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Early Maladaptive Schemas, Styles of Humor and Aggression

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Abstract

The relationship between early maladaptive schemas (EMSs) and psychopathology is thought to be mediated by the use of maladaptive compensatory coping and deficits in adaptive coping. One form of coping that might be affected by EMSs is an individual's style of humor, which can be adaptive or maladaptive. This study examined the relationships among EMS domains, styles of humor, and aggression. The EMS domain of Impaired Limits was most consistently related to aggression. Moreover, as predicted, an aggressive style of humor mediated the relationship between Impaired Limits and various aspects of aggression (i.e., verbal, physical, and hostility). In addition, self-defeating humor mediated the respective relationships between hostility and EMS domains of Impaired Limits, Disconnection, and Impaired Autonomy. Taken together, these results suggest that maladaptive humor styles may play an important role as one of the mechanisms by which early maladaptive schemas lead to later emotional and functional disturbance.

Key words: Humor; Early Maladaptive Schemas; Schemas; Aggression; Externalizing

Early Maladaptive Schemas, Styles of Humor and Aggression

Martin and colleagues (2003) suggested that individual differences in humor styles may play an important role in psychological health and well-being. Research using the Humor Styles Questionnaire (HSQ; Martin, Puhlik-Doris, Larsen, Gray and Weir, 2003) has provided a good deal of support for this hypothesis (see Martin, 2007, for a review of this literature). This measure assesses four different styles of humor, two of which are considered to be potentially beneficial for well-being (affiliative and self-enhancing humor) and two potentially detrimental (aggressive and self-defeating humor). *Affiliative humor* involves the use of humor to amuse others, facilitate relationships, and minimize interpersonal tension. *Self-enhancing humor*, which involves the maintenance of a humorous and cheerful outlook on life, functions to regulate emotions and cope with adversity. *Self-defeating humor* involves the use of excessively self-disparaging humor to amuse others at one's own expense as a means of ingratiating oneself or gaining approval. Finally, *Aggressive humor* (e.g., sarcasm, teasing, or ridicule) is used to demean or manipulate others in order to feel better about oneself or as a means of posturing in a relationship.

Correlational studies have confirmed that these four humor styles are predictive of psychosocial well-being in quite different ways (see Martin, 2007). Self-enhancing humor, for instance, correlates positively with emotional well-being (e.g., self-esteem, optimism, positive affect) and negatively with emotional distress (e.g., depression, anxiety, neuroticism). Affiliative humor is positively associated with indicators of healthy relationships (e.g., intimacy, relationship satisfaction, social support) and inversely correlated with negative relationship variables (e.g., loneliness). Self-defeating humor is positively correlated with emotional distress and negatively associated with self esteem and optimism. Finally, aggressive humor correlates

negatively with relationship satisfaction, interpersonal competence, agreeableness, and conscientiousness, and positively with hostility and neuroticism. As such, increased use of self-enhancing humor and decreased use of self-defeating humor may be important for emotional well-being, whereas increased use of affiliative humor and decreased use of aggressive humor are predictive of more satisfactory interpersonal relationships.

More recently, researchers have begun to explore the role of humor styles as potential mediators of the associations between various cognitive or interpersonal vulnerability factors (e.g., insecure attachment; early parental rejection or neglect) and psychological distress, dysfunction, or relationship impairment (e.g., Cann , Welbourne and Calhoun, 2008; Fitts, Sebby and Zlokovich, 2009; Kazarian, Moghnie and Martin, 2010). These studies have provided support for the view that individuals with particular vulnerabilities to psychopathology may be less likely to develop adaptive humor styles and more likely to develop maladaptive styles, which in turn contributes to the development of emotional distress or relationship difficulties. Thus, humor styles may be one of the mechanisms by which early vulnerabilities lead to later psychopathology.

In a previous study, we found evidence for mediating effects of affiliative, self-enhancing, and self-defeating humor on the relationships between another set of cognitive vulnerability variables, namely Early Maladaptive Schemas (EMSs; Young, 1990; Young, Klosko and Weshaar, 2003), and depressed mood (Dozois, Martin and Bieling, 2009). The purpose of the present study was to extend our previous findings by examining potential mediating effects of aggressive humor on the relationship between certain EMSs and self-reported anger and hostility.

Theoretical Rationale

According to Jeffrey Young (1990, 1999; Young et al., 2003; Young, Rygh, Weinberger, and Beck, 2008), the unique circumstances that an individual experiences in childhood contribute to the development of a distinctive set of core beliefs about oneself and one's relationships with others. When a child's fundamental psychological needs are thwarted or inadequately met during early development, these core beliefs take the form of what Young calls Early Maladaptive Schemas (EMSs). These EMSs become self-perpetuating and resistant to change, and form a template upon which subsequent relationships are perceived, thereby acting as cognitive vulnerabilities to later development of depression and other forms of psychopathology. A number of different EMSs have been identified, which the Young Schema Questionnaire (YSQ; Young 1990) or its short form (Young and Brown 2003) are designed to assess. For example, an individual who experiences emotional detachment, rejection, or abuse is thought to develop core beliefs in the domain of *Disconnection and Rejection* (e.g., beliefs of being unwanted, inferior or unlovable). Similarly, those who experience parental over-permissiveness and lack of discipline are purported to develop core beliefs in the domain of *Impaired Limits* (e.g., entitlement, low frustration tolerance or the refusal to maintain sufficient self-control). *Impaired Autonomy* is believed to stem from an early environment that fails to reinforce a child appropriately or that undermines a child's perceived competence.

