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The distinctiveness and utility of a brief measure of alexithymia for adolescents

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ABSTRACT

Very little research with adolescents has examined the extent that alexithymia is distinctive from other potentially overlapping self-evaluative traits, or the extent that it is related to social and emotional well-being. Teenagers in Grade 8 ($N = 796$) completed self-report measures of alexithymia, self-esteem, trait hope, social support, and emotional well-being. Teachers also rated each student's level of emotional and behavioural adjustment. Factor analysis showed that alexithymia was distinguishable from the other self-evaluative traits as well as from the positive and negative affective states. Correlation analyses found that alexithymia was associated with lower quantity and quality of social support, lower positive affect, and higher negative affect, even when controlling for self-esteem and trait hope. These findings have important implications for the assessment and consequences of alexithymia in adolescents.

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1. Introduction

Some individuals are incapable of identifying their emotions. Sifneos (1973) was the first to label this problem "alexithymia", which literally means having no words for feelings. Since then, researchers have employed related terms, such as "emotion perception" (Ciarrochi, Chan, & Bajgar, 2001), "emotional awareness" (Rieffe et al., 2007), "emotional clarity" (Salovey, Stroud, Woolery, & Epel, 2002), and "mood labelling" (Swinkels & Giuliano, 1995). These different terms appear to reflect a similar underlying construct (Gohm & Clore, 2000). We prefer to use the original term, namely, alexithymia.

Amongst adults, empirical evidence suggests that alexithymia is related to a wide range of psychological problems including, for example, poor emotion regulation strategies and higher rates of somatic illness and disease (Taylor, 2000), substance abuse (Kauhanen, Kaplan, Julkunen, Wilson, & Salonen, 1993), and social and interpersonal problems (Spitzer, Siebel-Jurges, Barnow, Grabe, & Freyberger, 2005) to mention a few. Very little research has examined alexithymia in childhood and adolescence. This is unfortunate as a better understanding of alexithymia during the adolescent years will better inform interventions with young people thus obviating problems in adulthood. Additionally, there is no evidence regarding the extent to which, among adolescent samples, alexithymia is distinguishable from other constructs such as self-esteem.

The few studies that have explored alexithymia in younger age groups have used similar measures as those for adults and shown that it links to poor socio-emotional and physical outcomes such as obesity (Baldaro et al., 2003), the experience of posttraumatic responses following medical treatments (Fukunishi, Tsuruta, Hirabayashi, & Asukai, 2001), and greater dissociative tendencies (Sayer, Kose, Grabe, & Topbas, 2005). A recent longitudinal study demonstrated that alexithymia was predictive of poor socio-emotional outcomes 1 year later (Ciarrochi, Heaven, & Supavadeeprasit, 2008). In contrast, adolescents with low levels of alexithymia tend to display lower rates of anxiety and depression and report higher satisfaction with life (Extremera, Duran, & Rey, 2007). Quite surprisingly, no studies have examined whether and to what extent adolescents are able to distinguish alexithymia from other self-evaluative measures.

1.1. Rationale of the present study

How well do teenagers discriminate between being able to identify their own emotional states and their other self-evaluations such as their levels of self-esteem and trait hope? This is an important question if we are to develop targeted interventions and because research has shown the teenage years to be characterised by significant emotional changes (Larson, Moneta, Richards, & Wilson, 2002) and declines in self-esteem and hope (Heaven & Ciarrochi, 2008). Few researchers have examined the possibility that adolescents may not discriminate between alexithymia and other self-evaluative constructs such as self-esteem and trait hope. Adolescents low in self-esteem and hope may therefore tend to respond negatively to evaluative questionnaires, regardless of item content.

Using self- and observer-reports, we sought to examine the reliability, distinctiveness, and utility of a 12-item measure of

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alexithymia taken from the Toronto Alexithymia Scale (TAS-20; Bagby, Parker, & Taylor, 1994). We utilized factor analysis to determine whether adolescents distinguished alexithymia from self-reported self-esteem, trait hope, and emotional experience. We utilized covariance analysis to examine whether alexithymia was related in expected ways to self- and observer-reports of socio-emotional experience, even when controlling for self-evaluative traits.

