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Difficulties in disengaging attentional resources from self-generated thoughts moderate the link between dysphoria and maladaptive self-referential thinking

Lucien Rochat[1,2], Joël Billieux[1,2], Martial Van der Linden[1,2,3]

[1]*Cognitive Psychopathology and Neuropsychology Unit, University of Geneva, Geneva, Switzerland*

[2]*Swiss Centre for Affective Sciences, University of Geneva, Geneva, Switzerland*

[3]*Cognitive Psychopathology Unit, University of Liège, Liège, Belgium*

KEYWORDS*:* Cognitive control; Shifting; Dysphoria; Self-referential thinking; Rumination.

ABSTRACT

Negative emotions increase self-focused attention, a core feature of depression and anxiety-related disorders. However, the cognitive mechanisms associated with the tendency to self-focus— and, conversely, with the ability to voluntarily disengage attentional resources from the self and direct them towards the external environment— remain poorly understood. Thus, this study aimed to examine whether a specific cognitive control mechanism that directs attention between self-generated thoughts and external information might moderate the relationship between dysphoria and maladaptive self-referential thinking. Results showed that dysphoria increases the frequency of rumination, self-blame, and catastrophising, especially for participants who have more difficulty in switching from self-

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generated thoughts to information provided by the environment. These results shed new light on the cognitive mechanisms underlying maladaptive self-referential thinking associated with dysphoria. More specifically, this specific cognitive mechanism might play a key role in the maintenance or amplification of a depressed mood.

Several studies have highlighted that negative emotions increase self-focused attention (Salovey, 1992). More precisely, some theories have proposed that self-focus increases when individuals experience negative life events or fail to reach important goals. Indeed, turning attention toward the self might constitute an adaptive strategy to minimise discrepancies between the desired standard and the current state (Carver & Scheier, 1981). However, when persistent and excessive, such as in depression, self-focus might have detrimental consequences for individuals by intensifying negative affect and maintaining depression (Pyszczynski & Greenberg, 1987). Indeed, depressed individuals have difficulty in disengaging from unattainable goals, which, in turn, contributes to a repetitive cycle of self-focused thinking characterised by rumination or self-blame tendencies (Pyszczynski & Greenberg, 1987). Despite the detrimental consequences of excessive self-focus, however, few studies have explored the cognitive processes involved in the maintenance of self-referential thinking associated with dysphoria. In the current study, we specifically focus on rumination, self-blame, and catastrophising tendencies because they might be considered as particular forms of self-referential thinking in which attention is directed to the self and/or to the content of current thoughts (e.g., Koster, De Lissnyder, Derakshan, & De Raedt, 2011).

Rumination is defined as 'behaviors and thoughts that focus one's attention on one's depressive symptoms and on the implications of those symptoms' (Noelen-Hoeksema, 1991, p. 569). It corresponds to an inflexible style of thinking that involves repetitive circular negative thoughts. Rumination also refers to a passive mode of thinking that impedes individuals from more actively engaging in the environment, which ultimately results in difficulty in relieving the depressed mood (Kashdan & Rottenberg, 2010). Self-blame refers

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to thoughts of blaming oneself for what one has experienced and catastrophising to thoughts that emphasise the terror of an experience (Garnefski, Kraaij, & Spinhoven, 2001). In particular, rumination, self- blame, and catastrophising play a role in depression, either as risk factors or by contributing to the maintenance and/or exacerbation of the depressed mood, as suggested by both cross- sectional and longitudinal studies (e.g., Anderson, Miller, Riger, Dill, & Sedikides, 1994; Garnefsky & Kraaij, 2007; Nolen-Hoeksema, Morrow, & Fredrickson, 1993; Sullivan, Bishop, & Pivik, 1995).