According to Young et al. (2003), individuals with EMSs tend to display maladaptive compensatory or other coping strategies that may perpetuate their schemas and thereby contribute to the development of psychological disturbance. We have argued that aggressive and self-defeating humor styles may be one form of maladaptive coping used by individuals with EMSs, which may serve to perpetuate and maintain their schema-related negative beliefs (Dozois et al., 2009). For example, individuals with core schemas involving themes of social

disconnection (e.g., emotional deprivation, mistrust/abuse, social isolation/alienation) may be less likely to develop the playful, witty interpersonal style associated with affiliative humor, and more likely to engage in the cynical, self-disparaging, ingratiating, and avoidant forms of humor associated with the self-defeating humor style. In turn, these uses of humor may contribute to less satisfying interpersonal relationships and greater dysphoria. Similarly, individuals with schemas associated with impaired limits (entitlement, insufficient self-control) may be more likely to engage in aggressive humor styles involving the use of put-downs, sarcasm, teasing, ridicule or disparaging humor, which in turn may contribute to less satisfactory relationships with others.

In our previous study (Dozois et al., 2009) we examined the relationships among EMSs, adaptive/maladaptive styles of humor, and severity of depressed mood, as well as the extent to which humor styles mediated the relationship between EMSs and depression. Each of the EMS domains was positively and significantly related to severity of depressed mood. Moreover, with the exception of aggressive humor, both adaptive (affiliative, self-enhancing) and maladaptive (self-defeating) forms of humor mediated the relationship between EMSs and depressive symptomatology in the predicted manner. Clinicians and psychopathology researchers typically distinguish between *internalizing* psychological problems (e.g., depression, anxiety, low self-esteem) and *externalizing* problems (e.g., aggression, hostility, antisocial behavior). One limitation of the previous study was that it focused only on internalizing problems (i.e., depression severity). We propose that a clearer mediating role of aggressive humor may emerge if externalizing problems are assessed.

The objective of this study was therefore to assess whether aggressive humor mediates the relationship between particular EMSs and externalizing problems such as self-reported

aggression, anger, and hostility. Considerable research has documented that one's underlying belief system may influence dispositions toward hostility and aggression (Anderson and Bushman, 2002; Crick and Dodge, 1994; Fontaine and Dodge, 2009; Huesmann, 1998). With regard to early maladaptive schemas, studies have indicated that the EMSs that are particularly associated with anger and aggression are those relating to the domain of Impaired Limits, comprised of entitlement and insufficient self-control (Calvete, Estévez, López de Arroyabe and Ruiz, 2005; Tremblay and Dozois, 2009).

The Impaired Limits domain is conceptually very similar to the personality trait of narcissism, which also involves a strong sense of entitlement and limited self-control (Twenge and Campbell, 2009). Past research has shown that those high in narcissism tend to become aggressive when their inflated self-esteem is threatened or when pursuing their tendency to dominate others (e.g., Bushman and Baumeister, 1998). Narcissistic individuals also tend to be unaware of the psychological effects of their aggressiveness on others, due to their excessive focus on themselves and lack of concern for others. At times this aggressiveness could take the form of aggressive humor, which in turn could cause others to respond aggressively, leading to an escalation of verbal and physical aggression (Bushman, Baumeister, and Stack, 1999).[1] Consistent with these formulations, our prediction was that Impaired Limits would be the EMS domain most strongly correlated with aggression-related variables and that an aggressive style of humor would mediate the relationships between this EMS domain and self-reported aggression.

Method

Participants

Participants were 208 first-year undergraduate psychology students (70% female) from the University of Western Ontario. The mean age of this sample was 18.46 years, with a standard

deviation of 1.73. The majority of participants (69%) identified themselves as Caucasian, 25% Asian, 2% African-Canadian, 1% Hispanic and 3% other (e.g., mixed race).

Measures

Young Schema Questionnaire – Short Form (YSQ-SF; Young and Brown, 2003). The YSQ –SF was developed to assess early maladaptive schemas in the form of core beliefs. This 75-item self-report instrument measures 15 different core beliefs (emotional deprivation, abandonment, mistrust/abuse, social alienation, defectiveness, incompetence, dependency, vulnerability to harm, enmeshment, subjugation, self-sacrifice, emotional inhibition, unrelenting standards, entitlement, and insufficient self-control) presumed to be related to internalizing and externalizing psychopathology. Items are rated on a Likert-type scale ranging from 1 (completely untrue of me) to 6 (describes me perfectly). This instrument exhibits strong psychometric properties and is increasingly cited in the empirical literature as an index of risk or vulnerability (Hoffart et al., 2005; Welburn, Coristine, Dagg, Pontefract and Shelley, 2002). To reduce the risk of Type I error, our analyses focused on the four schema domains (Disconnection, Impaired Autonomy, Impaired Limits, and Exaggerated Standards) supported in a recent confirmatory factor analysis (Hoffart et al., 2005; also see Dozois et al., 2009). Scores for each of these domains were computed by calculating average item scores on the particular YSQ subscales loading on the corresponding factor (*Disconnection*: emotional deprivation, mistrust/abuse, social isolation, defectiveness/shame, and emotional inhibition; *Impaired Autonomy*: abandonment, failure, dependence/incompetence, vulnerability, and enmeshment, subjugation; *Impaired Limits*: entitlement and insufficient self-control; *Exaggerated Standards*: self-sacrifice and unrelenting standards). The internal reliability (coefficient alpha) of these subscales was .93, .90, .80 and .78, respectively.

