The Normative Nature of Aggressive Intrusive Thinking Among an Underserved Incarcerated Population Compared With a Student Sample

Ryan C. T. DeLapp¹, Gregory S. Chasson², Jessica Swerbilow³, Brittany Gibby³,⁴, Ghazel Tellawi¹, and Monnica T. Williams⁵

Abstract
Aggressive intrusive thoughts (AITs) are unwanted and repetitive thoughts, impulses, or desires that enter into consciousness involuntarily. The current study compared the frequency of and distress from AITs in a sample of inmates jailed for violent crimes \((n = 78)\) versus college students \((n = 103; \text{that is, participant status})\). The relationship between psychopathic traits and AITs was also explored. Results indicated that, although there were no differences between students and inmates, AIT frequency was positively associated with Primary Psychopathy. However, there was no significant interaction between participant status (i.e., inmate vs. student) and psychopathy. Finally, there were no significant main or interactions effects in the model predicting AIT distress. These findings demonstrate that AIT frequency is a normative cognitive experience that occurs in both nonviolent and violent individuals, and provides further evidence for an association between psychopathic traits and unwanted aggressive cognition.

¹University of Louisville, KY, USA
²Illinois Institute of Technology, Chicago, USA
³Towson University, MD, USA
⁴Florida State University, Tallahassee, USA
⁵University of Connecticut, Storrs, USA

Corresponding Author:
Gregory S. Chasson, Department of Psychology, Illinois Institute of Technology, Tech Central—Floor 2, 3424 S. State Street, Chicago, IL 60616, USA.
Email: gchasson@gmail.com
Keywords
intrusive thoughts, aggressive cognition, psychopathy, incarceration, obsessive-compulsive disorder

Among incarcerated individuals, reports suggest that as high as 71% have a mental illness, with 16% to 24% exhibiting high levels of severity (Ax et al., 2008; Dumont, Brockmann, Dickman, Alexander, & Rich, 2012; Dumont, Gjelsvik, Redmond, & Rich, 2013). Despite the high prevalence of mental illness within jail and prison populations, incarcerated individuals often lack accessibility to mental health care that is appropriate for their unique psychosocial challenges, thus identifying these individuals as a medically underserved population. Specifically, Dumont and colleagues (2012) proposed that there is a deficiency in the treatment offered to these individuals and that incarceration can therefore be a risk factor for adverse outcomes due to the poor accessibility of evidence-based, specialized treatment options. These researchers and others (Freudenberg, 2001) consequently have advocated for improving the health needs of this marginalized population in effort to expand access to effective treatment for inmates. Moreover, Dumont and colleagues (2012) recommended that investigators expound on recent health care research (on topics like mental illness, sexually transmitted diseases) by exploring the degree to which the research findings generalize to underserved incarcerated populations. To this end, the current study examines the relationship between two possible underlying mechanisms of aggression (i.e., aggressive intrusive thoughts [AITs] and psychopathy)—which have mostly been investigated in non-underprivileged samples—that may be relevant for an incarcerated population. In particular, intrusive thoughts that are aggressive in nature may be particularly relevant for a violent incarcerated sample.

Intrusive thoughts are cognitions that originate within the individual and enter into consciousness involuntarily and spontaneously (Rachman, 1981). Research has shown that most individuals experience intrusive thoughts in their lifetime, with one meta-analysis finding that 93% of individuals report experiencing an unwanted, unpleasant thought at some point (Julien, O’Connor, & Aardema, 2007). Although intrusive thoughts occur in nonclinical populations and are considered normal (Morillo, Belloch, & García-Soriano, 2007; Purdon & Clark, 1994), there is some difference in content between clinical and nonclinical individuals, with certain content considered abnormal and unique to clinical populations (Rassin & Muris, 2006). Intrusive thoughts may take on a variety of themes (e.g., sexuality, aggressiveness, perfectionism, fear of loss, and contamination; Purdon & Clark, 1994; Wetterneck, Smith, Burgess, & Hart, 2011) and different forms (e.g., thoughts, images, or impulses; Freeston, Dugas, & Ladouceur, 1996). While these thoughts are ephemeral and nonimpactful for the majority of individuals (Freeston & Ladouceur, 1999), they may be highly distressing for some. For example, the thoughts are distressing and occur in the context of many psychiatric conditions, such as obsessive-compulsive disorder (OCD), depression, insomnia, posttraumatic stress disorder, and postpartum distress (Abramowitz, Schwartz, & Moore, 2003; Clark, 2005).
AITs is one subtype of these cognitions and includes content like imposing harm on a close friend or family member and acts of violence during sex. Similarly, aggressive intrusive impulses can include an urge to crash a car while driving or attack weak or defenseless individuals (e.g., a child). Extant literature has demonstrated that AITs are prevalent in nonclinical populations (Grisso, Davis, Vesselinov, Appelbaum, & Monahan, 2000; Nagtegaal, Rassin, & Muris, 2006). Specifically, Nagtegaal and colleagues (2006) found that 59.7% of their nonclinical sample consisting of college students from the Netherlands experienced aggressive thinking (e.g., having thoughts about harming others). Also, researchers reported that the frequency of these aggressive thoughts ranged between daily to several times per year, with 33% experiencing aggressive thinking recently (i.e., within past 2 months). Regarding the comparative frequency of AITs between nonclinical and clinical populations, aggressive cognitions in nonclinical community–based control group have been found to be much less frequent relative to patients hospitalized for mental illness (e.g., schizophrenia, depression, bipolar disorder, and personality disorder only; Grisso et al., 2000).

