



Another perspective on trait aggressiveness: Overlap with early maladaptive schemas

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ABSTRACT

Early maladaptive schemas (EMSs) refer to a dysfunctional pattern of memories, emotions, cognitions, and bodily sensations about oneself and relationships with others developed in childhood or adolescence and elaborated throughout life (Young, 1990, 1999). These EMSs have been linked to several psychological disorders such as depression, anxiety, personality disorders and eating disorders. Research in human aggression has made significant advancements with similar cognitive concepts such as cognitive aggressive scripts, aggressive cognitive-associative networks, and biased perceptions of hostility. However, the existence of any association between EMSs and a disposition toward aggression remains largely unexamined. The objective of this study was to determine whether EMSs are related to trait aggressiveness. The Aggression Questionnaire (AQ; Buss & Perry, 1992) and EMSs from the Young Schema Questionnaire-Short Form (YSQ-SF; Young, 1998) were completed online by a large sample of first year university students. The EMSs that were most strongly and uniquely related to trait aggressiveness after controlling for gender and depressive symptoms were Mistrust, Entitlement, and Insufficient Self-Control.

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1. Introduction

Trait aggressiveness refers to a disposition to behave aggressively across various situations and over repeated occasions. The Aggression Questionnaire (AQ; Buss & Perry, 1992) includes dimensions of hostility, anger, and a readiness for physical and verbal aggression. Research within the social-cognitive perspective has made advancements in elucidating the underlying mechanisms responsible for the development and maintenance of trait aggressiveness. For example, research has shown that children who have an aggressive disposition tend to be biased in the direction of perceiving more hostility than objectively exists and inferring hostile intention in the actions of others (Crick & Dodge, 1994; Dodge, 1980). Support for the hostile attribution bias has also been found in studies with university student samples (Dill, Anderson, Anderson, & Deuser, 1997; Tremblay & Belchevski, 2004) and in a community sample of adults (Matthews & Norris, 2002).

A number of researchers have explained the underlying mechanisms of aggression in relation to cognitive structures (Anderson & Bushman, 2002; Berkowitz, 1990; Crick & Dodge, 1994; Huesmann, 1998). For example, Berkowitz's theory (1990) proposes that neg-

ative affect activates ideas, memories, angry feelings, and expressive-motor reactions. Attributions, appraisals and schemas can then intensify, enrich or suppress the initial reaction. Bushman (1996) found support for the hypothesis that high trait-aggressive people have more extensive aggressive cognitive-associative networks (e.g., a network in which ambiguous objects such as sticks, bottles and rocks become associated with aggressive concepts).

To a large extent, social-cognitive studies on trait aggressiveness have focused on cognitive structures directly linked to aggression. More specifically, (1) cognitive scripts associated with procedural knowledge for retaliating, (2) perceptions of hostility, and (3) aggressive cognitive-associative networks all focus on aggressive stimuli. As Huesmann (1998) noted, a schema can refer to different types of knowledge such as about the self, events, or beliefs. In clinical psychology, research and practice of cognitive-behavioral therapy has produced a wealth of knowledge on the content of cognitive structures (i.e., core beliefs) such as various early maladaptive schemas (EMSs) linked to several psychological disorders. Beck (2005) summarizes the cognitive model of psychopathology as a biased processing of external events or internal stimuli that distorts the construction of one's experiences leading to cognitive errors such as overgeneralization. At the root of these errors are dysfunctional beliefs that are related to stable schemas (see Dozois & Beck, 2008).

Young defined EMSs as dysfunctional broad pervasive patterns consisting of memories, emotions, cognitions, and bodily sensations

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about oneself and relationships with others developed in childhood or adolescence and elaborated throughout lifetime (Young, 1990, 1999; Young, Klosko, & Weishaar, 2003). These can be assessed by the Young Schema Questionnaire (YSQ; Young, 1990) or by its shorter version, YSQ-SF (Young, 1998). It is notable that the existence of any association between EMSs and a disposition toward aggression remains conceptual (e.g., Young et al., 2003) and is largely unverified empirically. Understanding the relationships between trait aggressiveness and EMSs could provide directions for intervention within the context of schema therapy (Young et al., 2003). The purpose of this study is, therefore, to investigate associations between EMSs in the clinical psychology literature and trait aggressiveness as conceptualized in the AQ.

