



Social anhedonia and aggressive behavior

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ABSTRACT

The inability to derive pleasure from social relationships, or social anhedonia, is associated with both psychopathology and impaired social functioning. Much of the research on social anhedonia (SA) has focused on its role in psychosis proneness (or schizotypy), which is the predisposition toward psychosis. Recent research suggests that SA may be related to aggression, but it is unclear whether this association is explained by the overlap between SA and positive aspects of schizotypy, namely perceptual aberrations (PA) and magical ideation (MI). The purpose of this study was to determine if SA uniquely predicts aggression in a nonclinical sample using a multi-modal approach to assess aggression. One hundred twenty undergraduates (60 men and 60 women) completed the Chapman psychosis proneness scales and self-report and behavioral measures of aggression. Results suggest that PA and MI were correlated with self-reported history of aggression, but that SA uniquely predicted provoked aggressive behavior observed in the laboratory. SA was also found to predict aggressive behavior over and above the effects of gender, anger and hostility. The results suggest that SA, and possibly low positive affect more broadly, may be associated with an increased risk of aggression in response to provocation.

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1. Introduction

Robust research supports a modest but replicable relationship between psychosis and violence (Monahan, 1992), a relationship that has been observed in psychiatric inpatient settings, prisons, and the general population (Swanson, Holzer, Ganju, & Jono, 1990; Taylor et al., 1998). A recent meta-analysis found an overall estimated effect size (d) of .24 to .32 for this relationship, which translates to a 49–68% increase in the odds of violence associated with psychosis (Douglas, Guy, & Hart, 2009). Physical aggression has also been linked to subclinical manifestations of psychosis, such as isolated psychotic experiences (Mojtabai, 2006) and psychosis proneness (Fanning, Berman, Mohn, & McCloskey, 2011). The taxonomicity versus dimensionality of schizotypy has been debated (Blanchard, Gangestad, Brown, & Horan, 2000; Haslam, Holland, & Kuppens, 2012; Lenzenweger & Korfine, 1992; Rawlings, Williams, Haslam, & Claridge, 2008); however, schizotypal features and attenuated psychotic experiences are clearly more prevalent in the general population than diagnosable psychotic disorder (van Os, Hanssen, Bijl, & Ravelli, 2000).

Symptoms associated with psychotic disorders have been conceptualized as comprising three domains: positive, negative, and

disorganized (Ratakonda, Gorman, Yale, & Amador, 1998). Prior research suggests a moderate effect of positive symptoms (i.e., delusions and hallucinations) and a smaller and less consistent effect of negative symptoms (e.g., affective blunting, anhedonia, and avolition) on violence risk (Bjørkly, 2002a, 2002b; Douglas et al., 2009). Douglas et al. (2009) found a significant effect of negative symptoms on violence (OR = 1.32), but this figure belies considerable variability, as studies have found no relationship (Erkiran et al., 2006; Hodgins, Hiscock, & Freese, 2003) or a negative relationship (Steinert, Wölflle, & Gebhardt, 2000) between negative symptoms and violence. A recent paper (Fanning et al., 2011) described the relationship between psychosis proneness, represented by perceptual aberrations (PA), magical ideation (MI), and social anhedonia (SA), and aggression, using structural equation modeling. Psychosis proneness (a latent construct) was significantly related to aggression, and this relationship was mediated through perception of threat. The authors also found significant correlations between measures of SA and aggression (including physically aggressive behavior); however, it is possible that SA was associated with aggression via its relations to PA and MI. It is thus unclear whether SA is predictive of aggression independently from the positive aspects of schizotypy (PA and MI).

Although social anhedonia is a negative symptom of schizophrenia, it is not limited to the disorder. SA is also considered a risk factor for the development of psychotic disorder. Kwapił (1998) found that 24% of individuals with the highest SA scores (2 sds

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above the mean) developed a psychotic spectrum disorder at a 10 year follow-up, compared to 1% of participants with normal range SA scores. Diminished interest in people and relationships is also characteristic of disorders including depression, post-traumatic stress disorder (PTSD), autism, and psychopathy. Among college students, SA is associated with having a restricted number of friends, lower rates of dating, and poorer relationship quality (Mishlove & Chapman, 1985). SA has also been linked to self-reported low positive affect (but not high negative affect) and a greater preference for being alone (Brown, Silvia, Myin-Germeys, & Kwapil, 2007). Although SA has largely been explored in relation to schizophrenia risk, most individuals with elevated SA scores do not go on to develop a psychotic disorder, though they tend to have persistent difficulties in functioning and social relationships (Kwapil, 1998).

In this study we sought to investigate the relationship of SA to aggression in a nonclinical sample, including (1) whether the relationship between SA and aggression is accounted for by overlap with measures of positive schizotypy and (2) whether SA uniquely contributes to the prediction of aggression over and above the effects of other theoretically important variables, anger and hostility.

2. Methods

2.1. Participants

One hundred fifty-nine volunteers were recruited from undergraduate psychology classes in exchange for course credit for a study on “personality and motor-skills”. Prospective participants were screened using a health questionnaire and were excluded if they reported (1) current mood disorder, (2) history of psychotic or bipolar disorder, or (3) current use of psychotropic medication. Thirty-nine participants were excluded because of technical problems or evidence of random responding on questionnaires. The final sample consisted of 60 men and 60 women (mean age = 20 years, $SD = 3.0$). Most participants self-identified as White (51%) or Black (46%), followed by Hispanic (3%) and “other” (less than 1%).

