extremely characteristic of me

_____ 1. Once in a while, I can't control the urge to strike another person.

_____ 2. If I have to resort to violence to protect my rights, I will.

_____ 3. I have trouble controlling my temper.

_____ 4. I often find myself disagreeing with people.

_____ 5. I have become so mad that I have broken things.

_____ 6. I am an even-tempered person.

_____ 7. When people are especially nice, I wonder what they want.

_____ 8. Given enough provocation, I may hit another person.

_____ 9. I tell my friends openly when I disagree with them.

_____ 10. If someone hits me, I hot back.

_____ 11. I get into fights a little more than the average person.

_____ 12. I can think of no good reason for ever hitting a person.

_____ 13. I am sometimes eaten up with jealousy.

_____ 14. I know that "friends" talk about me behind my back.

_____ 15. I have threatened people I know.

_____ 16. When people annoy me, I may tell them what I think of them.

_____ 17. I can't help getting into arguments when people disagree with me.

_____ 18. My friends say that I'm somewhat argumentative.

_____ 19. Other people always seem to get the breaks.

_____ 20. Sometimes I fly off the handle for no good reason.

_____ 21. There are people who pushed me so far that we came to blows.

Participant #_____

_____ 22. I wonder why sometimes I feel so bitter about things.

_____ 23. I sometimes feel that people are laughing at me behind my back.

_____ 24. When frustrated, I let my irritation show.

_____ 25. I sometimes feel like a powder keg ready to explode.

_____ 26. Some of my friends think I'm a hothead.

_____ 27. At times I feel I have gotten a raw deal out of life.

_____ 28. I am suspicious of overly friendly strangers.

_____ 29. I flare up quickly but get over it quickly.

Participant #_____

Specific Acts Questionnaire

Please answer the following questions as accurately as possible by checking the box that applies. There are no right or wrong answers.

In the past 12 months…

1. Have you hit, kicked, or punched a stranger out of anger with the intent to cause harm?

   ☐ Yes ☐ No

   If yes please indicate how many times below (please respond to the best of your ability).

   ☐ 1-3 ☐ 4-6 ☐ 7-9 ☐ 10-13 ☐ 13+

2. Have you hit, kicked, or punched a friend out of anger with the intent to cause harm?

   ☐ Yes ☐ No

   If yes please indicate how many times below (please respond to the best of your ability).

   ☐ 1-3 ☐ 4-6 ☐ 7-9 ☐ 10-13 ☐ 13+

3. Have you hit, kicked, or punched a family member or significant other out of anger with the intent to cause harm?

   ☐ Yes ☐ No

   If yes please indicate how many times below (please respond to the best of your ability).

   ☐ 1-3 ☐ 4-6 ☐ 7-9 ☐ 10-13 ☐ 13+

4. How many physical fights have you been in in your lifetime?

   ☐ 1-3 ☐ 4-6 ☐ 7-9 ☐ 10-13 ☐ 13+

5. Have you gotten in an argument (verbal) or yelled at a stranger?

   ☐ Yes ☐ No

   If yes please indicate how many times below (please respond to the best of your ability).

   ☐ 1-3 ☐ 4-6 ☐ 7-9 ☐ 10-13 ☐ 13+

Participant #_____

6. Have you gotten in an argument (verbal) or yelled at a friend?

☐ Yes ☐ No

If yes please indicate how many times below (please respond to the best of your ability).

☐ 1-3 ☐ 4-6 ☐ 7-9 ☐ 10-13 ☐ 13+

7. Have you gotten in an argument (verbal) or yelled at a family member or significant other?

☐ Yes ☐ No

If yes please indicate how many times below (please respond to the best of your ability).

☐ 1-3 ☐ 4-6 ☐ 7-9 ☐ 10-13 ☐ 13+

8. Have you called a stranger a rude, derogatory, or obscene name or phrase with intent to cause harm?

☐ Yes ☐ No

If yes please indicate how many times below (please respond to the best of your ability).

☐ 1-3 ☐ 4-6 ☐ 7-9 ☐ 10-13 ☐ 13+

9. Have you called a friend a rude, derogatory, or obscene name or phrase with intent to cause harm?

☐ Yes ☐ No

If yes please indicate how many times below (please respond to the best of your ability).

☐ 1-3 ☐ 4-6 ☐ 7-9 ☐ 10-13 ☐ 13+

10. Have you called a family member or significant other a rude, derogatory, or obscene name or phrase with intent to cause harm?

☐ Yes ☐ No

If yes please indicate how many times below (please respond to the best of your ability).

☐ 1-3 ☐ 4-6 ☐ 7-9 ☐ 10-13 ☐ 13+

Participant #_____

11. Have you cause damage to a stranger's property (i.e. keyed a car, punched a hole in a wall, etc)?

☐ Yes ☐ No

If yes please indicate how many times below (please respond to the best of your ability).

☐ 1-3 ☐ 4-6 ☐ 7-9 ☐ 10-13 ☐ 13+

12. Have you cause damage to a friend's property (i.e. keyed a car, punched a hole in a wall, etc)?

☐ Yes ☐ No

If yes please indicate how many times below (please respond to the best of your ability).

☐ 1-3 ☐ 4-6 ☐ 7-9 ☐ 10-13 ☐ 13+

13. Have you cause damage to a family member's or significant other's property (i.e. keyed a car, punched a hole in a wall, etc)?

☐ Yes ☐ No

If yes please indicate how many times below (please respond to the best of your ability).

☐ 1-3 ☐ 4-6 ☐ 7-9 ☐ 10-13 ☐ 13+

14. Have you ever used a weapon (knife, gun, brass knuckles, bottle, bat, etc.) to harm a stranger?

☐ Yes ☐ No

If yes please indicate how many times below (please respond to the best of your ability).

☐ 1-3 ☐ 4-6 ☐ 7-9 ☐ 10-13 ☐ 13+

15. Have you ever used a weapon (knife, gun, brass knuckles, bottle, bat, etc.) to harm a friend?

☐ Yes ☐ No

If yes please indicate how many times below (please respond to the best of your ability).

☐ 1-3 ☐ 4-6 ☐ 7-9 ☐ 10-13 ☐ 13+

Participant #_____

16. Have you ever used a weapon (knife, gun, brass knuckles, bottle, bat, etc.) to harm a family member or significant other?

☐ Yes ☐ No

If yes please indicate how many times below (please respond to the best of your ability).

☐ 1-3 ☐ 4-6 ☐ 7-9 ☐ 10-13 ☐ 13+

In your lifetime…

1. Have you ever been arrested (convicted or not)?

☐ Yes ☐ No

If yes please indicate which of the following best describes the reason for arrest (Check all that apply).

☐ Battery
☐ Larceny
☐ Drug and alcohol
☐ Terroristic threats
☐ Possession of a weapon
☐ Property damage
☐ Trespassing
☐ Disorderly conduct
☐ Aggravated assault
☐ Robbery
☐ Burglary
☐ Attempted homicide
☐ Homicide

Please indicate how many times you have been arrested (whether convicted or not)

☐ 1-2 ☐ 3-4 ☐ 5-6 ☐ 7-8 ☐ 9+