

The Modified Affective Control Scale for Adolescents (MACS-A): Internal consistency and discriminative ability in matched clinic and non-clinic samples.

Keren Geddes, B.A. (Hons)

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DECLARATION

I declare that this thesis is my own account of my research and contains as its main content work, which has not previously been submitted for a degree at any tertiary educational institution.

Keren Geddes

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CHAPTER 1:

JOURNAL ARTICLE

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**The Modified Affective Control Scale for Adolescents
(MACS-A): Internal consistency and discriminative
ability in matched clinic and non-clinic samples.**

Keren Geddes, Suzanne Dziurawiec and Christopher Lee

School of Psychology
Division of Health Sciences
Murdoch University
Murdoch, Western Australia 6150

ABSTRACT

Background: An increasing number of adolescents are presenting to community based mental health services with self-harm and other high-risk behaviours related to difficulties in regulating strong emotions. However, there is no measure of adolescent Emotion Regulation (ER) available. The current study modified an adult self-report measure of ER, the Affective Control Scale and tested its reliability within an adolescent population. The ability of the Modified Affective Control Scale for Adolescents (MACS-A) to discriminate between matched clinical and non-clinical groups was also tested.

Methods: In study 1, the MACS-A was completed by 2,128 male and female secondary school students aged 12 to 18 years, from diverse socio-economic backgrounds. In study 2, the MACS-A was completed by 60 adolescents who were currently attending a community-based mental health service and matched on gender and age to two independent samples (public school and private school systems) drawn from study 1.

Results: All four subscales and the total scale were found to be internally consistent in both clinic and non-clinic samples. Additionally, the MACS-A effectively discriminated between the clinical sample and the public and private school samples, with the clinical sample scoring significantly higher ($p < .001$) than both school samples on the subscales of Fear of Anger, Fear of Depressive Mood and Fear of Anxiety, and the total scale of Fear of Emotion. **Conclusions:** The MACS-A was a reliable measure of ER in 12 to 18 year old adolescents as internal consistency and discriminative ability were demonstrated. The practical and theoretical significance of this new scale is discussed and recommendations for further development of the scale are made. **Keywords:** Emotion Regulation, adolescence, reliability, discriminative ability. **Abbreviations:** ACS:

Affective Control Scale; BPD: Borderline Personality Disorder; ER: Emotion Regulation;
MACS-A: Modified Affective Control Scale for Adolescents; SES: socio-economic
status; SMCAMHS: South Metropolitan Child and Adolescent Mental Health Service

Increasing attention is being given to emotion dysregulation (affective instability) as a significant indicator of most forms of psychopathology in children and adolescents (Dwivedi, 2004; Gross, 1998; Keenan, 2000; Kobak & Ferenz-Gillies, 1995). One of the most concerning problems associated with difficulties in regulating strong emotions is deliberate self-harm (Gratz & Roemer, 2004; Yates, 2004), which is reported to be increasing dramatically in adolescent populations (Kobak & Ferenz-Gillies, 1995), and found to be highly predictive of suicide in young males (Bowen & John, 2001) and females (Cooper et al., 2005). Moreover, the demands that are placed on clinical services due to the critical and chronic nature of acts of self-harm are considerable (Meekings & O'Brien, 2004).

Despite the recognised importance of ER, we remain largely uninformed about the role that it plays in clinical disorders (Kendall & Ollendick, 2004). One exception to this is the work done by Linehan (1993) who has developed a significant body of work related to the development and treatment of BPD in adults and more recently in suicidal adolescents (Miller, Rathus, & Linehan, 2007). In the presentation of her biosocial model, Linehan argues that dysregulated affect underpins the cognitive, behavioural, interpersonal and self dysregulation that are features of BPD, suggesting that the associated emotion regulatory function of self-harm and suicidal behaviours are maladaptive attempts to reduce or avoid extreme emotional pain. This is consistent with a recent study where adolescents who self-injured reported temporary reductions in anxiety, confusion and depression after cutting themselves (Murray, Warm & Fox, 2005). Other researchers interested in the developmental aspects of BPD have also highlighted the centrality of emotional dysregulation (e.g. Paris, 2003; Putnam & Silk, 2005).

Yet the study of ER as a separate field of investigation is relatively new (Gross, 1998), with the construct being reported in the literature as spanning a number of dimensions, including physiological, behavioural, cognitive (Shipman, Schneider, & Brown, 2003), motivational and biological (Halle, 2003). This diversity has led to considerable differences in the way ER, and its dysregulation, have been operationalised within empirical studies. As a consequence, questions have been raised as to its utility as a scientific construct, with assertions being made that it is “diffuse, overly inclusive and poorly defined” (Cole, Martin, & Dennis, 2004). Cole et al. stress the importance of researchers providing working definitions to improve clarity and methodological rigor, while Bridges, Denham and Ganiban (2004) further argue that any definition needs to have a strong theoretical underpinning.

The conceptual ambiguity that has plagued the ER literature is associated with a lack of empirically validated assessment tools. Particularly salient is the finding that, to date, there is only one stated measure of ER available for use with adolescents, the Cognitive Emotion Regulation Questionnaire (CERQ; Garnefski, Kraaij, & Spinhoven, 2000). The CERQ is a self-report measure developed in the Netherlands, using a sample of secondary students aged 12 to 16 years and designed to assess nine cognitive strategies argued to be associated with ER, including concepts such as self blame, blaming the other, rumination and catastrophising.

In essence, the CERQ is a measure of adolescents' cognitive strategies, with items focused on responses to specific events, for example, "I think I can learn something from this event" or "I think I can become a stronger person as a result of what has happened" (Garnefski et al., p 1319). All of the items within the CERQ refer to thinking, including those that use the word feel, for example, "I feel others are to blame for it", which is actually making a statement about thoughts not feelings. The CERQ makes no reference to emotions either specifically or generally. Thus, a better measure of adolescent ER, more directly linked to the actual experience or perception of an adolescent's own emotional capacities and limitations, needs to be developed with questions targeting specific emotions, for example happiness, sadness or anger. It may well be that an adolescent is able to regulate strong feelings of sadness appropriately but be unable to manage their anger equally well.

