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Adaptive and maladaptive rumination in alexithymia and their relation with depressive symptoms

Raffaella Di Schiena*, Olivier Luminet, Pierre Philippot

Université catholique de Louvain, Louvain-la-Neuve, Belgium

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ABSTRACT

Alexithymia and ruminative thinking style are two dispositions typically associated with depression. Alexithymia encompasses difficulties identifying feelings (DIF), difficulties describing feelings (DDF) and externally oriented thinking (EOT). Rumination consists of repetitive thinking about one's own state, which has adaptive or maladaptive consequences, depending on the processing mode involved. This is maladaptive when the mode is abstract-analytic and adaptive when it is concrete-experiential (Watkins, 2008). In order to investigate the combined contribution of alexithymia and rumination in depression, the present study investigated correlations between the multiple dimensions of alexithymia and rumination before and after controlling for depressive symptoms. The aim was to see which alexithymia dimensions are associated with abstract-analytic rumination, which ones with concrete-experiential rumination, and which dimensions are not related to rumination at all. Self-report measures of depressive symptoms, alexithymia and rumination were administered to a non-clinical sample ($N = 174$, $M_{age} = 21.40$). After controlling for depression, two complementary patterns emerged, and a null association: DIF positively correlated with abstract-analytic rumination, EOT negatively correlated with concrete-experiential rumination, whereas no association was found between DDF and any rumination component. Causal models compatible with observed associations are discussed.

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1. Introduction

A considerable amount of research indicates that some people are more vulnerable to depression than others; such people possess stable ways to react or to process negative emotional events and information. Among others, alexithymia and ruminative thinking style are two dispositions typically associated with depression (Luminet, Bagby, & Taylor, 2001; Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008). In the present paper, we investigated the association between alexithymia, rumination and depression, to explore reciprocal inter-relations among their dimensions. The relation between depression and alexithymia on one hand, and between depression and rumination on the other hand, have been already researched for decades. These streams will be summarized in the next two paragraphs, and then hypotheses about the combined contribution that alexithymia and rumination can give to depression will be stated in the third paragraph.

1.1. Alexithymia and depression

Alexithymia is a personality trait characterised by a deficit in the processing of emotional information (Taylor, Bagby, & Parker, 1997). It is traditionally defined by the following salient features: difficulty identifying feelings (DIF), difficulty describing feelings (DDF) and externally oriented thinking (EOT). In the late 1980s, preliminary studies based on self-report measures provided evidence about an association between alexithymia and depression (Haviland, Mac Murray, & Cummings, 1988). Since then, a large amount of cross-sectional (Grabe, Spitzer, & Freyberger, 2004; Honkalampi, Hintikka, Saarinen, Lehtonen, & Viinamaki, 2000) and longitudinal studies on clinical populations (Honkalampi et al., 2000; Luminet, Rokbani, Ogez, & Jadoulle, 2007; Luminet et al., 2001) have provided further support for this association. Consequently, alexithymia has gained increasing attention as a possible vulnerability factor for depression. These studies also showed that alexithymia measures are relatively stable over time, compared with measures of depression. This observation suggests that alexithymia represents a stable risk factor, and that depression and alexithymia are different constructs (Honkalampi et al., 2000; Luminet et al., 2001, 2007). However, mechanisms underlying the association between alexithymia and depression are not clear yet.

* Corresponding author. Address: Department of Psychology, Université catholique de Louvain, Place du Cardinal Mercier, 10, B-1348 Louvain-la-Neuve, Belgium. Tel.: +32 487 199 535.

E-mail addresses: Raffaella.Dischiena@uclouvain.be, raffaella.dischiena@libero.it (R. Di Schiena).

Moreover, given the multi-faceted nature of alexithymia, differential effects of its dimensions have been generally highlighted: in some studies, an association with depression was found only for DIF and DDF, but not for EOT (Haviland et al., 1988; Hendryx, Haviland, & Shaw, 1991). In other studies, only an association between DIF and depression or negative affect has been found (cf. Bailey & Henry, 2007; De Berardis et al., 2008; Grabe et al., 2004), whereas the association between DDF and depression turned out to be much more unstable (Bailey & Henry, 2007). Taken together, this body of evidence suggests that the association between alexithymia and depression needs to be further specified, so as to comprehend which could be the process responsible of higher risk for depression in association with some dimensions of alexithymia and not with others. In the present paper, we suggest that different rumination modes are a possible path of investigation.

