Shorter communication

Implicit but not explicit self-esteem predicts future depressive symptomatology

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Abstract

To date, research on the predictive validity of implicit self-esteem for depressive relapse is very sparse. In the present study, we assessed implicit self-esteem using the Name Letter Preference Task and explicit self-esteem using the Rosenberg self-esteem scale in a group of currently depressed patients, formerly depressed individuals, and never depressed controls. In addition, we examined the predictive validity of explicit, implicit, and the interaction of explicit and implicit self-esteem in predicting future symptoms of depression in formerly depressed individuals and never depressed controls. The results showed that currently depressed individuals reported a lower explicit self-esteem as compared to formerly depressed individuals and never depressed controls. In line with previous research, all groups showed a positive implicit self-esteem not different from each other. Furthermore, after controlling for initial depressive symptomatology, implicit but not explicit self-esteem significantly predicted depressive symptoms at six months follow-up. Although implicit self-esteem assessed with the Name Letter Preference Test was not different between formerly depressed individuals and never depressed controls, the findings suggest it is an interesting variable in the study of vulnerability for depression relapse.

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Besides its high life-time prevalence, depression is known to be a recurrent disorder (Alonso et al., 2004). In the cognitive theory of depression, it is assumed that negative self-schemas bias information processing in an automatic, repetitive, unintended, and difficult to control way and lead to specific negative self-evaluations (Beck, Rush, Shaw, & Emery, 1979; Clark, Beck, & Alford, 1999). It is held that after symptomatic recovery, these negative self-schemas remain latent until primed by sad mood or negative life stress (Haaga, Dyck, & Ernst, 1991; Teasdale, 1983). As such, continued vulnerability to depression can be explained by the potential ability of these underlying negative self-schemas to influence the information processing system (Segal, 1988).

Many studies that attempted to demonstrate biased information processing as a vulnerability marker for depression relapse have been unsuccessful. One possible explanation might be that schemas that are activated at the moment of testing might influence self-report and self-descriptions, whereas less accessible self-schemas may be more likely to influence relative automatic cognitive processes and behaviour (Hedlund & Rude, 1995).
Recently, a distinction was made between explicit and implicit attitudes of the self. This dual attitude view of self-esteem is based on information processing models in social psychology that share the assumption of two distinguishable modes of information processing: an automatic and a more effortful mode (e.g. Gawronski & Bodenhausen, 2006).

In past research, several studies could indeed demonstrate that implicit and explicit attitudes predict different outcome behaviours (Asendorpf, Banse, & Mücke, 2002; Conner & Barret, 2005; Fazio, Jackson, Dunton, & Williams, 1995; Greenwald & Farnham, 2000; Koole, Dijksterhuis, & van Knippenberg, 2001; McConnel & Leibold, 2001; Schröder, Rudolph, Wiesner, & Schütz, in press; Smith & Nosek, 2005; Spalding & Hardin, 1999). Some of these studies found that implicit self-esteem better predicted people’s spontaneous and/or affectively driven reactions than explicit self-esteem (see Bosson, Swann, & Pennebaker, 2000). Other studies found that certain specific discrepancies between implicit and explicit self-esteem predicted certain personality variables such as narcissism, self-esteem instability (Zeigler-Hill, 2006), self-serving responses, and defensive behaviour (Kernis et al., 2005; Schröder et al., in press). In this context, implicit self-esteem measures might be ideal for assessing the subtle biases of depressive self-schemas that are relatively inactive outside a depressive episode in depression vulnerable individuals. A measure that demonstrated reasonable reliability and validity in assessing implicit self-esteem is the preference for name initials (Bosson et al., 2000; Greenwald and Banaji, 1995; Koole et al., 2001). Based upon the predictions made by the cognitive theory of depression, one could make two assumptions: First, we would expect that vulnerability for depression will be associated with a lower implicit self-esteem. Second, we would expect that lower levels of implicit self-esteem will predict future depressive symptomatology.

To date, we are aware of only one study that addressed the predictive value of implicit self-esteem in depression using an undergraduate student population. Haefeli and co-workers (in press) tested a dual-process view of cognitive vulnerability to depression in a group of undergraduate students. Their results showed that, although both implicit and explicit measures interacted with life stress in predicting prospective changes in depressive symptomatology, only the explicit measure interacted with stress when entered simultaneously as predictors of depressive symptoms over a five week prospective interval.

