
IMPLICIT AND EXPLICIT SELF-ESTEEM AND IRRATIONAL BELIEFS

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Abstract

The relationship between irrational beliefs and explicit and implicit self-esteem was examined in two consecutive studies (N1 = 117; N2 = 102) conducted on undergraduate university students. Two robust findings were the negative correlation between explicit self-esteem and self-downing, a particular type of irrational belief and the absence of a correlation between implicit self-esteem and any type of irrational belief. These findings suggest that disputing irrational beliefs within therapeutic interventions may affect explicit cognitions only, while implicit cognitions remain unaffected.

Keywords: implicit self-esteem, explicit self-esteem, irrational beliefs, self-acceptance, REBT

One of the key issues in Rational Emotive Behavioral Therapy (REBT) (Ellis, 1994) is identifying and disputing core irrational beliefs and replacing them with rational beliefs. The positive consequences of this approach on various mental health issues have been widely underlined in several meta-analyses using both adult samples (Engles, Garnefski & Diekstra, 1993; Lyons & Woods, 1991) and adolescents and children samples (Gonzalez, Nelson, Gutkin et al., 2004; Hajzler & Bernard, 1991).

However, this approach is considered limited by some researchers who focused their attention on behavioral problems such as addictive behaviors (Wiers & Stacy, 2006). Their view is that people continue to use drugs even though they realize it is harmful for them and even though they are able to set up rational arguments against drug consumption. Research on implicit and automatic processes has shown that behavior is partly governed by automatically triggered stimuli or impulses (e.g., a fast associative system which includes the automatic appraisal of stimuli) in addition to a reflective system, which includes controlled processes and deliberated regulation of cognitions, emotions and actions (Strack & Deutsch, 2004).

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Similar to irrational beliefs, self-esteem (actually, explicit low self-esteem) has been correlated with a variety of psychological distress outcomes such as depression (e.g., Abela, 2002), anxiety (e.g., Lohr & Bonge, 1981), eating disorders (e.g., Cervera, Lahortiga, Martinez-Gonzalez et al., 2003) and so on. More recent research has focused on implicit self-esteem, which was presumed to be “preconscious, automatic, nonverbal, associative, rapid, effortless, concrete, holistic and intimately associated with affect” (Epstein, 2006, p. 69). The relationship between explicit and implicit self-esteem seems to be almost orthogonal, two meta-analyses finding a small correlation between the two concepts (of around .12) (Hoffmann, Gawronski, Gschwendner, Le & Schmitt, 2005; Krizan & Suls, 2008). However, implicit self-esteem measures are only weakly correlated with measures of psychological well-being (Buhrmester, Blanton & Swann, 2010), while specific combinations of implicit and explicit measures have led to very interesting outcomes. For instance, people with high explicit self-esteem and low implicit self-esteem are more defensive and self-enhancing (Jordan, Spencer & Zanna, 2005), while people with incongruent self-esteem as compared with people with congruent self-esteem, are more prone to anger suppression, adopt a more depressive attributional style, and experience more days of impaired health (Schröder-Abè, Rudolph & Schütz, 2007). New concepts such as defensive or fragile self-esteem (high explicit, low implicit) or damaged self-esteem (low explicit, high implicit) have been proposed as sources of increased risk for psychological vulnerability (Bosson, Brown, Zeigler-Hill & Swann, 2003; Schröder-Abè, Rudolph & Schütz, 2007).

The focus of this research is to look at the relationship between implicit and explicit self-esteem and irrational beliefs; more precisely, we were interested to see if both measures of self-esteem are valid predictors of irrational beliefs as described in the REBT model. Even though the presence of a correlation in a non-experimental design will not allow cause-effect inferences, the absence of an association, for instance between implicit self-esteem and core irrational beliefs, could provide a clue concerning the behavioral system affected by disputing irrational beliefs during the REBT process.