2. Method

2.1. Participants

The sample consisted of participants from the Wollongong Youth Study which draws students from five secondary schools in a Catholic Diocese of New South Wales, Australia. Three schools are located in the Sydney metropolitan area, whereas two are not, thereby ensuring a fairly diverse sample with respect to socio-economic status. Participants were 944 Yr 8 students (324 males, 332 females, 140 did not indicate gender) with a modal age of 13 years. Of these, 796 (84.3%) returned properly completed measures. For further details of the demographic characteristics of our sample see Heaven and Ciarrochi (2008).

3. Materials

3.1. Self-report measures

Toronto Alexithymia Scale (TAS-20; Bagby, Parker, et al., 1994; Bagby, Taylor, & Parker, 1994). The TAS-20 is a 20-item self-report measure and comprises three subscales: (1) difficulty identifying feelings (“I have feelings that I can’t quite identify”); (2) difficulty describing feelings (“It is difficult for me to find the right words for my feelings”); and (3) externally-oriented thinking (“Being in touch with emotions is essential” – reverse scored). For the purposes of our study and given that the third scale was not reliably measured in previous research with adolescents (Rieffe, Oosterveld, & Terwogt, 2006) and falls in a different psychometric space (Gohm & Clore, 2000), we only administered Factors 1 and 2 (12 items). These factors have also been found to be highly correlated (Gohm & Clore, 2000). Ratings were made on a five-point Likert scale with 1 (strongly disagree) and 5 (strongly agree) at the end points.

The validity and reliability of the TAS-20 amongst adults have been supported by good internal consistency (Cronbach’s alpha = 0.81), test–retest correlations ($r = 0.77$; $p < 0.01$), and factor analysis (Bagby, Parker, et al., 1994). It has also received strong support for convergent and discriminant validity and modest support for concurrent validity (Bagby, Taylor, et al., 1994). It has also shown much promise in adolescent samples, relating in expected ways to socio-emotional functioning (Rieffe et al., 2006).

Rosenberg Self-Esteem Scale (RSE; Rosenberg, 1965). The RSE is a 10-item unidimensional measure of global self-esteem. We used a forced–choice format of either “yes” or “no” responses. Reliability of the RSE has been supported by good internal consistency (Cronbach’s alpha = 0.78) and test–retest correlations ($r = 0.85$, $p < 0.01$; Silbert & Tippett, 1965). It has also been shown to possess convergent (Silbert & Tippett, 1965) and construct validity (Rosenberg, 1965). The alpha was .83 for the present sample.

The Children’s Hope Scale (CHS; Snyder et al., 1997). The CHS is a 6-item self-report measure comprising two factors: (1) pathway thinking (that one can produce routes to desired goals; “I can think of many ways to get the things in life that are most important to me”), and (2) agency (motivation to use these goals; “I am doing just as well as other kids my age”). Ratings were made on a six-point scale from none of the time (scored 1) to all of the time (6). The CHS has been shown to have good internal consistency (Cronbach’s alpha = 0.77) and test–retest reliability ($r = 0.71$, $p < 0.01$). On the present occasion, alpha coefficient was .85.

Positive and Negative Affect Schedule – Expanded Form (PANAS-X; Watson & Clark, 1994). The PANAS-X is a 60-item self-report measure of two broad general factors, Positive Affect (PA) and Negative Affect (PA), assessing 11 specific affects: fear, sadness, guilt, hostility, shyness, fatigue, surprise, joviality, self-assurance, attentiveness, and serenity. In this study we assessed fear (e.g., “Afraid”; $\alpha = .85$ for present sample), sadness (e.g., “Sad”; $\alpha = .91$), hostility (e.g., “Scornful”; $\alpha = .82$), and joviality (e.g. “Cheerful”; $\alpha = .94$). Respondents rated the extent to which they had experienced each particular emotion over the past month. Ratings were made on a five-point scale from very slightly or not at all (1) to extremely (5). These subscales have demonstrated adequate internal consistency, discriminant validity, and criterion-related validity (Watson & Clark, 1994).