Beck's cognitive specificity hypothesis proposes that each psychiatric disorder has a distinct cognitive profile, and specific profiles have been demonstrated in various disorders (Beck, 2005; Dozois & Beck, 2008). A study on the properties of the YSQ-SF found that the schemas Entitlement, Mistrust, and Insufficient Self-Control were positively related to anger, whereas Self-Sacrifice was negatively related to anger (Calvete, Estévez, López de Arroyabe, & Ruiz, 2005). It seems reasonable to hypothesize that these schemas would also relate to dimensions of the AQ. The Physical and Verbal scales in the AQ represent actions, whereas Anger represents an emotional reaction, and Hostility represents a cognitive component with perceptions of ill will and injustice (Buss & Perry, 1992). It is thus hypothesized that the EMS Insufficient Self-Control is related to Physical and Verbal aggression since all these involve a failure in self-regulation. A hypothesized association between the EMS Entitlement and all the AQ scales seems plausible based on the similarity of this schema to narcissism which has been linked to aggression in previous research (Bushman & Baumeister, 1998). A third hypothesized association is between the EMS Mistrust and the AQ Hostility scale based on the rationale that perceptions of others' intent to harm are at the root of both constructs.

2. Method

2.1. Participant recruitment and data collection

A web-based survey of first year students at a large university in southwestern Ontario was conducted at the beginning of the academic year in September 2006. An invitation email was sent to all first year students ($N = 4884$) one week after the beginning of the first term. Reminders were sent seven and twelve days later; the overall online data collection lasted two weeks. A total of 848 (17.4%) students responded. The invitation letter provided a link and a password to the study webpage. At the end of the questionnaire, students had the opportunity to enter in draws of ten cash prizes of \$200. A consent form and a list of services available to students in distress were presented on the website. This study was approved by the review ethics board at the host university and at the main institution of the principal investigator.

2.2. Participants

The sample included 543 females (64.1%) and 304 males (35.9%), excluding one participant who did not indicate his or her sex. The age distribution ranged from 16 to 46 years with a mean age of 18.5 ($SD = 2.25$) years. The majority of the sample (71.2%) self identified as "White;" 9.2% identified themselves as "Chinese;" 2.7% as "South Asian;" 2.3% "Korean;" 2.0% "Arab–West Asian;" and the remaining 12% identified themselves as "multiracial" or "other." Although the total sample consisted of 848 students, the completion rate for each measure in this study ranged from 767 to 778.

2.3. Measures

The current study is part of a larger project investigating the relations between alcohol consumption, aggression, and depression. Only relevant measures are presented including a depression measure (CES-D) to control for overlap with EMSs. In addition to psychometric properties of the measures described below, the internal consistency coefficients (Cronbach's Alpha) based on the study sample are presented in Table 1 and were all relatively high.

2.3.1. Young Schema Questionnaire – Short Form (YSQ-SF, Young, 1998)

The YSQ-SF consists of 75 items assessing 15 early maladaptive schemas. Each scale consists of five items rated on a six-point scale (1 = completely untrue of me; 2 = mostly untrue of me; 3 = slightly more true than untrue; 4 = moderately true of me; 5 = mostly true of me; and 6 = describes me perfectly). The scoring procedure involves recoding the items with a response value of 5 or 6 equal 1 and a value of 4 or lower equal 0. In the present study, as in other psychometric studies (e.g., Calvete et al., 2005), the six-point scale was used to maintain the best distribution properties. A description of the 15 scales is provided below.

2.3.2. Abandonment/instability

The perception of instability or unreliability of significant others for providing support and connection.

2.3.3. Mistrust/abuse

The expectation that others will hurt, abuse, humiliate, cheat, lie, manipulate or take advantage and the perception that the harm is intentional or due to negligence.

