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Amanda Venta¹, John Hart² and Carla Sharp¹

Abstract

Recently, efforts have been made to better understand constructs that are associated with difficulties in emotion regulation in hopes of identifying underlying mechanisms that may be valuable targets for intervention. Against this background, the present study had two aims. Firstly, we wanted to explore the relation between emotion regulation, experiential avoidance and alexithymia by determining whether adolescents with elevated scores on a measure of alexithymia would report deficits in emotion regulation and experiential avoidance. Secondly, we sought to evaluate the role of experiential avoidance as a mediator in the relation between alexithymia and emotion regulation. The sample ($N = 64$) consisted of adolescents recruited from an inpatient facility of which approximately 30% were classified as having alexithymia. The results of this study indicate that adolescents with alexithymia report deficits in emotion regulation and elevated experiential avoidance. Experiential avoidance mediated the relation between alexithymia and emotion regulation, indicating that while the inability to effectively use language to identify and describe emotional states is strongly correlated with difficulties in regulating one's emotions, this relation is mediated by the unwillingness to tolerate aversive private experiences. Limitations and strengths of the present study are also noted.

Keywords

Adolescents, alexithymia, emotion regulation, experiential avoidance

Difficulties in regulating emotions have been shown to be an important correlate (Adrian et al., 2009) and potential cause (Bradley, 2000) of adult and adolescent psychopathology. Therefore, emotion regulation is a central target of treatment in many modalities, including Dialectical Behavior Therapy, Cognitive Behavior Therapy, Acceptance and Commitment Therapy (ACT) and Mentalization-based Therapy (e.g., Gratz & Tull, 2010). Emotion regulation, in this case, refers to “all extrinsic and intrinsic processes responsible for monitoring, evaluating, and modifying

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emotional reactions, especially their intensive and temporal features, to accomplish one's goals" (Thompson, 1994, p. 27).

Recently, efforts have been made to better understand constructs that are associated with difficulties in emotion regulation in hopes of identifying underlying mechanisms that may be valuable targets for intervention. For instance, Taylor, Bagby, and Parker (1997) proposed that deficits in emotion regulation are associated with alexithymia, a term originally coined to mean the inability to describe emotions with words (Sifneos, 1973). More recently, research has tied alexithymia to an impoverished fantasy life and limited imagination, an impaired capacity for empathy, a tendency to somatize emotions and a penchant for offering undifferentiated descriptions of emotional experience (Motan & Gençöz, 2007). Following research with the Toronto Alexithymia Scale-20 (TAS-20; Bagby, Parker, & Taylor, 1994; Bagby, Taylor, & Parker, 1994), Taylor (2000) refined the definition of alexithymia to include difficulty identifying feelings and distinguishing them from bodily sensations of emotional arousal, difficulty describing feelings to other people and an externally oriented cognitive style. Further, Taylor (2000) suggests that alexithymia is a deficiency of the cognitive-experiential component of the emotion response system, which produces difficulties with the interpersonal regulation of emotion. In other words, because alexithymia prevents individuals from identifying their feelings, it may also prevent them from reflecting upon, regulating and communicating their emotions, in turn preventing them from enjoying the consolation and insight that loved ones could otherwise provide. The decreased capacity for imagination linked with alexithymia may also interfere with the ability to use fantasy and dreams to cope with difficult emotions (Krystal & Krystal, 1988; Taylor et al., 1997).

Like emotion dysregulation, alexithymia has been implicated in a variety of adult and adolescent psychopathology. While research in adolescents is very limited, a literature review by Parker, Eastabrook, Keefer, and Wood (2010) revealed that alexithymia is associated with eating disorders (Zonnevijlle-Bender, van Goozen, Cohen-Kettenis, van Elburg, & van Engeland, 2002; Zonnevijlle-Bender, van Goozen, Cohen-Kettenis, van Elburg, & van Engeland, 2004), somatic complaints (Ebeling, Moilane, Linna, & Rasanen, 2001; Rieffe et al., 2007; Rieffe, Oosterveld, & Meerum Terwogt, 2006), dissociation (Sayar, Kose, Grabe, & Topbas, 2005), depressed mood (Honkalampi et al., 2009), behavior problems (Honkalampi et al., 2009; Zimmermann, 2006), risk-taking (Brejard, Bonnet, & Pedinielli, 2005), substance use (Dorard et al., 2008) and violence in adolescents (Marohn, 1992). More generally, Ciarrochi, Heaven, and Supavadeeprasit (2008) determined that lower emotion identification skills predict increases in fear, decreases in positive affect, and decreases in the quality and quantity of social support in adolescents and, in boys specifically, lower emotion identification skills predict increases in sadness.