1.2. Ruminative thinking and depression

It is well known that depressed individuals have a typical mindset, which consists of repetitively thinking about one's own condition, its causes and consequences, defined as rumination (Nolen-Hoeksema, 1991). Numerous studies have shown that rumination rather maintains depressive symptoms, impairs one's ability to solve problems and ushers in a host of negative consequences that exacerbate negative mood and cognition (for a review, see Nolen-Hoeksema et al. (2008)).

Originally, the depressive effect of rumination was attributed to the fact that ruminators dwell on negative contents more than other people, and thereby experience negative emotions more frequently (Lyubomirsky & Tkach, 2003). This perspective was put forward by Nolen-Hoeksema and her co-workers: It implied that rumination could only be maladaptive and consistently the phenomenon was labelled as "depressive rumination". However, recent conceptualizations have proposed a distinction between different modes of rumination, which could be either adaptive or maladaptive.

Watkins (2008), for example, distinguished two modes of rumination: abstract-analytic and concrete-experiential. The abstract-analytic mode is focused on evaluating the higher-level causes, meanings and implications of self-experience. By contrast, the concrete-experiential mode is focused on lower-level, specific, contextual and concrete moment-by-moment details of how does self-experience unfold.

This dichotomy parallels other theories such as the one proposed by Kross and colleagues (Kross, Ayduk, & Mischel, 2005), who distinguished between the "why" and the "what" focus cognitive processes, and the one proposed by Trope, Liberman, and Wakslak (2007), who distinguished between "high level of construal" and "low level of construal" cognitive processes. Notwithstanding differences in labels, these distinctions correspond to similar processes: the one consists in generalizing across different events and gives global representations, focused on the general meaning of the situation, whereas the other goes deeply into objective and subjective details of a specific event and gives representations that are more concrete, detailed and imaginative. However, investigation relationship between these two modes and rumination was mainly put forward by Watkins (2008), for which reason his distinction will be the one we will refer to in the following of this paper.

According to his definitions, individuals in an abstract-analytic mode of rumination may experience thoughts such as "what does this mean for my life?", "why do I react this way?", or "I just can't cope with anything". On the contrary, in the concrete-experiential mode one may experience thoughts such as: "how did this happen?", "how could I intervene to fix this problem?", "what are my feelings here and now?".

Research shows that the experimental induction of abstract-analytic and concrete-experiential modes of processing results in significant variations in emotional regulation (for a review, see Philippot, Neumann, and Vrielynck (2007)). The abstract-analytic variant increases negative global self-evaluations (Rimes & Watkins, 2005), impairs social problem solving (Watkins & Moulds, 2005), leads to problems in emotional recovery from prior failure and increases emotional vulnerability to subsequent failure (Moberly & Watkins, 2006). Conversely, it has been found that experimental induction of a concrete-experiential mode through specific training reduces emotional reactivity to stressors (Watkins, Moberly, & Moulds, 2008), depressive symptoms and negative self-judgment (Watkins, Baeyens, & Read, 2009). Based on this evidence, the abstract-analytic mode is considered to be maladaptive, whereas the concrete-experiential mode is considered to be adaptive, regardless the positive or negative valence of contents they apply to.

1.3. Adaptive and maladaptive rumination in alexithymia

In the present paper, we explore rumination modes associated with alexithymia, suggesting that high alexithymia scorers might be more prone to develop depressive symptoms, as long as they engage more easily in dysfunctional rumination processes. This hypothesis relies on the assumption that alexithymics have less information available to guide their behaviour in an emotional context because of their deficit in the identification and elaboration of their internal emotional state. Therefore, they are supposed to engage in more repetitive and analytic thinking towards external emotional targets as a strategy to obtain the information that is lacking from their emotions.

However, the few studies conducted so far on this topic displayed unclear results. For instance, Luminet and colleagues (2000, 2004) investigated emotional responding in alexithymia by examining cognitive, social and physiological responses to emotional events. In these studies, cognitive and social responses consisted of rumination and social sharing of emotions, respectively. It was found that alexithymia did not predict the amount of rumination after the most negative personal emotional event in the last 3 or 6 months (Luminet, Zech, Rimé, Wagner, 2000) or an experimentally induced emotional episode (Luminet, Rimé, Bagby, Taylor, 2004); only a significant negative effect was found of DDF on the amount of social sharing. Such results are surprising if we consider that both alexithymia and rumination contribute to depression. However, we consider these findings as just preliminary since rumination measures only consisted of self-rated frequency of thoughts, degree of intrusion and search for meaning; these measures were not theoretically driven and did not distinguish between adaptive and maladaptive dimensions of rumination.

The present study investigated the relation between alexithymia, rumination and depression, looking at the relationships between sub-dimensions of the first two constructs, before and after controlling for depressive symptoms as captured by self-reported measures. It was assumed that a multidimensional investigation should enable one to disentangle which dimensions of alexithymia are associated with which dimensions of rumination.