Previous research has shown there is an association between explicit self-esteem and some irrational beliefs. Thus, Greiger (1975) suggested that certain irrational beliefs influence the development of low self-esteem, while Daly and Burton (1983) found a significant, negative correlation between self-esteem and irrational beliefs. The same two authors found four specific beliefs to be predictors of low self-esteem: demand for approval, high self-expectations, anxious overconcern and problem avoidance. Similar results were obtained by McLennan (1987) who found negative correlation between self-esteem and six irrational beliefs: demand for approval, high self-expectations, frustration reactivity, anxious overconcern, problem avoidance and helplessness. A similar finding was reported by Cramer (2009), who found a negative association between explicit self-esteem and demand for approval.

In classical cognitive theory, self-esteem is seen both as part of an emotional problem, and as a consequence of having a disorder or as a vulnerability factor to developing a particular disorder (Fennell, 1998). In this model, it is suggested that the essence of low self-esteem lies in global (“me as a person”) negative core beliefs about the self, which in REBT has are known as self-downing beliefs (Ellis, 1994). However, in REBT (Neenan & Dryden, 1999), theorists differentiate between self-esteem (which is conditional on the outcome valence) and unconditional self-acceptance (the person regards herself as worthwhile no matter of a particular outcome, because he or she accepts the idea of fallibility). In REBT, focusing on increasing self-esteem, instead of unconditional self-acceptance is unhealthy and to be avoided since: (a) self-esteem is irrational process, due to the fact that there are no objective bases for making global evaluations of one’s self; (b) focusing on self-esteem makes the person vulnerable to life’s little setbacks and rejections; (c) self-esteem can lead to comparisons with others, at the expense of engaging in healthy and productive pursuits, and to high emotional vulnerability to criticism (Chamberlain & Haaga, 2001; Davies, 2006; Ellis, 1994). Therefore, a unique feature of REBT compared to “self-esteem boosting therapies” is the insistence on giving up self-evaluation practices and on replacing the notion that humans need value or esteem with one that seeks to promote self-acceptance unconditionally, regardless of individual traits or behaviors.

Despite these theoretical differences between explicit self-esteem and unconditional self-acceptance, the two variables highly correlate (Chamberlain & Haaga, 2001). Moreover, data from experimental research show that REBT, as well as other CBT interventions, improve self-esteem (Warren, McLellarn & Ponzoha, 1988; Watson, Gordon, Stermac et al., 2003; Whelan, Haywood & Galloway, 2007), and this outcome is more powerful for therapies that specifically focus on disputing dysfunctional beliefs linked to a low self-esteem (Nielsen, Horan, Keen & St. Peter, 1996) than on disputing dysfunctional beliefs unrelated to self-esteem.

On the other hand, no previous study has focused on the relationship between implicit self-esteem and irrational beliefs. Similarly, no previous study aimed to establish if there is an association between the level of irrational beliefs and the degree of discrepancy between implicit and explicit self-esteem. Wiers, Van de Luitgarden, Van den Wildenberg, and Smulders’ (2005) findings relating to a cognitive-behavioral intervention in problem drinkers suggest that cognitive interventions are better suited to change explicit cognitive processes than to change implicit ones, although implicit cognitions seem to play an important role in relapse (Wiers & Stacy, 2006). Therefore, we expect a stronger link between irrational beliefs and low explicit self-esteem, than between irrational beliefs and implicit self-esteem.

In this research, we looked at the relationship between irrational beliefs and both explicit and implicit self-esteem. The taxonomy of irrational beliefs used

in this study was proposed by Lindner, Kirkby, Wertheim and Birch (2007), who referred to six different types of irrational beliefs: achievement, approval, comfort, justice, self and others, that could be summed up in an overall score for irrational beliefs. Explicit self-esteem was operationalized as feelings of self-worth or the global evaluation of the self (Bosson & Swann, 2009; Rosenberg, 1965). Implicit self-esteem was operationalized by using the implicit association test (IAT), which is the most popular measure of implicit self-esteem (Buhrmester, Blanton & Swann, 2010).