Clearly, both alexithymia and emotion dysregulation are important correlates of psychopathology and, as discussed earlier, have been shown to correlate with one another (see Taylor, 2000). However, the mechanism tying an individual's inability to express emotions with words (alexithymia) and the ability to regulate emotions is still unknown. Here, we suggest that experiential avoidance may be the mechanism (mediating variable) by which alexithymia influences emotion dysregulation. Experiential avoidance, the attempt to control the form or frequency of aversive private experiences (e.g., bodily sensations, emotions, thoughts, memories, behavioral predispositions; Hayes, Wilson, Gifford, Follette, & Strosahl, 1996), is a general heading that encompasses any cognitive and behavioral strategy aimed at reducing and avoiding negative experience. Utilization of these strategies ultimately produces a maladaptive coping style and, as a result, it is associated with a wide range of psychopathology (Begotka, Woods, & Wetterneck, 2004; Hayes,

Luoma, Bond, Masuda, & Lillis, 2006; Kashdan, Breen, Afram, & Terhar, 2010; Twohig, 2008; Kingston, Clarke, & Remington, 2010), including anxiety, affective and conduct problems in adolescents (Venta, Sharp, & Hart, 2011). Conversely, Ciarrochi, Kashdan, Leeson, Heaven, and Jordan (2011) found that engaging fully in one's current activity with undivided attention, emotional awareness and experiential acceptance are linked to prosocial tendencies and predict increased well-being across a one-year time period.

Although no research has specifically explored the interrelatedness of alexithymia, emotion regulation and experiential avoidance, the overlap between the conceptual understandings of all three of these constructs is obvious. Specifically, it is reasonable to presume that individuals who cannot speak about their feelings also have difficulty completely experiencing their internal states. A logical extension of this idea is that the regulation of emotions is difficult when emotions are avoided psychologically and verbally. Indeed, this is what Taylor (2000) proposes by suggesting that alexithymia is a deficit in *cognitive-experiential* skills that leads to difficulties with emotion regulation. While Taylor (2000) reviews a great deal of research in adults suggesting that alexithymia is associated with both the experience and regulation of emotions, no study has explored both outcomes together, and therefore hypotheses regarding their interconnectedness remain untested. Determining the mediating role of experiential avoidance in the relation between alexithymia and emotion dysregulation holds significant clinical value, because it offers a way of delineating the contributing factors that must be targeted in treatment if overall emotion dysregulation difficulties are to be effectively addressed in treatment.

Against this background, the aim of the present study was to explore the relation between alexithymia, experiential avoidance and difficulties in emotion regulation in adolescents. Firstly, we wanted to determine whether adolescents with elevated scores on the TAS-20 would report difficulties in emotion regulation and experiential avoidance. Here, we use the Gratz and Roemer (2004) approach to defining emotion regulation as a process involving:

...(a) awareness and understanding of emotions, (b) acceptance of emotions, (c) ability to control impulsive behaviors and behave in accordance with desired goals when experiencing negative emotions, and (d) ability to use situationally appropriate emotion regulation strategies flexibly to modulate emotional responses as desired in order to meet individual goals and situational demands. (p. 42).

These components are collectively measured by the Difficulties in Emotion Regulation Strategies (Gratz & Roemer, 2004) questionnaire. We expected that significant relations between alexithymia, difficulties in emotion regulation and experiential avoidance would emerge at the bivariate level and that there would be significant differences in emotion regulation ability, strategies and experiential avoidance between the alexithymic and non-alexithymic groups.

