



Interactive effects of self-rumination and self-reflection on severity of depression

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Abstract: Previous researches have indicated that self-focused attention can be divided into adaptive self-reflection and maladaptive ruminative factors. However self-reflection has two aspects, although it can prevent depression, self-rumination may spoil its adaptive effects. The aim of this study was to compare rumination and reflection in individuals with different severities of depression and normal people. Participants included 129 individuals (67 female, 62 male) with mild, moderate, severe or no symptoms of depression that were selected from clients of psychiatric hospitals or mental health center of Shiraz. Depressed subjects were selected based on a clinical interview and scores of Beck Depression Inventory II (BDI-II). Then they were assigned in mild, moderate and severe groups. Normal subjects were selected from people who had no mental disorder based on a clinical interview and scores of BDI-II. All participants completed the revised version of Rumination-Reflection Inventory (Fleckhammer, 2004), which is consisted of private and public subscales. Results showed that rumination increases as depression becomes more severe, but reflection is just lower in severe depression. Reflection in individuals with mild or moderate depression is not significantly different from normal subjects. Also, men and women were not different in rumination and reflection scores. These findings indicate that interactive effects of rumination and reflection vary in different severities of depression and in patients with severe depression; maladaptive effect of rumination can spoil adaptive effects of reflection.

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1.Introduction

Self-awareness or Self-attention is a kind of concentration on internal processes (affect, cognition, attitudes and motives). On the one hand, this tendency toward Self-focus is associated with mental health (Hall, 1992; Trudeau & Reich, 1995; Schmutte & Ryff, 1997). On the other hand, self-focus is correlated with distress and mental disorders (Wood, Saltzberg, Neal, Stone & Rachmiel, 1990; Ingram, 1990 a, b). According to Trapnell and Campbel (1999) this contradiction is due to two aspects of self-focus attention called Self-rumination and Self-reflection. Rumination and reflection are triggered by different motivational dispositions (fear or curiosity). "Self-rumination" is the negative, acute and stable form of self-focus which is provoked by perceived threats or injustices to the self and is related to neuroticism

and depression (Trapnell & Campbel, 1999). Evidences from various studies indicate that ruminative thoughts have damaging consequences such as, negative emotions, depressive symptoms, negative biased thoughts, poor problem-solving,

damaged motivation, inhibition of efficient behaviors, disturbed concentration and cognition, longer periods of depression, more stress and problems and delayed remission of depression followed cognitive-behavioral therapies (Nolen-Hoeksema, Morrow & Fredrickson, 1993; Siegle, Sagarati & Crawford, 1999; Segerstrom, Tsao, Alden & Craske, 2000; Andersen & Limpert, 2001; Harrington & Blankenship, 2002; Joireman, Parrott & Hammersla, 2002; Lyubomirsky & Tkach, 2003).

Self-reflection is the other form of self-focus attention which is provoked by curiosity or interest in knowing oneself and is related to openness experience. Self-reflection can enhance self-awareness and mental health (Trapnell & Campbel, 1999).

Fleckhammer (2004), has discussed about four structures according to Buss (1980), Scheier and Carver (1985). He claims that rumination and reflection can be public or private. Public rumination focused on being aware and concerned about oneself as a social subject or stimulus. Individuals who are high in public rumination always rehash

conversations and events which happened before. These thoughts are especially about public appearance and comparing oneself with others performance. Private rumination is about thoughts and feelings which create the individuals inner world. People with private rumination tend to rehash their negative personal characteristics. Public reflection is a thought process including thinking about oneself as a social subject or stimulus and ones interactions with or effects on the outer world. Public reflection is a philosophy indicating how an Individual thinks about his/her interactions with other people and the world. Private reflection is a thought process including a philosophical discovery of the self. It is a special procedure of thinking which enhances Self-awareness and lead to a better understanding of the inner world such as feelings and thoughts.