We hypothesized that: (a) explicit self-esteem is negatively correlated with irrational beliefs, whereas implicit self-esteem is independent of the level of irrationality (and this pattern of association is particularly enhanced in the case of self-downing irrational beliefs which are seen as core beliefs for a low self-esteem); (b) a higher level of irrational beliefs is found in persons with incongruent self-esteem compared with people having a congruent high self-esteem.

STUDY 1

Method

Participants

Young adults (N = 117, 67% females, $M_{age} = 20.2$ years, $SD_{age} = 2.1$, age range: 18-29) were recruited via announcements made public on the university's undergraduate group discussion lists. A convenience sampling procedure was used in this study.

Instruments and procedure

The General Attitudes and Beliefs Scale – Short Version (GABS-SV) (Lindner et al., 2007) is a short scale that measures a global score for irrational beliefs, as well as six specific areas of irrationality: achievement, approval, comfort, justice, self-downing and other-downing. In this study, the internal consistency for the scales ranged from .57 for other-downing to .85 for self-downing. The internal consistency for the overall score of irrationality was .86. Higher scores indicate a higher level of irrational beliefs.

The Rosenberg (1965) Self-Esteem Scale assesses explicit positive and negative attitudes about the self. The scale consists of 10 Likert-type items ranging from 1 (strongly agree) to 4 (strongly disagree) and has an excellent internal consistency (.90) on the Romanian sample included in this study. Higher scores indicate a high level of explicit self-esteem.

A version of the *Implicit Association Test (IAT)* was used to measure the level of implicit self-esteem (Bosson, Swann & Pennebaker, 2000). In this task, respondents have to categorize target words into correct categories related to self or others, and to rate them as pleasant/unpleasant by pressing a particular key on a keyboard. People who possess high implicit self-esteem are more prone to

associate self with pleasant words and others with unpleasant words than to associate self with unpleasant words and others with pleasant words. Higher scores indicate higher levels of implicit self-esteem. The algorithm for computing the *d* score was described by Greenwald, Nosek and Banaji (2003), and the internal consistency for this measure, in the present study, was .67.

Participants who agreed to take part in the study signed an informed consent form and received extra credit for their effort. The paper and pencil tasks were completed after signing the consent form, followed by the computer IAT task, as a measure of implicit self-esteem.

Results

Table 1. Mean, standard deviations and inter-correlations among study's variable (N=117)

Variables	1	2	3	4	5	6	7	8	9
<i>Criteria – Irrational beliefs</i>									
1. Irrational beliefs (overall)	--								
2. Self-downing	--	--							
3. Other-downing	--	.13	--						
4. Achievement	--	.27	.19	--					
5. Approval	--	.37	.23	.47	--				
6. Comfort	--	.19	.03	.38	.41	--			
7. Justice	--	.20	.34	.48	.47	.40	--		
<i>Predictors – Self-esteem type</i>									
8. Explicit self-esteem	-.07	-.26	.08	.00	-.02	-.08	.00	--	
9. Implicit self-esteem	-.03	.01	.00	-.10	.05	.01	-.06	.00	--
10. Interaction term	.07	.09	-.08	.10	.05	.01	.09	.05	.24
Means	61.7	6.9	8.1	12.7	7.9	12.8	13.3	26.4	.50
SDs	11.8	3.0	2.4	3.5	2.4	3.1	3.2	1.8	.31

Bold fonts for significant correlations at $p < .01$

Table 2. A summary table of hierarchical regression estimating the self-downing irrational beliefs and the overall irrationality score based on the two types of self-esteem (SE)

Self-downing beliefs	R ²	ΔR ²	β	Overall irrational beliefs	R ²	ΔR ²	β
<i>Step one</i>							
	.056 *				.004 ns		
1. Explicit SE			-.24*				-.05
2. Implicit SE			.01				-.03
<i>Step two</i>							
	.066 *	.010 ns			.012 ns	.008 ns	
1. Explicit SE			-.24*				-.06
2. Implicit SE			-.02				-.05
3. Interaction term			.11				.09

* for $p < .05$, ns for statistically not significant associations

Preliminary data analysis presented in Table 1 shows, with one exception, no significant correlations between irrational beliefs and the two types of self-esteem. The only significant association was found between self-downing and explicit self-esteem, the higher the level of irrationality, the lower the self-esteem level.