Humor Styles Questionnaire (HSQ; Martin et al., 2003). The HSQ is a 32-item self-report questionnaire that measures both adaptive (Affiliative, Self-enhancing) and maladaptive (Aggressive, and Self-defeating) forms of humor. On a 7-point Likert-type scale (1 = totally disagree; 7 = totally agree), participants rated the extent to which they agreed with each statement. Previous research has supported reliability and validity of the HSQ (Martin, 2007; Martin et al., 2003). The internal consistency (coefficient alpha) was good for each of the subscales (Affiliative = .81, Self-Enhancing = .82, Aggressive = .68, Self-Defeating = .75).

Aggression Questionnaire (AQ; Buss and Perry, 1992). The AQ is a 29-item self-report instrument developed to assess four components of aggression: Physical Aggression, Verbal Aggression, Anger and Hostility. The physical and verbal aggression scales measure more direct manifestations of aggression, including items such as "given enough provocation, I may hit another person" (physical aggression) and "my friends say that I'm somewhat argumentative" (verbal aggression). In contrast, the anger and hostility scales measure indirect or internalized expressions of aggression; anger refers to the affective component of aggressive behavior, involving physiological arousal and preparation for aggression (e.g., "I flare up quickly but get over it quickly"), whereas hostility refers a more cognitive manifestation, involving feelings of ill will or injustice (e.g., "I am sometimes eaten up by jealousy"; Buss and Perry, 1992). Respondents indicate on a five-point Likert-type scale how much each item describes them from 1("extremely uncharacteristic of me") to 5 ("extremely characteristic of me"). This instrument has been well-validated and is considered to be the gold-standard for the assessment of aggression (Gerevich, Bácskai, and Czobor, 2007); for example, AQ scores reliably discriminate between prison inmates and university students (Garcia-Leon, Reyes, Vila, Pérez, Robles, and Ramos, 2002) and initial validation has demonstrated strong (i.e., for physical aggression) to

moderate (i.e., for verbal aggression, anger, and hostility) correlations between self reports and peer nominations on AQ subscales (Buss and Perry, 1992; see also, Harris, 1995; Tremblay and Ewart, 2005). In this study, the internal reliability (alpha) was .90 for the total AQ, .72 for physical aggression, .75 for verbal aggression, .80 for anger, and .75 for hostility.

Procedure

Participants completed these measures in group testing sessions. After providing informed consent, participants were administered the YSQ-SF, HSQ, and AQ in random order. They also completed other measures which do not pertain to the focus of this particular investigation. After the testing session, participants were debriefed about the nature of the study, and provided with course credit for their involvement in the study.

Statistical Analyses

Mediation analyses were conducted to test the hypothesis that humor styles mediate the relationships between the four YSQ domains and the subscales of the Aggression Questionnaire. The first step in these analyses was to examine simple correlations between the predictor variables (i.e., YSQ domains), mediator variables (HSQ subscales), and criterion variables (AQ total score and subscales). As noted by Baron and Kenny (1986), a prerequisite for mediation is that there must be significant correlations between predictor and criterion variables, between predictor and mediator variables, and between mediator and criterion variables.

Following these correlational analyses, multiple mediation analyses were conducted separately for each of the four YSQ domains, with a given YSQ domain as the predictor variable and a given subscale of the AQ as the criterion variable in each analysis. Only those humor styles having significant simple correlations at the .01 level of significance with both the YSQ domain and AQ subscale were examined as potential mediators in a given analysis. To test for potential

mediating effects of several humor styles simultaneously, we used the recently developed bootstrap sampling procedure described by Preacher and Hayes (2008). This procedure allows for the simultaneous examination and statistical testing of the direct effect of the predictor variable on the criterion variable, as well as the indirect (i.e., mediating) effects through the pathway of each of the mediator variables, controlling for all the other mediators in the model. This is conceptually similar to multiple regression, in which the effect of each of several predictors can be tested while controlling for the effects of all the other predictors in a model.

This bootstrap procedure uses sampling with replacement to draw a large number of samples (1000 in the present study) from the data set and calculate path coefficients for each sample. Then, using the estimates based on these 1000 bootstrap samples, the mean direct and indirect effects and their 95% and 99% confidence intervals (CIs) are calculated. These CIs are used to determine if each effect is statistically significant, by examining whether the value 0 falls outside the calculated CI range. Preacher and Hayes (2008) articulate several advantages of using this bootstrap-driven test for direct and indirect effects, compared to product-of-coefficient approaches such as the Sobel test. One important advantage of this approach is that it does not impose the assumption of normally distributed variables.