2.2. Measures

2.2.1. Psychosis proneness measures

The Chapman psychosis proneness (PP) scales were developed for use in a non-clinical population to identify individuals who may be predisposed to develop psychosis. The scales assess sub-clinical manifestations of symptoms associated with psychosis, including: perceptual aberrations, magical ideation, and social anhedonia. The Perceptual Aberration Scale (PAS; Chapman, Chapman, & Raulin, 1978) is a 35-item true–false scale assessing distorted perceptions (e.g., hallucination-like experiences). Higher scores are associated with a diagnosis of schizophrenia, family history of psychosis, schizotypal symptoms, and psychotic-like experiences at follow-up (Chapman, Chapman, Kwapil, Eckblad, & Zinser, 1994). Alpha for this sample was .76. The Magical Ideation Scale (MIS; Eckblad & Chapman, 1983) is a 30-item true–false scale assessing illogical or “magical” thinking (e.g., subclinical delusion-like beliefs), including ideas of reference and supernatural beliefs. Both the PAS and MIS reflect subclinical manifestations of positive psychotic symptoms, and scores on the two scales are highly correlated ($r = .68$ to $.70$; Chapman, Chapman, & Miller, 1982). High MIS scores predict later psychosis, schizophrenia spectrum disorder diagnosis, and psychotic-like experiences (Chapman et al., 1994; Gooding, Tallent, & Matts, 2005). Alpha for this sample was .77. The Revised Social Anhedonia Scale (SAS; Mishlove & Chapman, 1985) is a 40-item true–false scale measuring “schizoid

indifference to other people, but not social anxiety” (Chapman et al., 1994, p. 172). Individuals with high scores on the SAS have been shown to have poorer social adjustment and more psychotic-like experiences at follow-up (Mishlove & Chapman, 1985). Alpha for this sample was .87.

2.2.2. Self-report aggression measures

Aggression is a behavior that is intended to harm another individual against their will (Berkowitz, 1993). Two self-report measures of aggression were used in this study. The Life History of Aggression Scale (LHA; Aggression Subscale (Coccaro, Berman, & Kavoussi, 1997) was used to assess the frequency and severity of aggression since adolescence. Five items assessed the frequency of various aggressive behaviors from “never happened” (0) to “happened so many times I couldn’t give a number” (5). Alpha for this sample was .78. The Buss–Perry Aggression Questionnaire (BPAQ; Buss & Perry, 1992) is a 29-item measure of aggressive disposition in which participants rate a series of statements on a 5-point likert-type scale ranging from “Extremely unlike me” to “Extremely like me”. Alphas for the four factor analytically derived subscales (physical aggression, verbal aggression, anger, and hostility) ranged from .70 to .82.

2.2.3. Behavioral aggression

The Taylor Reaction-time Task (TRT; Taylor, 1967) is a well-validated laboratory-controlled task assessing physical aggression. Robust research over several decades supports the task’s validity (Anderson & Bushman, 1997; Giancola & Chermack, 1998). During the task the participant exchanges shocks with a fictitious opponent purportedly seated in an adjacent room in the context of a “reaction time competition”. Participants are seated at a computer monitor on which the task stimuli are presented. Two electrodes are attached to the first and second fingers of the participant’s non-dominant hand. A shock threshold procedure is completed prior to the task to determine the participant’s pain threshold. The procedure is repeated via intercom with the bogus opponent to enhance the deception. During the task, the participant and opponent compete in a series of 28 reaction time trials. Prior to each trial, the participant and ostensible opponent select a shock ranging from 0 to 10 or 20 using a keyboard. The participant is informed that on each trial the person with the slower reaction time will receive the shock set by the other person. The 10 shock is equivalent to the shock tolerance threshold, the 9 shock is 95% of the pain threshold, 8 is 90%, and so on down to the 1 shock (50% of threshold). The zero choice is associated with no shock and is included to provide a non-aggressive response option. The 20 shock is described to participants as a severe shock that is “twice your previously determined pain threshold”. This shock is purportedly “extremely painful and may cause minor tissue damage that will heal quickly”. Each reaction time trial consists of instructions on the computer screen to “Press and hold down the spacebar”, “Wait”, and “Release!” Feedback after the trial indicates who won the trial (e.g., “You won!” or “You lost!”). On both win and loss trials information is presented on the computer screen as to what shock level was set by the opponent (“Your opponent set an 8 shock”). On loss trials, the participant is given a 1 s shock of the intensity set by the “opponent”. On win trials no shock is administered. Over the course of the task the opponent becomes increasingly provocative by selecting higher shocks and attempts to administer a 20 shock about three-quarters of the way through the task. The participant always wins this trial and therefore does not receive the “extreme” shock. However, he or she is nevertheless aware of the opponent’s attempt to administer this “extreme” shock. In previous studies the mean shock and the number of 20 shocks chosen by the participant across trials have served as the index of aggression. For this study we focused on the number of

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