A measure that has been used to assess ER in adults is the Affective Control Scale (ACS; Williams, 1992, cited in Williams, Chambless & Ahrens, 1997). The ACS has been used within a clinic setting, and scores were found to correlate with the number of Borderline Personality Disorder criteria endorsed by women presenting with borderline traits, regardless of the level of affect intensity (Yen, Zlotnick & Costello, 2002).

The ACS was built upon the fear of emotions hypothesis proposed by Williams, et al. (1997), in which the fear of anxiety concept (Goldstein & Chambless, 1978) was broadened to include the fear of strong emotions generally. Williams et al. proposed that individuals who are fearful of anxiety, that is they fear losing control over their anxiety,

or fear physical harm (e.g. a heart attack), become fearful of anxiety itself, and are vulnerable to fearing other emotions, specifically, anger, depression and positive emotions. The focus of attention within their thesis was that of internal events, and the perceived ability of individuals to cope with strong emotions. Thus conceptualised, the ACS measured self-reported “fear of losing control over one’s emotions or of one’s behavioural reactions to emotions” (Williams et al., 1997, p241).

Support for the internal consistency and validity of the ACS was provided by Williams, et al. (1997), with further support found by Berg, Shapiro, Chambless and Ahrens (1998) on a sample of 103 female undergraduate students. Construct validity was verified via low correlations with the Eysenck Personality Questionnaire Lie and Psychoticism scales and by strong positive correlations with Neuroticism. Thus the ACS appears to be a psychometrically sound measure of the perceived ability to control or manage strong emotions within an adult population.

A review of the items within the ACS revealed that with some changes made to the wording, it would be suitable for use with adolescents. Given that self-report measures of emotional competence during childhood and adolescence are generally normed exclusively on non-clinical populations (Zeman, Cassano, Carisa, & Stegall, 2006), the current study sought to develop a self-report measure of adolescent ER that was suitable for both clinical and non-clinical groups. In light of the acute and chronic nature of problems associated with dysregulated emotions during adolescence, the development of a measure of adolescent ER was thought to hold important clinical and theoretical

implications. Most importantly, that such a measure would be able to identify those adolescents at risk of developing significant behavioural problems associated with dysregulated emotions. Additionally, so that the efficacy of intervention programs targeting emotional regulation deficits can be evaluated. And finally, to provide a way of increasing our understanding of adolescent emotional functioning since to date most ER research has been focused on infancy, and school-aged preadolescent children (Shields & Cicchetti, 1997; Walden, Harris & Catron, 2003).

Thus, the purpose of the two studies presented below was to test the psychometric properties of a reworded version of the ACS in both clinical and non-clinical adolescent samples. A further objective was to determine the usefulness of this new measure as a clinical tool, specifically, its ability to discriminate between matched clinic and non-clinic samples.

Methods

Study 1. Internal Consistency of the Modified Affective Control Scale for Adolescents (MACS-A)

Participants. A total of 2128 adolescents participated voluntarily in the study. There were 1101 females, 794 males and 233 who failed to indicate their gender. Ages ranged from 12 to 18 years with a mean of 14.53 (SD = 1.44). Of the 18 secondary schools approached (representative of high, middle and low SES areas), eight schools consented to participate, representing a 44.4% response rate. Seven of these schools were located in the South Metropolitan region of Perth, Western Australia, with five private schools (N =

1679) and two public schools (N = 449). A further school was located in a coastal town 200km from Perth.

Materials. Modification of the Affective Control Scale for Use with Adolescents (MACS-A). The language of items in the original adult ACS was simplified for use with adolescents aged 12 to 18 years. One item was removed, since its content was considered unsuitable for younger aged adolescents. Other items were reworded, based on an initial consultation between clinicians from the SMCAMHS and the primary researcher. Ambiguous terminology was broken down using more simple and adolescent-friendly language, and extended sentences were shortened to increase understanding. Additional changes to the wording of questions were made based on piloting the questionnaire with three adolescents aged 12, 13 and 17 years. Some further changes were made and the scale was again piloted with five adolescents aged 12 to 17 years. The average time taken to complete the survey was approximately 10 minutes.

The MACS-A, in keeping with the adult version, consists of four sub-scales that measure fear of anger, fear of depressive mood, fear of anxiety and fear of positive emotion. Individual sub-scale scores are computed as the mean of the total number of items contained in the sub-scale. An overall scale score is computed as the mean of all 41 responses. The higher the mean score, the higher the perceived fear of emotion/s. The original scale format was retained. This required participants to rate each item on a 7-point Likert scale, from 'very strongly disagree' to 'very strongly agree', with a neutral mid-point. The 'Anger' sub-scale consists of 8 items, the 'Positive Affect' sub-scale 12

items, the 'Depressed Mood' sub-scale 8 items, and the 'Anxiety' sub-scale 13 items. For the purposes of data collection, the scale was renamed the Adolescent Emotion Survey. The survey contained no identifying information other than date of birth, gender and grade.

Procedure. Parental consent for adolescents to participate in the study was sought according to school preference and/or policy. Some schools sought direct parental consent while others informed parents via newsletters, asking parents to contact the school if they did not want their son or daughter to participate.

Schools either elected to administer the surveys themselves, or alternatively, a member of the research team administered the surveys. The survey was administered according to a standard protocol, in a classroom setting during normal class times. All participants were provided with an information sheet and were required to fill out a consent form prior to completing the survey. They were reminded that participation was voluntary and that anonymity was assured. When completing the surveys, participants were asked to reflect on how they had been feeling over the past two weeks. The administrator collected completed surveys.

Surveys were coded and data entered directly onto a web page, designed specifically for the current study. Cases in which more than 50% of responses were left unanswered (e.g. the entire back page was left blank) were removed, as were cases in which there was an

obvious response pattern, for example, all neutral responses. This resulted in the exclusion of 140 participants (6.6%).