It has been proposed that AITs are prompted when other individuals “are perceived as provocatively obstructing or threatening desired goal states” (Riskind, Ayers, & Wright, 2007, p. 287), such as someone having intrusive thoughts about harming someone who poses a threat of getting them sick by excessively sneezing around them. In these situations, Riskind and colleagues (2007) found evidence that these aggressive thoughts were directed toward removing the threat of the individual who was impeding the achievement of a desired goal state.

A common construct discussed within the context of aggression is psychopathy, which is characterized by unique interpersonal (e.g., deceitfulness, grandiosity, manipulation, and superficial charm), affective (e.g., shallow affect, lack of remorse, and empathy), and behavioral (e.g., impulsivity, avoiding personal responsibility for actions, or lifestyle) traits (O’Neill, Nenzel, & Caldwell, 2009; Sellbom, 2010). However, initial theories of psychopathy described two subtypes: Primary and Secondary. Individuals with Primary Psychopathy embody the aforementioned interpersonal and affective characteristics, whereas individuals with Secondary Psychopathy are characterized by neurotic and impulsive tendencies (Salekin, Chen, Sellbom, Lester, & MacDougall, 2014). That is, individuals with Secondary Psychopathy tend to engage in antisocial behavior “under the influence of [an] emotional disorder . . . whereas pure primaries give no evidence of such disorder” (Levenson, Kiehl, & Fitzpatrick, 1995, p. 152). In support of Levenson’s assertion, extant literature has demonstrated that Secondary Psychopathy is distinctly positively associated with measures of neuroticism (Levenson et al., 1995; Miller, Gaughan, & Pryor, 2008; Salekin et al., 2014).

Although prior evidence has explored the relationship between psychopathy and aggressive behavior among incarcerated individuals (Cima & Raine, 2009; Lee & Egan, 2013; Lehmann & Ittel, 2012), few studies have explored how psychopathic traits are related to aggressive thinking. Conceptually, it has been proposed that individuals who do not report AITs possess psychopathic traits that decrease the likelihood that aggressive thoughts are appraised as intrusive and distressing (O’Neill et al., 2009).
To explore this hypothesis, O’Neill and colleagues (2009) examined the relationship between psychopathic traits and intrusive thoughts in a student sample and a sample of incarcerated individuals and found that intrusive thoughts and impulses were more frequent in the student sample relative to the inmate sample, 75% versus 28%, respectively. Greater frequency of AITs was related to more distress only in the student sample. In terms of psychopathic traits, higher psychopathy scores were associated with less frequent intrusive thoughts in the incarcerated sample, whereas there was no difference in frequency in the student sample. These findings supported their assertion about the nature of aggressive thoughts in those with psychopathic tendencies (i.e., those with high psychopathy did not view the aggressive thoughts as intrusive because they did not appraise them as repugnant; Rachman, 1997).

Although extant literature has examined the manifestation of aggressive/violent behavior among non-incarcerated and incarcerated populations, fewer studies have explored the cognitive processes associated with aggression within these populations (Doucette-Gates, Firestone, & Firestone, 1999). To this end, the current study builds on the methodology of O’Neill and colleagues (2009) by using a self-report instrument to explore whether inmates incarcerated for violent offenses would differ in the frequency and distress experienced from AITs relative to the student sample. That is, O’Neill and colleagues (2009) used an interview format, whereas we administered a self-report questionnaire that broadened the measurement of AITs. In addition to reducing the demands of memory recall, the listing of AIT content domain in the self-report provides inherent clarification about the meaning of intrusive thoughts by presenting real-world examples. Also, unlike O’Neill et al. (2009), which measured AIT frequency in an all-or-none way (e.g., having at least one AIT vs. not endorsing any AITs), the self-report methodology expands this operationalization by asking respondents to report the presence and degree of occurrence using forced-choice response options (i.e., 10+/month, 10+/week, 10+/day, or less).