We conducted these analyses with SPSS 18.0 using the macro provided by Preacher and Hayes (2008) for carrying out the bootstrap procedure. In order to compare the results across analyses and variables, all variables used in these analyses were standardized ($M = 0$, $SD = 1.0$). Path coefficients can therefore be interpreted in a manner similar to correlation coefficients.

Results

For descriptive purposes, the means (SD) for the four Young Schema Questionnaire-Short Form (YSQ-SF) domains, the four Humor Styles Questionnaire (HSQ) subscales, and the

Aggression Questionnaire (AQ) total and subscale scores are presented in Table 1. Pearson correlations between scores on the four YSQ-SF domains, the four scales of the HSQ, and the AQ total and subscales are presented in Table 2. With regard to associations between humor styles and EMSs, the Disconnection domain of the YSQ-SF was significantly negatively correlated with both Affiliative and Self-enhancing humor and positively correlated with Self-defeating humor. A similar pattern of correlations was found with the Impaired Autonomy domain. The Impaired Limits domain was positively correlated with both Aggressive and Self-defeating humor. Finally, the Exaggerated Standards domain was weakly negatively correlated with Aggressive humor and positively with Self-defeating humor.

Insert Tables 1 and 2 about here

With regard to correlations between EMS and AQ scores, as expected, the Impaired Limits domain of the YSQ-SF was significantly positively correlated with all four of the AQ subscales (physical aggression, verbal aggression, anger, and hostility) and with the total AQ score. In addition, the Disconnection domain was positively correlated with each of the AQ subscales except for verbal aggression, as well as the total score. The Impaired Autonomy domain was also positively correlated with the anger and hostility subscales and the total AQ score. Finally, the Exaggerated Standards domain was not significantly correlated with any of the AQ subscales.

With regard to associations between humor styles and AQ scores, as expected, Aggressive humor was significantly positively correlated with each of the AQ subscales and total score. In addition, Affiliative humor was weakly positively correlated with both physical and verbal aggression, and Self-enhancing humor was weakly negatively correlated with the Anger

subscale. Finally, Self-defeating humor was positively correlated with both the Hostility subscale and the AQ total score.

Using the procedure described earlier, analyses were then conducted to examine potential mediating effects of the humor styles on the relationships between each of the four YSQ-SF domains and each of the AQ subscales and total scores with which they were significantly correlated at least at the .01 level of significance. In each analysis, only those humor styles that were correlated with both the relevant YSQ-SF domain and AQ score were included as potential mediators. Table 3 presents a summary of these analyses, showing the indirect effects (ab paths), confidence intervals of these indirect effects, significance levels, direct effects of the independent variables (c' paths), and their significance levels. In addition, to indicate the strength of the effect of each significant mediator, Table 3 shows the proportion of the total effect (c) that is accounted for by the indirect effect through the mediator (ab). This was computed by means of multiple regression analyses to find the difference between the variance accounted for by the independent variable alone and the variance accounted for by the independent variable after entering first the mediator variable.

Insert Table 3 about here

As can be seen in Table 3, the analyses using the YSQ Impaired Limits domain as the predictor variable and AQ Physical Aggression, Verbal Aggression, Anger, and the total AQ score as the criterion variables all revealed a very similar pattern. In each case, the Aggressive humor style showed a significant mediating effect on the relationship between the YSQ Impaired Limits domain and the AQ variables ($p < .01$). These mediating effects accounted for 50% to 70% of the total effects of Impaired Limits on the AQ scales. To illustrate the pattern of results found in each of these analyses, Figure 1 shows the results for the AQ total score as the criterion

variable. As can be seen in this figure, higher scores on Impaired Limits were associated with higher Aggressive humor, which in turn predicted higher AQ total scores. In addition to the indirect effects of Impaired Limits on AQ scores through this humor style, a direct effect was also found (c' = .28, $p < .001$), indicating that aggressive humor only partially mediates this relationship. The mediating effect of aggressive humor accounts for approximately 52% of the total variance in AQ total scores associated with Impaired Limits. The patterns for Physical Aggression, Verbal Aggression, and Anger were very similar.

Insert Figure 1 about here

A somewhat different pattern of results was found in the mediation analyses using the Impaired Limits domain as the predictor variable and AQ Hostility as the criterion variable. Here, significant mediating effects were found for both Aggressive humor ($p < .01$) and Self-defeating humor ($p < .01$). These results are shown in Figure 2. Higher scores on Impaired Limits predicted higher Aggressive and Self-defeating humor, each of which in turn predicted higher Hostility scores. The direct effect of Impaired Limits on Hostility was also significant (c' = .30, $p < .001$), indicating that these humor styles only partially mediate this relationship. Together, the two mediators accounted for approximately 48% of the variance in Hostility scores associated with Impaired Limits.