In this context, a growing number of studies have examined the cognitive processes at play in maladaptive forms of self-referential thinking, especially rumination proneness. In particular, executive or attentional control impairments have been demonstrated to be core features of the tendency to ruminate (e.g., Gotlib & Joormann, 2010). More specifically, several studies have emphasised that cognitive inflexibility, whether in emotional or neutral contexts, plays a significant role in the proneness to ruminate (Davis & Nolen-Hoeksema, 2000; De Lissnyder, Koster, Derakshan, & De Raedt, 2010; Whitmer & Banich, 2007). These findings are congruent with the hypothesis that shifting deficits disturb the voluntary disengagement of attention from negative content, which might result in the persistence of the depressive cognition for persons with rumination proneness (Koster et al., 2011).

It should be noted that all of these studies used set shifting tasks, that is, paradigms assessing the ability to shift back and forth between multiple tasks, operations, or mental sets (Monsell, 1996). However, besides set shifting, another shifting mechanism might play a more specific role in the tendency to self-focus, and, conversely, in the ability to voluntarily disengage attentional resources from the self and direct them towards the external environment. Indeed, Burgess, Simons, Dumontheil, and Gilbert (2005) recently described a shifting process that is specifically involved in the biasing of attention towards two types of information: stimulus-independent and stimulus-oriented thoughts. According to these authors, stimulus-independent thoughts refer to information that is not directly provided by the environment, but generated

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internally (e.g., planning future actions, thinking about one's thoughts or past or future events). Conversely, stimulus-oriented thoughts refer to information provided by the outside world (e.g., current perceptual input). This cognitive control mechanism directs attention automatically towards stimulus-independent (e.g., for introspection or rumination) or stimulus-oriented information (e.g., when something in the environment attracts our attention); biases attention voluntarily towards stimulus-independent thoughts or stimulus-oriented information; or directs attention flexibly between one or the other type of information when relevant. Neuroanatomical data support the distinction between stimulus-oriented and stimulus-independent information. Indeed, the medial rostral prefrontal cortex (PFC) has a key role in supporting stimulus-oriented attending, whereas the lateral rostral PFC is specifically involved in source switching (from stimulus-independent to stimulus-oriented information and vice versa) and in self-generated thoughts (Gilbert, Frith, & Burgess, 2005). Thus, the cognitive system supported by the rostral PFC (corresponding approximately to Brodmann area 10) is considered a 'gateway' between individuals' mental life and the external environment (Burgess et al., 2005).

This source switching mechanism involved in the ability to bias the allocation of resources towards either self-generated information or information provided by the environment might play a key role in self-focus proneness and depressive symptoms. With this perspective in mind, Muraven (2005) recently developed a paradigm aimed at assessing participants' ability to shift their attention away from themselves. In this task, participants were asked to shift their attention from a primary task that required self- focus (make me/not me judgements of personality trait words) to a secondary task that required outward focus (respond as quickly as possible to a tone delivered by a computer on some trials). The speed with which participants shifted their attention from the primary task to the secondary task while thinking about them- selves was considered a measure of self-focus flexibility. Muraven's study showed that the link between shifting attention away from the self and dysphoria was moderated by a tendency to self-focus; that is, difficulties in shifting away from the self associated with a proneness to self-focus accounted for

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higher levels of dysphoria. However, some limitations of this study should be discussed. In particular, the scale used to assess self-focus attention, the Self-Consciousness Questionnaire (Fenigstein, Scheier, & Buss, 1975), evaluates only a general tendency to self-focus, which does not distinguish adaptive from maladaptive self-focus (see Trapnell & Campbell, 1999). In addition, Muraven's task does not assess source switching because make me/not me judgements of personality trait words do not correspond to a stimulus-independent condition. Instead, it seems that the shifting mechanism in this task likely involves the ability to switch between various stimulus-oriented thoughts (i.e., information provided by the outside world and derived from current perceptual inputs, such as the personality trait words and the tone delivered by the computer). Thus, although it contains a self-referent component, this task actually requires set shifting rather than source switching.