Concerning the hypotheses, at a general level we expected to replicate earlier results, which are an association between depressive symptoms and alexithymia on the one hand, and an association between depressive symptoms and rumination modes on the other hand, positive for abstract-analytic and negative for concrete-experiential rumination. Second, alexithymia being a deficit in the identification and elaboration of internal emotional states, it was also expected to be associated with a dysfunctional rumination pattern, that is more abstract-analytic and less concrete-experiential. However, after controlling for depressive symptoms, there were theoret-

ical reasons to expect the sole association between DIF and abstract-analytic rumination to remain significant. Indeed the sole DIF dimension explicitly refers to the inability in taking one's internal state as a guide for judgment, decision making and action; therefore an abstract-analytic thinking is supposed to be the reflection of an attempt to gain this lacking information throughout conceptualization. Such a result would also be consistent with previous evidence showing that the association between depression and alexithymia is mainly due to the DIF dimension (Bailey & Henry, 2007; De Berardis et al., 2008; Grabe et al., 2004; Haviland et al., 1988; Hendryx et al., 1991). In contrast, no specific association with any rumination dimension was expected for DDF, other than the association due to the common variance of depression, since this dimension has rather to do with a lack of words for emotional states and events. Accordingly, previous evidence already showed that this aspect of alexithymia rather impairs other emotion regulation strategies, more related to verbal aspects (Bailey & Henry, 2007). Finally, EOT was not expected to be associated with any rumination dimension either, because a relation with depression was never found at this level. Nevertheless, EOT was included in the study for the reason that, similarly to DIF, it is also very much related to thinking aspects of alexithymia.

2. Method

2.1. Participants

One hundred and seventy-four undergraduates at the Université catholique de Louvain (43 males and 131 females, $M_{\text{age}} = 21.40$, $SD = 3.44$) completed self-report measures of depression, alexithymia and rumination. Participants were recruited via the student panel of the Faculty of Psychology and completed questionnaires on line.

2.2. Materials

The Zung self-rating depression scale (Zung, Richards, & Short, 1965), which was back translated following Brislin (1970), was used to assess the presence of depressive symptoms. It is a 20-item instrument, with each item corresponding to a depression symptom (mood, pessimism, asthenia, suicidal ideas, etc.) rated on 4-point scales (1 = rarely; 4 = always), the total score ranging from 0 to 80. On the present data, this scale displayed good internal consistency ($\alpha = .86$).

Alexithymia was assessed with the 20-item Toronto alexithymia scale, which has shown adequate internal consistency, good test–retest reliability, and good convergent and discriminant validity in different validation studies (TAS-20) (original version: Bagby, Parker, & Taylor, 1994; French version: Loas, Otmani, Verrier, Fremaux, & Marchand, 1996). Participants rated on 5-point Likert-type scales each item ranging from 1 (*strongly disagree*) to 5 (*strongly agree*); five items are negatively keyed, with the total score ranging from 20 to 100. TAS-20 displays a three factor struc-

ture. The first consists of seven items assessing difficulty in identifying feelings (DIF; e.g. "I am often confused about what emotion I am feeling"). The second one consists of five items assessing the ability to describe feelings to other people (DDF; e.g. "I am able to describe my feelings easily"). The third one consists of eight items assessing externally oriented thinking (EOT; e.g. "I prefer to analyze problems rather than just describe them"). Present data confirmed internal consistency of the total scale ($\alpha = .79$), as well as of the three sub-scales (DIF, $\alpha = .74$; DDF, $\alpha = .79$; EOT, $\alpha = .69$).

To measure modes of rumination, the French short version of the Cambridge Exeter Ruminative Thinking Scale (CERTs; original version: Barnard, Watkins, Mackintosh, & Nimmo-Smith, 2007; French version: Douilliez, Philippot, Heeren, Watkins & Barnard, in preparation) was used. This scale is based on 15 items, eight measuring concrete-experiential rumination and seven measuring abstract-analytic rumination. Participants were given the following sentence "When thoughts about my self, feelings, situations or events do come to mind. . .", and a list of items that completed the sentence. Example items were: "I seem to be engaged in and directly in touch with what is going on around me" for CE and "I focus on the causes and meanings of what happened" for AA. Participants reported their typical rumination style by rating each item on a 4-point scale (1 = *almost never*; 4 = *always*). Scores corresponded to the sum of the item-scores. In the original validation study of the French version the two scales obtained an alpha level of .77 and .80 for CE and AA, respectively (Douilliez et al., in preparation). Present data confirmed adequate internal consistency, displaying an alpha of .71 and .74 for CE and AA, respectively.