In addition to incorporating a self-report measure of AITs, the current study expanded on the O’Neill et al. (2009) study by examining the relationship between AITs and psychopathic traits from two novel perspectives. First, rather than utilizing a unidimensional index of psychopathy (O’Neill et al., 2009), we explore a more nuanced relationship between AITs and psychopathy by including a two-dimensional scale of psychopathy (i.e., Primary and Secondary Psychopathy). Second, unlike the O’Neill et al. (2009) study, we examined the relationship between psychopathic traits and perceived AIT distress within each subsample (i.e., inmates vs. students).

As demonstrated in the previous literature, we hypothesized that both groups would endorse the presence of AITs (Grizzo et al., 2000; Nagtegaal et al., 2006); however, it was predicted that the student sample would endorse a greater frequency of these intrusive thoughts compared with the inmate sample (O’Neill et al., 2009). According to our review of the research literature, no studies besides O’Neill et al. (2009) have compared the level of distress resulting from AITs between an inmate and student sample. As such, we hypothesized that a greater frequency of AITs would be associated with more distress, primarily in the student sample (O’Neill et al., 2009). Importantly, the examination of AIT frequency and distress among historically nonviolent and violent
individuals would further provide a normative baseline for such intrusive thoughts and impulses, thereby contributing to the psychoeducation and normalizing of such cognitions during interventions for mental disorders oftentimes characterized by AITs (e.g., OCD). And, though evidence suggests that intrusive thinking is normative and a universal phenomenon of human cognition, the current study further explored psychopathy as a moderator—a variable that could partially explain the nonuniversality and unique experience of AITs. Based on findings by O’Neill and colleagues (2009), we hypothesized that there would be an inverse relationship between endorsed psychopathic traits (Primary and Secondary) and the frequency of AITs, providing further evidence for a unique affective processing and appraisal process associated with psychopathy (i.e., experiencing aggressive thoughts as less intrusive). Given that the Secondary Psychopathy has been associated with increased neuroticism, it was hypothesized that individuals particularly high in Secondary Psychopathy would experience more distress from AITs (Levenson et al., 1995; Miller et al., 2008; Salekin et al., 2014).

Method

Participants

Participants consisted of undergraduate students from a Mid-Atlantic university and inmates from a nearby state correctional facility. For the student group, 111 were recruited from the undergraduate psychology department research pool, allowing them to receive extra credit for coursework. However, eight students were eliminated from the analyses due to significant missing data. As such, the final student sample consists of 103 participants. The age range of participants was 18 to 44 years old, with a mean of 19.92 years old ($SD = 3.43$). Participants were 16.5% male ($n = 17$) and 83.5% female ($n = 83$). Participants were 68.9% European American, 14.6% African American, 1.9% Hispanic American, 5.8% Asian American, and 8.7% Other (e.g., biracial or multiracial), thus making the student sample comprised of nearly 30% ethnic minorities.

The incarcerated sample consisted of 84 individuals. Six were eliminated from analyses due to significant missing data and/or containing significant outliers ($z \pm 4$). The final inmate sample consisted of 78 participants. The age range of the incarcerated sample was 18 to 61 years old, with a mean age of 33.31 years old ($SD = 11.61$). Participants consisted of 12.8% female ($n = 10$) and 87.2% male ($n = 68$). Participants were 23.1% European American, 55.1% African American, 5.1% Hispanic, and 16.7% Other (e.g., biracial, Jamaican, or Native American).

The inmates were chosen based on past violent convictions or current violent convictions or charges. The list of eligible aggressive offenses was derived by the research team. Using an exhaustive legal list of criminal offenses (violent and nonviolent) in the state, seven study team members individually selected offenses considered to be aggressive. Kappa values were calculated for the ratings, and scores that fell above .35 were considered fair agreement or higher (Landis & Koch, 1977). Criminal charges that at least four of the six study team members endorsed as violent were included in the final list of inclusionary offenses. Examples of retained violent charges included
rape and murder. Non-English speaking students and inmates were excluded because the questionnaires have not been validated in other languages. Per the institutional review board’s request, there are no data regarding individuals who were excluded due to language barriers. This was done to enhance participant anonymity.

