Why is Alexithymia a Risk Factor for Affective Disorder Symptoms?

The Role of Emotion Regulation

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Abstract

Background: Ever since alexithymia was defined in the 1970s, robust associations have been observed between alexithymia and a variety of symptoms of psychopathology. Alexithymia is now widely regarded as an important transdiagnostic risk factor, and it is frequently assessed in clinical and research settings. However, despite this strong interest, it remains unclear exactly why (i.e., by which mechanisms) alexithymia is linked to psychopathology. In this paper, we hypothesise that alexithymia is linked to affective disorder symptoms because alexithymia impairs people's ability to regulate their emotions, and we empirically test this hypothesis. **Method:** We administered a battery of psychometric measures to 501 adults in the United States, and examined the direct and indirect effects between alexithymia (Perth Alexithymia Questionnaire), emotion regulation ability (Perth Emotion Regulation Competency Inventory), and affective disorder symptoms (Depression Anxiety Stress Scales-21). **Results:** In the Pearson bivariate correlation matrix, alexithymia, emotion regulation difficulties, and affective disorder symptoms were all significantly correlated. In the modelling of direct and indirect effects, alexithymia was indirectly associated with affective disorder symptoms through emotion regulation difficulties (no significant direct effect). **Limitations:** Our online survey data were all self-report data and cross-sectional. Future longitudinal work would be beneficial. **Conclusions:** Our findings support contemporary theorising that alexithymia is linked to affective disorder symptoms via emotion regulation difficulties. These results help to clarify the mechanisms by which alexithymia may predispose people to affective disorder symptoms, and highlight the importance of considering the roles of alexithymia and emotion regulation in case conceptualisations and treatment planning.

Keywords: Alexithymia; Psychopathology; Emotion Regulation; Affective Disorder Symptoms; Depression; Anxiety

Introduction

"Alexithymia" was first coined by psychiatrists in the 1970s to describe a cluster of emotion processing deficits often observed in patients (Sifneos, 1973). Since this time, a large body of evidence has accumulated supporting the status of alexithymia as a multidimensional trait involving difficulties identifying feelings, difficulties describing feelings, and an externally orientated thinking style where people tend to not focus attention on their internal emotional states (for reviews, see Preece et al., 2020a; Taylor et al., 1999). Alexithymia is normally distributed in the general population, with high levels of alexithymia commonly observed in psychiatric samples and associated with more severe psychopathology symptoms (e.g., McGillivray et al., 2017). Indeed, alexithymia is now widely regarded as an important transdiagnostic risk factor for a set of psychopathologies characterised by problematic levels of emotion, particularly the affective disorders[1] (e.g., Taylor et al., 1999). Consequently, alexithymia is often assessed in clinical and research settings, usually with self-report measures (e.g., Bagby et al., 1994). However, despite this ongoing interest, it remains unclear exactly why (i.e., by which mechanisms) alexithymia is linked to psychopathology. In this paper, we test the hypothesis that alexithymia is associated with affective disorder symptoms principally because of the impairing effect of alexithymia on emotion regulation (i.e., emotion regulation mediates the link between alexithymia and affective disorder symptoms).

This hypothesis derives from our recent conceptual work on this issue, where we introduced the *attention-appraisal model of alexithymia* (Preece et al., 2017, 2020a), directly mapping the alexithymia construct within the widely used *process model of emotion regulation* (Gross, 1998, 2015). We suggested in these theoretical papers that emotion regulation is a promising mechanism for explaining the link between alexithymia and

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[1] Throughout this paper, we use the term "affective disorders" in a broad sense, including anxiety disorders within this terminology, rather than just depressive and bipolar disorders.

psychopathology symptoms because, within this framework, decisions about whether and how to regulate emotions are made based on how an emotion is appraised (i.e., appraised with respect to what the emotion is, and whether the emotion is good or bad for one's goals, thus motivating up- or down-regulation attempts; Gross, 2015). People can use a variety of strategies to try to regulate their emotions, some of which are more optimally suited than others for certain contexts/emotions (Sheppes et al., 2015). However, alexithymia, by definition, impairs one's capacity to appraise emotions (Sifneos, 1973), meaning that people with alexithymia experience their emotions in a more undifferentiated manner (e.g., being unsure if an unpleasant emotion is sadness, anger, or fear; Lane & Schwartz, 1987). Consequently, they have less nuanced and accurate information upon which to base their emotion regulation decisions, and this appears to make them less effective at up- or down-regulating emotions. Studies have consistently shown, for example, that people high in alexithymia report poorer emotion regulation abilities, and tend to use a more avoidant and unhelpful profile of regulation strategies (e.g., high expressive suppression, low cognitive reappraisal; Swart et al., 2009). Since many psychopathologies are characterised by emotion dysregulation (e.g., depression, anxiety; Sheppes et al., 2015), it follows that poor emotion regulation may be a primary pathway through which alexithymia operates as a risk factor for these psychopathology symptoms.