Results. The data were analyzed using the SPSS computer package, version 14.0 for Windows. Prior to analysis, data were screened by way of univariate descriptive statistics. An analysis of missing data revealed a random distribution of missing values, therefore mean substitution was considered appropriate. Box plots were used to screen for univariate outliers. Nineteen outliers were detected. However, due to the large sample size ($N = 2128$) these outliers were considered to have no significant impact on subsequent analyses and were retained.

Cronbach alpha coefficients were used to determine the internal consistency of the four sub-scales of the MACS-A, namely, Fear of Anger, Fear of Depressive Mood, Fear of Positive Affect and Fear of Anxiety, as well as that of the total scale, Fear of Emotion. A given subscale was considered to be sufficiently reliable if the alpha level was equal to or greater than 0.65. This cut-off point would generally be considered only moderate (de Vaus, 1991), but given the exploratory nature of the current study, a more lenient approach was thought appropriate.

Means, standard deviations and reliability coefficients for the MACS-A, and the original ACS are presented in Table 1. The 41-item scale total scores of the MACS-A were normally distributed around a mean of 3.29 ($SD = 0.69$). Each of the sub-scale scores was normally distributed, with means ranging from 3.14 to 3.66. Internal consistency was

satisfactory for the total scale score and all four subscale scores. The MACS-A displayed somewhat lower alpha coefficients to that of the original ACS, particularly the fear of anger subscale, however, results are generally comparable. Standard deviations of the MACS-A are reasonably consistent across the scale and parallel those of the original ACS.

Table 1 Means, standard deviations and internal reliability coefficients of the MACS-A compared with the original ACS (Williams et al. 1997)

Scale	MACS-A (n=2128)			ACS (Williams et al., 1997) (n = 105)		
	Mean	SD	(α)	Mean	SD	(α)
Anger	3.66	0.85	0.65	3.73	0.86	0.72
Positive Emotion	3.14	0.72	0.74	3.14	0.76	0.84
Depressive Mood	3.28	1.05	0.81	3.19	1.22	0.91
Anxiety	3.23	0.81	0.83	3.51	0.84	0.89
Fear of emotions	3.29	0.69	0.91	3.37	0.78	0.94

Table 2 presents the correlations among the four subscales of the MACS-A. The moderately low correlations between all sub-scales indicate that relatively discrete dimensions of the fear of emotions are being measured. The results are comparable to those of the original ACS and, in fact, the degree of overlap between the Fear of Anxiety and Fear of Depressive mood subscales is noticeably lower than that found by Williams et al. (1997) suggesting a slightly greater independence between subscales in the MACS-A.

A Principal Components Factor Analysis was conducted to evaluate the factor structure of the MACS-A. Complete results of this analysis will be reported as part of a much larger study focused on the development of a short version of the MACS-A and its use as a measure of treatment outcome (Geddes, in prep). In brief, the results of the PCA indicated a four factor solution provided the cleanest picture of scale structure and were interpreted as follows:

Factor 1 - Fear of Positive Emotions

Factor 2 - Fear of Depression and Anger

Factor 3 –Control of Positive and Negative Emotions

Factor 4 – Fear of Anxiety

The results of the factor analysis support the uniqueness of the sub-scales and do not compromise the findings of the current study.

A major objective for developing the MACS-A was to establish a measure of treatment outcome for adolescents taking part in a treatment programme conducted by the first author. Therefore, temporal stability of the scale was also critical. Test-retest reliability of the scale, through a comparison of factor analysis loadings between two administrations of the scale (two week interval) was also conducted. Cattell's salient similarity index was calculated as a more definitive way of comparing patterns of item loadings and supported the test-retest reliability of the MACS-A. Again, these results will be reported in the larger study to follow.

Table 2 Subscale inter-correlations of the MACS-A

Fear of	Anger	Depressive Mood	Positive Emotion	Anxiety
Anger	1.00	0.55 (0.56)	0.53 (0.56)	0.56 (0.50)
Depressive Mood		1.00	0.45 (0.69)	0.61 (0.73)
Positive Emotion			1.00	0.61 (0.64)
Anxiety				1.00

Figures in parentheses are original data taken from Williams, Chambless & Ahrens (1997)

Study 2: Comparison of perceived affect control in clinical and non-clinical matched groups

Participants. Three groups of adolescents aged between 12 and 18 years participated voluntarily in this study. The first group (clinical) consisted of 62 currently engaged clients of the SMCAMHS in Perth, Western Australia. Two clients were excluded due to missing data (>10%), resulting in a final sample of 45 female (mean age 15.33, SD = 1.38) and 15 male (mean age 14.71, SD = 1.57) participants.

The second (public schools) and third (private schools) groups of participants were secondary school students drawn from the larger data set described in Study 1, and matched to the clinical sample on age (within two months) and gender. Clients who attend the SMCAMHS clinics are mainly of low to medium socio-economic status and attend public high schools. A review of the 2001 Australian Bureau of Statistics Census data indicated the average median household income of the suburbs in which the three CAHMS clinics are located to be \$651 per week. The second group of participants was drawn from mixed sex public high schools with a relatively equivalent weekly median

household income (\$716) to that of the clinical group. The third group of participants was drawn from mixed sex private high schools with an average median household income of \$1010 per week. The mean age of participants in the public school sample was 15.38 (SD = 1.36) for females and 14.72 (SD = 1.54) for males. In the private school sample, the mean age for females was 15.35 (SD = 1.34) and for males 14.75 (SD = 1.53).

Materials. The MACS-A, described above, was used for this study.

Procedure. Clinicians currently in the employ of the SMCAMHS conducted administration of the MACS-A. The principal researcher provided a document to all clinicians describing the aim and rationale of the study, a brief description of the MACS-A survey, and a clinician checklist listing the steps in administration of the survey. A brief presentation on administration procedures was also provided to clinicians at a staff meeting.