Social Support Questionnaire (SSQ; Sarason, Levine, Basham, & Sarason, 1983). The short four-item version of the SSQ was used to quantify each participant’s perception of the availability of, and satisfaction with, social support (Sarason et al., 1983). For each item, respondents listed the persons perceived to be available for support and then rated how satisfied they were with these supports using a six-point scale from very dissatisfied (1) to very satisfied (6). The alpha reliabilities in the sample were .89 for amount of support and .88 for satisfaction. Amount of support and satisfaction with support tend to be modestly correlated ($r = .29$), suggesting that they are overlapping, yet distinguishable, constructs (Sarason et al., 1983).

Multidimensional Peer Nomination Inventory (TR-MPNI; Pulkkinen, Kaprio, & Rose, 1999). A multidimensional inventory (34 items) of children’s social behaviour was developed for teachers within the framework of the model of emotional and behavioural regulation (Pulkkinen et al., 1999). The inventory has three main factors and corresponding subscales. The subscales are (with coefficient alphas for girls and boys, respectively) (1) behavioural problems (hyperactivity-impulsivity, 0.91 and 0.95; aggression, 0.84 and 0.91; inattention, 0.80 and 0.85, (2) adjustment (constructive behaviour, 0.81 and 0.87; compliant behaviour, 0.38 and 0.74; social activity, 0.64 and 0.67), and (3) emotional problems (depression, 0.73 and 0.75; and social anxiety, 0.75 and 0.69). Teachers rated each student on every item using a four-point scale from not observed in this student (1) to characteristic fits the student very well (3). This measure has been shown to be reliable and valid (Pulkkinen et al., 1999).

3.2. Procedure

Students were informed that participation was voluntary and that information provided would only be seen by the researchers. Testing took place during normal school hours. The overall duration was approximately 50 min. Teachers completed their rating sheets at a separate time to the students.

4. Results

4.1. Exploratory factor analysis

All factor analyses reported in this paper involved principal axis factoring and Oblimin rotation. We used three criteria to help us decide which factors to retain, namely, (1) Eigenvalue greater than one, (2) pattern of the scree plot, and (3) theoretical meaningfulness (Conway & Huffcutt, 2003). It should be noted that we used

Table 1
Means, standard deviations, and corrected item-total correlations for the 12 items of the Toronto Alexithymia Scale.

Item	*M*	*SD*	r_{tot}
1. I am often confused about what emotion I am feeling	2.42	1.16	0.57
2. It is difficult for me to find the right words for my feelings	2.63	1.26	0.64
3. I have physical sensations that even doctors do not understand	1.73	1.09	0.49
4. I am able to describe my feelings easily (R)	2.66	1.21	0.40
5. When I am upset, I do not know if I am sad, frightened or angry	2.43	1.29	0.56
6. I am often puzzled by sensations in my body	1.96	1.13	0.53
7. I have feelings that I cannot quite identify	2.28	1.23	0.68
8. I find it hard to describe how I feel about people	2.51	1.28	0.52
9. People tell me to describe my feelings more	2.00	1.18	0.49
10. I often do not know why I am angry	2.19	1.36	0.62
11. It is difficult for me to reveal my innermost feelings, even to close friends	2.56	1.39	0.51
12. I am often confused about what emotion I am feeling	2.09	1.27	0.69

Note: M, mean; *SD*, standard deviation; r_{tot}, mean corrected item-total correlation; items scored on a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree); R, reverse-scored item.

other methods (e.g., principal components analysis) and found no differences that would affect conclusions.