Procedure

Before beginning the questionnaires, the undergraduates received a brief explanation of intrusive thoughts based on an educational script (Rachman, 2003). The researcher provided the definition of intrusive thoughts, normalized them, gave examples, and informed the participants about the types of intrusive thoughts mentioned on the questionnaires. With the incarcerated sample, study staff provided a group-based information session in which individuals received details about the research project, what types of questions they would be answering, and their compensation (i.e., as recommended by the jail staff, a pair of white socks, which is a relatively strong incentive in jail). Once inmates consented to participate, they were brought individually into a small room with a study staff interviewer. Before the interview began, the interviewer explained once again about the nature of intrusive thoughts to normalize them and stressed study confidentiality. To increase inmate privacy, interviewers put participant responses directly into a sealed box after completion and were never made aware of the participants’ name or criminal offense (jail staff selected participants based on our list of offenses, but researchers were blind to specific participant crimes). The only methodological element that made the study nonanonymous was the face-to-face interview. Because many of the inmates were illiterate or limited in educational attainment, interviewers read aloud the questions verbatim from the measures. The interviewer was also asked to record inmate responses on an answer sheet.

Measures

**Levenson Self-Report Psychopathy Scale (LSRP).** The LSRP (Levenson et al., 1995) is a 26-item self-report measure that assesses behavioral and personality traits related to psychopathy. Responses to the LSRP are provided on a 4-point Likert-type scale (i.e., 1 = disagree strongly, 2 = disagree somewhat, 3 = agree somewhat, 4 = agree strongly), with higher scores representing more psychopathy. Some items are reverse coded and then summed up into the two factors. It has been found that LSRP correlates well with a gold standard measure of psychopathy (Walters, Brinkley, Magaletta, & Diamond, 2008). Although there has been mixed results in the research literature about the factor structure of the LSRP (Brinkley, Schmitt, Smith, & Newman, 2001; Salekin et al., 2014; Sellbom, 2010), the current study adopted the two factor version, which contains the following: Primary Psychopathy factor (i.e., selfish and manipulative orientation) and Secondary Psychopathy factor (i.e., impulsiveness and reduced behavior controls; Walters et al., 2008). The current study found adequate to good internal stability for the Primary (e.g., Student: $\alpha = .81$; Inmate: $\alpha = .78$) and Secondary (e.g., Student: $\alpha = .70$) factors, although the inmate Secondary Psychopathology alpha was relatively low.
(Inmate: $\alpha = .58$). A taxometric analysis of the LSRP suggests that it measures a psychopathy construct that conforms to a dimensional model (Walters et al., 2008).

**Intrusive Thoughts Questionnaire (ITQ).** The ITQ is a 28-item measure assessing the frequency and distress level of specific intrusive thoughts. This measure reproduces the original methodology of Rachman and de Silva (1978). Participants report how often they have a specific intrusive thought (coded 1-4 for less than 10+ times a month, 10+ times a month, 10+ times a week, and 10+ times a day, respectively), with higher scores reflecting greater perceived frequency. These frequency options were transformed into an ordinal numerical scale, and a total sum was calculated for each participant and used as a measure of perceived frequency of AITs. Participants also rated their distress level from the thought on a scale of 0 to 100 (0 = no distress, 100 = extremely distressing). The current study found adequate to good internal consistency for the AIT frequency (i.e., Student: $\alpha = .91$; Inmate: $\alpha = .85$) and AIT distress (i.e., Student: $\alpha = .95$; Inmate: $\alpha = .86$).

**Data Analysis**

Chi-square analyses and independent-sample $t$ tests were utilized to identify potential covariates that should be accounted for in our analysis, which included gender, age, and ethnicity. Also, bivariate correlations and hierarchical regression were utilized to explore the linear relationships between AIT frequency and distress, as well as between psychopathic traits and AITs. In these analyses, participant status and ethnicity were dichotomous variables. In particular, gender was coded 1 for male and 2 for female, the participant status variable was coded with a 1 for the student sample and 0 for inmate sample, and, similarly, ethnicity was coded 1 for ethnic minorities (e.g., African American, Hispanic American, or Asian American) and 0 for nonminority participants. Age was a continuous variable. The hierarchical regression model was as follows: AIT frequency = (age + gender + ethnicity + AIT distress) + (inmate/student group assignment) + (Primary Psychopathy + Secondary Psychopathy) + (Group × Primary Psychopathology + Group × Secondary Psychopathology), with each parenthetical set of variables representing a hierarchical block in the analysis. The second set of analyses swapped AIT frequency and AIT distress in the abovementioned model. Although not extensive, missing data were handled using stochastic regression imputation. When the data are missing at random or completely at random and missing data rates are minimal, regression imputation is a valid approach to handling missing data (Little & Rubin, 1987; Scheffer, 2002).