It was explained that the MACS-A survey would take approximately 10 to 15 minutes to complete. Clinicians were instructed to administer the survey to adolescents who were currently engaged in therapy. Both the parent/guardian and participant read the accompanying information/consent forms and agreed to participate before completing the survey. For clients aged 16 years or over, mature consent was all that was necessary. The survey was conducted at the beginning of the session. The client filled out the survey without the presence of any parent/guardian. Clinicians were asked to provide the client with assistance, if sought, in terms of any difficulties understanding specific questions or

in how to fill out the survey. Clients were instructed to think about how they had been feeling over the last two weeks when answering the survey. Clinicians were also asked to note down anything out of the ordinary resulting from a client's participation in the survey and to ensure that surveys had been fully completed. The principal investigator collated the data.

Results. The 41-item total scale scores were normally distributed around a mean of 4.34 (SD =0.71) for the clinical sample, and 3.81 (SD = 0.56) and 3.60 (SD = 0.44) for the public and private school samples respectively. There was only minimal violation to the assumption of normality on the subscale scores of Fear of Anger (private schools only) and Fear of Positive Emotion (public school only), but given that the groups were matched, transformation of data was considered inappropriate. Subscale means ranged from 3.82 - 4.80 for the clinical sample, 3.74 - 3.87 for the public school sample, and 3.53 – 3.73 for the private school sample. Scores clustered around the means for all three groups on each of the subscales and the overall scale (see Table 3). Comparison of mean scores indicated the clinical sample scored higher than both the public and private school samples on three of the four subscales, Fear of Anger, Fear of Depressed Mood and Fear of Anxiety, and on the overall scale score of Fear of Emotion.

Cronbach alpha's were used to calculate internal consistency of the MACS-A within the clinical sample (N = 60) and was shown to be highly satisfactory, paralleling results found within the non-clinical sample in Study 1: Fear of Anger $\alpha = .74$; Fear of Depressive Mood $\alpha = .85$; Fear of Positive Emotion $\alpha = .85$; Fear of Anxiety $\alpha = .84$ and

the total scale score Fear of Emotion $\alpha = .91$. In fact, the Fear of Anger sub-scale was somewhat more reliable in the clinical sample than in the non-clinical sample of Study 1.

Table 3 Descriptive and summarized inferential statistics across clinical, public school and private schools groups

	Mean	SD	
Fear of Anger			
Clinical	4.60	0.97	F (2, 177) = 12.794*
Public school	3.91	0.75	
Private school	3.73	0.64	
Fear of Depressive Mood			
Clinical	4.80	1.14	F (2, 177) = 41.033*
Public school	3.74	0.78	
Private school	3.38	0.69	
Fear of Positive Emotion			
Clinical	3.82	0.92	F (2, 177) = 0.685
Public school	3.86	0.58	
Private school	3.72	0.54	
Fear of Anxiety			
Clinical	4.37	0.84	F (2, 177) = 24.285*
Public school	3.74	0.67	
Private school	3.53	0.49	
Fear of Emotions			
Clinical	4.33	0.71	F (2, 177) = 25.994*
Public school	3.81	0.56	
Private school	3.60	0.44	

N = 60 for all groups; *p < .01

One-way between groups analyses of variance were conducted to test the significance of group mean differences. The Levene's test for homogeneity of variances was violated on all sub-scale and total scale scores, however, given that sample sizes were equal and large, the samples remain robust and population variances could be considered equal. Regardless, a more conservative significance level of 0.01 was used to determine significance. As shown in Table 3, there were significant differences across groups in

mean scores on Fear of Anger, Depressive Mood, Anxiety and Emotion. Post hoc testing using the Tukey statistic revealed the clinical group to have the highest means, differing significantly ($p < .01$) from the school samples. No significant difference in group means was found for Fear of Positive Emotion.

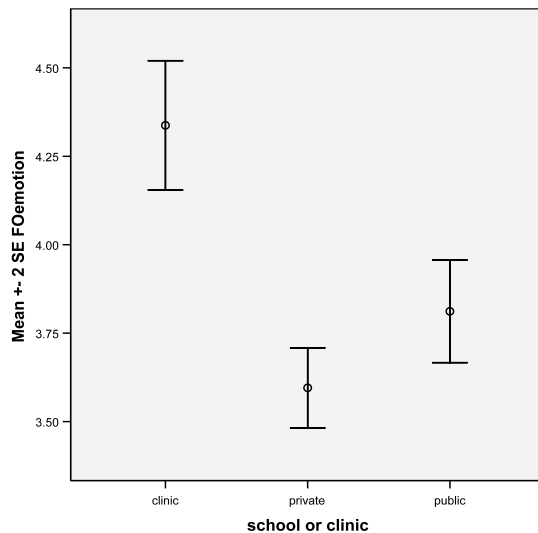


Figure 1 Fear of Emotion

A review of the means and their associated standard errors of the mean for the whole scale measure of Fear of Emotion (Figure 1), reveals an expected increase in the variability of the clinic sample compared with that of the public and private school samples. The non-overlapping confidence intervals between the clinic and non-clinic samples indicate a real difference between the populations on the whole scale measure of Fear of Emotion.