Trapnell and Campbel (1999), based on rumination and reflection introduced four cognitive styles adaptation with negative experiences: Sensitizing (high reflection, high rumination), Repressive (low reflection, low rumination), Vulnerable (low reflection, high rumination), Adaptable (high reflection, low rumination).

Research showed that "reflective pondering" in order to understand the reason of depressed mood can predict improvement of depression in a one-year follow up (Treyner , Gonzalez & Nolen-Hoeksema , 2003), and has no significant correlation with suicidal ideation(Surrence, Miranda, Marroquin & Chan, 2009). But, brooding which is excessive thinking about negative consequences of depressive symptoms predicts increasing of depression in future (Treyner et al,2003) and is associated with suicidal ideation (Surrence et al, 2009).

Jones, Papadakis, Hogan & Strauman (2009), reported that in people with high rumination failure in achieving goals is related to depressive symptoms. In contrast, in people with high reflection failure in achieving goals is not related to increased depressive symptoms.

Verstraeten, Vasey, Raes & Bijttebier(2010), showed that brooding, but not reflection, predicts all depressive symptoms and higher levels of brooding predicts higher scores in depression but reflection does not predict depression. However, they reported after controlling depression baseline scores, in children younger than 9 years old, higher levels of reflection was correlated with higher levels of depression after a one year follow-up period. While in children older than 11 years old high reflection was related to less depressive symptoms. They concluded high reflection plays a protective role in adults but not in children.

Previous researches indicated that reflection can influence the effects of rumination (Preece, De

longis, Trapnell & Campbel, 1998; Trapnell and Campbel, 1999; Joireman, 2004). Reflection may moderate the effect of rumination or a ruminative adjustment style in a dyadic interaction (Trapnell & Campbel, 1999). Preece et al (1998) found that if women have a close relationship with their husbands who have a good self-reflection, the risk of depression would decrease significantly. So, reflection can moderate the negative effects of ruminative thinking style and acts like a buffer against these effects.

Although there is an agreement that self-rumination leads to maladaptive self-focus and is related to depression, adaptive nature of reflection is not confirmed yet. Some research reported negative effects of reflection and showed it has a positive correlation with depression (Rude, Maestes & Neff, 2007). Although reflection may be an adaptive cognitive style which helps individuals in problem-solving or regulating their mood, rumination can change its positive effect to a negative one (Joormann, Dkane& Gotlib, 2006; Takano & Tanno, 2009).

Rumination can lead reflection to become rumination and simultaneous reflection about self (Miranda & Nolen-Hoeksema, 2007). It is possible that a permanent cycle develops between reflective and ruminative components and the difference between adaptive and maladaptive cognitive styles disappears (joorman et al, 2006). Reflectors engages in his/her rumination and would stay in the incorrect cycle of self-rumination and depression (Nolen - Hoeksema, Stice, Wade&Bohon, 2007).

McIlwain, Taylor, Geeves (2010), argued that temporary of reflection is important. Adaptive effect of reflection is contaminated by the maladaptive effect of rumination when individuals are not successful at generating solutions during their problem-solving attempts (Miranda & Nolen-Hoeksema, 2007). While rumination is a general risk factor for abnormality, reflection can possibly help psychological adjustment and also inhibit it (Trapnell & Campbel, 1999).

Previous researches showed that rumination in depressed patients is longer, intruder, retrospective and more difficult to control or interrupt (Papageorgiou & Wells, 1999b). Depressed patients insist on the meaning , reasons and consequences of their feelings and symptoms and are not able to distract their attention from their mood(Nolen-Hoeksema et al.1993).They ruminate passively and rarely use active and goal oriented problem solving in order to cope with negative life events(Nolen-Hoeksema& Morrow,1991). In contrast, ruminative thoughts in normal individuals are more positive, optimistic and problem-focused (Lyubomirsky,

Tucker, Caldwell & Berg, 1999). They usually use substitution methods such as, normal and pleasant distraction to avoid rumination and if necessary use effective problem-solving (Nolen-Hoeksema & Morrow, 1991). Lyubomirsky, Caldwell & Nolen-Hoeksema (1998), showed that manipulating rumination in normal people does not develop depressed mood in them. They concluded a combination of emotional distress and rumination would maintain depressed mood.