3. Results

The average level of depression was 40.60 ($SD = 9.14$). Means and standard deviations of alexithymia, its three dimensions and the two rumination dimensions are shown in Table 1, together with the correlations of these dimensions with depression.

Concerning distributional proprieties, all of the considered variables displayed skewness and kurtosis values between -1 and $+1$. Therefore, no transformation was applied to data.

Given the elevated number of correlations considered, the critical p value was adapted following the Bonferroni procedure (Curtin & Schulz, 1998), i.e. dividing by the number of cells of the largest table, namely 8. As a result, only correlations that conformed to $p < .006$ were considered to be significant.

Table 1 shows that depression was significantly correlated with the general score of alexithymia and with DIF and DDF dimensions, whereas no relation was found with EOT. Regarding rumination, CE thinking was negatively correlated with depression whereas AA thinking was positively correlated. These results are consistent with the literature, and with the positive and negative functionality of CE and AA thinking, respectively, in terms of adaptation (Watkins, 2008; Watkins & Moulds, 2005).

As shown in Table 2, the general score of alexithymia was associated with more AA and less CE thinking. However, these

Table 1
Correlations between depression, alexithymia general score, alexithymia dimensions and rumination dimensions.

	TAS-20	Alexithymia dimensions			Rumination dimensions	
		DIF	DDF	EOT	AA	CE
Depression	.394**	.521**	.272**	.071	.482**	-.384**
<i>M</i>	46.81	16.95	13.70	16.16	19.53	15.74
<i>SD</i>	(11.29)	(5.44)	(4.77)	(4.39)	(4.42)	(3.66)

Note: TAS-20 = 20 items Toronto alexithymia scale total score. DIF = TAS-20 difficulty in identifying feelings. DDF = TAS-20 difficulty in describing feelings. EOT = TAS-20 externally oriented thinking. AA = CERTs abstract-analytic thinking sub-scale. CE = CERTs concrete-experiential thinking sub-scale. Due to missing values, N ranged from 160 to 170.

* $p < .006$.

** $p < .001$.

Table 2

Correlations between alexithymia general score, alexithymia dimensions and rumination dimensions, with correlations after partialling out depression in parentheses.

Rumination dimensions	Alexithymia dimensions			
	TAS-20	DIF	DDF	EOT
AA	.244* (.076)	.415** (–.238*)	.135 (.004)	–.037 (–.077)
CE	–.314** (–.187)	–.257** (–.071)	–.230* (–.133)	–.231* (–.221)*

Note: Numbers out of the parentheses are partial-correlations between rumination and alexithymia dimensions controlling for gender and age. Numbers in parentheses are partial-correlations controlling for gender, age and the Zung-SDI score of depression. Due to missing values, *N* ranged from 160 to 170.

* $p < .006$.

** $p < .001$.

correlations were not significant anymore after depression was partialled out, therefore showing that all their common variance was shared with variance of depression. Stronger associations emerged when looking at relationships between different dimensions.

The association between DIF and AA thinking remains still significant, even when depression was partialled out. Concerning DDF, the significant negative correlation with CE thinking disappears after controlling for depression, thus suggesting that there is no specific association between this alexithymia component and rumination. Finally EOT was significantly and negatively correlated with CE thinking, and this association was still significant after controlling for depression. However, in this particular case, partial correlation controlling for depression does not add much information since no relation was originally found between EOT and depression.

4. Discussion

The results of the present study confirm what has been already observed in the literature, and also suggests new patterns of association deserving further attention. First, our findings replicated the association between alexithymia and depression (Honkalampi et al., 2000; Luminet et al., 2001, 2007) as they also showed that this association was mainly accounted for by DIF, less so by DDF, but not by EOT (cf. Bailey & Henry, 2007; De Berardis et al., 2008; Grabe et al., 2004; Haviland et al., 1988; Hendryx et al., 1991).

Second, the present findings show that depression is positively related to the abstract-analytic thinking mode and negatively related to the concrete-experiential thinking mode. Again this is consistent with our hypotheses and with recent conceptualizations of rumination, suggesting that a concrete-experiential thinking mode is functional whereas an abstract-analytic thinking mode is dysfunctional (Watkins, 2008; Watkins & Moulds, 2005).

But more centrally addressing the present hypotheses, these findings clarify the relationship between alexithymia and rumination in their contribution to depression and highlight specific associations between sub-dimensions. These analyses first showed that the total score of alexithymia is not significantly related with any rumination dimension once depression is partialled out, thus suggesting that an important part of the variance shared between rumination and alexithymia has indeed to do with depression and that these are three aspects of the same phenomenon.