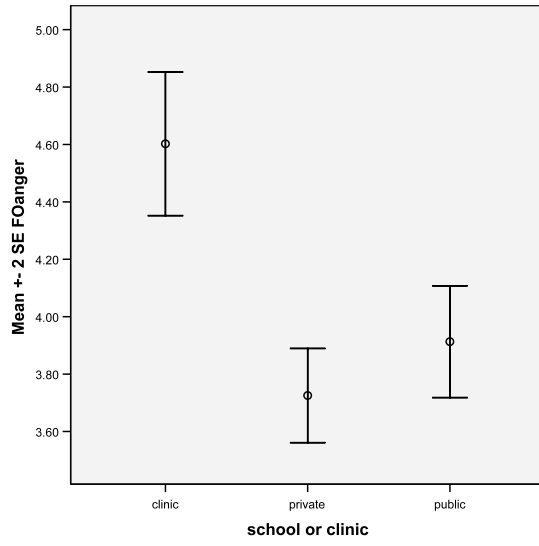


Figure 2 Fear of Anger

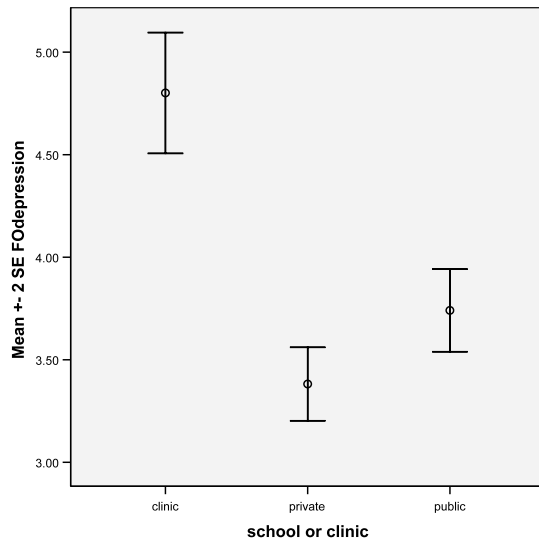


Figure 3 Fear of Depressive Mood

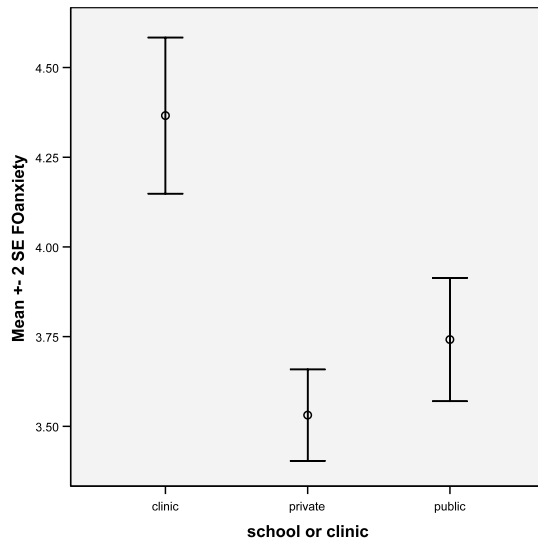


Figure 4 Fear of Anxiety

The means and associated standard errors of the mean for the MACS-A sub-scales of Fear of Anger, Fear of Depressive Mood and Fear of Anxiety (Figures 2 to 4) parallel those of the Fear of Emotion whole scale, displaying non-overlapping confidence intervals between the clinic and non-clinic samples, again indicating a real difference between the populations on the measures of Fear of Anger, Fear of Depressive Mood and Fear of Anxiety.

Discussion and conclusions

The purpose of this study was to develop a self-report measure of adolescent ER that would be suitable for both clinical and non-clinical groups. The whole scale measure of the MACS-A which measures Fear of Emotion, and each of the four sub-scales measuring Fear of Anger, Fear of Depressive Mood, Fear of Positive Emotion and Fear of Anxiety were found to be internally consistent within a large sample (N = 2,128) of 12-18 year old high schools students.

Likewise, both the MACS-A main scale and each of its four sub-scales were shown to be internally consistent within the clinical sample (N =60). This finding is significant, since adolescents who attend community mental health clinics often experience extreme difficulties in attention and concentration due to current states of depression and/or anxiety related conditions. The internal consistency of the MACS-A whole scale and each of its four sub-scales, displayed within the clinical group, suggests that this measure of ER can be used with some confidence within clinical adolescent populations.

The MACS-A was also found to be able to clearly discriminate between matched clinical and non-clinical samples of adolescents. Adolescents within the clinical sample scored significantly higher than adolescents within the non-clinical sample on both the whole scale measure of Fear of Emotion, and on the sub-scale measures of Fear of Anger, Fear of Anxiety and Fear of Depressive Mood. Thus, adolescents attending the SMCAMHS clinics reported poorer ER than adolescents from either the public or private school settings.

The Fear of Positive Emotion subscale was, however, unable to discriminate between the clinic and non-clinic samples despite the suggested theoretical importance of including positive emotions within measures of ER (Walden, Harris, & Catron, 2003). This may be reflective of the fact that adolescence is generally seen as a period of high excitement where the pursuit of fun and positive emotion is the norm. Therefore, it would be unlikely that adolescents would endorse feeling afraid of high positive emotion, the focus of

questions within this sub-scale, for example, “When I feel good, I let myself go and enjoy it to the max”.

The ability of the MACS-to identify adolescents experiencing difficulties in regulating their emotions holds important practical and theoretical implications for the potential usefulness of this measure as an assessment tool within clinic and non-clinic settings. Most importantly, in light of the reported increase in the numbers of adolescents presenting with problems associated with dysregulated affect, particularly self-harm and suicidal behaviours, the MACS-A is a reliable way of determining ‘at-risk’ adolescents in need of intervention, more specifically, those adolescents that would benefit from programmes targeting emotion regulation deficits.

Another important potential use of the MACS-A is as a measure of treatment outcome. It is argued that the period of adolescence is a critical developmental period in which to intervene (Cicchetti & Toth, 1996). However, thus far, there has been no measure of adolescent ER available to determine the successfulness or not of adolescent interventions. Considering the centrality of emotion dysregulation to adolescent behaviours such as self-harm, suicide, drug and alcohol misuse, aggression and interpersonal difficulties, future research interested in developing treatment programmes for this population of adolescents would benefit from the inclusion of the MACS-A as a measure of outcome.

Furthermore, because ER has the potential to unify a number of overarching clinical problems, the MACS-A may prove useful as a tool for those working within clinical and educational settings. In this regard, future research could look at developing a shorter version of the MACS –A, and testing its psychometric properties in other clinical, non-clinical and ethnic minority groups. There is also a need to test the ability of the MACS-A to converge with other independent measures of emotional reactivity, for example, physiological and face perception measures.