Three other studies investigated implicit self-esteem in depression in a cross-sectional design using a patient and former patient population. De Raedt, Schacht, Franck, and De Houwer (2006) assessed implicit self-esteem in currently depressed individuals and non-depressed controls using three different paradigms: the Name Letter Preference Task (NLPT; Nuttin, 1985, 1987), the Extrinsic Affective Simon Task (EAST; De Houwer, 2003), and the Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz, 1998). The results of De Raedt and co-workers clearly indicated a positive implicit self-esteem on all three measures of implicit self-esteem not different between currently depressed patients and never depressed controls. Gemar, Ségal, Sagrati, and Kennedy (2001) used the IAT to investigate dysphoria related changes on implicit self-esteem in recovered depressed patients and never depressed controls using a mood induction paradigm. They observed a negative shift in evaluative bias after the negative mood induction in the formerly depressed individuals, but not in the never depressed controls. However, as could be observed by a visual inspection of their data, all groups including the currently depressed individuals exhibited a positive implicit self-esteem bias before the mood induction but the formerly depressed individuals appeared to have a higher implicit self-esteem as compared to the controls. Franck, De Raedt, and De Houwer (2006) replicated these findings. They found a significantly higher positive implicit self-esteem in formerly depressed individuals as compared to never depressed controls and currently depressed individuals before a negative mood induction. Furthermore, in line with the results of Gemar and co-workers, they observed a decrease in implicit self-esteem following negative mood induction in the formerly depressed individuals but not in the never depressed controls. However, this negative shift in the formerly depressed group was due to the higher implicit self-esteem before the start of the mood induction.

Previous findings of no additional predictive value of implicit self-esteem in a student population and no group differences in implicit self-esteem between currently and never depressed individuals are unexpected based on the cognitive theory of depression. However, it is still to premature to conclude that implicit self-esteem is of no importance in depression. After all, similar studies investigating implicit self-esteem for example in socially anxious individuals have observed relevant group differences (see de Jong, 2002; de Jong, Pasman, Kindt, & van den Hout, 2001). None of the previous studies addressed the predictive value of implicit self-esteem.
self-esteem in predicting vulnerability for depression relapse in a patient population. In order to fully investigate the role of implicit self-esteem in depression, it might be requisite to test the value of implicit self-esteem in predicting future symptoms of depression. Consequently, we investigated the predictive validity of implicit self-esteem using the Name Letter Preference Test and explicit self-esteem using the Rosenberg self-esteem scale (Rosenberg, 1965) for depressive symptomatology at six months follow-up in a group of never depressed controls and formerly depressed individuals. If the cognitive theory holds for the predictive value of implicit self-esteem, we should expect that lower levels of implicit self-esteem would be associated with depressive symptomatology at follow-up.

Method

Participants

One hundred and twelve participants were initially tested. Of these, 17 participants were excluded because they either did not meet the inclusion criteria or because of missing data. The currently depressed individuals (N = 28, CD) were recruited from different psychiatric hospitals in Belgium. All patients were assessed with the MINI international neuropsychiatric interview and were diagnosed as meeting diagnostic DSM-IV criteria for major depressive disorder (M.I.N.I.; Sheehan et al., 1998). Moreover, they were included when they had a Hamilton Depression Rating Scale above 13 (HRSD; Hamilton, 1960) and a Beck Depression Inventory total score above 20 (BDI-II-NL; Beck, Steer, & Brown, 1996). The formerly depressed and never depressed controls were recruited using media advertisements in Belgium. The formerly depressed individuals (N = 34, FD) were included when they had been diagnosed with Major Depressive Disorder by a certified psychiatrist or clinical psychologist in the past, received pharmacological or psychotherapeutic interventions during the episodes, and had been currently symptom free for at least one month. In addition, they met criteria of having a HRSD score below 13 and a BDI-II-NL total score lower than 20. All formerly depressed individuals were also assessed with the M.I.N.I. to verify current and past major depressive disorder. The never depressed controls (N = 33, ND) were also screened with the M.I.N.I. and were included if they reported no prior history of depression. Furthermore, they were excluded when they reported having any psychological disorder in the past based on a self-report questionnaire. They had a HRSD score lower than 13 and a BDI-II-NL total score below 20.

All participants were financially compensated for their participation in the study. The present study was approved by our local ethical committee and was part of a larger research project investigating the role of different aspects of self-esteem in depression based on several additional measures and tasks.

Materials

MINI international neuropsychiatric interview (M.I.N.I.; Sheehan et al., 1998): The MINI neuropsychiatric interview is a short, structured, diagnostic interview designed to verify the diagnostic criteria according to the DSM and covers 17 axis I categories. It has a good correlation with the Structured Clinical Interview for DSM-IV-TR Axis I (SCID-I) (Pinninti, Madison, Musser, & Rissmiller, 2003).