Secondly, we sought to evaluate the role of experiential avoidance in alexithymia and difficulties in emotion regulation by testing a mediational model. We expected that the relation between alexithymia and emotion dysregulation would be, at least partially, accounted for by a denial of internal experiences. In other words, difficulty speaking about one's feelings would be related to difficulty experiencing one's feelings and, the latter would be responsible for the apparent relation between alexithymia and difficulties in emotion regulation. Positive findings would not only advance conceptual understandings of all three of these constructs and the therapies that utilize them, but also suggest that the therapeutic targeting of difficulties experiencing and discussing emotional states (experiential avoidance and alexithymia) may diminish difficulties in emotion regulation.

Examining these questions in adolescence is particularly important, because “a central developmental task in adolescence is the continued acquisition and mastery of ER [emotion regulation] skills” (Adrian et al., 2009, p. 1428). Furthermore, adolescence is a time during which development provides opportunities to grow in ways that will promote psychological well-being (Silk, Steinberg, & Morris, 2003) or, alternatively, experience distress and consequences due to inadequate development of emotional skills. For these reasons, the experience, discussion of, and regulation of emotions in adolescents is likely to be unique from these experiences at other developmental stages and, therefore, research focusing on this age group is necessary. In achieving the study’s aims, we focused on a sample of inpatient adolescents to ensure large enough numbers of adolescents with clinically significant symptoms of alexithymia. Likewise, an inpatient sample allows this study to explore a wide range of emotion regulation skills, as suggested by Adrian et al. (2009), and provides a scientific basis for conclusions regarding the clinical utility of targeting emotion regulation through the other constructs of interest.

Method

Participants

All adolescents admitted to a 16-bed adolescent inpatient unit, which serves adolescents with severe behavior, psychiatric and substance disorders who are characterized as treatment refractory, had the opportunity to participate in the study in exchange for payment. While the unit was in principle open to all mental disorders, the study adopted the following inclusion and exclusion criteria. Inclusion criteria were being between 12 and 17 years old and being sufficiently fluent in English to consent to research and complete the necessary assessments. Exclusion criteria included a diagnosis of schizophrenia, another psychotic disorder or mental retardation. The number of people approached for consent during the study period was 72. Of these, seven declined to participate, one revoked consent prior to being assessed and three were excluded on the basis of the aforementioned criteria.

Therefore, the final sample consisted of 64 adolescents with ages ranging from 13 to 17 and a mean age of 16.24 ($SD = 1.25$). The sample consisted of 38 (59.4%) females and 26 (40.6%) males and had the following ethnic breakdown: 90.6% white, 3.1% Hispanic, 1.6% Asian, 1.6% black, 1.6% mixed and 1.6% unreported. On average, adolescents had between two and three comorbid diagnoses. The most common forms of psychopathology in this sample were affective problems (39.1%), anxiety problems (23.4%), attention deficit hyperactivity problems (23.4%), oppositional defiant disorder (21.9%) and conduct problems (20.3%).

Measures

The Toronto Alexithymia Scale. The TAS-20 (Bagby, Parker, et al., 1994; Bagby, Taylor, et al., 1994) is a self-report questionnaire measure that assesses alexithymia. It consists of 20 items that are scored on a five-point Likert scale (from 1 = *strongly disagree* to 5 = *strongly agree*). A higher total score indicates greater alexithymia and, according to convention, a score equal to or exceeding 61 indicates alexithymia. The measure assesses three aspects of alexithymia, including *difficulty identifying feelings*, *difficulty describing feelings* and *externally oriented thinking*. “I am often confused about what emotion I am feeling,” “It is difficult for me to find the right words for my feelings” and “I prefer talking to people about their daily activities rather than their feelings” are

example items from these three subscales, respectively. In the present sample, internal consistency of this measure was good, with a Cronbach's alpha of .89.