2.3.4. Emotional Deprivation

The expectation that emotional support in the form of nurturance, empathy and protection (i.e., direction and guidance) will not be provided by others.

Table 1

Early maladaptive schemas (EMSs), Aggression Questionnaire and CES-D means and standard deviations by gender and Cronbach's Alpha coefficients.

Measures	α	Males		Females	
		M	SD	M	SD
<i>Early maladaptive schemas</i>					
Abandonment	.91	1.95	1.08	2.10	1.26
Mistrust	.90	2.11	1.07	2.03	1.14
Emotional Deprivation	.90	2.25**	1.29	1.98	1.23
Defectiveness	.94	1.58	0.99	1.59	1.06
Social Isolation	.92	2.16	1.18	2.04	1.22
Dependence	.75	1.56	0.77	1.60	0.75
Vulnerability to harm	.84	1.62	0.85	1.65	0.92
Enmeshment	.74	1.57	0.72	1.63	0.80
Failure	.94	1.67	1.02	1.80	1.09
Entitlement	.82	2.55***	1.11	2.24	1.01
Insufficient Self-Control	.90	2.44	1.20	2.48	1.20
Subjugation	.85	1.83*	0.91	1.81	0.96
Self-Sacrifice	.86	2.93	1.18	3.12	1.14
Emotional Inhibition	.90	2.35	1.29	2.21	1.26
Unrelenting Standards	.87	3.73	1.33	3.83	1.29
<i>Aggression Questionnaire</i>					
Physical	.82	19.14***	7.07	15.54	5.46
Verbal	.79	12.67*	4.66	11.87	4.06
Anger	.78	13.73	4.79	14.35	5.18
Hostility	.79	16.35	5.82	16.14	6.00
Total	.90	62.06***	17.17	57.95	16.67
CES-D	.90	12.51	9.20	15.16	10.30

Note: The EMS means reflect the average across the number of items in each scale. Significant *t*-tests comparing males and females are presented as * $p < .05$, ** $p < .01$, and *** $p < .001$. $n_{\text{males}} = 280\text{--}285$ and $n_{\text{females}} = 487\text{--}493$.

2.3.5. Defectiveness/shame

The feeling that one is defective, bad, unwanted, inferior, or invalid or unlovable to significant others if exposed.

2.3.6. Social Isolation

The feeling of being isolated from the world and/or a group or community and different from others.

2.3.7. Dependence/incompetence

The belief of not being able to handle everyday responsibilities without help from others.

2.3.8. Vulnerability to harm or illness

The exaggerated fear that catastrophes (e.g., heart attack, going crazy, airplane crash) will strike at any time.

2.3.9. Enmeshment/undeveloped self

The excessive attachment to a significant other, often a parent, resulting in deficient individuation or social development.

2.3.10. Failure

The belief of having failed, inevitability of failure, or inadequacy relative to peers.

2.3.11. Entitlement/grandiosity

The belief of being superior to others and entitled to special rights and privileges.

2.3.12. Insufficient Self-Control/self-discipline

Difficulty or refusal to exercise self-control, frustration tolerance, and excessive expression of emotions and impulses.

2.3.13. Subjugation

The excessive surrender of control to others including the suppression of preferences and desires or the suppression of emotional expression such as anger.

2.3.14. Self-Sacrifice

The excessive focus on voluntarily meeting the needs of others at the expense of one's own gratification.

2.3.15. Emotional Inhibition

The excessive inhibition of spontaneous action, feeling or expression such as inhibition of anger or joy and affection.

2.3.16. Unrelenting Standards/hypercriticalness

Belief that one must meet very high standards usually to avoid criticism resulting in feelings of pressure and criticalness toward oneself.

Previous research has supported the psychometric properties of the YSQ-SF (e.g., Hoffart et al., 2005).