The Present Study

To date, no studies have directly tested whether emotion regulation difficulties mediate the relationship between alexithymia and affective disorder symptoms (or any other category of psychopathology symptoms). Such empirical work is vital to better understand the role of alexithymia in psychopathology, test the predictions of conceptual models (Gross, 2015, Preece et al., 2017, 2020a), and provide an evidence-base for more confident case conceptualisations and treatment planning using the alexithymia construct. The aim of this

study was therefore to address this gap, testing the direct and indirect effects between alexithymia, emotion regulation ability, and affective disorder symptoms (depression and anxiety).

Method

Participants and Procedure

Our sample comprised 501 adults who completed self-report measures of alexithymia, emotion regulation ability, and affective disorder symptoms as part of a wider battery of measures in an anonymous online survey. Participants were recruited by an online survey company, Qualtrics panels,[2] to form a sample representative of the United States adult population in terms of gender, age, and geographic region. Data were also collected on ethnicity and highest level of completed education.

Materials

Perth Alexithymia Questionnaire (PAQ). The PAQ (Preece et al., 2018a) is a 24-item measure of alexithymia (e.g., "*When I'm feeling bad, I can't tell whether I'm sad, angry, or scared*"). Several scores can be extracted, including a total scale score as an overall marker of alexithymia across negative and positive emotions. Items are answered on a 7-point Likert scale, with higher scores indicating higher levels of alexithymia. It has demonstrated good validity and reliability (e.g., Preece et al., 2020b) and performed well in this sample (total scale α = .95).

Perth Emotion Regulation Competency Inventory (PERCI). The PERCI (Preece et al., 2018b) is a 32-item measure of emotion regulation ability (e.g., "*When I'm feeling bad, I have no control over the strength and duration of that feeling*"). Several scores can be

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[2] Qualtrics Panels recruits principally from actively managed research panels. Participants receive a reimbursement for participating. See Qualtrics (2014) for more detailed information about Qualtrics' recruitment procedures.

extracted, including a total scale score as an overall marker of emotion regulation ability

across negative and positive emotions. Items are answered on a 7-point Likert scale, with

higher scores indicating a higher level of emotion regulation difficulties (i.e., poorer emotion

regulation ability). It has demonstrated good validity and reliability (e.g., Preece et al.,

2018b) and performed well in this sample (total scale α = .94).

Depression Anxiety Stress Scales-21 (DASS-21). The DASS-21 (Lovibond et al.,

1995) is a 21-item measure of depression, anxiety, and stress symptoms experienced in the

past week (e.g., "*I felt down-hearted and blue*"). Psychometric studies suggest it is best

represented by a total scale score as an overall marker of affective disorder or internalising

symptoms (e.g., Osman et al., 2012). Items are answered on a 4-point Likert scale, with

higher scores indicating more severe symptoms. It has demonstrated good validity and

reliability (e.g., Osman et al., 2012) and performed well in this sample (total scale α = .96).

Analytic Strategy

All analyses were conducted using SPSS 27. Total scale scores from the PAQ,

PERCI, and DASS-21 were used to operationalise their respective constructs. Pearson

correlations were calculated to examine raw correlations between the variables. Hayes'

(2017) PROCESS package was used to model the direct and indirect effects between

alexithymia, emotion regulation difficulties, and affective disorder symptoms (see Figure 1),

with 5000 bootstrapped samples and 95% confidence intervals (Hayes, 2017). Participant

gender (coded: male = 1, female = 0), age, and education level (coded: none = 1, primary

school = 2, some high school [not completed] = 3, high school = 4, some college [no degree]

= 5, associate's degree = 6, bachelor's degree = 7, postgraduate degree = 8) were included as

covariates to control potential demographic effects.

Results

Sample Demographic Characteristics

The sample were evenly distributed in terms of gender (50.3% female, 49.7% male), with an average age of 46.92 years (*SD*=17.37, range=18-88). Geographically, 21.4% lived in the Midwest, 20.2% in the Northeast, 38.9% in the South, and 19.6% in the West. Most had completed high school (25.9%) or a college degree (44.0%) as their highest level of education. The majority (92.0%) were not current college students. Most reported their ethnicity as either White (79.6%), Black (7.6%), or Asian (4.0%). These demographic proportions are similar to recent United States census data (United States Census Bureau, 2019).