The Avoidance and Fusion Questionnaire for Youth. The Avoidance and Fusion Questionnaire for Youth (AFQ-Y; Greco, Murrell, & Coyne, 2005) is a self-report questionnaire measure assessing psychological inflexibility, including cognitive fusion and experiential avoidance, in youth. It was adapted from the Acceptance and Action Questionnaire used to assess the same constructs in adults (Hayes et al., 2004). Responses are scored on a five-point Likert scale (from 0 = *not at all true* to 4 = *very true*). A higher total score indicates higher psychological inflexibility, experiential avoidance and cognitive fusion. In the present sample, internal consistency of this measure was good, with a Cronbach's alpha of .87.

The Difficulties in Emotion Regulation Scale. The Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004) is a self-report questionnaire measure that assesses emotion dysregulation. It consists of 36 items that are scored on a five-point Likert scale (from 1 = *almost never (0–10%)* to 5 = *almost always (91–100%)*). A higher total score indicates greater emotion dysregulation. The measure assesses six aspects of emotion dysregulation, including *non-acceptance of emotional responses, difficulties engaging in goal-directed behavior, impulse control difficulties, lack of emotional awareness, limited access to emotion regulation strategies and lack of emotional clarity*. The DERS has been shown to have good psychometric properties in an adolescent sample (Weinberg & Klonsky, 2009) and, in the present sample, internal consistency was good, with a Chronbach's alpha of .96.

Wechsler Adult Intelligence Scale III or IV or Wechsler Intelligence Scale for Children IV. Either the Wechsler Adult Intelligence Scale (WAIS; 1997 or 2008) or Wechsler Intelligence Scale for Children (WISC; 2003) was administered by a licensed clinical psychologist according to the adolescent's age. In this study, the Full Scale IQ and Verbal Comprehension Index of each participant were used to ensure equivalence of alexithymic and non-alexithymic groups, as IQ and readability have been cited as limitations of the TAS-20 in adolescent samples (Parker et al., 2010).

Procedures

This study was approved by the appropriate institutional review board. For eligible adolescents, informed consent from the parents and assent from the adolescent were obtained in person. Adolescents were then consecutively assessed by doctoral-level clinical psychology students, licensed clinicians and/or trained clinical research assistants. Adolescents received US\$30 in gift cards to a national chain of department stores upon completion.

Results

Participant characteristics

Table 1 displays the demographic characteristics of the sample. Participants with a TAS-20 total score greater than or equal to 61 (Bagby & Taylor, 1997) were categorized as having alexithymia. According to this classification system, 45 participants (70.31%) formed the *no alexithymia* group and 19 participants (29.69%) formed the *alexithymia* group. Full scale IQ, verbal comprehension, age and sex did not differ significantly between the two groups and, thus, were not included in further analyses.

Table 1. Sample characteristics by Toronto Alexithymia Scale-20 alexithymia classification.

	No alexithymia (<i>n</i> = 45)	Alexithymia (<i>n</i> = 19)
Full scale IQ: <i>M</i> (<i>SD</i>)	110.83 (15.21)	104.35 (15.09)
Verbal Comprehension Index: <i>M</i> (<i>SD</i>)	111.85 (16.03)	114.13 (16.71)
Age in years: <i>M</i> (<i>SD</i>)	16.33 (1.26)	16.04 (1.23)
Males: <i>n</i> (%)	25 (55.55%)	13 (68.42%)
Females: <i>n</i> (%)	20 (44.45%)	6 (31.58%)

Table 2. Comparison of means according to Toronto Alexithymia Scale-20 alexithymia classification.

	TAS-20 total score		<i>t</i>
	No alexithymia <i>M</i> (<i>SD</i>)	Alexithymia <i>M</i> (<i>SD</i>)	
TAS-20 total score	45.44 (9.06)	70.58 (8.28)	-10.39***
AFQ-Y total score	24.87 (12.01)	36.47 (11.35)	-3.59**
DERS total score	98.20 (30.03)	120.74 (24.99)	-2.88**

Note. TAS-20: Toronto Alexithymia Scale, AFQ-Y: Avoidance and Fusion Questionnaire for Youth, DERS: Difficulties in Emotion Regulation Scale

p* < .01. *p* < .001.