In the current study, we focused on the mechanism described by Burgess et al. (2005), which enables the flexible allocation of attentional resources between self-generated thoughts and external information. More specifically, the purpose of the study was to examine the nature of the relationships between dysphoria, maladaptive self-referential thinking, and individual differences in this source switching mechanism. We used a paradigm developed by Gilbert et al. (2005) designed to assess the ability to bias one's attention between stimulus-independent and stimulus-oriented information (the 'alphabet task'); in addition, we administered a task to control for individual differences in working memory and questionnaires assessing dysphoria and maladaptive self-referential thinking.

How this source switching mechanism relates to dysphoria and maladaptive self-referential thinking requires clarification. In our opinion, the precise role of the source switching mechanism must be determined by distinguishing the development of maladaptive self-referential thinking from its maintenance. On the one hand, pre-existing difficulty in switching from self- generated thoughts to information provided by the environment could be causally involved in the development of maladaptive forms of self- referential thinking by favouring self-

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focused attention. Other factors (e.g., parents using a maladaptive coping style, over-controlling parents, early physical/sexual abuse; see Watkins, 2008) may also contribute to this development. In turn, maladaptive self-referential thinking increases the risk of further developing a depressive episode. On the other hand, once maladaptive self-referential thinking is established and automatised as in dysphoria, a less efficacious source switching mechanism should lead to more difficulty in disengaging attention from self-focused thinking. Consequently, we hypothesised that difficulties in switching from self-generated thoughts to external information could moderate the relationship between dysphoria and maladaptive self-referential thinking; that is, difficulties in source switching should increase the strength of the association between dysphoria and maladaptive self-referential thinking.

By examining how dysphoria and shifting abilities between self-generated thoughts and external information interact to contribute to maladaptive self-referential thinking, the study might shed new light on the mechanisms that likely play a role in the maintenance or exacerbation of the depressed mood. Furthermore, identification of the factors underlying vulnerability for the maintenance of depression is clinically relevant for both the comprehension of depression and the psychological interventions that might be implemented in clinical settings.

METHOD

PARTICIPANTS AND PROCEDURE

Seventy-four individuals (34 females and 40 males) with an average age of 24.26 years (*SD* =3.54, range = 18–32) and 14.95 years of education (*SD* =2.41) participated in the experiment. The inclusion criterion was being a native or fluent speaker of French. The exclusion criterion was a reported history of neurological or psychiatric problems. Participants signed an informed consent form before completing the tasks and questionnaires, and they were debriefed afterward.

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LABORATORY TASKS

Alphabet Task (modified from Gilbert et al., 2005). This task alternated between stimulus- oriented and stimulus-independent phases. During stimulus-oriented phases, participants classified a capital letter according to whether the letter was composed entirely of straight lines (e.g., 'A') or whether it had any curves (e.g., 'D'). After each trial, the subsequent letter in the alphabet was presented, skipping four letters between each stimulus and the next (instead of two as in Gilbert et al.'s 2005 study) to make the task more difficult and to maximise inter-individual differences. During the stimulus-independent phases, these letters were replaced with a question mark. In this phase, participants had to mentally continue the sequence from their current position in the alphabet while performing the same classification task for each self-generated letter. Transitions between the stimulus-oriented and stimulus-in- dependent phases occurred with a mean interval of 10.5 s (range 3–21 s). Three blocks of 7 minutes were administered, resulting in a mean of 120 switches from one phase to another (60 switches from stimulus-independent to stimulus-oriented phases and 60 opposite switches). Only the reaction times (RTs) for correct responses were retained. Four dependent variables were computed from the RTs: stimulus-oriented trials, stimulus- independent trials, switch from stimulus-independent to stimulus-oriented (internal-to-external phase transition), and switch from stimulus- oriented to stimulus-independent (external-to- internal phase transition). Additionally, two switch-cost indices were computed by subtracting the performances in each switch condition from their respective control condition. A higher switch cost is associated with difficulty in switching from one condition to another.