Insert Figure 2 about here

The mediation analyses using the YSQ-SF Disconnection and Impaired Autonomy domains as the predictor variables revealed that Self-defeating humor was a significant mediator of the relationships between each of these domains and AQ Hostility ($p < .05$ and .01, respectively), as shown in Figures 3 and 4. Higher scores on Disconnection and Impaired Autonomy both predicted higher scores on Self-defeating humor, which in turn predicted higher

Hostility scores. Once again, these mediation effects are only partial, as shown by significant direct effects as well (c' = .35 for Disconnection, .33 for Impaired Autonomy, both $p < .001$). These mediation effects accounted for 41% and 38% of the total variance in Hostility scores associated with Disconnection and Impaired Autonomy, respectively.

Insert Figures 3 and 4 about here

Discussion

This study examined the relationships among EMSs, adaptive/maladaptive styles of humor, and externalizing problems (specifically self-reported verbal aggression, physical aggression, anger, and hostility). In order to provide parsimonious analyses of these relationships, the 15 subscales of the Young Schema Questionnaire were organized into 4 domains, consistent with the higher-order structures found in a previous confirmatory factor analysis (i.e., Hoffart et al., 2005). These domains were Disconnection (comprised of the YSQ-SF subscales of emotional deprivation, emotional inhibition, mistrust/abuse, social isolation, and defectiveness), Impaired Autonomy (including subjugation, dependence, failure, vulnerability, abandonment, enmeshment, and insufficient self-control), Impaired Limits (made up of insufficient self-control and entitlement) and Exaggerated Standards (composed of self-sacrifice and unrelenting standards).

Impaired Limits was the schema domain that we anticipated would be most consistently associated with aggression. Consistent with this hypothesis, Impaired Limits was the only EMS domain that correlated significantly and positively with the total score on the Aggression Questionnaire (AQ) and with each of its subscales. Given that the specific EMSs associated with the Impaired Limits domain are entitlement and insufficient self-control, this finding concurs with previous research about the relationship between core beliefs and aggression (Calvete et al.,

2005; Tremblay and Dozois, 2009). Disconnection and Impaired Autonomy, on the other hand, did not correlate significantly with AQ Verbal Aggression and correlated only modestly, albeit significantly, with AQ Anger. These EMS domains were particularly correlated with the AQ Hostility scale, a finding which is elaborated upon later. Exaggerated Standards was not significantly associated with the AQ or any of its subscales.

Together, these findings suggest that there is some content-specificity with respect to the EMSs associated with externalizing problems (in this case aggression) versus internalizing pathology. Our previous research (Dozois et al., 2009) has shown that each of the EMS domains positively and significantly correlated with depressive severity. The core belief domains most strongly associated with depression were Disconnection (core beliefs that one's needs for love, nurturance, empathy, acceptance, and respect from others will not be met) and Impaired Autonomy (beliefs that one lacks the ability to separate and function independently from others). In contrast, Impaired Limits (difficulty with frustration tolerance and beliefs that one is superior to other people, entitled to special rights or privileges, and not subject to the normal rules of social interaction) was the primary EMS related to features of self-reported aggression.

This study also expanded upon our previous study by examining the role of humor styles (conceptualized as coping responses) in relation to EMS domains and aggression. Mediation analyses indicated that aggressive humor consistently mediated the relationship between the EMS of Impaired Limits and aggression (cf. Figure 1). This finding was replicated across subtypes of aggression (verbal, physical, hostility). Again, this relationship was quite specific to aggressive humor. The only other humor style that mediated the relationship between EMSs and aggression was self-defeating humor, and this was specific to hostility.

In the first instance (see Figure 2) self-defeating humor, along with aggressive humor, mediated the relationship between the EMS domain of Impaired Limits and hostility. In fact, in all analyses of hostility, self-defeating humor was involved to some degree. It is unclear why this finding was obtained. When one considers the beliefs associated with the EMS domain of Impaired Limits (e.g., considering oneself as better than others), a self-defeating style of humor appears to be inconsistent. Perhaps this use of humor represents a response to a lack of intimacy in one's relationships, which has been found to be related to the EMSs of Impaired Limits in previous research (Zolfaghari, Zedeh, and Abedi, 2009). Another possibility is that the use of this style of humor is an example of an overcompensation strategy in this context. Young et al. (2003) argue that EMSs are associated with maladaptive coping strategies (overcompensation, avoidance or surrender) that become self-perpetuating. Attending excessively to the needs of others and becoming overly controlled (possibly manifested as self-disparaging humor) are examples of overcompensation associated with Impaired Limits (see Young et al., 2003). Although speculative, it is possible that self-defeating humor mediates the relationship between Impaired Limits and hostility because of overcompensation. Further research is necessary, however, to evaluate this hypothesis.

Self-defeating humor also mediated the relationship between the EMS of disconnection and hostility as assessed via the Aggression Questionnaire (see Figure 3). This relationship is interesting when one considers the features of each of these constructs. Disconnection has to do with feeling socially isolated, mistrusting relationships, feeling emotionally deprived and defective. The expectation of an individual who holds such a belief system is that others will not be there to meet one's needs for acceptance, respect, empathy and nurturance (Young et al., 2003). Given this core belief, self-defeating humor is a logical humor style to employ as this

style has to do with attempts to make connections at one's own expense. Self-defeating humor is excessively self-disparaging and involves attempts to amuse others by doing or saying funny things at one's own expense as a means of ingratiating oneself or gaining approval or allowing oneself to be the "butt" of another's jokes and using humor as a form of defensive denial.