Hamilton rating scale for depression (HRSD; Hamilton, 1960; Dutch translation by D’haenen & Verhoeven, 1989): The HRSD measures severity of depressive symptoms and covers a wide range of affective, behavioural, and somatic symptoms. This structured interview consists of 17 items that have to be rated by a clinician on 5-point and 3-point scales (0–1–2–3–4 and 0–1–2), with total scores ranging from 0 to 52. Reliability coefficients are between 0.84 and 0.90. Research of the Dutch version of the HRSD shows good internal consistency (Cronbach α = 0.82; Evers, Van Vliet-Mulder, & Ter Laak, 1992).

Beck depression inventory, second edition (BDI-II-NL; Beck, Steer, & Brown, 1996; Dutch translation by Van der Does, 2002): The BDI-II-NL is a 21-item self-report scale used to assess the presence and severity of depressive symptoms experienced in the two preceding weeks, including the day of the assessment. Every item consists of four expressions in terms of increasing intensity followed by a score number (0–1–2–3), with total scores ranging from 0 to 63. The BDI has proved to be a valid measure of depressive symptoms with good psychometric properties (Van der Does, 2002).
Rosenberg self-esteem scale (RSES; Rosenberg, 1965; Dutch translation by Franck, De Raedt, Barbez, & Rosseel, 2006): This 10-item self-report scale measures global feelings of self-worth or self-acceptance. Subjects are instructed to rate whether they totally agree or totally disagree with each of the presented statements. It is a broadly used instrument to measure global self-esteem because of its proven validity and reliability (see Franck, De Raedt, Barbez et al., 2006).

Name letter preference task (NLPT; Nuttin, 1985, 1987): The NLPT is based on the underlying assumption that how well people like their own initials relative to the other letters of the alphabet reflects unconscious preferences for self. People with a high self-esteem have a tendency to prefer their name initials more than people with a lower self-esteem (Nuttin, 1987). Moreover, it has been demonstrated that, because people are not necessarily aware of the logic behind this task and of the fact that they display a preference toward name letters, the attitudes they endorse towards their initials can be qualified as an implicit index of self-esteem (Greenwald & Banaji, 1995; Koole et al., 2001). During a computer-administered version of the NLPT, the 26 letters of the alphabet were presented randomly one by one in the centre of a computer screen. They were displayed in black letter font Arial 15pt on a white background. The participants were seated at a distance of approximately 50 cm from the computer screen. All letters were presented once in the same type face. Below the screen a 9-point Likert scale was presented with at the left “not at all beautiful” and on the opposite side “very beautiful”. The experiment was programmed in Inquisit Millisecond Software and was run on an IBM compatible PC.

Procedure

At the start of the study, all participants signed an informed consent form after receiving information about the procedure of the study. Thereafter, the M.I.N.I. was administered. Subsequently, they completed a demographic information form as well as the BDI-II-NL, followed by the RSES. Then, the NLPT was administered. People were instructed to indicate for each letter of the alphabet how beautiful they found it by selecting a number between 1 and 9 to each letter. They were also instructed not to reflect about their choice but to designate a number that corresponds to their initial preference (see Koole et al., 2001). At the end of the experiment, the HRSD was administered.

After 6 months, both the never depressed controls and the formerly depressed individuals were contacted again and invited to complete the BDI-II-NL and return it by mail.

Results

Descriptives

Means and standard deviations for each demographic variable are presented in Table 1. A one-way ANOVA revealed marginal significant age differences between the three groups, $F(2, 94) = 2.8, p = .07$. Furthermore,
we also observed significant differences in the ratio of men and women in each group, \( \chi^2 (2, N = 95) = 6.6, p = .04 \). Consequently, in all analyses, we first controlled for age and sex. Because we found no main or interaction effects with sex or age \( (F < 1) \), all reported analyses were subsequently performed without these covariates.

By design, significant differences were observed on the depression measures, HRSD, \( F(2, 94) = 374.6, p < .001 \), and BDI-II-NL, \( F(2, 94) = 299.7, p < .001 \). T-tests revealed that currently depressed individuals scored significantly higher on the HRSD, \( t(92) = 22.7, p < .001 \), and the BDI-II-NL, \( t(92) = 20.6, p < .001 \), as compared to the formerly depressed individuals and significantly higher on the HRSD, \( t(92) = 25.2, p < .001 \), and BDI-II-NL, \( t(92) = 22.3, p < .001 \), as compared to never depressed controls. Furthermore, the formerly depressed individuals had a significantly higher HRSD score, \( t(92) = 2.7, p < .01 \), and marginally significantly higher BDI-II-NL total score, \( t(92) = 1.9, p = .06 \), as compared to the never depressed controls yet within the normal range.