Letter–Number Sequencing Task (WAIS III; Wechsler, 1997). In this task designed to assess verbal working memory (both retention and manipulation of information), participants heard lists of numbers and letters mixed in random order and presented in increasing length, from two to eight units. Participants were first asked to repeat the numbers from each list, starting with the lowest to the highest, and then to repeat the letters in alphabetical order. The dependent variable was the number of correctly repeated sequences. An elevated score indicated better verbal

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working memory performances. The alphabet task might impose a heavy load on working memory, in particular the stimulus- independent phases in which participants have to mentally continue the sequence from their current position in the alphabet while performing a classification task for each targeted self-generated letter. Consequently, because the aim of the study was to specifically examine the contribution of source switching to maladaptive self-referential thinking associated with dysphoria, the letter– number sequencing task was used as a control measure.

SELF-REPORT MEASURES

Cognitive Emotion Regulation Questionnaire (CERQ; Garnefski et al., 2001; French version: Jermann, Van der Linden, d'Acremont, & Zermatten, 2006). The CERQ is a 36-item self-report questionnaire evaluating participants' use of nine different cognitive emotion regulation strategies for dealing with negative or unpleasant events. The items must be rated on a 5-point Likert scale, from 1 (*almost never*) to 5 (*almost always*). Two subscales have been confirmed through factor analysis to distinguish maladaptive strategies (self-blame, rumination, catastrophising, and blaming others) from more adaptive strategies (acceptance, positive refocusing, refocus on planning, positive reappraisal, and putting into perspective; Jermann et al., 2006). In addition, as in the original version of the scale, the reliability score of each of the nine factors in the French version of the questionnaire was acceptable to very good (Cronbach's alpha from .68 to .87; Jermann et al., 2006). However, since the focus of the present research is on maladaptive self-focused processing associated with dysphoria, we have taken into account only maladaptive strategies of the CERQ and excluded adaptive strategies. More specifically, we have computed a mean score from the rumination, self-blame, and catastrophising subscales to provide a measure reflecting maladaptive self-referential thinking associated with dysphoria. Note that as blaming others does not directly refer to self-referential thinking and has not been associated with depression (e.g., Jermann et al., 2006), this subscale was not considered in the current study.

Beck Depression Inventory (BDI-II; Beck, Steer, & Brown, 1996). The BDI-II consists of 21 items to assess the intensity of depression in clinical and normal individuals. Each item is a list of four statements about a particular symptom of depression arranged

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in order of increasing severity. High scores suggest intense depression.

Table 1 *- Descriptives*

Scales/tasks		α	*Mean (SD)*
CERQ	Maladaptive self-referential thinking	.83	10.03 (2.53)
BDI	Total	.86	7.08 (6.10)
Alphabet task (RTs)	SO		765.00 (155.82)
	Switch from SI to SO		1404.87 (402.83)
	SI		3392.95 (857.99)
	Switch from SO to SI		4541.18 (1046.82)
Working memory			12.46 (2.58)

Notes: For ease of interpretation, raw scores are presented for the alphabet task, although further statistical analyses are conducted on the logarithm of these variables. BDI = Beck Depression Inventory; CERQ = Cognitive Emotion Regulation Questionnaire; RTs = reaction times; SO = stimulus-oriented condition; SI = stimulus-independent condition.

RESULTS

Cronbach's α coefficients, mean scores, and standard deviations for the scales are

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presented in Table 1. The Cronbach's α coefficients suggest that both the BDI and the maladaptive self-referential thinking factor of the CERQ show good internal consistency (.86 and .83, respectively).

Mean RTs in the alphabet task were then examined through an analysis of variance (ANO- VA) with two within-subject factors: Phase (stimulus oriented vs. stimulus independent) and Switch (switch trial, i.e., immediately following a switch between the two phases, vs. non-switch trial). Outliers were not removed, but the RTs were transformed by using natural logarithm to decrease the skewness of their distribution. The analyses revealed a significant main effect of Phase, $F(1, 73) = 2165.5$, $p < .0001$, stimulus- independent trials being slower than stimulus- oriented trials, and Switch, $F(1, 73) = 550.00$, $p < .0001$, Switch trials being slower than Non- Switch trials. In addition, the Phase × Switch interaction was significant, $F(1, 73) = 95.6$, $p < .0001$. This significant interaction indicated that, compared with their respective baselines, the switch from the stimulus-independent to the stimulus-oriented condition is larger than the switch from the stimulus-oriented to the stimulus-independent condition. On the whole, an experimental effect of the switch conditions, compared with their respective baselines, was found (see Gilbert et al., 2005).