Differences between alexithymic and non-alexithymic groups in emotion regulation and experiential avoidance

The first aim of the present study was to explore differences in emotion regulation and experiential avoidance among adolescents classified as alexithymic and non-alexithymic (by the TAS-20). The results of independent sample *t*-tests showed that the alexithymia group scored significantly higher on the AFQ-Y ($t = -3.59, p < .01$) and on the DERS ($t = -2.88, p < .01$), indicating higher experiential avoidance and emotional dysregulation. Table 2 contains the means and standard deviations of all main study variables for the alexithymia and non-alexithymia groups.

The mediational role of experiential avoidance in the relation between alexithymia and emotion regulation

We began our analyses by exploring the correlations between key study variables. The Pearson correlations between all questionnaire total scores were calculated and appear in Table 3. The TAS-20 total score (alexithymia) correlated significantly with experiential avoidance and emotion regulation.

Next, regression analyses were performed to test for mediation (Baron & Kenny, 1986). In order to prove mediation, the following conditions must be met in a series of three regressions: (1) the independent variable should significantly predict the mediator; (2) the independent variable should significantly predict the dependent variable; and (3) the mediator should significantly predict the dependent variable and decrease the effect of the independent variable when both the mediator and independent variable are included in the analysis. In our model, the independent variable was alexithymia (TAS-20), the mediator was experiential avoidance (AFQ-Y) and the dependent

Table 3. Pearson correlations among all of the emotional ability measures.

Measure	TAS-20	AFQ-Y	DERS
TAS-20 total	–		
AFQ-Y total	.42**	–	
DERS total	.51**	.68**	–

Note. TAS-20: Toronto Alexithymia Scale, AFQ-Y: Avoidance and Fusion Questionnaire for Youth, DERS: Difficulties in Emotion Regulation Scale

** $p < .01$.

Table 4. Regression analyses evaluating the mediating role of experiential avoidance with alexithymia as the independent variable.

	Predictor	Outcome	β	t	p	R^2	Sobel
R1	TAS-20 total	AFQ-Y total	.371	3.629	.001**	.175	
R2	TAS-20 total	DERS total	1.054	4.617	.000***	.256	
R3	AFQ-Y total	DERS total	1.330	5.797	.000***	.520	3.044**
	TAS-20 total		.560	2.753	.008**		

Note. TAS-20: Toronto Alexithymia Scale, AFQ-Y: Avoidance and Fusion Questionnaire for Youth, DERS: Difficulties in Emotion Regulation Scale

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

variable was emotion dysregulation (DERS). Total mediation occurs only when the effect of the independent variable is absent once the mediator is included in the model. Partial mediation occurs when the effect of the independent variable is reduced, but not completely eliminated, when the mediator is included in the model.

To test the mediational role of experiential avoidance in the relation between emotion regulation and alexithymia, we conducted these three regression analyses with TAS-20 total score, AFQ-Y total score and DERS total score. The results of these analyses are presented in Table 4. Before testing for mediation, formal detection tolerance and the variance inflation factor (VIF) were used to assess multicollinearity. Because multicollinearity was not a problem, with tolerance greater than .2 and a VIF less than 4 (VIF = 1.212; tolerance = .825), centering the predictor variable was not necessary (Aiken & West, 1991; Holmbeck, 2002).

In this model, the results of the three conditions required in Baron and Kenny's (1986) mediational model were met as follows: alexithymia significantly predicted the mediator (experiential avoidance); alexithymia significantly predicted the dependent variable (emotion dysregulation); and, when the mediator (experiential avoidance) and the independent variable (alexithymia) were entered jointly as predictors of emotion dysregulation, the effect of alexithymia decreased. These findings are summarized in Table 4. Post hoc probing of the significant mediational model was conducted with Sobel's equation (Sobel, 1990; as recommended by Baron & Kenny, 1986; Holmbeck, 2002), which tests the significance of the decrease in the effect of the independent variable on the dependent variable in the presence of a mediator. That result is displayed in Table 4 and was significant, thereby confirming the mediational role of experiential avoidance. All analyses were conducted using SPSS software, Release 17.0.3.