Based on these basic statistical results, hierarchical regressions were run only for self-downing beliefs and for the overall score of irrationality that contains the subscale of self-downing among other areas of irrationality (Table 2). As can be seen in Table 2, we reversed the order of variables within our regression equations. Although the REBT theory states that irrational beliefs should be predictors of the self-esteem level, we used them as criteria, while levels of explicit and implicit self-esteem were the predictors. This decision was taken because it allowed us to look simultaneously at the relationship between both types of self-esteem and irrational beliefs, as well as to test their interactive effect, without affecting the degree of relationship between irrational beliefs and self-esteem from a statistical perspective. The results partly support our initial hypothesis that there is a link between low self-esteem and a high level of irrationality, suggesting that irrational beliefs related to self-downing are associated with explicit low self-esteem. The magnitude of this relationship suggests a medium effect size ($r^2 = .067$). In addition, our data suggest an independent relationship between implicit self-esteem and irrational beliefs, neither direct, nor interaction effect being found as statistically significant. The absence of a significant interaction between the two types of self-esteem also suggests there is no difference between individuals with congruent self-esteem and those with incongruent self-esteem in terms of their irrationality level, since there are no variations in the magnitude of the association between explicit self-esteem and self-downing beliefs at different levels of implicit self-esteem.

Discussion

This study supports our general assumption that irrational beliefs are mainly associated with explicit self-esteem, but not with implicit self-esteem. More precisely, our finding is consistent with the specificity of predictor and criterion hypothesis (Bosson & Swann, 2009), since explicit self-esteem was associated with a particular and congruent area of irrationality – self-downing beliefs (e.g., “I’m a total failure for not passing the exam”). Thus, just as academic self-concept is more predictive of academic achievement than global self-esteem (Marsh & Craven, 2006), it seems that a specific type of irrational belief closely related to self-view is significantly linked to explicit self-esteem, while other areas of irrationality (e.g., concerning comfort) are not associated with explicit global self-esteem. It would be of interest to see if dividing the global self-esteem into several components – e.g., Shavelson and colleagues’

(1976) specific areas of self-esteem – would lead to a different pattern of correlations with irrational beliefs.

On the other hand, there are several limitations with regard to these results related to measuring implicit self-esteem via an IAT task. One such limitation was raised by Payne (2009), who argued that a great deal of attenuation in the intensity of correlation between two measurements (one explicit, deliberative, Likert-type measure and one implicit, automatic, indirect measure such as the IAT) is actually given by differences in task characteristics and attributes. This would partly explain why the implicit level of self-esteem is uncorrelated (or so loosely correlated) with explicit Likert-type scales such as those measuring self-esteem and irrational thinking. An additional limitation of using the IAT task to measure implicit self-esteem was underlined by Karpinsky (2004), who argued that the IAT self-esteem measure is compromised by the ambiguous valence of the nonspecific other category that is used to contrast the self-category. Because of this ambiguous and relative comparison, some people could obtain high scores at implicit self-esteem not because they have a positive view of themselves, but due to their negative view of others. However, this argument seems to be less powerful than the previous one, since, in this study, no association was found between the IAT measure of self-esteem and the irrational belief referring to other-downing.

In order to replicate these findings and to overcome some of the limitations presented above, particularly concerning the IAT shortcomings, a second study was conducted to address the same questions.