2.3.17. Aggression Questionnaire (AQ; Buss & Perry, 1992)

This 29-item instrument is one of the most validated measures assessing trait aggressiveness (e.g., Tremblay & Ewart, 2005) consisting of four scales: Physical aggression (9 items), Verbal aggression (5 items), Anger (7 items), and Hostility (8 items). Participants rate each item on a scale of 1 (extremely uncharacteristic of me) to 5 (extremely characteristic of me).

2.3.18. Center for epidemiological studies – depression scale (CES-D; Radloff, 1977)

This is a well-validated 20-item instrument assessing positive and depressive affect, somatic symptoms, and interpersonal problems over the past week (see Dozois & Dobson, 2002). Using a four-point scale (i.e., less than 1 day, 1–2 days, 3–4 days, 5–7 days)

respondents are asked to indicate the frequency of various depressive symptoms they experienced over the last seven days.

3. Results

Descriptive statistics (means and standard deviations) and internal consistency coefficients (Cronbach's Alpha) are presented by gender for all measures in Table 1. Although not a major aim of this study, gender differences on all measures were analysed using independent *t*-tests, and significant results are presented in Table 1. Pearson's correlations between the EMS scales and the AQ and CES-D scales are presented in Table 2. Correlations between the EMS scales and the CES-D were all positive and significant with the exception of the correlation involving the Unrelenting Standards scale. Correlations between the EMS scales and the Total AQ scale were all positive and significant with the exception of the correlation involving Self-Sacrifice. The strongest associations (i.e., $r > .39$) included the Mistrust, Emotional Deprivation, Social Isolation, and Entitlement scales.

The Physical aggression scale correlated significantly (at $p < .01$) with 9 of the 15 EMS scales with the highest correlations with Entitlement, Mistrust, and Emotional Deprivation. The highest correlations between the Verbal aggression and the EMS scales involved Entitlement, Mistrust, and Insufficient Self-Control. Hostility correlated significantly in a positive direction with all the EMS scales with several correlations above .40 and some above or equal to .50 (i.e., Mistrust, Social Isolation, Vulnerability to Harm, and Abandonment). The pattern of correlations between Hostility and the EMSs was, in fact, very similar to the pattern between the EMSs and the CES-D. The correlations between Anger and the EMSs were very similar to the relationship between Hostility and EMSs, although substantially lower in magnitude.

A logical next step was to investigate the unique relations between the EMSs and the AQ controlling for the overlap or common variance between the EMS scales and also controlling for depressive symptoms (due to their overlap with the EMSs scales) and gender (due to significant differences in depressive symptoms and aggression). Separate multiple regression analyses were conducted with each AQ scale as a criterion variable. Gender was coded as male = 1 and female = 0. These analyses were conducted in three steps referred to in Table 3 as three models. In the first model, the only predictor variable was Gender, whereas in the second model, both Gender and CES-D were entered, and in the third model, Gender, CES-D, and all the EMS scales were entered.

The analyses involving the Total AQ scale in the third model revealed significant associations ($p < .01$) with Mistrust, Entitlement, Insufficient Self-Control, Social Isolation, and Self-Sacrifice. The analyses involving Physical aggression revealed significant associations with Entitlement, Mistrust, Self-Sacrifice and Gender. The analyses involving Verbal aggression revealed significant associations with Mistrust, Entitlement, Insufficient Self-Control, Subjugation and Unrelenting Standards. The analyses involving Hostility revealed significant associations with Mistrust, Social Isolation, and Insufficient Self-Control. Finally, the analyses involving Anger revealed significant associations with Insufficient Self-Control, Entitlement and Self-Sacrifice.

4. Discussion

The purpose of this study was to 'borrow' EMS constructs from the area of clinical psychology and investigate the extent to which they can contribute to a more well-defined 'nomological network' (Cronbach & Meehl, 1955) of trait aggressiveness. This aim is particularly important given that EMSs are typically developed in childhood or adolescence and may therefore shed light on the

Table 2
Correlations between early maladaptive schemas and trait aggressiveness and CES-D.