In a discussion of the relationship between ER and childhood anxiety Weems and Silverman (2006) argue that the perception of emotional control may bear little relationship to actual control, while others suggest a direct link between perceived or ‘illusory’ control and ‘true’ regulation (Taylor & Brown, 1988). The current findings would suggest that, at least in terms of fearing one’s own emotions, a perception of lack of control is linked to actual problematic functioning and is not merely illusory. Future research with adolescents would benefit from a closer examination of this relationship by combining the measurement of ER via the MACS-A with other clinical measures tied to actual outcomes, for example, measures of anxiety, anger and depression. Establishing the links between problematic levels of emotion dysregulation and specific clinical diagnoses is an important next step in understanding the impact of dysregulated emotion on adolescent functioning.

Findings from the current study suggest that there is a predictable link between an adolescent’s fear of his/her negative emotions, specifically anger, depression and anxiety,

and his/her mental well being, a finding that supports the theoretical positions of Linehan (1993) and others (e.g. Gross & Munoz, 1995; Keenan, 2000; Kobak & Ferenz-Gillies, 1995; Putnam & Silk, 2005) relating dysregulated affect to psychopathology, including perhaps most significantly, the self-harm and suicidal behaviours of adolescents.

The current studies had two noteworthy strengths. First, the large and heterogenous nature of the sample used in the first study and second, the matching of individuals on gender and age variables within the three samples of the second study. Both strengths add confidence to the potency of the study's findings.

The limitations of the present studies also need to be recognised. Specifically, the results may not extend to other clinic and non-clinic samples. In particular, the current studies did not include adolescents from more exclusive single sex high schools supported by high income earning families. Likewise, other demographic variables such as ethnicity and number of siblings, highlighted by Luthar (1991) to be primary risk factors in adolescent development, were not assessed. This places some limitations on the degree to which findings from the current studies can be generalised to other populations, and needs to be addressed in future research.

In conclusion, findings from the present study make an important contribution to the literature on ER. Most significantly, a self-report measure of adolescent ER was developed, the first of its kind. The MACS-A was shown to be a reliable measure in both clinical and non-clinical groups. Furthermore, this new measure proved to be a valid

indicator of problematic ER, clearly discriminating between clinical and non-clinical groups in terms of adolescent's fear of their emotions generally, and more specifically with regard to their fear of anger, depression and anxiety. Importantly, the MACS-A measures the perceived ability of adolescents to manage their strong emotions, and redresses past criticisms of conceptual inadequacy (e.g. Cole et al., 2004) by being clearly operationalised as “the fear of losing control over one's emotions or of one's behavioural reactions to emotions” (Williams et al., 1997, p241) and by having a strong theoretical underpinning. As such, the MACS-A is well positioned to generate strong testable research hypotheses.

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Correspondence to

K. Geddes, Department of Psychology, Murdoch University, Division of Health Sciences, Murdoch, Western Australia 6150; Email: K.Geddes@murdoch.edu.au

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CHAPTER 2

Extended Literature Review

AN EXAMINATION OF EMOTION REGULATION

The construct of emotion regulation has been defined in a variety of ways within extant literature, and like its counterpart emotion, is largely reflective of the theoretical perspective taken by the author. Thus there is little consensus on what emotion regulation ‘really’ is (see Child Development, 1995, vol. 75 for a review). This diversity has led to considerable differences in the way that this construct has been operationalised within empirical studies.

For this reason, the present review will spend some time examining what is meant by emotion regulation and how its operationalisation within this thesis relates specifically to developmental issues associated with the etiology of Borderline Personality Disorder. The current review will take a developmental perspective in coming to an understanding of what is meant by emotion regulation.

DEFINING EMOTION REGULATION AND ITS DYSREGULATION

Ideas about the need to regulate or manage one’s emotions have a long tradition, extending back to Charles Darwin’s attempts to understand emotional expression in humans and animals, and Sigmund Freud’s notions of the relationship between lack of emotional control and psychopathology (Garber & Dodge, 1991). However, the study of emotion regulation as a separate field of investigation is relatively new (Gross, 1998),

and this is possibly reflected in the difficulty of finding a clear and agreed upon definition of the concept.

In their seminal book on the development of emotion regulation and dysregulation, Garber & Dodge (1991) provided a definition of emotion regulation that encompassed intradomain regulation, interdomain regulation and interpersonal processes. This comprehensive conceptualisation of emotion regulation was an attempt to reduce the ambiguity of the concept, however, definitions that arose from it were diverse, generating a large amount of research which generally focused on only a single aspect of emotion regulation, for example, proximity seeking or gaze aversion (Graziano & Tobin, 2003).

The conceptual diversity and subsequent investigation of assorted phenomena associated with 'emotion regulation' per se, has led to questions being raised as to its utility as a scientific construct, with assertions being made that it is "diffuse, overly inclusive and poorly defined" (Cole, Martin, & Dennis, 2004, p317). Importantly, Cole et al. stress the importance of researchers providing working definitions to improve clarity and methodological rigor. Other authors have also argued that such definitions need to have a strong theoretical underpinning (Bridges, Denham, & Ganiban, 2004), an argument that is shared by the current author.

From a functionalist perspective the role of emotion regulation is overwhelmingly an adaptive one (Campos, Frankel, & Camras, 2004), assisting individuals to respond to emotionally-arousing situations in a strategic manner (Saarni, 1999). Thus emotions are

argued to have consequences with an inherent regulatory capacity that can act both at an intrapersonal and interpersonal level (Shipman, Schneider, & Brown, 2003). For instance, happiness can sustain interest and attention, while at the same time acting as a signal to others' to maintain interaction.

Thus the functionalist perspective in emphasizing the interactive, flexible and adaptive nature of emotion regulation highlights its importance in terms of lifespan psychosocial adjustment (Shipman et al., 2003). For this reason the way in which we acquire the ability to regulate our emotions becomes an important area in need of further understanding. However, before moving on to the developmental aspects of emotion regulation there is a need to address the notion of emotion dysregulation.