STUDY 2

The Name Letter Task (NLT) is another popular measure of implicit self-esteem, yet it is used only half as frequently as the IAT (Buhrmester, Blanton & Swann, 2010). The task aims to assess how much people like the letters of their own name (Koole, Dijksterhuis & van Knippenberg, 2001). The idea behind this task, which can be implemented in a paper and pencil version, is that people's enhanced liking for their own first name and surname (or for the initials of their first and last names) reflects a carryover effect of their high self-esteem (Greenwald & Banaji, 1995). In a typical NLT exercise, respondents are asked to rate how pleasing they find each letter of the alphabet on scales ranging up to nine points. The implicit self-esteem score used in this study was computed by subtracting the difference between a person's average rating of their own first and last names initials and the average ratings of the same letters given by individuals who did not have those letters as initials of their names, (following the suggestions of Bosson & Swann, 2009).

An improved algorithm of assessing implicit self-esteem was developed by Albers, Rotteveel and Dijksterhuis (2009), taking into consideration the liking of letters not part of a respondent's name in addition to the liking of the letters in

his / her name. We conducted our analyses based on both algorithms because most previous studies in the field have used the traditional algorithm, but Albers, Rotteveel and Dijksterhuis (2009) have provided strong arguments showing that the new method is more appropriate for avoiding potential biases (e.g., a person who generally dislikes letters due to failing an exam).

Method

Participants

Undergraduate Psychology students (N = 102, 85% females, $M_{\text{age}} = 20.5$ years, $SD_{\text{age}} = 3.6$, age range: 18-38) were recruited as a convenience sample in this second study. They voluntarily agreed to participate in this research.

Instruments and procedure

Irrational beliefs were measured using the *General Attitudes and Beliefs Scale* (GABS), described in Study One (Lindner et al., 2007). In this study, the internal consistency for various scales (Cronbach's alpha) ranged from 0.60 for irrational beliefs related to comfort to .83 for irrational beliefs addressing the achievement issue. The internal consistency of the entire scale was .88, while for the self-downing scale it was .80.

Rosenberg's Self-Esteem Scale (1965) was used to measure the global level of explicit self-esteem. A description of this measure is provided in the method section of Study One. The internal consistency of this scale for the second study was .80.

Implicit self-esteem was assessed using a paper and pencil version of the Name Initials Letter Task (NLT) (Koole, Dijksterhuis & van Knippenberg, 2001). Respondents in this study used a 7 points Likert-type scale to assess how much they liked each letter from the alphabet. The letters were positioned in a fixed, alphabetical order. Two algorithms for computing implicit self-esteem were used: the traditional method and the new, alternative method. Details regarding the algorithms for computing implicit self-esteem based on these two methods are provided in Albers, Rotteveel and Dijksterhuis (2009).

Data were collected in collective settings (i.e., classroom), based on the voluntary participation of undergraduate Psychology students. They first filled in the GABS, followed by the Rosenberg scale and the NLT task, in a balanced way, to control for order effect.

Results

In order to see if both types of self-esteem are predictors of irrational beliefs, and to test if the joint effect of the two self-esteem measures is additive or interactive, we used hierarchical regression analyses with various types of irrational beliefs as criteria.

Table 3. Mean, standard deviations and inter-correlations among study's variable (N=102)