Early maladaptive schemas	CES-D	Aggression Questionnaire Scales					Total
		Physical	Verbal	Hostility	Anger		
Abandonment	.56	.17	.19	.50	.33	.38	
Mistrust	.48	.28	.30	.65	.33	.51	
Emotional Deprivation	.48	.24	.22	.49	.28	.40	
Defectiveness	.58	.09	.12	.49	.28	.32	
Social Isolation	.55	.17	.22	.53	.30	.40	
Dependence	.38	.07	.08	.33	.23	.23	
Vulnerability to harm	.50	.16	.17	.53	.30	.38	
Enmeshment	.33	.12	.09	.29	.20	.22	
Failure	.49	.06	.10	.48	.24	.29	
Entitlement	.24	.40	.40	.36	.33	.47	
Insufficient Self-Control	.41	.19	.28	.43	.35	.39	
Subjugation	.49	.09	.09	.47	.25	.29	
Self-Sacrifice	.23	-.05	.08	.22	.02	.08	
Emotional Inhibition	.41	.12	.14	.46	.21	.30	
Unrelenting Standards	.06	.05	.22	.16	.13	.16	

N ranges from 757 to 770. $r \geq 10$ significant at $p < .01$; $r \geq 12$ significant at $p < .001$.

Table 3
Multiple regression models predicting Aggression Questionnaire Scales from gender, the CES-D, and early maladaptive schemas.

Model/variables	Aggression Questionnaire Scales									
	Physical		Verbal		Hostility		Anger		Total	
	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β
1. Gender	.07***	.27***	.01*	.09*	.00	.01	.00	-.06	.01**	.11**
2. Gender	.02***	.29***	.03***	.11**	.27***	.08*	.11***	-.02	.14***	.16***
CES-D		.14***		.17***		.52***		.34***		.38***
3. Gender	.18***	.20***	.21***	.05	.27***	.00	.13***	-.07*	.25***	.07*
CES-D		-.04		.00		.09*		.11*		.05
Abandonment		.08		.05		.04		.12*		.09*
Mistrust		.20***		.24***		.36***		.10*		.29***
Emotional Deprivation		.11*		.02		.04		.01		.06
Defectiveness		-.06		-.07		.00		.01		-.04
Social Isolation		.04		.11*		.14***		.08		.12**
Dependence		-.03		-.02		-.04		.03		-.02
Vulnerability to harm		-.01		-.09*		.08*		.02		.01
Enmeshment		.08*		.00		.01		.04		.04
Failure		-.08		-.03		.08*		-.04		-.02
Entitlement		.30***		.23***		.05		.16***		.24***
Insufficient Self-Control		.06		.23***		.11***		.18***		.17***
Subjugation		-.09		-.18***		-.03		-.04		-.10*
Self-Sacrifice		-.12***		-.03		-.01		-.16***		-.10**
Emotional Inhibition		-.03		-.04		.06		-.05		-.02
Unrelenting Standards		-.07		.13***		.01		.06		.03

* $p < .05$.

** $p < .01$.

*** $p < .001$.

development of the aggressive disposition. Given the correlational nature of these data, we are presently unable to ascertain whether the relationships between EMSs and trait aggressiveness are due to shared factors that develop in childhood or are causally related. Some of the overlap between these constructs may also be due to shared method variance. Another limitation was the lack of generalizability to a general population of adults or to clinical samples. Also, the sample may not be entirely representative of the overall university population given the low response rate obtained. Women were overrepresented in the sample, and the analyses controlled for gender. However, other participant characteristics could have influenced the results.

In addition to validating these associations in other populations, another direction for future research involves the refinement of EMSs related to trait aggressiveness. The full scale version of the Young Schema Questionnaire (YSQ) includes three additional scales: Approval-Seeking, Negativism/Pessimism, and Punitiveness. Of these scales, Punitiveness (a belief that people should be

harshly punished for their mistakes) may overlap to some extent with hostility and anger dimensions. Given that the YSQ was developed in the context of people who presented with clinical disorders, there may also exist other EMSs specific to trait aggression that have not yet been identified. Notwithstanding these limitations, the results of this study do provide important information about the potential relationships between EMSs and aggressive dispositions.