CORRELATIONS

As reported in Table 2, dysphoria was significantly related to a higher level of maladaptive self-referential thinking (rumination, self-blame, and catastrophising). The stimulus-independent to stimulus-oriented switch cost was significantly associated with working memory performances and gender, suggesting that men have more difficulty in switching from self-generated thoughts to information provided by the environment. Gender also significantly correlated with working memory performances, suggesting that men have better working memory performances. Finally, the two switch costs positively correlated with each other. Neither dysphoria nor maladaptive self-referential thinking was significantly associated with the two switch costs.

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MULTIPLE LINEAR REGRESSION ANALYSES

In order to test our hypothesis that dysphoria interacts with difficulties in shifting from internal representations to external information, a moderated multiple regression was used. Dysphoria, source switching, gender, working memory, and interaction between dysphoria and both switch costs were included as independent variables. Maladaptive self-referential thinking (mean score from the rumination, self-blame, and catastrophising subscales of the CERQ) was the criterion. All of the independent variables were centred to reduce potential multicollinearity between the main effects and interaction effects in the model (Cohen, Cohen, West, & Aiken, 2003). Furthermore, to control for type I errors, we used the Jaccard and Wan (1996) procedure. In this method, critical alpha is divided by the number of independent variables for the effect with the smallest alpha only. The next alphas obtained are placed in ascending order, and the denominator of the alpha-to-variable quotient is reduced by one for each test until nonsignificance is achieved. Results revealed that maladaptive self-referential thinking was significantly associated with depressive symptoms, β =0.56, $t(66)$ =5.60, p <.001, and with the interaction of switch cost from stimulus-independent to stimulus-oriented phases × depressive symptoms, β =0.35, $t(66) = 3.38$, $p < .01$. The whole model was highly significant, $F(7, 66) = 6.59$, p <.00001, adjusted R^2 =.35.[1]

Exploration of the residuals suggested that they were normally distributed. No sign of multicollinearity was evident (all tolerance indices >.40). This significant interaction was probed by using the approach of Preacher, Curran, and Bauer (2006). We used values at 1 SD above and below the mean of stimulus-independent to stimulus oriented

[1] *Note that difficulties in shifting from internal to external information moderate the relationships between dysphoria and maladaptive self-referential thinking, as reflected by a factor that collapsed these dimensions, as well as by each score taken separately.*

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switch cost to assess the cross-over effect. Figure 1 shows that as this switch cost increases, the slope relating dysphoria to maladaptive self-referential thinking becomes more strongly positive. Probing of the results revealed that the simple slope was significant only at +1 SD of the mean of the stimulus-independent to stimulus-oriented switch cost (t = 6.11, p <.001), but not at -1 SD (t = 0.79, p =.43). Consequently, in accordance with our hypothesis, the effect of dysphoria on maladaptive self-referential thinking is more pronounced for participants who have difficulties in switching from stimulus-independent to stimulus-oriented phases.[2]

However, because of the cross-sectional nature of the data, several alternative models have also been tested. First, a model derived from Muraven (2005) was tested in which maladaptive self-referential thinking alone or in interaction with difficulties in shifting from the stimulus-independent to the stimulus-oriented phases was significantly associated with dysphoria. The results highlighted that only maladaptive self-referential thinking was significantly associated with dysphoria, β =0.50, $t(66)$ =4.53, p <.0001, whereas neither the switch from stimulus-independent to stimulus-oriented phases alone, $\beta = -0.13$, $t(66) = -1.21$, p=.36, nor the interaction of this switch with maladaptive self-referential thinking, β = 0.00, $t(66)$ =0.04, p =.97, was significantly related to dysphoria. Second, because one can argue that the reverse association, that is, maladaptive self-referential thinking alone or in interaction with dysphoria, significantly