One of the most dominant findings in depression literature is that women suffer from depression two times more than men. Previous researches indicated that women have more rumination than men. They possibly focus on their emotional state when they are upset or depressed which will intensify their negative emotions. So, rumination is a mediator for gender differences in depression (Nolen-Hoeksema, Larson & Grayson, 1999; Nolen-Hoeksema, 1987; Nolen-Hoeksema, Parker & Larson, 1994; Luyckx, Soenens, Berzonsky, Smits, Goossens & Vansteenkiste, 2007). In contrast, men tend to focus on problem solving strategies to reduce negative affect and usually have self-reflection more than women (Luyckx et al. 2007). According to Verstraeten et al. (2010), lower levels of reflection in boys predicted higher levels of depression after one year, but reflection had no significant correlation with depressive symptoms in girls.

The aim of present study is to investigate the difference between rumination and reflection and their dimensions (private and public) in individuals with different severities of depression (mild, moderate & severe) and normal people in order to evaluate interactive effects of rumination and reflection on depression severity. Also, we will compare these differences in men and women separately.

2. Method

Participants and procedure

This study was a Causal-comparative research consisted of four groups with different severities of depression. Symptoms severity and variables were evaluated by self-report questionnaires. Participants were assigned in to different groups based on their scores on Beck Depression Inventory II. Intervening variables in our sample included physical disease, addiction and any mental disorder other than the main diagnosis. In normal group, subjects with any mental or physical disorder, brain injury and addiction were excluded from the study. All groups were matched by Chi-square test for their age ($\chi^2=3.27, df=6, p=0.77$) gender ($\chi^2=0.81, df=3, p=0.84$), education ($\chi^2=7.28, df=15, p=0.94$) and marital status ($\chi^2=0.22, df=3, p=0.97$). participants were 129 individuals consisted of 67

female and 62 male with mild (16 male, 14 female), moderate (14 male, 19 female), severe (16 male, 18 female) or no symptoms of depression (16 male, 16 female) who were selected through Judgmental sampling from clients of psychiatric hospitals or counseling clinics of Shiraz, Iran. Patients were assigned into three groups based on their scores on Beck Depression Inventory II. Normal subjects were selected through Judgmental sampling and based on a clinical interview and BDI-II scores. In order to determine differential validity of Rumination-Reflection Inventory, 12 women with obsessive-compulsive disorder were selected through Judgmental sampling and based on a clinical interview from clients of psychiatric hospitals and their scores were compared with normal subjects.

Measures

Beck Depression Inventory II (BDI-II):

This is a 21-item self-report inventory for evaluating depression severity in adults and adolescents older than 13. This version is used to evaluate depression disorder symptoms according to DSM-IV. In fact, BDI-II can reveal existence and severity of depressive symptoms. Adequate reliability and validity are reported for this measure. In the present study Cronbach's alpha coefficient of 0.94 was calculated which shows good reliability of this inventory.

Revised version of rumination-Reflection questionnaire (RRQ):

This questionnaire was first developed by Trapnell and Campbell (1999) in order to assess rumination and reflection. Then, Fleckhammer, (2004) revised it to differentiate public and private dimensions of rumination and reflection. This questionnaire has 24 questions which half of them are about rumination and the others are about reflection. Both rumination and reflection include private and public dimensions. In the present study, validity and reliability of the Persian version of this scale was calculated. Test-retest reliability (over a 2-weeks period), on 20 normal subjects (11 women, 9 men) who were selected through Judgmental sampling, was 0.83, 0.91 and 0.90 for private and public dimensions and total score in rumination, respectively. Test-retest reliability for private, public and general reflection was 0.90, 0.91 and 0.86, respectively ($P < 0.0005$). Cronbach's alpha was 0.91 for rumination in general and 0.81 and 0.86 for private and public rumination, respectively. Also, alpha coefficient was 0.79 for reflection in general and 0.70, 0.63 for private and public reflection. In order to assess differential validity, patients with obsessive-compulsive disorder (OCD) (12 women with OCD) were compared to normal individuals ($N=32$). Conducting an independent sample t-test revealed that total scores of