**Results**

**Descriptive Statistics**

Table 1 includes the mean and standard deviation values for the LSRP subscales, frequency of AITs, and AIT distress for the student and inmate samples. Chi-square
analyses demonstrated that the student and inmate samples significantly differed in terms of gender, $\chi^2(1) = 89.01, p < .001$, and ethnicity makeup, $\chi^2(1) = 37.34, p < .001$, with more females and nonminorities in the student sample. In addition, results indicated that the student sample was significantly younger than the inmate sample, $t(85.99) = -9.81, p < .001$. As such, gender, ethnicity, and age were controlled in the subsequent hierarchical regression analyses.

### Table 1. Bivariate Correlations for Study Variables in College and Inmate Samples.

<table>
<thead>
<tr>
<th></th>
<th>AIT frequency</th>
<th>Primary (LSRP)</th>
<th>Secondary (LSRP)</th>
<th>LSRP total (26 items)</th>
<th>AIT distress</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Student sample</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AIT frequency</td>
<td>1</td>
<td>.33***</td>
<td>.33***</td>
<td>.39***</td>
<td>.50***</td>
</tr>
<tr>
<td>Primary (LSRP)</td>
<td></td>
<td>.45***</td>
<td>.90***</td>
<td></td>
<td>.09</td>
</tr>
<tr>
<td>Secondary (LSRP)</td>
<td></td>
<td></td>
<td>.79**</td>
<td></td>
<td>.12</td>
</tr>
<tr>
<td>LSRP total (26 items)</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>AIT distress</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$M$ ($SD$)</td>
<td>102.13 (10.43)</td>
<td>28.86 (6.83)</td>
<td>20.24 (4.90)</td>
<td>49.10 (10.04)</td>
<td>39.37 (11.21)</td>
</tr>
<tr>
<td><strong>Inmate sample</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AIT frequency</td>
<td>1</td>
<td>.36*</td>
<td>.25*</td>
<td>.36**</td>
<td>.46**</td>
</tr>
<tr>
<td>Primary (LSRP)</td>
<td></td>
<td>.56**</td>
<td>.93**</td>
<td></td>
<td>.15</td>
</tr>
<tr>
<td>Secondary (LSRP)</td>
<td></td>
<td></td>
<td>.82**</td>
<td></td>
<td>.17</td>
</tr>
<tr>
<td>LSRP total (26 items)</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>AIT distress</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$M$ ($SD$)</td>
<td>102.51 (9.24)</td>
<td>32.15 (8.31)</td>
<td>22.91 (5.31)</td>
<td>55.06 (12.09)</td>
<td>35.29 (7.06)</td>
</tr>
</tbody>
</table>

*Note. AIT = aggressive intrusive thoughts; LSRP = Levenson Self-Report Psychopathy Scale. 
*$p < .05$. **$p < .01$.

Correlates of AITs/Impulses

As shown in Table 1, more AIT frequency was significantly associated with more AIT distress in the student sample ($r = .50, p < .001$). Also, the correlations between both Primary and Secondary Psychopathy with AIT frequency were statistically significant in the student sample (both $rs = .33, ps < .01$). There were no significant correlations between AIT distress and psychopathy indices in the student sample.
Similarly, Table 1 shows that AIT distress within the inmate sample was also significantly associated with AIT frequency, such that an increased frequency of AITs was associated with more distress ($r = .46, p < .01$). Like the student sample, AIT frequency was positively correlated with Primary and Secondary Psychopathy ($r = .36$ and $r = .25$, respectively, both $p_s < .05$). As with the students, there were no significant relationships between AIT distress and psychopathic traits in the inmate sample.

**Hierarchical Regression: Psychopathic Traits, and AITs**

Hierarchical regression was conducted to examine the association between psychopathic traits (i.e., Primary and Secondary Psychopathy subscales) and AITs (i.e., frequency and distress) after controlling for the effects of gender, age, and participant status (i.e., Student vs. Inmate). Two separate regression models were analyzed: (a) AIT frequency was the dependent variable and (b) AIT distress was the dependent variable. According to a plot with standardized residual and predicted values, multivariate normality and homoscedasticity assumptions were met (Field, 2009).