Most theories of emotion regulation recognize that the purpose of regulating emotions is to “minimize, maximize, mask, or dissemble” the experience and expression of not only negative emotions but positive ones as well, in order to achieve specific goals (Bridges et al., 2004). Despite the theoretical recognition of positive emotions as part of the regulatory process, the minimization of negative emotions is most often equated with the notion of regulation (Bridges et al., 2004, Shipman et al., 2003). Thus people who are unable to contain negative emotions such as anger, are considered to be dysregulated.

The equating of the expression of negative emotions with the need for regulation is possibly reflective of historical notions of emotional expression (particularly anger), which according to early writers such as Aristotle (350 B. C./1931, as cited in (Kemp &

Strongman, 1995), needed to be controlled for a person to maintain dignity. Emphasizing the biological origins of emotion, Aristotle considered the motivational powers of emotions to constitute the ‘appetite’, which in turn could be controlled by the collective powers of the mind; reason and will. In this way, lack of emotional control became linked to the idea of madness and irrationality.

Distinguishing emotion regulation from dysregulation has been argued to be as difficult as trying to delineate what is ‘normal’ from what is ‘abnormal’ (Kring & Werner, 2004). In coming to terms with the meaning of emotional dysregulation it would be logical to conclude that if regulation equals adaptation to the environment (as argued by the functionalists) then dysregulation will be equal to maladaptation. Yet, it could equally be argued, that given the context dependant nature of emotion regulation, emotion dysregulation could be a form of regulation that is environmentally adaptive. Regulation still occurs, it is not lacking, and it is functional within the confines of the environment from which it develops. However, beyond that environment it is no longer functional. This argument highlights the importance of looking at developmental contexts and sequencing in the acquisition of emotion regulation and, concurrently, the factors that impinge upon normative development.

LEARNING TO REGULATE EMOTIONS

Emotional development occurs within the context of relationships whereby the child, in interacting with significant caregivers, learns how to regulate or manage his/her emotions (Halle, 2003; Shipman, et al., 2003). In their review of the development of emotion

regulation Cicchetti, Ganiban, & Barnett, (1991, p16), refer to the concept of ‘emotion regulatory systems’ which they argue, are essential to maintain a “tolerable but flexible range of affective expression necessary for adaptive functioning across the life span.” There conceptualisation of emotion regulation, like that of Shipman et al.’s (2003) analysis of emotions, emphasizes both intrapersonal and interpersonal aspects. That is, emotion regulation is essential to goal attainment but needs to be finely tuned to match external and internal needs. The notion of a tolerable range of emotion is an important one as it could be argued that this is largely a product of individual differences, intimately linked to developmental history.

Cicchetti, et al., (1991, p16) presented a theory of development based on “transactions between people and their environment”, arguing that it is these transactions that shape development. Integrating their own work with other writers in the field (e.g. Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1973; Derryberry & Rothbart, 1984; Greenough, Black & Wallace, 1987; Sroufe 1979), Cicchetti et al., (1991) provided a four stage theory of the development of emotion regulation which stresses the interplay between environmental factors (particularly caregivers), developing neurological systems and cognitive growth in the acquisition of emotional self-regulation.

Cicchetti et al.’s (1991) model suggested that the quality of the attachment relationship, underpinned by caregiver-child synchronicity within the first three years of life, is tied to developing emotional and cognitive competence and sense of self. These in turn are

intimately linked aspects of a developmental pathway leading to adaptive self-regulation of emotion.

Infants who have failed to learn that distress is modifiable, by extension also learn that they are inadequate when confronted with feelings of distress; their sense of self is challenged. Unable to regulate their distress, they are also unable to adapt to ever changing environmental demands and regulation of emotion is likely to become less viable and more chaotic. Therefore, children who have failed to achieve the basics of emotion regulation during the early months of life can be said to be dysregulated, in the sense that they are then unable to respond to changing environmental contexts in an adaptive and functional way.

REGULATION OF EMOTIONS AND MENTAL HEALTH

The ability to regulate one's emotions is now recognised as a significant indicator of mental well-being (Dwivedi, 2004). Despite this, we remain largely uninformed about the role that emotion regulation plays in the development of clinical disorders (Kendall & Ollendick, 2004). One exception to this is the work done by Linehan (1993) who has developed a significant body of work related to the development and treatment of Borderline Personality Disorder (BPD) in adults and of suicidal behaviours in adolescents (Miller, Rathus, & Linehan, 2007). In the presentation of her biosocial model, Linehan argued that dysregulated affect underpins the cognitive, behavioural, interpersonal and self-dysregulation symptomatic of BPD. Other researchers interested in the developmental aspects of BPD have also highlighted the centrality of emotional dysregulation (e.g. Paris, 2003; Putnam & Silk, 2005). Linehan further argued that the

self-harm and suicidal behaviours indicative of this population are maladaptive attempts to reduce or avoid extreme emotional pain and thus serve an emotion regulatory function.

Increasing attention is being given to emotion dysregulation as a significant indicator of most forms of psychopathology in children and adolescents (Dwivedi, 2004; Gross, 1998; Keenan, 2000; Kobak & Ferenz-Gillies, 1995), with strong associations being shown with both internalising and externalising behaviour problems (Shipman, et al., 2003). One of the most concerning problems associated with difficulties in regulating strong emotions is deliberate self-harm (Gratz & Roemer, 2004; Yates, 2004), which is reportedly rising at a rapid rate during adolescence (Hawton, Harris, Simkin, Bale, & Bond, 2004; Kobak & Ferenz-Gillies, 1995), particularly among young adolescent girls (Fortune & Hawton, 2005) and found to correlate with completed suicide in young males (Bowen & John, 2001; Cooper et al., 2005). This population of adolescents also has co-morbid use of drugs and alcohol, eating disorders, Post Traumatic Stress Disorder, high risk sexual activity, aggression, and extreme relationship difficulties (Boudurant, Greenfield, & Sze, 2004; Bradley, Conklin, & Westen, 2005; Harman, 2004), argued by some to be features of an emerging borderline personality (Paris, 2000).

MEASURING ADOLESCENT EMOTION REGULATION

Despite the strong link between emotion regulation deficits and high risk behaviours during adolescence, to date no adequate measure of adolescent emotion regulation has been developed.