rumination and reflection and their dimensions are significantly different between OCD patients and normal group. Such that in OCD patients, rumination and its dimensions are higher than normal people, while reflection and its dimensions are lower ($P<0.0005$). Also, in order to assess validity, Correlations between private and public rumination with total score of rumination were 0.96 and 0.97, respectively and correlations between private and public reflection with total score of reflection were 0.90 and 0.89 respectively ($P<0.0005$).

3.Results

To assess the difference of rumination and reflection between groups, one-way analysis of variance was conducted. Multivariate analysis of

variance (MANOVA) and two way analysis of variance were used in order to investigate the difference of private and public dimensions and gender differences respectively.

The difference in rumination and its private and public dimensions:

To compare mean differences in rumination between groups, one way ANOVA was conducted. MANOVA was used to compare public and private rumination scores. Table1 shows descriptive statistics and results of ANOVA for comparing rumination and its dimensions between patients with different severities of depression and normal people.

Table1: Descriptive statistics and one way ANOVAs analyses of rumination and private and public rumination between patients with different severities of depression and normal people

<i>Dependent variables</i>	<i>Groups</i>	<i>Mean</i>	<i>SD</i>	<i>F</i>
Rumination	Normal subjects	30.18	8.16	70.04*
	Mild Depression patients	39.633	6.04	
	Moderate Depression patients	45.12	5.80	
	Severe Depression patients	52.82	5.79	
Private Rumination	Normal subjects	15.09	3.97	56.30*
	Mild Depression patients	19.43	3.38	
	Moderate Depression patients	21.96	3.87	
	Severe Depression patients	26.23	2.94	
Public Rumination	Normal subjects	15.09	4.76	64.18*
	Mild Depression patients	20.20	2.98	
	Moderate Depression patients	23.15	2.53	
	Severe Depression patients	26.58	3.22	

* $p<0.05$

Data analysis showed that rumination and private and public rumination in patients with severe depression is higher than three other groups, and normal groups' scores in rumination are lower than other groups. Conducting MANOVA indicated that all groups are significantly different in private and public rumination. Eta square based on Wilks was almost high which shows good effect size ($F(6,248)=27.31$, $P<0.0005$; Wilks Lambda=0.36; Partial eta squared=0.39).

Scheffe post hoc test showed that rumination and its both dimensions are significantly different between normal people and patients with mild depression ($P<0.0005$), normal people and patients with moderate depression ($P<0.0005$), normal people and patients with severe depression ($p<0.0005$). Also, patients with mild and moderate depression are significantly different in rumination and public rumination ($P=0.01$), but not in private rumination ($P=0.052$). Moreover, mild and severe depressed individuals ($P<0.0005$), moderate and severe

depressed individuals were different in rumination, private rumination ($P<0.0005$) and public rumination ($P=0.01$).

In fact rumination and its dimensions were significantly different between all severities of depression, except between mild and moderate depressed patient who aren't different in private rumination.

The difference in reflection and its private and public dimensions:

To compare mean differences in reflection between groups one-way ANOVA was conducted. MANOVA was used to compare public and private reflection scores. Table2 shows descriptive statistics and results of ANOVA for comparing reflection and its dimensions, between patients with different severities of depression and normal people.

Data analysis showed that reflection and both private and public reflection in patients with severe

depression is lower than other groups. MANOVA showed that all groups are significantly different in private and public reflection. Eta square based on

Wilks was almost high which implies a good effect size. ($F(6,248) = 10.20$, $P < 0.0005$, Wilks Lambda=0.64; Partial eta squared=0.19).