**Psychopathy and AIT frequency.** The first hierarchical regression model contained four steps (see Table 2). In Block 1, AIT distress, gender, age, and ethnicity were added as covariates to the model, which yielded a significant regression model. Age and gender emerged as significant predictors of AIT frequency (both effects $\beta = –.18$, $p < .05$), with younger and female participants endorsing higher frequency of AITs. Also, as expected, AIT distress emerged as a significant positive predictor of AIT frequency ($\beta = .46$, $p < .001$). Dummy-coded participant status was then entered into Block 2 to examine group differences in AIT frequency, but there was not a significant improvement in model; students and inmates endorsed similar AIT frequency. In Block 3, measures of psychopathic traits were added to the model to examine their relationship with AIT frequency, which also showed a statistically significant improvement in model fit. Specifically, only primary psychopathic traits demonstrated a statistically significant main effect, suggesting that self-reported Primary Psychopathy ($\beta = .25$, $p < .05$) was related to perceived AIT frequency. In Block 4, the interaction between participant status and psychopathy were explored in separate interaction terms using the Primary and Secondary subscales. However, the addition of the interaction terms did not significantly improve the model. Ultimately, the model with all main effects but no interactions (i.e., no Block 4) best characterized the relationship between psychopathic traits and AIT frequency in our sample. This model accounted for approximately 35% of the variance in AIT frequency.

**Psychopathy and AIT distress.** The second hierarchical regression model also contained four steps (see Table 3) that mirrored the analysis with AIT frequency. In Block 1, AIT frequency emerged as a significant predictor of AIT distress. However, adding the covariates, main effects, and interaction did not statistically improve model fit, suggesting that psychopathy is not a significant predictor to AIT distress after controlling for demographic differences between our student and inmate samples.
The purpose of the current study was to better understand two underlying mechanisms of mental illness by examining differences in AIT frequency and distress between 

Table 2. Hierarchical Multiple Regression Results: Psychopathy and AIT Frequency Relationship.

<table>
<thead>
<tr>
<th>Block and variable</th>
<th>ΔR²</th>
<th>F change</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 AIT distress</td>
<td>.276***</td>
<td>16.66***</td>
<td>0.47</td>
<td>0.07</td>
<td>.46***</td>
</tr>
<tr>
<td>Age</td>
<td>−0.18</td>
<td>0.07</td>
<td>−.18*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>−3.48</td>
<td>1.47</td>
<td>−.18*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethnicity</td>
<td>2.55</td>
<td>1.34</td>
<td>.08</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Participant status</td>
<td>.000</td>
<td>0.12</td>
<td>−0.77</td>
<td>2.26</td>
<td>−.04</td>
</tr>
<tr>
<td>3 LSRP 1</td>
<td>.073***</td>
<td>9.61***</td>
<td>0.25</td>
<td>0.10</td>
<td>.19*</td>
</tr>
<tr>
<td>LSRP 2</td>
<td>0.27</td>
<td>0.14</td>
<td>.19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Participant status × LSRP 1</td>
<td>.005</td>
<td>0.60</td>
<td>−0.2</td>
<td>0.19</td>
<td>.03</td>
</tr>
<tr>
<td>Participant status × LSRP 2</td>
<td>.26</td>
<td>0.29</td>
<td>.28</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. N = 181. Participant status = dichotomous variable with higher scores representing the student sample; LSRP 1 = Primary Psychopathy Scale; LSRP 2 = Secondary Psychopathy Scale; Participant Status × LSRP 1 = Participant Status × LSRP 1 interaction; Participant Status × LSRP 2 = Participant Status × LSRP 2 interaction; AIT = aggressive intrusive thoughts; LSRP = Levenson Self-Report Psychopathy Scale.

Table 3. Hierarchical Multiple Regression Results: Psychopathy and AIT Distress Relationship.