We submitted the twelve alexithymia items to factor analysis. Factor 1 had an eigenvalue of 5, which explained 42% of the variance. Factor 2 had an eigenvalue of 1.08, Factor 3 was .97, and Factor 4 was .78. Examination of the scree plot indicated a clear break between the first and second factors, suggesting one factor. Inspection of the factor matrix indicated that alexithymia coherently loads onto a single factor (Factor 1), with loadings ranging from 0.43 to 0.74. Examination of the pattern matrix after rotation suggested that there might be a second factor, which included the items "I am often puzzled by sensations in my body", "I have feelings that I can't quite identify", and "I have physical sensations that even doctors don't understand." Thus, both Factors 1 and 2 contained items that focused on difficulty identifying feelings, and Factor 1 also contained items concerning difficulty describing feelings. It was difficult to find a label that described Factor 2 in a way that was distinctive from Factor 1. Based on the scree plot and the interpretability of the factors, we concluded that a single factor best fits the data.

Consistent with the items reflecting a single factor, the alexithymia scale demonstrated excellent internal consistency (Cronbach's alpha = 0.87). Table 1 presents the means, standard deviations and the mean corrected item-total correlations for each of the 12 items.

4.2. Discriminant validity

Correlations revealed that alexithymia was significantly related to both self-esteem ($r = -.45$, $p < .01$) and hope ($r = -.26$, $p < .01$). Self-esteem and hope correlated only modestly ($r = -.48$, $p < .01$), suggesting that they do not reflect the same underlying construct. To evaluate whether adolescents conceptually distinguished be-

Table 2
Factor loadings (pattern matrix) illustrating the extent that adolescents distinguish between alexithymia and other evaluative traits.

Item	Factor 1 (self-esteem)	Factor 2 (alexithymia)	Factor 3 (hope)
SE11: I feel pretty positive about myself	.75		
SE6: Sometimes I feel worthless (R)	.71		
SE12: I feel that I am a person of value	.64		
SE10: I think that I am a failure (R)	.62		
SE5: Sometimes I feel as though I am useless (R)	.62		
SE2: Sometimes I think I am no good at all (R)	.57		
SE1: Generally, I feel satisfied with myself	.54		
SE3: I feel that I have a number of good qualities	.51		
SE7: I feel that I do not have much to be proud of	.44		
SE8: I wish I could change aspects of myself (R)	.40		
SE4: Able to do things as well as most other people	.33		
SE9: Wish could have more respect for myself (R)	.26	−.25	
A7: I have feelings that I cannot quite identify		.78	
A12: I do not know what is going on inside me		.67	
A2: Difficult for me to find right words for feelings		.65	
A10: I often do not know why I am angry		.63	
A5: Do not know if sad, frightened or angry		.62	
A6: I am often puzzled by sensations in my body		.60	
A8: I find it hard to describe how I feel about people		.57	
A1: Often confused about what emotion I am feeling		.56	
A9: People tell me to describe my feelings more		.55	
A3: I have sensations that doctors do not understand		.55	
A11: It is difficult for me to reveal my innermost feelings, even to close friends		.50	
A4: I am able to describe my feelings easily (R)		.35	.21
H1: I think I am doing pretty well			−.74
H6: I can find ways to solve the problem			−.73
H2: Can get the things that are most important to me			−.70
H3: I am doing just as well as other kids my age			−.67
H5: Things I have done will help me in the future			−.65
H4: When have problem, come up with lots of ways			−.62

Note: N = 796; H, hope item; S, self-esteem item; A, alexithymia item; values under .20 are not shown; items are often in abbreviated form; R, reverse-scored item.

tween alexithymia and these other self-evaluation scales, a factor analysis was performed on all of the individual items which were entered simultaneously. Three distinct factors emerged, accounting for 44.3% of the total variance and the pattern matrix revealed that self-esteem, alexithymia, and trait hope loaded on separate factors (Table 2).