Variables	1	2	3	4	5	6	7	8	9	10
<i>Criteria – Irrational beliefs</i>										
1. Irrational beliefs (overall)	--									
2. Self-downing	--	--								
3. Other-downing	--	.19	--							
4. Achievement	--	.22	.41	--						
5. Approval	--	.16	.31	.35	--					
6. Comfort	--	.32	.43	.50	.37	--				
7. Justice	--	.17	.50	.64	.50	.50	--			
<i>Predictors – Self-esteem type</i>										
8. Rosenberg SE (RSE)	-.21	-.36	.10	-.15	-.13	-.17	-.05	--		
9. Traditional NLT	.00	-.10	.02	-.04	.01	.02	.04	.17	--	
10. Improved NLT	-.01	-.18	.03	-.04	.01	.02	.05	.24	.91	--
11. RSE x traditional NLT	.13	.10	.00	.04	.13	.19	.12	-.21	-.36	--
12. RSE x improved NLT	.10	.13	.00	.02	.08	.16	.08	-.22	--	-.34
Means	62.8	6.1	8.7	13.1	8.2	13.1	13.6	22.5	1.3	6.3
SDs	13.1	2.6	2.6	3.9	2.6	3.1	3.8	4.2	1.1	1.0

Bold fonts for significant correlations at $ps < .01$

Table 4. A summary table of hierarchical regression estimating the self-downing irrational beliefs and the overall irrationality score as criteria

Self-downing beliefs	R ²	ΔR ²	β	Overall irrational beliefs	R ²	ΔR ²	β
<i>Step one</i>	.129 *				.044 <i>ns</i>		
1. RSE			-.35*				-.21*
2. Traditional NLT			-.05				.04
<i>Step two</i>	.129 *	.000 <i>ns</i>			.054 <i>ns</i>	.010 <i>ns</i>	
1. RSE			-.35*				-.19
2. Traditional NLT			-.04				.07
3. RSE * NLT			.01				.10
<i>Step one</i>	.140 *				.044 <i>ns</i>		
1. RSE			-.33*				-.21*
2. Improved NLT			-.11				.03
<i>Step two</i>	.141 *	.001 <i>ns</i>			.048 <i>ns</i>	.004 <i>ns</i>	
1. RSE			-.32*				-.20
2. Improved NLT			-.11				.06
3. RSE * Improved NLT			.02				.07

* for $ps < .05$, *ns* for statistically not significant associations

Data presented in Tables 3 and 4 replicate the main findings of the first study. Only explicit self-esteem seems to predict the level of irrational beliefs, while implicit self-esteem does not correlate with any of the irrational beliefs included in the study. In addition, there are no signs of interaction effect of the two types of self-esteem on the magnitude of irrational beliefs. However, the improved NLT implicit self-esteem score correlates marginally with self-downing

$-r(100) = -.18, p < .10$ (see Table 3). In addition, based on this improved algorithm, we found a statistically significant association between the two types of self-esteem (implicit and explicit) $-r(100) = .24, p < .05$, while there was only a marginal link between the traditional NLT score and explicit self-esteem $-r(100) = .17, p < .10$.

Discussion

The second study replicates most of the findings in the first study, emphasizing the idea that only explicit self-esteem is associated with irrational beliefs, in particular with self-downing, while implicit self-esteem does not relate to the irrational beliefs level. In addition, our data do not support the interaction effect hypothesis: we did not find higher levels of irrationality (i.e., self-downing) in people with congruent self-esteem (e.g., both low explicit and low implicit self-esteem) as compared with those having incongruent self-esteem.

A non-topical finding is the support for Payne's (1999) assumption concerning the disadvantages of correlating constructs using highly different measures. A stronger connection was found between implicit and explicit self-esteem when using the NLT than when using the IAT as implicit self-esteem measure. The NLT is more similar to an explicit measure of self-esteem, since the task is deliberate, assumes a Likert-type appraisal and is completed in a paper and pencil version. However, a concurrent explanation for the differences in the intensity of the relationship between implicit and explicit self-esteem is related to a higher percentage of women in the second study (85% vs. 67%). Gender was found to moderate the relationship between the two types of self-esteem, with a higher association reported in studies with a higher percentage of female participants (Pelham et al., 2005).