Beck's specificity hypothesis states that particular schemas are linked to particular psychopathological disorders or behavioral patterns (Alford & Beck, 1997; Dozois & Beck, 2008). Anxiety, for instance, corresponds to thoughts of danger and threat to one's personal well-being. Individuals who are depressed, on the other hand, tend to exhibit negative automatic thoughts that focus on personal loss, deprivation, and failure. Consistent with Beck's notion of content-specificity, the hypothesis that Entitlement, Mistrust, and Insufficient Self-Control are uniquely related to trait aggressiveness (Total AQ scale) was largely confirmed. However

additional significant predictors of AQ Total scores that were not hypothesized were Social Isolation (positive direction) and Self-Sacrifice (negative direction). All these findings become more meaningful when discussed in terms of the specific AQ subscales that were mainly responsible for the associations.

In the multiple regression analysis, Mistrust was significantly related to all aggression subscales with the exception of Anger, where a weaker association was found at the .05 level only. The strongest association was with the Hostility scale which suggests that there may be some conceptual overlap between perceptions of suspiciousness and hostile attribution biases. Perceptions of intent to harm have strong implications for aggression because they may predict retaliation more strongly than would the severity of a provocation (Geen, 2001).

Entitlement was significantly related to all the aggression subscales with the exception of Hostility. These associations are particularly meaningful within Tedeschi and Felson's (1994) social interaction theory which emphasizes the motivational function of coercive actions such as aggression. Coercive actions are used to control others, to establish justice, and to protect or restore self-esteem. Entitlement and coercive actions may overlap with narcissism. The items of the Entitlement scale focus on lack of empathy and modesty, wanting one own way, and feelings of superiority. Bushman and Baumeister (1998) found that narcissism accompanied by ego threat (i.e., poor evaluation on an essay) was related to the highest level of aggression (i.e., noise blasts). EMSs typically associated with narcissistic personality disorder include Entitlement, Emotional Deprivation, and Defectiveness (Young et al., 2003). It is also noted that Entitlement may be linked to one being spoiled and failing to learn the principle of relationship reciprocity in childhood and that Entitlement can also develop as an overcompensation for emotional deprivation and defectiveness (Sperry, 2006; Young et al., 2003).

Insufficient Self-Control was related to all the AQ subscales with the exception of Physical aggression. Although we expected that this EMS would be related to Physical aggression, it may be the case that insufficient self-control does not reach the threshold for physical aggression. More specifically, people with a high score on this EMS may still be able to control their physical aggression due to relatively strong social norms discouraging this behavior. Insufficient Self-Control refers to an inability to restrain one's emotions and impulses and a lack of self-discipline to accomplish tasks. In the aggression literature the most similar variables are impulsivity and problems in self-regulation (Bandura, Caprara, Barbaranelli, Pastorelli, & Regalia, 2001). Geen (2001) points out that impulsive people lack the ability to control their expressive behavior and that the combination of impulsivity and anger creates favourable conditions for aggression.

Although not predicted, a significant association was found between Social Isolation and Total AQ scale which was largely due to the Hostility AQ subscale. This link may point to a number of explanations such as social isolation leading to hostility or vice versa or even common variance reflecting a theme of alienation. Significant associations were also found between Self-Sacrifice and both Physical Aggression and Anger. It may seem odd that this association was not significant in the zero-order correlations (Table 2) but then significant in the regression analyses. Based on previous research (Calvete et al., 2005) and the unreported correlation matrix in this study, it is known that there is considerable overlap between the EMSs. This overlap may consist of various sources of variance such as a general maladaptive schema or even socially desirable responding. In the multiple regression analyses, this overlap is controlled for and only unique associations with aggression are reflected in the regression coefficients. The nature of the unique association is not clear; however an explanation for a negative association with aggression in general can be pro-

posed. Self-sacrifice involves giving a lot to others without asking for something in return (Young et al., 2003). This seems like a pro-social behavior that would be likely to correlate negatively with aggressive tendencies given that previous research has found a negative association between aggression and empathy (Miller & Eisenberg, 1988). A significant relationship was also found between Subjugation and Verbal aggression. This negative association seems reasonable given that people who have a salient Subjugation EMS would be less likely to behave aggressively given their tendency to suppress their preferences and desires. Finally, the significant relationship between Unrelenting Standards and Verbal Aggression could be due to the rigid rules and hypercriticalness features of this schema which may often lead to verbal conflicts.