But when looking at specific associations between all the dimensions, above all it was found that DIF was significantly correlated with an abstract-analytic thinking mode, and that this association was not fully accounted for by depression. Although no causal

inference can be drawn based on these correlational results, it is possible to make some cautious interpretation. For instance, having difficulty in identifying one's own feelings would supposedly force one to rely more on abstraction and analysis when facing any emotional event, so as to give meaning to it, thereby explaining in part the higher risk for depression among alexithymics with high scores in DIF. But this result is also compatible with another causal path: it might well be that a tendency to think in an abstract-analytical mode, as it shifts the focus of attention on concepts, would impair the identification of feelings and consequently damage attempts of emotion regulation, which would increase the risk of depression.

In contrast, the DDF component showed no relation with either adaptive or maladaptive modes of rumination, which is consistent with our assumption that DDF refers to the externalization of feelings through words, rather than to the elaboration and reflection upon internal emotional states. This result further supports the idea that DDF is the aspect of alexithymia that is least involved in rumination, in accordance with previous evidence showing that DDF rather influences other strategies of affect regulation, such as social sharing of emotions (Luminet et al., 2000).

The last pattern of association is the negative correlation between EOT and experiential-concrete thinking mode. This result could suggest that the tendency to focus only on the outside world (EOT) is associated to the inability to adopt an experiential mode of thinking. In other terms, the more people focus their thinking outward, the less they recognize their own experiences in emotional situations. However, in this case we cannot assume depression as the ultimate effect of this process for the reason that EOT was not associated per se with the measure of depressive symptoms. Therefore the sole possible theoretical account for this finding is that the negative association between CE and EOT on the one hand and the negative association between CE and depression on the other hand are determined by different processes.

The ambiguous association between alexithymia, rumination and depression appears then to be better clarified when adopting a multidimensional view and then looking at relationships between sub-dimensions; however, a few methodological limitations of the present study are noteworthy.

Above all, the correlational nature of the design does not allow any causal statement to be conclusive, among those suggested above, for which reason no mediation model was tested, but only suggested in a speculative manner. Other methodological concerns might be raised with respect to the nature of the sample and employed measures. Concerning the first, the sample being investigated had non-clinical depression scores, therefore observed patterns of association can be generalized to clinically depressed populations with a degree of caution. Concerning the second, only self-report measures were used here, which are knowingly biased by self-presentation concerns. In particular it was recently suggested that, when assessing a construct based on a lack of introspection such as alexithymia, it is useful to add some observer-rated scales, like for example assessing emotionality of verbal reports directly produced by participants (Leising, Grande, & Faber, 2009) or via the Toronto Structured Interview for Alexithymia (TSIA; Bagby, Taylor, Parker, & Dickens, 2006), which showed very high correlations with TAS-20 after all. Moreover, in the present study a new measure of ruminative thinking was adopted, suitable to disentangle the two dimensions of interest. Although this choice was necessary to shed light on a new aspect of the phenomenon, it could limit comparability with previous studies on a similar topic.

In future studies it will be undoubtedly interesting to investigate ruminative processes involved in the link between alexithymia and depression with experimental design, observer-rated measures, in normal dysphoric as well as in clinically depressed populations.

To conclude, present results have nonetheless some theoretical and practical implications that are worth being mentioned. Regarding the first, research on rumination did not investigate much personality correlates of adaptive and maladaptive rumination so far, thus limiting knowledge about antecedents of these (Nolen-Hoeksema et al., 2008). Our findings contribute to that, showing that alexithymic personality traits are associated with maladaptive rumination for the sole aspects related with the treatment and processing of emotional information, notably the incapacity to identify emotional states and the tendency to adopt an external focus, thus excluding any association with verbal related aspects.

Once causal directions will be clarified, clinical practice would also benefit from this knowledge. Indeed, these findings suggest that cognitive interventions tailored to modify cognitive styles, might in turn affect personality dimensions that are knowingly maladaptive, such as alexithymia; conversely, these results could also imply that interventions aimed at fostering the ability to recognize one's own emotional states would in turn reduce maladaptive rumination. More practically, one could speculate that mindfulness based therapies (Segal, Teasdale, & Williams, 2002), which are notoriously assumed to disengage from abstract reflection upon meaning and consequences and to increase an experiential type of thinking (Teasdale, Segal, & Williams, 1995), might reduce difficulty in identifying feelings and consequently promote effective mood regulation. Or, at the opposite, specific training developed to increase the ability to recognize and identify emotions (McKay, Wood, & Brantley, 2007), might reduce the tendency to be abstract analytical and in turn reduce risk for depression.

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