Impaired autonomy has to do with beliefs that one cannot function independently and that one's needs and emotions are not important. Such individuals will often suppress their own desires and emotions (e.g., anger) in order to please others and avoid retaliation or abandonment (Young et al., 2003). The use of self-defeating humor makes sense given this context – this style of humor involves denying one's own needs to foster connectedness with others.

The net effect of using self-defeating humor to cope with activated core beliefs of disconnection and impaired autonomy is that these individuals feel hostility rather anger or the more externalizing (e.g., verbal or physical) forms of aggression. These individuals may be trying to connect with others by using a maladaptive style of humor (humor at one's own expense) that may ultimately lead to resentment. Consistent with this explanation, the items that comprise the AQ Hostility subscale pertain to feeling jealous, feeling as though one has received a raw deal in life, feeling as though others get the breaks, and suspiciousness about relationships; this is in contrast to the items that comprise the AQ Anger scale, which assess the physiological and affective components of aggression (Buss and Perry, 1992). Furthermore, the cognitive nature of the Hostility subscale fits more closely with the belief structure of EMSs than with the affective or behavioral nature of the other AQ subscales; this may explain why hostility, rather than anger, verbal or physical aggression seems to be the resultant effect of using self-defeating humor to cope with maladaptive core beliefs.

Interestingly, aggressive humor does not appear to play a prominent role in the relationship between core beliefs and internalizing problems (Dozois et al., 2009). However, this style of humor plays a key role when one considers more externalizing problems, especially with Impaired Limits as the EMS under investigation. Some statistically significant relationships did exist between other EMS domains (i.e., disconnection and impaired autonomy) and externalizing problems but this was limited to self-defeating humor and a more "internalized" form of aggression (i.e., hostility).

It is possible that one's style of humor may not only impact the experience of aggression, but also serve to maintain and perpetuate the core beliefs that might originally give rise to such humor. In addition to increasing the odds of aggressive thoughts and behaviors, for example, an aggressive style of humor may also push others away interpersonally which, in turn, may exacerbate beliefs that one is superior to others and that others should be controlled and dominated. Similarly, the use of self-defeating humor may further amplify feelings of hostility and confirm expectations that others are not available. Such 'stress generation' hypotheses (Hammen, 1991) are speculative at this point and need to be examined in future empirical research.

Together with our previous study (Dozois et al., 2009), this investigation adds to a growing body of recent literature examining moderating effects of humor styles on the relationships between various cognitive and interpersonal vulnerability factors (e.g., insecure attachment; early parental rejection or neglect; shyness) and psychological distress or relationship impairment (e.g., Cann, et al., 2008; Fitts et al., 2009; Kazarian et al., 2010). Taken together, these studies suggest that maladaptive humor styles (and, in some cases, the lack of

adaptive humor styles) may be one of the mechanisms by which early vulnerabilities lead to later psychopathology.

The generalizability of these findings is uncertain as this study used a primarily Caucasian, predominantly female, undergraduate sample. Another limitation of this study is that the findings are based on cross-sectional data. As such, this study is not able to conclude that the purported relationships are causal in nature. In all likelihood, these are transactional processes (see Dodge, 2006). Future research is needed to examine the relationships among EMSs, humor styles, and psychopathology using a prospective design. Of further interest is whether the present findings would also be observed within a clinical population of aggressive individuals. In addition, although the Aggression Questionnaire is considered to be a gold standard tool for the assessment of aggression (Gerevich et al., 2007), it is a self-report measure. Examining these relationships using behavioral observations of aggression (or other outcome variables) is another important avenue for future research. Conducting laboratory experiments where some of these variables could be manipulated experimentally to determine cause and effect relationships would also be beneficial. For instance, individuals high or low in Impaired Limits could be challenged or provoked by a confederate and the resultant differences in the use of aggressive humor assessed.

This study demonstrated that cognitive risk factors for aggression may be mediated by maladaptive uses of humor in coping. Additional research is needed to examine the specific mechanisms by which EMS and humor styles (e.g., humor used in bullying and harassment) confer risk to verbal or physical aggression, violence, and other manifestations of externalizing pathology.

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Table 1.

Mean scores on Early Maladaptive Schema Domains, Humor Styles, and Aggression Questionnaire Total and Subscales

Variable	Mean (Standard Deviation)
Disconnection	1.82 (.67)
Impaired Autonomy	1.78 (.56)
Impaired Limits	2.45 (.77)
Exaggerated Standards	3.43 (.80)
Affiliative Humor	47.63 (6.39)
Self-Enhancing Humor	36.28 (8.48)
Aggressive Humor	29.61 (7.31)
Self-Defeating Humor	26.76 (8.08)
Aggression Questionnaire Total	70.41 (17.42)
Physical Aggression	18.74 (7.30)
Verbal Aggression	14.34 (4.00)
Anger	15.92 (5.28)
Hostility	21.41 (5.64)

Note. Mean scores for the YSQ-SF domains reflect the average across the number of items in each domain.