Discussion

The overall aim of the current study was to examine the relation between alexithymia, emotion regulation and experiential avoidance in adolescents. Firstly, we wanted to establish whether alexithymic adolescents reported increased difficulties in emotion regulation, as well as experiential avoidance. As expected, adolescents in the alexithymic group demonstrated higher levels of both emotion dysregulation and experiential avoidance. Further, the scores of the alexithymic group on the measure of emotion regulation (DERS) were well above the mean of the community sample of adolescents investigated by Weinberg and Klonsky (2009).

We also examined the mediational role of experiential avoidance in the relation between alexithymia and difficulties in emotion regulation. At the bivariate level, alexithymia was correlated with emotion regulation (DERS) and experiential avoidance (AFQ-Y). We predicted that experiential avoidance would partially mediate this relation. The findings of this study support that hypothesis. These results suggest that while the inability to effectively use language to identify and describe emotional states is strongly correlated with difficulties in regulating one's emotions, this relation is mediated by the inability or unwillingness to tolerate aversive private experiences. Thus, experiential avoidance seems to impede an adolescent's ability to adequately regulate emotions and adaptively respond to the environment. Presumably, difficulties with experiential avoidance arise early in the developmental stage, thereby interfering with a child's ability to learn and use emotional language in a pragmatic way. Alternatively, the avoidance of private experience may inhibit access to personal information useful in making properly informed behavioral choices and using effective social communication. Moreover, the process that makes the ability to identify and describe uncomfortable feelings useful may also make experiential avoidance more likely, since describing and identifying emotional responses to aversive events will frequently be experienced as aversive themselves (Hayes & Gifford, 1997).

The clinical implications of these findings are clear. In some aspect or other, most clinical interventions address experiential avoidance and promote acceptance (Arkowitz, 1997). At the most basic level, the purpose of psychotherapy is to aid individuals in making sense of difficult internal experiences, such as emotions and thoughts, and is therefore a fundamental assault on attempts to avoid, or limit, experience of those aversive states. More specifically, though, some well-established therapeutic modalities have addressed experiential avoidance directly, most notably ACT (Hayes, Strosahl, & Wilson, 1999). The construct of experiential avoidance originated from theoretical and experimental work within ACT. ACT interventions aim to identify personal values and promote actions that are in accordance with these values. In part, this effort aims to reduce experiential avoidance by encouraging engagement in valued actions and experiences even when aversive private events are present (Ruiz, 2010). In other words, clients are asked to focus on the value of enduring aversive private experiences in hopes of decreasing maladaptive avoidance of those experiences. Further, experiential avoidance is directly targeted by promoting experiential acceptance and psychological flexibility by metaphorical, experiential and behavioral change techniques. Ultimately, increased experiential acceptance is achieved by teaching clients various skills aimed at undermining excessive and rigid cognition and emotion regulation (Hayes et al., 2006; Masuda, Hayes, Sackett, & Twohig, 2004). Underlying the theoretical underpinnings of ACT is the concept that getting entangled in language and verbal-symbolic behavioral processes can trap individuals in a struggle with thoughts and emotions that they experience as aversive. According to the ACT model, it is this struggle to control perceived aversive experiences that underlies many psychopathological conditions (Hayes, Barnes-Holmes, & Roche, 2001).