General Discussion and Conclusions

REBT stresses the positive effects of unconditional self-acceptance and the importance of deemphasizing the idea of a global self-esteem in the therapeutic process. This particular feature of REBT differentiates it from the mainstream approach that underlines the role of self-esteem in psychological adjustment and the need to develop it through psychotherapy, educational programmes and training. Some authors such as London (1997) went even further, claiming that self-esteem interventions are unproductive, and will not lead to emotional health and long-term positive outcomes. The REBT approach follows Ellis' recommendation (1977, in David and Szentagotai, 2008) of focusing on the promotion of unconditional self-acceptance.

Despite these well-defined guidelines of REBT, data to support this theoretical position is not yet sufficient. Therefore, we believe the improvement of self-esteem should not be dismissed from the REBT approach. Moreover, we

do not see the need for an either/or type decision. We actually think that these two concepts could be addressed in a complementary way. For instance, it has been advocated that the two major categories of beliefs (i.e., rational and irrational) are orthogonal (Bernard, 1998); therefore increasing the level of rationality does not necessarily imply a decrease in irrationality. If developing self-acceptance deals mainly with enhancing the rational internal dialogue, working on improvement of self-esteem addresses mainly the irrational internal dialogue (ultimately, self-esteem, as a global view of self, is irrational by definition because no particular action or threat could justify such a generalization). Researchers arguing against the usefulness of interventions meant to increase self-esteem found correlational proof that irrational thinking was associated with conditional self-acceptance (which is linked to self-esteem), whereas rational thinking was associated with unconditional self-acceptance (Davies, 2006). The results from our studies support the association between explicit low self-esteem and a particular core irrational belief – self-downing, suggesting that the self-esteem issue should be a matter of concern for REBT specialists.

In addition, disregarding self-esteem, at least in its two main forms of manifestation (i.e., implicit and explicit) could be misleading. For instance, no previous research that suggested the benefits of unconditional self-acceptance over the global self-esteem (Chamberlain & Haaga, 2001; Davies, 2006) took into account implicit self-esteem. Some negative outcomes associated with high self-esteem could be related to a fragile self-esteem (high explicit, low implicit), instead of a secure self-esteem as some researchers from the non-REBT literature have suggested (e.g., Bosson et al., 2003; Kernis, 2003). Furthermore, implicit low self-esteem was found to be a factor of vulnerability, predicting depressive symptoms at six-months follow-up, after controlling for the initial symptoms level (Franck, de Raedt & de Houwer, 2007) or enhancing the individual's risk to experience depression after a stressful life event (Steinberg, Karpinski & Alloy, 2007). These data tend to favour interventions that focus on both explicit and implicit sources of vulnerability. After all, both forms of self-esteem are negatively correlated with neuroticism (Robinson & Meier, 2005). Although no relation between irrational beliefs and implicit self-esteem was found in either studies, the implicit measures could act as a moderator variable in relation to the increase in vulnerability and in symptoms, as findings in the literature suggest (Franck, de Raedt & de Houwer, 2007; Steinberg, Karpinski & Alloy, 2007).

An important aspect to be taken into account in future studies, that will broaden the impact of the results, is the inclusion of unconditional self-acceptance into the equation of explaining the dynamics among self-esteem, unconditional self-acceptance and rational and irrational beliefs. Similarly, a greater statistical power for the analysis of the association between incongruent self-esteem and irrational beliefs (the interaction effect) and / or the use of a clinical sample would have provided more information on the role of implicit self-esteem. While most REBT interventions are linked to propositional processes, which are concerned

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with the validity of evaluations and beliefs, implicit self-esteem is an associative process that works differently, as a source of evaluative conditioning (Zhang & Chan, 2009). In this case, the process of change works differently. Instead of focusing on disputing irrational beliefs, as in the case of explicit self-esteem, it involves pairing positive or negative unconditioned stimuli with neutral stimuli, which leads to changes in the valence of the latter as in the valence of unconditioned stimuli.

Acknowledgments

This research was supported by CNCSIS –UEFISCSU, project number PNII – IDEI 1076/2009. This organization had no role in the design and implementation of the study.

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