Table 2. Correlations between Young Schema Questionnaire Domains, Humor Styles, and Aggression Questionnaire Scales

	Disconnection	Impaired Autonomy	Impaired Limits	Exaggerated Standards	HSQ-AF	HSQ-SE	HSQ-AG	HSQ-SD
AQ Total	.26 ***	.19 **	.39 ***	–.07	.11	–.09	.45 ***	.21 **
PA	.15 *	.03	.28 ***	–.11	.18 *	–.04	.37 ***	.13
VA	.06	.00	.26 ***	–.01	.21 **	–.01	.41 ***	.13
A	.17 *	.16 *	.30 ***	–.13	.07	–.14 *	.33 ***	.08
H	.41 ***	.40 ***	.39 ***	.07	–.09	–.09	.31 ***	.29 ***
HSQ-AF	–.28 ***	–.26 ***	–.01	–.06				
HSQ-SE	–.24 ***	–.22 **	.01	.06				
HSQ-AG	.06	.09	.30 ***	–.18 *				
HSQ-SD	.44 ***	.36 ***	.20 **	.16 *				

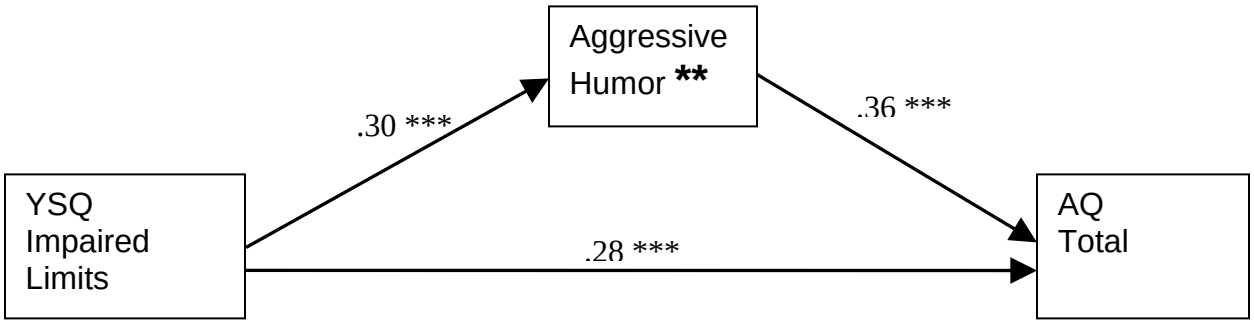
Note. AQ = Aggression Questionnaire; PA = Physical Aggression; VA = Verbal Aggression; A = Anger; H = Hostility; HSQ-AF = Affiliative Humor ; HSQ-SE = Self-enhancing Humor ; HSQ-AG = Aggressive Humor; HSQ-SD = Self-defeating Humor

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 3. Summary of Analyses of Mediating Effects of Humor Styles on the Associations between Early Maladaptive Schemas and Aggression-Related Variables

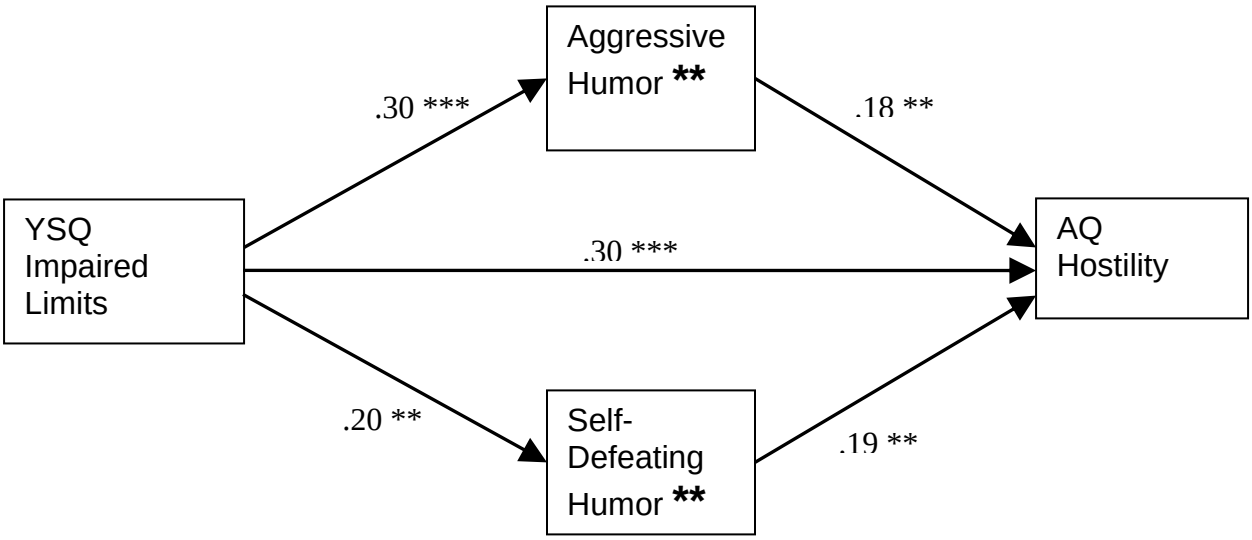
Independent Variable	Dependent Variable	Mediator Variables	ab	C.I.	Sig.	c'	Sig.	Prop. R^2
Impaired Limits	AQ Total	HSQ-AG	.104	.035 - .214 (99)	.01	.277	.001	.519
Impaired Limits	AQ Total	HSQ-SD	.013	–.010 - .051 (95)	*ns*	--	--	--
Impaired Limits	PA	HSQ-AG	.094	.039 - .193 (99)	.01	.188	.01	.600
Impaired Limits	VA	HSQ-AG	.109	.042 - .212 (99)	.01	.148	.03	.700
Impaired Limits	A	HSQ-AG	.077	.023 - .177 (99)	.01	.218	.01	.500
Impaired Limits	H	HSQ-AG	.052	.004 - .134 (99)	.01	.297	.001	.273
Impaired Limits	H	HSQ-SD	.039	.003 - .112 (99)	.01	--	--	.204
Disconnection	AQ Total	HSQ-SD	.050	–.020 - .119 (95)	ns	--	--	--
Disconnection	H	HSQ-SD	.063	.001 - .127 (95)	.05	.346	.001	.412
Impaired Autonomy	AQ Total	HSQ-SD	.049	–.002 - .111 (95)	ns	--	--	--
Impaired Autonomy	H	HSQ-SD	.062	.003 - .157 (99)	.01	.331	.001	.381