Table 2: Descriptive statistics and one way anova analyses of reflection and private and public reflection between patients with different severities of depression and normal people

<i>Dependent variables</i>	<i>Groups</i>	<i>Mean</i>	<i>SD</i>	<i>F</i>
Reflection	Normal subjects	45.09	6.07	20.50*
	Mild Depression patients	45.33	5.18	
	Moderate Depression patients	43.96	6.01	
	Severe Depression patients	35.17	7.13	
Private Reflection	Normal subjects	23.15	3.96	20.50*
	Mild Depression patients	23.76	2.66	
	Moderate Depression patients	22.30	3.26	
	Severe Depression patients	17.64	3.97	
Public Reflection	Normal subjects	21.93	3.36	11.56*
	Mild Depression patients	21.56	3.20	
	Moderate Depression patients	21.66	3.42	
	Severe Depression patients	17.52	4.16	

* $p < 0.05$

Scheffé post hoc test indicated that reflection and its both dimensions aren't significantly different between normal people and patients with mild or moderate depression and mild depressed patients with moderate depressed patients. But normal people and patients with severe depression, mildly and severely depressed patients, and moderately and severely depressed patients are significantly different in reflection and private and public reflection ($P < 0.0005$). In fact, reflection and its private and public dimensions are only significantly different in patients with severe depression compared to other groups.

Comparison of rumination and reflection in men and women:

To compare mean differences in rumination and reflection in different severities of depression between men and women a two way analysis of variance was conducted. In this section we used a 2*4 design. The first factor was severities of depression which include normal, mild, moderate and severe levels and the second factor was gender including male and female.

According to results (Table 3) the main effect of depression severities on rumination and reflection is significant, but the main effect of gender for rumination ($P = 0.08$) and reflection ($P = 0.06$) and also interaction of depression severities and gender for rumination ($P = 0.13$) and reflection ($P = 0.57$) were not significant. In general, these results show that, men and women with different severities of depression are not significantly different in rumination and reflection.

4. Discussion

The aim of present study was to compare rumination, reflection and their private and public dimensions, between patients with mild, moderate or severe depression and normal people in order to investigate the interactive effect of rumination and reflection on severity of depression. Data analysis revealed that rumination and its private and public dimensions are significantly different in patients with all severities of depression except mildly and moderately depressed patients which are not different in private rumination. Reflection and its private and public dimensions are only different in severely depressed patients in comparison with other groups.

Table 3: Two ways ANOVA in order to compare mean differences in rumination and reflection in different severities of depression between men and women

<i>Dependent variables</i>	<i>Factors</i>	<i>Sum of squares</i>	<i>df</i>	<i>Mean square</i>	<i>F</i>
Rumination	Depression severities	8837.15	3	2945.71	71.98*
	Sexuality	121.21	1	121.21	2.96
	Depression severities* Sexuality	230.87	3	76.95	1.88
	Error	4951.36	121	40.92	
Reflection	Depression severities	2318.36	3	772.78	20.47*
	Sexuality	127.50	1	127.50	3.37
	Depression severities* Sexuality	75.47	3	25.15	0.66
	Error	4566.59	121	37.74	

*p<0.05

Interactive effects of rumination and reflection on severity of depression:

According to the findings of present study, people with different severities of depression are not the same in the degree of rumination (private and public) and by increasing the severity of depression, rumination will increase too. Reflection (private and public), is only decreased in patients with severe depression, but people with mild and moderate depression do not differ from normal individuals in reflection and it's private and public dimensions. Normal people have lower rumination (private and public) than other groups since rumination in these people is more positive, optimistic and problem-focused (Iyubomirsky et al, 1999). Reflection which is an adaptive cognitive style and can enhance self-awareness, mental health and independence of an individual, is higher in normal subjects (Fleckhammer, 2004). According to Trapnell and Campbell (1999), normal people have possibly adaptable cognitive style (high reflection, low rumination). This implies that, higher reflection in normal people can reduce damaging effects of rumination and lead people toward a better problem-solving, self-awareness and self-reflection and help them to manage their thoughts. This finding confirms previous researches regarding the impact of reflection on negative effects of rumination (Preece et al. 1998, Trapnell & Campbell, 1999, Joireman, 2004).