<table>
<thead>
<tr>
<th>Block and variable</th>
<th>ΔR²</th>
<th>F change</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 AIT frequency</td>
<td>.251</td>
<td>14.69***</td>
<td>−0.48</td>
<td>0.07</td>
<td>−.48***</td>
</tr>
<tr>
<td>Age</td>
<td>−0.05</td>
<td>0.07</td>
<td>−.06</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>1.66</td>
<td>1.50</td>
<td>.08</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethnicity</td>
<td>−1.67</td>
<td>1.36</td>
<td>−.09</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Participant status</td>
<td>.012</td>
<td>2.81</td>
<td>3.76</td>
<td>2.24</td>
<td>.19</td>
</tr>
<tr>
<td>3 LSRP 1</td>
<td>.004</td>
<td>0.47</td>
<td>−0.10</td>
<td>0.11</td>
<td>−.08</td>
</tr>
<tr>
<td>LSRP 2</td>
<td>0.06</td>
<td>0.15</td>
<td>.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Participant status × LSRP 1</td>
<td>.001</td>
<td>0.12</td>
<td>0.04</td>
<td>0.20</td>
<td>.05</td>
</tr>
<tr>
<td>Participant status × LSRP 2</td>
<td>−0.15</td>
<td>0.30</td>
<td>−.16</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. N = 181. Participant status = dichotomous variable with higher scores representing the student sample; LSRP 1 = Primary Psychopathy Scale; LSRP 2 = Secondary Psychopathy Scale; Participant Status × LSRP 1 = Participant Status × LSRP 1 interaction; Participant Status × LSRP 2 = Participant Status × LSRP 2 interaction; AIT = aggressive intrusive thoughts; LSRP = Levenson Self-Report Psychopathy Scale.

Discussion

The purpose of the current study was to better understand two underlying mechanisms of mental illness by examining differences in AIT frequency and distress between
inmates and college students. Importantly, based on results in the student sample, findings from the current study further describe how intrusive thoughts with aggressive content are experienced within a nonclinical sample. Intrusive thoughts were originally conceptualized as an experience unique to clinical populations suffering from debilitating illnesses, such as OCD. However, other studies have revealed that intrusive thoughts are experienced in nonclinical populations as well (O’Neill et al., 2009; Rachman & de Silva, 1978; Salkovskis & Harrison, 1984), supporting the ubiquitous nature of these thoughts.

Some of the hypotheses of the current study were supported and others unsupported. In support of the hypothesis, AIT distress and frequency were positively correlated, which is consistent with the direction of the effect found in O’Neill et al. (2009), as well as the conceptualization that intrusive thoughts are indeed distressing (Clark, 2005), regardless of subpopulation (e.g., inmates vs. students). However, inconsistent with O’Neill et al. (2009), our findings indicated that students and inmates did not differ in the frequency of endorsed AITs. These findings provide further evidence supporting the universal nature of AITs (Morillo et al., 2007; Purdon & Clark, 1994). One possible explanation to account for the discrepancy between the O’Neill et al. investigation and the current study is that the latter used a novel and potentially more sensitive measure of AITs. Specifically, the current study implemented a new brief self-report measure of AITs that is based on the interview used in the O’Neill et al. study, which minimized the demand of memory recall of past AITs by providing respondents with a list of AIT items (rather than free recall) and was more comprehensive in assessing a variety AIT content domains (rather than simply assessing the presence vs. absence of AITs). The novel and sensitive assessment of AITs in the current study, plus the consistency of the results with extant theories highlighting the universality of AITs, indicates that the current findings may be a useful alternative to O’Neill et al. (2009) when theorizing about intrusive thinking in incarcerated populations.

Similar to the O’Neill et al. study, the current study also explored the relationship between psychopathy and AIT frequency to determine if psychopathy could identify who was most likely to experience AITs across nonviolent and violent samples. Based on findings by O’Neill and colleagues (2009), we hypothesized that a higher endorsement of psychopathic traits would be associated with a lower frequency of intrusive thoughts and impulses, especially within the inmate sample. This hypothesis was not supported; in fact, the opposite pattern emerged, and only between Primary Psychopathy and AIT frequency. O’Neill and colleagues attributed the inverse relationship between psychopathy and AIT frequency to the notion that individuals high in psychopathic traits may not affectively process aggressive cognitions as ego-dystonic or repugnant. However, findings from the current study do not support this interpretation. Additional research is needed to explore the appraisal of AITs in the context of psychopathy traits, as it remains unclear the degree to which psychopathy influences interpretation of AITs across populations. Although speculative at this time, it may be the case that primary psychopathy traits prime individuals to experience or notice aggressive thoughts, and perhaps these thoughts are then deemed unwanted (i.e., characterizing it as an AIT) because of a concern that one would act on them.
Of note, O’Neill and colleagues found that the inverse relationship between psychopathy and AIT frequency was only evident among the incarcerated sample, which would implicate participant status as a moderator of this relationship. However, this was not found in the current study, as the interaction between participant status and psychopathic traits in the current study was not significantly related to AIT frequency. This suggests that the relationship between Primary Psychopathy and AIT frequency is representative of the full sample (i.e., student and inmate groups combined) and that the link between primary psychopathy and AIT frequency does not necessarily differentiate violent incarcerated individuals from students. It also suggests that treatments that target appraisal of intrusive thoughts (e.g., metacognitive therapy; Wells, 2009) might be useful for incarcerated individuals just as it is useful for clinical populations (McEvoy, Erceg-Hurn, Anderson, Campbell, & Nathan, 2015; Sharreh, Gharai, & Vahid, 2011; van der Heiden, Muris, & van der Molen, 2012).