Although not a major aim of this study, gender differences were inspected to ensure similarity with previous research and results were in the expected direction. Previous work has found that males score higher on the physical and total scale aggression (e.g., Tremblay & Ewart, 2005) and that females are more likely to experience depression than are males (see Dozois & Westra, 2004). A paucity of research exists on gender differences in the EMSs. Males in the present study scored higher on Emotional Deprivation, and Entitlement whereas females scored higher on Self-Sacrifice. Somewhat similar findings were obtained in a study by Lachenal-Chevallet, Mauchand, Cottraux, Bouvard, and Martin (2006).

A large volume of research has validated the effectiveness of cognitive-behavioral strategies in treating various disorders (cf. Butler, Chapman, Forman, & Beck, 2006). Schema therapy, developed by Young et al. (2003), combines a number of therapeutic approaches (e.g., cognitive therapy, behavior therapy, and object relations) to assess the presence of EMSs, test their validity and modify these core beliefs. Schema therapy also helps patients to evaluate coping responses that often serve to perpetuate a given EMS and to break these behavioral patterns. It is clearly a major challenge to intervene with people who have an aggressive disposition especially when they have reached adulthood. However, by clarifying the conceptual and theoretical overlap of trait aggressiveness with other related concepts that have been shown to be malleable to some degree, intervention strategies may become clearer.

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References

- Alford, B. A., & Beck, A. T. (1997). *The integrative power of cognitive therapy*. New York: Guilford.
- Anderson, C. A., & Bushman, B. J. (2002). Human aggression. *Annual Review of Psychology*, 53, 27–51.
- Bandura, A., Caprara, G. V., Barbaranelli, C., Pastorelli, C., & Regalia, C. (2001). Sociocognitive self-regulatory mechanisms governing transgressive behavior. *Journal of Personality and Social Psychology*, 80, 125–135.
- Beck, A. T. (2005). The current state of cognitive therapy. A 40-year retrospective. *Archives of General Psychiatry*, 62, 953–959.
- Berkowitz, L. (1990). On the formation and regulation of anger and aggression: A cognitive-neoassociationistic analysis. *American Psychologist*, 45, 494–503.
- Bushman, B. J. (1996). Individual differences in the extent and development of aggressive cognitive-associative networks. *Personality and Social Psychology Bulletin*, 22, 811–819.
- Bushman, B. J., & Baumeister, R. F. (1998). Threatened egotism, narcissism, self-esteem, and direct and displaced aggression: Does self-love or self-hate lead to violence? *Journal of Personality and Social Psychology*, 75, 219–229.
- Buss, A. H., & Perry, M. (1992). Personality processes and individual differences. The aggression questionnaire. *Journal of Personality and Social Psychology*, 63, 452–459.