However, rumination in depressed patients is longer, retrospective, intruder and more difficult to control (Papageorgiou, Wells, 1999b). Since our results indicated that mildly and moderately depressed patients are significantly different in rumination and public rumination, but not in private rumination, hence, this people have the same private rumination. Also, reflection (private, public) in these

groups is the same as normal people, we according to Trapnell and Campbell (1999), can conclude that they have probably sensitive cognitive style (High reflection, high rumination). There is no research comparing rumination and reflection in people with different severities of depression in the literature. It is possible that reflection in these two groups be like a double-edged sword. On the one hand, it is contaminated by rumination and on the other hand, prevents worsening of depression due to its adaptive and moderating nature. So, a permanent cycle is formed between ruminative and reflective components and the difference between adaptive and maladaptive cognitive styles, disappears (Joormann, et al. 2006).

Moreover, as these groups do not differ in private rumination, we can say that, public rumination cause's their higher depression and in patients with moderate depression, public rumination and focusing on being aware and concerned about oneself as a social subject or stimulus, is higher than concentration on inner thoughts and feelings (Fleckhammer, 2004).

Severely depressed patients have higher rumination (private and public) and lower reflection (private and public) than other groups. Although reflection can modify the effect of rumination (Trapnell and Campbell, 1999), it is weak in patients with severe depression and transform to rumination, which captures these patients in incorrect cycle of rumination. These patients probably have vulnerable cognitive style (low reflection, high rumination). High rumination reduces their tendency to engage pleasant and distracting activities and induces a sense of control their life. They focus on failures and limitations instead of philosophical discovering their inner world. One can conclude that reflection

contaminated by continuous and excessive rumination and lose its positive and adaptive effect. This finding is consistent with Mellwain et al. (2010), Takano and Tanno (2009), Nolen-Hoeksema et al. (2006), Miranda and Nolen-Hoeksema (2007), Joormann et al. (2006), Trapnell and Campbell (1999), who argued reflection, may be spoiled by rumination.

The Difference of rumination and reflection in men and women:

In present study rumination and reflection were not significantly different between men and women. This finding is not consistent with previous researches indicated women have more rumination and men gain higher scores in reflection (Luyckx et al. 2007, Nolen-Hoeksema et al. 1999, 1994, 1987). It is possible that previous findings are generally about men and women not depressed men and women. Since it is more likely that women have depression, they probably have more rumination, but in a depressed people, men and women are not necessarily different in rumination.

Conclusion

In general, findings of present study indicated that rumination and reflection are not the same in patients with different severities of depression and it is necessary to consider this fact in prevention and treatment of depression as the most prevalent disorder in the world. According to this finding we can conclude that treatment of patients with different severities of depression is not the same. Such that in mildly and moderately depressed patients, we should focus on enhancement of reflection and providing situations for experiencing this kind of thinking. Because the modifying effect of reflection can prevent rumination and future depression. But, in severe depression patients, should be guided toward overcoming ruminative thoughts and treatment includes focusing on cognition, metacognition and education of distracting attention to the patients. Recognizing patient's cognitive style, means whether he/she is a self-ruminator or self-reflector, can help the psychotherapist to evaluate the effectiveness and outcome of his therapeutic method. He can use this knowledge in order to predict, potential problems of therapeutic relationship. Different styles of information processing have important implications for efficacy of therapy options and probably outcomes. Clients with ruminative style have a negative self-focus which increase their vulnerability for some kinds of mental distress. While clients with reflective style are more appropriate for

psychotherapy. There are methodological considerations related to the present research that should be considered when interpreting its findings. First, the findings are from self-report methodology. Self-report methods limit the interpretative capability of research findings. Future research is needed to include longitudinal designs to examine casual relations between psychopathology and ruminative and reflective thoughts. Also, future researches is needed to explore the effect of positive thinking, thought control and self-reflective thought training on reducing rumination and depressive symptoms.

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