[2] *To respond to a referee's comment, we computed an additional regression analysis, including interaction effects between working memory and stimulus-independent to stimulus-oriented switch cost, gender and stimulus-independent to stimulus- oriented switch cost, and the three-way interaction working memory × stimulus-independent to stimulus-oriented switch cost × gender. The results of this analysis showed that only dysphoria is a significant predictor of maladaptive self-referential thinking, $\beta = 0.49$, $t(64) = 4.74$, $p < .00001$, but that neither working memory nor gender interacts with shifting abilities to predict maladaptive self-referential thinking (all ps $>$ .10). However, the sample size might not be large enough to highlight three-way interactions.*

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predicts the switch costs, two additional models were tested. The first one indicated no significant predictor of the stimulus-oriented to stimulus-independent switch cost; in particular, neither maladaptive self-referential thinking, β =—0.16, $t(68)$=—1.12, p =.27, nor maladaptive self-referential thinking × dysphoria, β =0.04, $t(68)$= 0.31, p =.75, was significantly associated with this switch cost. Similarly, neither maladaptive self-referential thinking, β = 0.14, $t(68)$ =1.10, p =.27, nor maladaptive self-referential thinking × dysphoria, β =0.19, $t(68)$ = 1.45, p =.15, was significantly associated with the stimulus-independent to stimulus-oriented switch cost.

Table 2. *Pearson zero-order correlations*

	1	2	3	4	5	6	7	8
1. Age	—							
2. Education	.49**	—						
3. Gender	.08	.05	-—					
4. Dysphoria	—.22	—.21	—.22	—				
5. Maladaptive self-referential thinking	-—.05	-—.05	—.23	.23	.50**			
6. Working memory	.20	.22	.25	.08	.02	—		
7. SI-to-SO switch cost	-—.09	.06	.30*	—.13	.01	.27**	—	

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8.	SO-to-SI switch cost	—.08	-—.09	-—.14	.09	-—.05	.04	.025**	—

*Notes: Pearson's point-biserial correlation was used to evaluate the effect of gender on the other variables. Women were set at —1 and men at + 1. SI = stimulus-independent condition; SO = stimulus-oriented condition. *p <.05; **p <.001.*

DISCUSSION

This study examined the association between dysphoria, a source switching mechanism involved in the flexible allocation of attention between self-generated thoughts and information provided by the environment, and maladaptive self-referential thinking. In line with our hypotheses, results demonstrated that dysphoria is associated with more frequent maladaptive self-referential thinking (such as rumination, self-blame, and catastrophising), especially for participants who have difficulties in voluntarily disengaging their attention from self-generated thoughts and redirecting it towards the external environment. Thus, source switching moderated the effect of dysphoria on the use of maladaptive self-referential thinking, even when gender and working memory performances were controlled for.

Figure 1 *- Maladaptive self-referential thinking as a function of stimulus-independent (SI) to stimulus-oriented (SO) switch cost and dysphoria. Solid line = 1 SD above the mean of SI-to-SO switch cost. Dotted line = 1 SD under the mean of SI-to-SO switch cost. Note that the independent variables have been previously centred, resulting in negative values.*

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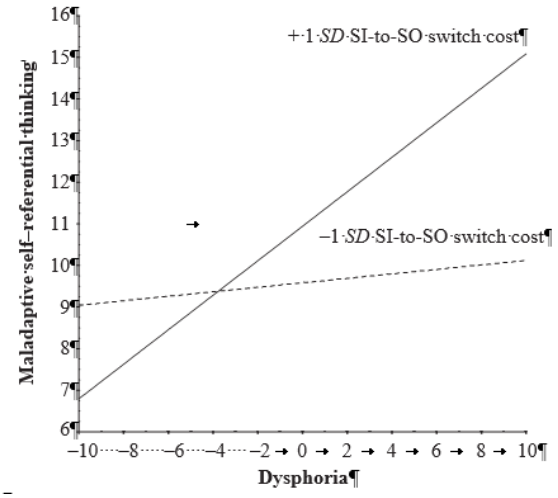