The current study also examined the endorsement of emotional distress resulting from AITs in both groups. Particularly, our findings indicated that students and inmates did not differ in AIT distress. Again, this is consistent with extant theory suggesting that experiencing intrusive thinking is universal (Morillo et al., 2007; Purdon & Clark, 1994) regardless of subgroup—in this case, differences in AITs by inmate versus student status. In short, this finding suggests that the assessment of psychopathic traits may not uniquely explain who experiences subjective ratings of distress from AITs among nonclinical populations. This was unexpected given the aforementioned theoretical framework that AITs are often appraised as ego-dystonic and repugnant. It may be the case that only certain manifestations at a clinically severe level (i.e., those with OCD) may endorse repugnancy and distress from AITs in particular. Future research is warranted to better identify which individuals may exhibit distress from aggressive thinking.

**Limitations**

The present study is not without limitations. A primary limitation is that jail and student samples are quite different and may be difficult to compare in a meaningful way, even with statistical controls. For example, differences in demographic characteristics emerged between the two groups in the current study, and these differences were included as covariates in the statistical modeling. However, it is unlikely that all major and relevant group differences between jail and student populations were included as control variables. However, to remain consistent with the methodology of O’Neill et al. (2009), the student group was included in the current study. As another limitation, due to limited availability of the jail sample, we could not include a psychometrically sound measure of thought control, which is a construct that has been shown to influence the manifestation of intrusive thoughts in both nonclinical and clinical populations (Grisham & Williams, 2009; O’Neill et al., 2009; Purdon & Clark, 1994). Aside from thought control, extant literature has also identified psychological well-being as a salient indicator in the experiencing of aggressive cognitions and...
behavior (Grisso et al., 2000; Steadman et al., 1998). Inasmuch, another limitation of the study is that we did not include any measures of psychological symptoms to assess the psychological well-being of our sample. Also, the low internal consistency of the LSRP: Secondary Psychopathy subscale within the inmate sample is unfavorable and represents a limitation of the current findings. However, in light of the acceptable internal consistency of the other Primary Psychopathy scale across both samples and the Secondary Psychopathy scale in the student sample, we decided to continue with our goal to contribute (albeit preliminarily) findings that more uniquely explore the relationship between psychopathy and AITs in an underserved, incarcerated sample. As such, we caution any firm conclusion regarding the role of Secondary Psychopathy in the experience of AITs within incarcerated population until future studies with a larger sample size are conducted to explore this relationship. Finally, the current study conducted a number of hypothesis tests; however, no alpha corrections were conducted to control for Type I error inflation. This decision was based on a need for preserving statistical power, as reducing alpha would have considerably reduced confidence in null results. Nonetheless, it is again imperative that future studies with a bigger sample size seek to replicate our findings to substantiate the validity of our findings and to reconcile some of the inconsistencies between our findings and past literature.

**Conclusion**

Repetitive and unwanted aggressive cognitions can be distressing (Clark, 2005) and associated with great functional impairment among clinical populations (Julien et al., 2007). Consistent with the recommendation from Binswanger, Redmond, Steiner, and Hicks (2012), the current study compared the manifestation of AITs and psychopathy between incarcerated individuals and a nonclinical population (as defined by college students). Despite having a history of violent/aggressive behavior, the incarcerated sample endorsed a lower frequency, but similar degree of distress from AITs relative to the nonviolent student sample. This may be vital in the mental health care of inmates by encouraging health professionals to rethink assumptions that aggressive thinking automatically yields aggressive behavior. Ultimately, these findings can be utilized to enhance the mental health services provided to incarcerated individuals who experience unwanted, intrusive aggressive cognitions, as our findings can further place their cognitive experience within a normative context.

**Acknowledgments**

Special thanks to the following students for assisting with data collections by interviewing jail inmates: Madison Elliot, Justine Klaassen, Zachary White, Mary Martinelli, Katherine Valliere, Joshua Camins, Yolanda Lawson, and Krissa Jackson. Special thanks to the Montgomery County Correctional Facility staff, especially Suzy Malagari, for facilitating data collection with the incarcerated sample.
Declaration of Conflicting Interests
The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding
The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: Thank you to Craig Johnson and the Department of Psychology, Towson University, for funding the inmate’s compensation for participation.

References