Many of the techniques ACT uses to target experiential avoidance are also implicitly incorporated into other treatment modalities. For example, dialectical behavior therapy teaches the skills of distress tolerance, mindfulness, opposite action and acceptance, all of which involve aspects of experiential avoidance (Berking, Neacsiu, Comtois, & Linehan, 2009). Mentalization-based treatment encourages reflection on own mental states (Fonagy & Sharp, 2008), which is directly opposed to attempts to avoid mental states and internal experiences. Recently, Barlow and his associates have developed a unified protocol for emotion-focused transdiagnostic cognitive-behavioral treatment of psychiatric disorders that aims to address these processes as well. The unified treatment protocol contains four basic modules: (1) promoting emotional awareness; (2) increasing flexibility in appraisals; (3) preventing behavioral and emotional avoidance; and (4) situational and interoceptive exposure to emotion cues (Barlow, Allen, & Choate, 2004; Campbell-Sills & Barlow, 2007; Ellard, Fairholme, Boisseau, Farchione, & Barlow, 2010; Moses & Barlow, 2006; Wilamowska et al., 2010). Recently, a similar protocol for children and adolescents has been developed (Ehrenreich, Goldstein, Wright, & Barlow, 2009; Trospen, Buzzella, Bennett, & Ehrenreich, 2009). The youth protocol is presented in eight modules, of which two (*getting to know your emotions and behaviors* and *awareness of emotions*) are aimed directly at identifying and describing emotions and others are directed more at experiential avoidance through exposures (e.g., *emotion exposure*).

The sheer number of treatment modalities developed to implicitly or explicitly target experiential avoidance and related emotional difficulties highlights the clinical importance of these constructs, particularly among inpatients. As the first study exploring the relation between alexithymia, experiential avoidance and difficulties in emotion regulation specifically in inpatient adolescents, our findings are useful in advancing both conceptual understandings of all three of these constructs and the therapies that utilize them. Specifically, our findings suggest that therapeutic targeting of alexithymia alone is not sufficient without also targeting experiential avoidance in an explicit way.

Several important limitations should temper the interpretation of our findings. Perhaps the greatest of such limitations is the assessment of adolescents with the TAS-20. Although the TAS-20 is often used in adolescent samples, Parker et al. (2010) calls for the development of alexithymia measures that are more developmentally appropriate, especially for young adolescents (13–14 yrs). Similarly, the cutoff scores used to determine alexithymia with this measure were developed with an adult sample, making their use with adolescent samples troublesome (Joukamaa et al., 2007). Although our sample may be comparable to young adults, given its mean age of 16.24, until adolescent cutoff scores are specifically established, it is difficult to accurately determine the prevalence of alexithymia in adolescents or assign them to groups on the basis of TAS-20 total scores (Parker et al., 2010). Although the psychometric properties of the TAS-20 were not specifically evaluated in our sample, the theoretically motivated model of alexithymia, experiential avoidance and emotion regulation explored in this study provides reasonable evidence for the measure's construct validity among inpatient adolescents. In addition, as mentioned before, this study focused on older adolescents, a group in which psychometric evaluation by Parker et al. (2010) yielded adequate results. Finally, determining that scores on the TAS-20 were not significantly correlated with IQ in our sample assures us that the readability issues of concern with younger adolescents (Parker et al., 2010) were not problematic in our sample. Nonetheless, the use of cutoff scores determined with an adult sample remains an important limitation of this study.

Another important limitation of this study is that it is a passive, cross-sectional design. Although the use of a mediational model provides some evidence of the theoretical model of alexithymia, experiential avoidance and difficulties in emotion regulation we explore, without a longitudinal design, it is impossible to determine the temporal or causal relation between these three constructs.

Further, the high correlations between these three constructs may suggest that the three measures are assessing the same, or similar, underlying constructs. For instance, Taylor (2000) suggests that alexithymia and its associated deficits in emotion regulation represent aspects of impaired emotional intelligence. The possibility that all three of these measures are assessing the same underlying constructs, such as emotional intelligence, muddles interpretation of these findings and highlights the need for large-scale community-based factor analytic studies. Finally, the moderate sample size limits our analyses to exploration of group differences on the basis of alexithymia only. While this design does allow us to compare adolescents with alexithymia to comparable psychiatric controls, we did not have a sufficiently large sample to compare groups by primary diagnosis, and therefore were unable to explore the relation of these constructs to particular diagnostic profiles. Notwithstanding these limitations, this study has important methodological strengths, notably a psychiatric comparison group that did not meet the TAS-20 threshold for a diagnosis of alexithymia and theoretically devised and statistically supported conceptualization of alexithymia, experiential avoidance and emotion regulation as interrelated constructs.

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