The association between dysphoria and switch cost in predicting maladaptive self-referential thinking, although the reverse association is not significant, is a relevant result in the interpretation of the data. Indeed, this suggests that the relationships between maladaptive self-referential thinking (including rumination) and impaired switch abilities are not simply due to the depletion of cognitive resources by, for instance, rumination. Similarly, difficulties in source switching could not be considered a by-product of dysphoria because dysphoria and source switching did not correlate with each other. In addition, because individual differences in working memory capacity were unrelated to maladaptive self-referential thinking associated with dysphoria, maladaptive self-referential thinking is not merely the result of poorer general executive functioning. Finally, contrary to the results of Muraven (2005), our results did not indicate that self-referential thinking interacted with the switch costs to predict dysphoria. A direct comparison between Muraven's study and the current one is difficult because of methodological differences regarding the questionnaires and the laboratory task used. However, because of the strong links between rumination and depressive symptoms, it is possible that the association between self-focus proneness and switching to predict dysphoria, as described in Muraven (2005), actually relies on the relationships between cognitive

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control impairments and rumination (or other maladaptive self-referential thinking).

The current study adds to a growing literature linking maladaptive self-referential thinking (e.g., rumination) to specific executive control processes, such as set shifting (Davis & Noelen-Hoeksema, 2000; De Lissnyder et al., 2010; Whitmer & Banich, 2007). However, our results suggest that another shifting-related mechanism should be taken into account when considering the mechanism at play in maladaptive self-referential thinking associated with dysphoria. More specifically, source switching difficulties might be involved in the maintenance of excessive self-referential thinking associated with dysphoria, which might ultimately hinder the relief from negative affect in the long term. Consequently, the inability to shift attentional resources from self-generated thoughts to information provided by the environment might make self-referential thinking potentially harmful for dysphoric per- sons. In this context, individuals might become mentally 'stuck' in self-focused thinking, which increases the availability of negative self-relevant schema that contribute to the maintenance or increase of the negative mood. Therefore, our results have some clinical relevance, particularly regarding psychological intervention. Indeed, our findings confirm that interventions aimed at changing attentional focus constitute a relevant approach for therapeutic work with depressed persons (see Wells, 2009).

However, because of the cross-sectional nature of the study, whether difficulties in source switching are a cause or consequence of maladaptive self- referential thinking remains unclear. Consequently, longitudinal studies are needed to better appraise how source switching impairments contribute to the development and/or maintenance of maladaptive self-referential thinking and impede recovery from negative affect in the long term. Another limitation to the study relates to the analogy between self-focus and stimulus-independent thoughts. Self-focus, usually defined as the direction of attention to one's thoughts and feelings and/or to an awareness of self-referent, internally generated information (Ingram, 1990), is not analogous to stimuli-independent thought phases of the alphabet task. Indeed, although attention is directed to

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self-generated information in these phases, participants focus on a mental representation that is highly structured and pre-determined and that does not refer to self-relevant information. Nevertheless, even when a task assessing a shifting mechanism includes self- referent information (e.g., make me/not me judgements of personality trait words), there are no significant direct relationships between switching on the one hand and both dysphoria and self-focus proneness on the other hand (Muraven, 2005). Accordingly, the results of the current study and those obtained by Muraven (2005) might suggest a dissociation between the content of attention (i.e., self-referent and internally generated information) and the allocation of attention on or away from these self referent and self-generated thoughts. From this perspective, our results indicate that the alphabet task measures this flexible allocation of attention between self-generated information and the environment, which might constitute a core mechanism at play in maladaptive self-referential thinking associated with dysphoria.

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