Figure 1. Mediating effect of Aggressive Humor on the Relationship between the YSQ Impaired Limits Domain and AQ Total Score.



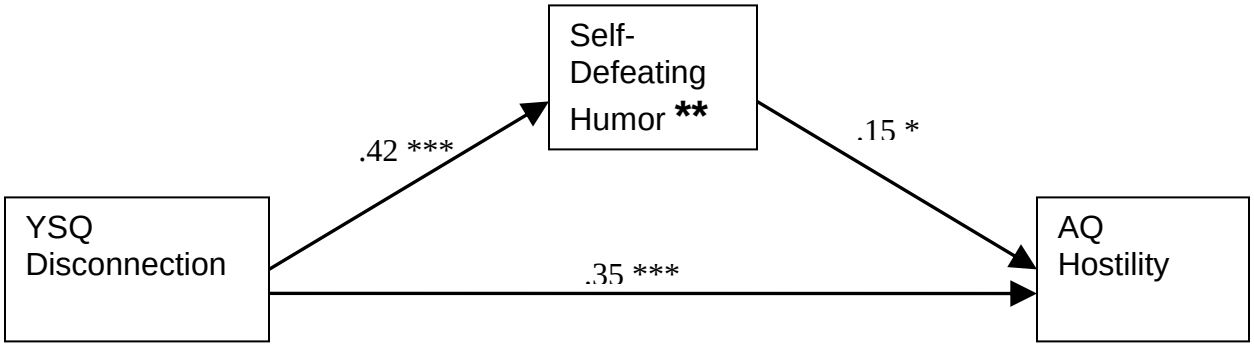
Note. * p < .05; ** p < .01; *** p < .001

Figure 2. Mediating effects of Aggressive and Self-defeating Humor Styles on the Relationship between the YSQ Impaired Limits Domain and AQ Hostility.



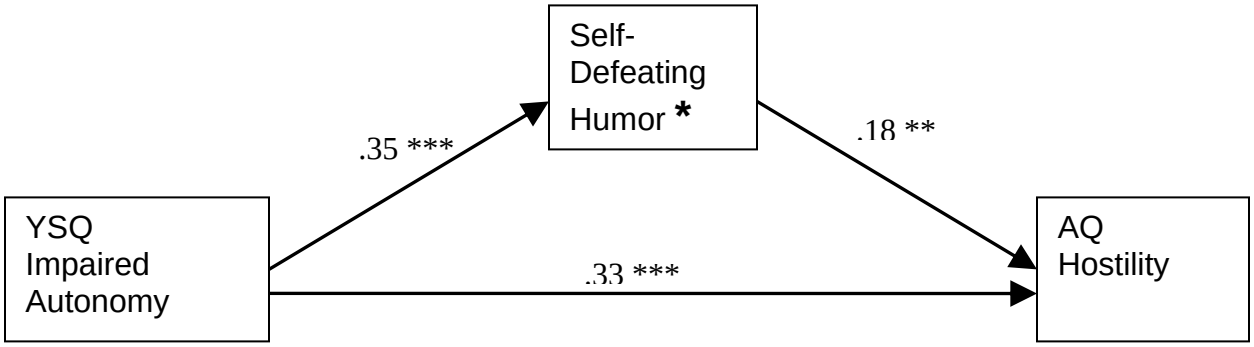
Note. ** p < .01; *** p < .001

Figure 3. Mediating effect of Self-defeating Humor on the Relationship between the YSQ Disconnection Domain and AQ Hostility.



Note. * p < .05; ** p < .01; *** p < .001

Figure 4. Mediating effect of Self-defeating Humor on the Relationship between the YSQ Impaired Autonomy Domain and AQ Hostility.



Note. * p < .05; ** p < .01; *** p < .001