At present, the only stated measure of emotion regulation for adolescents within the literature is the Cognitive Emotion Regulation Questionnaire (Garnefski, Kraaij, & Spinhoven, 2000). This self-report measure was developed in the Netherlands for adolescents aged 12 to 16 years, and was designed to assess nine cognitive strategies argued to be associated with emotion regulation, including concepts such as self blame, blaming the other, rumination and catastrophising. Garnefski et al., (p1313) argued that “the terms ‘cognitive coping’ and ‘cognitive emotion regulation’ are used as interchangeable terms” further suggesting, that coping and regulation can be considered as ways of managing “emotionally arousing information”. The merging of these two terms, however, only adds to the aforementioned definitional and conceptual confusion surrounding the emotion regulation construct. In essence, the CERQ is a measure of adolescents cognitive coping strategies with items focused on responses to specific events, for example, “I think I can learn something from this event” or “I think I can become a stronger person as a result of what has happened” (Garnefski et al., p 1319). The way an adolescent thinks about or interprets stressful events is arguably theoretically, if not practically distinct, from their ability to regulate or ‘be in control’ of their emotions.

In light of the acute and chronic nature of problems associated with dysregulated emotions during adolescence the current review sought to find an adult measure of emotion regulation that could be adapted for use with adolescents. Due to the strong theoretical and clinical links between emotion regulation deficits and behaviours central to borderline pathology, such as self-harm and suicidal ideation, a search was conducted

to find a measure of emotion regulation that was predictive of these behaviours within an adult sample that could be usefully modified for an adolescent population. This search revealed only one measure that had looked at this association. In a study of 39 women presenting with borderline traits, Yen, Zlotnick & Costello (2002) found an association between the number of Borderline Personality Disorder criteria endorsed and the ability to regulate emotions, regardless of the level of affect intensity. That is, the more items endorsed, the poorer the ability to regulate emotions. The measure used to test this relationship was the Affective Control Scale (ACS) (Williams, 1992).

The ACS was built upon the fear of emotions hypothesis proposed by Williams, Chambless, and Ahrens (1997), in which the fear of anxiety concept (Goldstein & Chambless, 1978) was broadened to include the fear of strong emotions generally. Williams et al. proposed that individuals who are fearful of anxiety, that is fear losing control over their anxiety, or fear physical harm (e.g. a heart attack), become fearful of anxiety itself, and are vulnerable to fearing other emotions, specifically, anger, depression and positive emotions. The focus of attention within their thesis was that of internal events, and the perceived ability of individuals “to manage strong emotions” (p. 239).

Thus conceptualised, the ACS measured self-reported “fear of losing control over one’s emotions or of one’s behavioural reactions to emotions” (Williams et al., 1997, p241). The 42 items of the scale are rated on a 7-point Likert scale making up four sub-scales: fear of anger (8 items), depressive mood (8 items), anxiety (13 items), and positive

emotion (13 items). The total score, which measures fear of emotion, is equal to an average of all of the items.

The ACS was developed using 105 undergraduate psychology students. The psychometric properties of the final version of the scale were later assessed using 75 undergraduate psychology students (Williams et al., 1997). Internal consistency of the total scale was found to be satisfactory (Cronbach's alpha 0.94) as were the subscale scores (anger 0.72, depression 0.91, anxiety 0.89, positive affect 0.84). Test-retest of the total scale score was assessed over a 2-week period and was acceptable ($r = .78$). There was minimal correlation with the Marlowe-Crowne Social Desirability Scale indicating no notable influence of social desirability responding. Concurrent validity was argued to be acceptable due to a large correlation ($-.72$) with the Emotional Control Questionnaire.

Additional support for the internal consistency and construct validity of the ACS was provided in a study by Berg, Shapiro, Chambless and Ahrens (1998) on a sample of 103 female undergraduate students. Construct validity was supported via low correlations with the Eysenck Personality Questionnaire Lie and Psychoticism scales and by strong positive correlations with Neuroticism. Therefore, the ACS appears to be a psychometrically sound measure of the perceived ability to control or manage strong emotions within an adult population. A review of the items within the ACS revealed that with some changes made to the wording of the individual items, it would be suitable for use with adolescents.

SUMMARY/CONCLUSIONS

The notion of emotion regulation has a long history, with dysregulated emotions commonly linked to ideas of madness and irrationality. However, in terms of a scientific construct that can be used purposefully in research and practice, emotion regulation is a relatively new construct and lacks conceptual clarity. This review found that the acquisition of self-directed emotion regulatory capacity is a critical developmental task, reflective of the early attachment relationship and as such is an intimate component of psychological well-being. In particular, its developmental nature means that it evolves in close association with one's sense of sense, relational capacity, cognitions and behaviours. Thus emotion regulation is an important construct, implicated in a variety of psychopathologies, the most salient being that of BPD in adults and emerging borderline features in adolescents, with suicidal and self-harm behaviours being the most concerning of these.

Despite its importance in adolescent functioning, to date, there is only one stated measure of emotion regulation for this population, the Cognitive Emotion Regulation Questionnaire (Garnefski et al., 2000). However, it was argued within this paper that the CERQ measures adolescents' cognitive coping strategies rather than their self-perceived capacity to regulate emotions. Therefore it was recommended that a better measure of adolescent emotion regulation, more closely tied to an adolescents' own perception of their ability to be in charge of their emotional world, needed to be developed. As a result,

a search was conducted for an adult measure of emotion regulation that could be adapted for use with adolescents. This search revealed that the Affective Control Scale (Williams, 1992), used as a measure of emotion regulation in adults, could be modified for use with adolescents.

In conclusion, modification of the ACS for use in adolescent populations will provide a pathway to redressing past criticisms of definitional inadequacy surrounding the emotion regulation construct, through the provision of a new way of understanding emotion regulation based on the theory of fear of emotions. Testing the psychometric properties of a modified version of the ACS for use with clinic and non-clinic adolescent populations is the critical next step in this process.

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