Correlations and Modelling of Direct/Indirect Effects

The Pearson correlation matrix for all variables is provided in Supplementary Table S1. Pearson correlations indicated that alexithymia (PAQ total scale; $M = 73.54$, $SD = 28.71$, range = 24-168) was positively correlated ($r = .41$, $p < .001$) with affective disorder symptoms (DASS-21 total scale; $M = 15.46$, $SD = 14.58$, range = 0-63) and positively correlated ($r = .57$, $p < .001$) with emotion regulation difficulties (PERCI total scale; $M = 88.95$, $SD = 32.65$, range = 32-218). Emotion regulation difficulties were positively correlated with affective disorder symptoms ($r = .65$, $p < .001$). Being younger and lower education level were associated with alexithymia, emotion regulation difficulties, and affective disorder symptoms ($r = -.12$ to $-.28$, $p < .006$). Men reported higher alexithymia scores ($r = .13$, $p = .004$).

In terms of direct and indirect effects, the overall model accounted for a significant 46.9% of the variance in affective disorder symptoms, $F(5, 495) = 87.71$, $p < .001$, $R^2 = .47$. Alexithymia was not directly related to affective disorder symptoms, a significant indirect effect via emotion regulation difficulties was observed (see Figure 1 and Table 1 for coefficients and p values).[3]

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[3] The same pattern of results (e.g., a significant indirect effect of alexithymia on psychopathology symptoms, and no significant direct effect) emerges if the model is analysed for males and females separately. The same
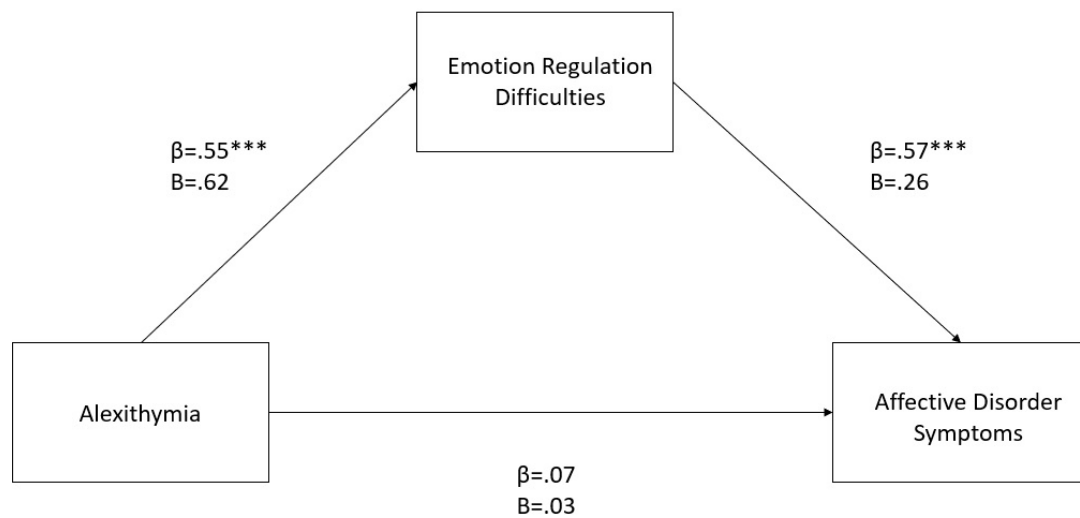
Figure 1. A visual representation of the tested model with direct and indirect effects between alexithymia, emotion regulation difficulties, and affective disorder symptoms. Total effect of alexithymia on affective disorder symptoms: B=.19, SE=.02, *t*=9.5143, *p*<.001. Direct effect of alexithymia on affective disorder symptoms: B=.03, SE=.02, *t*=1.6633, *p*<.001. Indirect effect of alexithymia on affective disorder symptoms: B=.16, SE=.02. Completely standardized indirect effect of alexithymia on affective disorder symptoms: B=.31, SE=.03.
***p<.001
**p<.01
*p<.05

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pattern of results also emerges if the depression, anxiety, and stress scores from the DASS-21 are modelled separately (see supplementary materials). We have presented the model using the DASS-21 total score as our main analysis in this paper, as psychometrically this is the best representation of the DASS-21 items (see e.g., Osman et al., 2012).

Table 1.