Finally, we utilized exploratory factor analysis to examine the possibility that adolescents do not distinguish between alexithymia and negative and positive affectivity. We examined items from the scales measuring alexithymia, sadness, anxiety, hostility, and joviality. Five distinct and interpretable factors emerged, corresponding to each of these factors. The alexithymia items loaded on the alexithymia factor and did not tend to load on the affective factors (Table 3).

4.3. Criterion-related validity

We next evaluated whether alexithymia related in expected ways to our criterion variables, even when controlling for self-esteem and trait hope. Using a Bonferroni correction for nine comparisons, alexithymia was found to be significantly and positively related to adolescent ratings of social support, total amount of social support, negative affect, and positive affect (Table 4). Covariance analyses revealed that alexithymia remained significantly related to satisfaction with social support, total amount of social support, and negative affect even when controlling for self-esteem and trait hope.

5. Discussion

The present study was conducted to determine whether alexithymia could be reliably and validly measured in adolescents using 12 items from the Toronto Alexithymia Scale. The scale was found to be both coherent and internally consistent, and provided overall evidence that alexithymia can be reliably assessed in adolescents. It was distinguishable from the related traits of self-esteem and hope, and from positive and negative affective states. Finally, it related in expected ways to social support and emotional well-being.

Table 4
Correlations and partial correlations of alexithymia with social support, positive and negative affect, and teacher ratings.

Alexithymia with	Correlations	Partial correlations
Social support (satisfaction)	−.26**	−.10**
Social support (total)	−.23**	−.14**
Fear	.35**	.24**
Hostility	.43**	.32**
Sadness	.46**	.27**
Joviality	−.26**	−.07
Teacher rated problem behaviour	.08	.01
Teacher rated emotional problems	.10	.02
Teacher rated positive adjustment	−.09	−.05

Note: $N = 796$.
Partial correlations involve controlling for self-esteem and trait hope.
** $p < .01$.

Table 3
Factor loadings (pattern matrix) illustrating the extent that adolescents distinguish between alexithymia and affective states.

Item	Factor 1 (hostility)	Factor 2 (joviality)	Factor 3 (alexithymia)	Factor 4 (fear)	Factor 5 (sadness)
Hostility4	.688				
Hostility3	.670				
Hostility6	.619				
Hostility5	.604				
Hostility2	.591				
Hostility1	.440				
Joviality4		.872			
Joviality2		.847			
Joviality3		.841			
Joviality6		.821			
Joviality7		.815			
Joviality5		.806			
Joviality1		.753			
Joviality 8		.659			
Alexithymia7			.774		
Alexithymia12			.689		
Alexithymia6			.635		
Alexithymia10			.615		
Alexithymia2			.615		
Alexithymia3			.599		
Alexithymia5			.557		
Alexithymia9			.557		
Alexithymia8			.527		
Alexithymia1			.525		
Alexithymia11			.475		
Alexithymia4			.367		
Fear2				−.862	
Fear3				−.830	
Fear1				−.818	
Fear6	.243			−.410	
Fear5	.307			−.370	
Fear4				−.365	
Sad4					.759
Sad5					.740
Sad3					.726
Sad1					.700
Sad2					.698

Note: $N = 796$; values under .20 are not shown.

5.1. Structure and distinctiveness of the alexithymia scale

The factor structure was found to be somewhat inconsistent with the original factor structure developed by Bagby, Parker, et al. (1994). Our results suggested that the items for "difficulty identifying feelings" and "difficulty describing feelings" loaded onto one single factor. In Bagby, Parker, et al.'s (1994) study, the items loaded on two separate factors, with Externally-Oriented Thinking forming the third factor. Despite empirical support for two factors of the TAS-20 (e.g. Haviland & Reise, 1996; Parker, Bagby, Taylor, Endler, & Schmitz, 1993; Rieffe et al., 2006), our finding of a single factor solution has also been identified by other researchers (Ernie, Lötscher, & Modestin, 1997; Haviland & Reise, 1996; Kooiman, Spinhoven, & Trijsburg, 2002; Loas, Otmani, Verrier, Fremaux, & Marchand, 1996).