- Butler, A. C., Chapman, J. E., Forman, E. M., & Beck, A. T. (2006). The empirical status of cognitive-behavioral therapy: A review of meta-analyses. *Clinical Psychology Review*, 26, 17–31.
- Calvete, E., Estévez, A., López de Arroyabe, E., & Ruiz, P. (2005). The schema questionnaire – short form. Structure and relationship with automatic thoughts and symptoms of affective disorders. *European Journal of Psychological Assessment*, 21, 90–99.
- Crick, N. R., & Dodge, K. A. (1994). A review and reformulation of social information-processing mechanisms in children's social adjustment. *Psychological Bulletin*, 115, 74–101.
- Cronbach, L. J., & Meehl, P. E. (1955). Construct validity in psychological tests. *Psychological Bulletin*, 52, 281–302.
- Dill, K. E., Anderson, C. A., Anderson, K. B., & Deuser, W. E. (1997). Effects of aggressive personality on social expectations and social perceptions. *Journal of Research in Personality*, 31, 272–292.
- Dodge, K. A. (1980). Social cognition and children's aggressive behavior. *Child Development*, 51, 162–170.
- Dozois, D. J. A., & Beck, A. T. (2008). Cognitive schemas, beliefs and assumptions. In K. S. Dobson & D. J. A. Dozois (Eds.), *Risk factors in depression* (pp. 121–143). Oxford, England: Elsevier/Academic Press.
- Dozois, D. J. A., & Dobson, K. S. (2002). Depression. In M. M. Antony & D. H. Barlow (Eds.), *Handbook of assessment and treatment planning for psychological disorders* (pp. 259–299). New York: Guilford Press.
- Dozois, D. J. A., & Westra, H. A. (2004). The nature of anxiety and depression: Implications for prevention. In D. J. A. Dozois & K. S. Dobson (Eds.), *The prevention of anxiety and depression: Theory, research, and practice* (pp. 9–41). Washington, DC: American Psychological Association.
- Geen, R. G. (2001). *Human aggression* (2nd ed.). Philadelphia, PA: Open University Press.
- Hoffart, A., Sexton, H., Hedley, L. M., Wang, C. E., Holthe, H., Haugum, J. A., et al. (2005). The structure of maladaptive schemas: A confirmatory factor analysis and a psychometric evaluation of factor-derived scales. *Cognitive Therapy and Research*, 29, 627–644.
- Huesmann, L. R. (1998). The role of social information processing and cognitive schema in the acquisition and maintenance of habitual aggressive behavior. In R. G. Geen & E. Donnerstein (Eds.), *Human aggression: Theories, research, and implications for social policy* (pp. 73–109). San Diego, California: Academic Press.
- Lachenal-Chevallet, K., Mauchand, P., Cottraux, J., Bouvard, M., & Martin, R. (2006). Factor analysis of the Schema Questionnaire– Short Form in a nonclinical sample. *Journal of Cognitive Psychotherapy: An International Quarterly*, 20, 311–318.
- Matthews, B. A., & Norris, F. H. (2002). When is believing “seeing”? Hostile attribution bias as a function of self-reported aggression. *Journal of Applied Social Psychology*, 32, 1–32.
- Miller, P. A., & Eisenberg, N. (1988). The relationship of empathy to aggressive and externalising/antisocial behavior. *Psychological Bulletin*, 103, 324–344.
- Radloff, L. S. (1977). The CES-D Scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*, 1, 385–401.
- Sperry, L. (2006). *Cognitive behavior therapy of DSM-IV-TR personality disorders* (2nd ed.). New York: Routledge.
- Tedeschi, J. T., & Felson, R. B. (1994). *Violence, aggression, & coercive actions*. Washington, DC: American Psychological Association.
- Tremblay, P. F., & Belchevski, M. (2004). Did the instigator intend to provoke? A key moderator in the relation between trait aggression and aggressive behavior. *Aggressive Behaviour*, 30, 409–424.
- Tremblay, P. F., & Ewart, L. A. (2005). The Buss and Perry Aggression Questionnaire and its relations to values, the Big Five, provoking hypothetical situations, alcohol consumption patterns, and alcohol expectancies. *Personality and Individual Differences*, 38, 337–346.
- Young, J. E. (1990). *Cognitive therapy for personality disorders: A schema-focused approach*. Sarasota, FL: Professional Resource Press.
- Young, J. E. (1998). *Young schema questionnaire short form*. New York: Cognitive Therapy Center.
- Young, J. E. (1999). *Cognitive therapy for personality disorders: A schema-focused approach* (3rd ed.). Sarasota, FL: Professional Resource Press.
- Young, J. E., Klosko, J. S., & Weishaar, M. E. (2003). *Schema therapy: A practitioner's guide*. New York: Guilford.