Unstandardized and Standardized Coefficients for All Variables in the Tested Model

Variable	Unstandardised B (95% CI)	SE	β	t	p
Outcome variable: Affective disorder symptoms					
Constant	3.03 (-2.84-8.91)	2.99	-	1.0143	.3109
Alexithymia	.03 (-.01-.07)	.02	.07	1.6633	.0969
Emotion Regulation difficulties	.26 (.22-.29)	.02	.57	14.1407	.0000***
Gender	-.2.73 (-4.66--.80)	.98	-.09	-2.7745	.0057**
Age	-.15 (-.21--.09)	.03	-.18	-5.1545	.0000***
Education	-.80 (-1.49--.11)	.35	-.08	-2.2638	.0240*
Outcome variable: Emotion regulation difficulties					
Constant	62.60 (49.06-76.14)	6.89	-	9.0824	.0000***
Alexithymia	.62 (.54-.70)	.04	.55	14.6047	.0000***
Gender	-1.21 (-6.02-3.60)	2.45	-.02	-.4946	.6211
Age	-.24 (-.38--.10)	.071	-.13	-3.3526	.0009***
Education	-1.35 (-3.07-.37)	.88	-.06	-1.5423	.1236

Note. Gender coded: male = 1, female = 0.
***$p<.001$
**$p<.01$
*$p<.05$

Discussion

Our aim in this study was to help determine why alexithymia is a risk factor for affective disorder symptoms, testing a key prediction from our conceptual framework (Gross, 2015; Preece et al., 2017, 2020a) that this link may be explained via the impairing effect of alexithymia on emotion regulation ability. Overall, our results supported this view. There was no direct association between alexithymia and affective disorder symptoms, rather, alexithymia was indirectly associated via emotion regulation difficulties. These findings have several important theoretical and practical implications.

Theoretical and Practical Implications

Theoretically, whilst the cross-sectional nature of our data prohibits conclusions about causality and/or directionality in these relationships, our pattern of results is consistent with the predictions of the process model framework (Gross, 1998, 2015; Preece et al., 2017, 2020a). Such theorising specifies that the ability to focus attention on emotional states and

accurately appraise those states is a crucial rate-limiting factor for successful down-stream

emotion regulation efforts (see also, Barrett et al., 2001). These perspectives (and our results)

also align well with contemporary models of psychopathology, which conceptualise affective

disorders as disorders of emotion regulation (e.g., Sheppes et al., 2015). Indeed, many

transdiagnostic treatment protocols for psychopathology are now designed around the idea

that emotional awareness is a necessary prerequisite for successful emotion regulation, and

consequently programs often teach emotional awareness skills early in the treatment process

before moving to regulation (e.g., Barlow et al., 2017). Our results provide empirical support

for these conceptualisations.

In treatment settings, then, it follows that it may be beneficial to routinely assess and

treat both alexithymia and emotion regulation ability, given the combined role of these

constructs in statistically predicting affective disorder symptoms. Alexithymia-focused

treatment approaches, for example, can target the underdeveloped emotion schema systems

and emotional avoidance thought to underlie alexithymia (Preece et al., 2017). Such

approaches could incorporate therapy components where the clinician provides

psychoeducation about emotions, and guides the client in attending to, processing, and

labelling the different components of their emotional responses. Techniques like mindfulness

of emotions therefore have high relevance, and have demonstrated efficacy in improving

alexithymia levels (e.g., Edwards et al., 2018). Some transdiagnostic emotion regulation

treatment protocols have recently integrated these types of alexithymia components (e.g.,

Barlow et al., 2017), and further research is needed to determine the relative contributions (or

optimum balance) of alexithymia and emotion regulation treatment components within

transdiagnostic protocols.

Limitations and Future Directions

We think these findings make a useful contribution to the field, but several limitations

that will require further research should be noted. First, as mentioned, the cross-sectional nature of our data limits our ability to draw conclusions about causality. Second, we used a general community, rather than psychiatric, sample. Community data is valuable because alexithymia, emotion regulation difficulties, and affective disorder symptoms are all continuous/dimensional phenomena present in the general population (e.g., Lovibond & Lovibond, 1995; Taylor et al., 1999), but future studies with longitudinal designs and clinical samples would usefully extend this work. Our sample was also primarily White and from a single Western country; further research in other cultural groups will be important (Soto et al., 2011). Third, we focused on affective disorder symptoms in terms of depression and anxiety here, but working within the process model framework, we expect that similar patterns should be present for other symptom categories characterised by problematic levels of emotion or emotion dysregulation (e.g., mania, substance use, eating, and borderline personality disorder symptoms; Sheppes et al., 2015). Future research could examine the transdiagnostic generalisability of our findings. Fourth, all our variables were assessed using self-report measures in an online survey. Self-report measures are the most common assessment approach in the field, all these questionnaires are well validated, and this approach may have particular clinical relevance, but future studies might also consider incorporating a multi-modal assessment approach with observer-rated tools (e.g., Bagby et al., 2006).

Conclusions

Our data are consistent with contemporary theorising which holds that alexithymia is linked to affective disorder symptoms via the impairing effect of alexithymia on emotion regulation (Gross, 2015; Preece et al., 2017, 2020a). These results help to statistically clarify the mechanisms by which alexithymia manifests as a risk factor for affective disorder

symptoms, and highlight the importance of considering the roles of alexithymia and emotion

regulation in case conceptualisations and treatment planning.

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