One could argue that the young adolescents in our sample (modal age 13) may not yet have developed sufficient psychological understanding to distinguish between their levels of self-esteem, hope, and skill at identifying emotions. Perhaps confident or hopeful adolescents respond to all evaluative questionnaires in the same positive way, regardless of the specific trait. Inconsistent with this hypothesis, we found that hope, self-esteem, and alexithymia clearly load on three separate factors.

It might also be suggested that alexithymia reflects difficulties with managing emotional states. That is, adolescents might be alexithymic when experiencing intense negative emotions. However, we found clear factor-analytic evidence that adolescents distinguish between their ability to identify their emotions and their emotional states. They did not appear to be confusing the two. Although alexithymic adolescents may not be able to accurately describe complex emotional states as they occur, it is likely that they are able to describe their general emotional moods (Penza-Clyve & Zeman, 2002). We asked our adolescents to report the extent they experienced emotional states or moods over the last month, which past research has shown requires only a modest level of emotional identification skill (Lane, Quinlan, Schwartz, Walker, & Zeitlin, 1990).

5.2. Utility of the alexithymia scale in predicting theoretically relevant criteria

Consistent with the adult literature (e.g., Spitzer et al., 2005), we found that alexithymic adolescents tended to have both fewer and lower quality social support. Some have suggested that alexithymia may interfere with the capacity to maintain close social relationships (e.g. Kauhanen et al., 1993), whilst others draw on attachment theories that link social difficulties back to deficient caregiver–infant relationships (Taylor & Bagby, 2004). Recent empirical findings have provided some support for these theoretical explanations. Spitzer et al. (2005) measured the interpersonal styles of individuals' high and low in alexithymia and found that alexithymic participants were characterised by cold and socially avoidant behaviour, indicative of an insecure attachment style. Our findings indicate that the link between alexithymia and interpersonal problems is present by age 13.

In line with the finding that alexithymia in adults is related to depression (Taylor & Bagby, 2004) and the general tendency to experience more unpleasant emotions (Taylor, Bagby, & Parker, 1997), we found that alexithymia was associated with higher levels of sadness, hostility, and fear, and lower levels of joviality in our sample. This finding replicates the adolescent Dutch study of Rieffe et al. (2006) with one potentially minor exception. Rieffe et al. (2006) found that alexithymia explained about 6.3% of the variance in "anger", whereas we found that it explained 18.5% in hostility. This suggests that the more global state of hostility (mood-like) is more indicative of alexithymia than the more discrete experience of anger (potentially a reaction to a specific event).

We also found a small correlation between alexithymia and teacher-rated behavioural, emotional, and adjustment problems. However, this relationship did not hold after controlling for self-esteem and hope. Thus, despite having poorer social support and emotional well-being, these difficulties seem to go largely unnoticed by teachers. This therefore highlights the need for a self-report measure to detect difficulties that are hidden from adults.

5.3. Limitations and future directions

It is possible that common method variance inflated the relationship between self-reported alexithymia and self-reported social support and emotional well-being. However, we found that alexithymia was still related to our socio-emotional criteria, even after controlling for the other self-report variables, thus reducing the likelihood that method variance could explain our effects (Lindell & Whitney, 2001). These links to specific outcomes support previous findings discussed earlier. There is currently no evidence that alexithymia is able to be detected by observers, although it is clearly linked to important objective indices such as alcoholism and mortality (e.g. Guilbaud et al., 2002). Future research is needed to replicate these findings, using observer reports of social support, social competence and popularity, rather than self-reports.

More experimental and longitudinal research is needed to examine the direction of the causal link between alexithymia and socio-emotional problems (see, for example, Ciarrochi et al., 2008). Our research suggests that alexithymia is reliable in adolescents, is distinctive from other positive adolescent trait measures, and relates to social support and emotional well-being. This construct has much promise in helping us to understand how and why adolescents develop social and emotional problems.

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