**Explicit self-esteem**

A one-way ANOVA with explicit self-esteem as dependent variable and group as between variables yielded significant differences between the three groups, \( F(2, 94) = 71.4, p < .001 \). T-tests showed that currently depressed patients reported a significant lower explicit self-esteem as compared to never depressed controls, \( t(92) = 10.6, p < .001 \), and formerly depressed individuals, \( t(92) = 10.4, p < .001 \). However, formerly depressed individuals and never depressed controls showed no significant difference in explicit self-esteem, \( t(92) = .35, p = .72 \).

**Implicit self-esteem**

The data were prepared following the guidelines of Koole et al. (2001) and De Raedt et al. (2006). For each participant, all letter ratings were first Z-transformed based on the mean and standard deviation of all ratings of that participant to correct the data for inter-individual differences in rating tendencies. Based on these Z-transformed scores, for each letter and for every group separately, a global baseline evaluation was determined. This was the mean evaluation for each letter of the alphabet based on the evaluations of the participants that did not have that letter in their name. For each participant, this baseline rating of their name initials was subtracted from the Z-transformed baseline rating for that letter. The name letter effect corresponded to the mean of the difference score for both initials.

One-sample T-tests revealed that the mean Z-transformed difference score was positive and significantly different from zero for the currently depressed individuals, \( t(27) = 2.5, p < .05 \), the formerly depressed individuals, \( t(33) = 3.3, p < .01 \), and the never depressed controls, \( t(33) = 3.0, p < .01 \). In addition, a one-way ANOVA revealed no significant differences between the three groups, \( F(2, 94) = .08, p = .93 \); indicating that currently depressed individuals, formerly depressed individuals, and never depressed controls showed no significant differences in implicit self-esteem as measured by the NLPT.

**Correlation between explicit and implicit self-esteem**

The Pearson correlation (two-tailed) between explicit and implicit self-esteem was low and not significant, \( r(95) = .05, p = .65 \), indicating that both measures assess different constructs of the self. In addition, we calculated Pearson correlations for implicit and explicit self-esteem in our three study groups separately. These were all low and insignificant ranging from \( -.27 \) to \(.31 \), with \( p \)-values ranging from \(.54 \) to \(.08 \).

**Predictive value of implicit and explicit self-esteem**

Twenty-six (79%) never depressed individuals and 23 (68%) of the formerly depressed returned the BDI-II-NL follow-up questionnaire. A drop-out analysis revealed that individuals who did not return their questionnaire tended to have less depressive symptoms at the initial testing, \( t(65) = 1.9, p = .06 \), as well as a

higher implicit self-esteem, $t(65) = .18, p = .08$, as compared to the participants who returned their follow-up questionnaires.

To examine the extent to which explicit or implicit self-esteem predicts depressive symptoms at 6 months follow-up, we conducted a hierarchical regression analysis with BDI-II-NL total scores at follow-up as dependent variable. In the first step, we entered the initial BDI-II-NL total score to control for previous symptom level. In the second step, explicit and implicit self-esteem scores were entered simultaneously. In the third step, implicit and explicit self-esteem scores were both centred around the mean and the higher-order interaction was entered as predictor variable. Consistent with previous research, prior depression level was the strongest predictor for depressive symptoms at 6 months follow-up, $t(48) = 4.84, \ p < .001$, $\beta = .58$. However, after controlling for initial symptoms of depression, implicit, $t(48) = 2.21, \ p = .03, \beta = .25$, but not explicit self-esteem, $t(48) = 1.26, \ p = .22, \beta = .17$, proved to be a significant predictor for depressive symptomatology at 6 months follow-up suggesting that higher levels of implicit self-esteem were associated with higher levels of depressive symptomatology at follow-up. Finally, the two way interaction between explicit and implicit self-esteem was not significant, $t(48) = 1.03, \ p = .31, \beta = -.16$.

Discussion

In the present study, we measured implicit self-esteem using the NLPT in currently depressed individuals, formerly depressed individuals, and never depressed controls. The results demonstrated that after controlling for initial depressive symptoms, implicit self-esteem outperformed explicit self-esteem in predicting depressive symptomatology at 6 months follow-up. Furthermore, the results indicated that higher levels of implicit self-esteem were associated with higher levels of depressive symptomatology at follow-up. Although these results are in line with evidence suggesting that the two types of self-esteem predict different outcomes (Asendorpf et al., 2002; Conner & Barret, 2005; Fazio et al., 1995; Koole et al., 2001; McConnel & Leibold, 2001; Smith & Nosek, 2005; Spalding & Hardin, 1999), they are surprising from the perspective of cognitive theory of depression. In fact, it is difficult to explain these findings based upon the cognitive theory of depression. However, in line with Franck, De Raedt, and De Houwer (2006) who found that vulnerability for depression was associated with a significantly higher implicit self-esteem as measured with the IAT; in the present study, higher levels of implicit self-esteem measured by the NLPT were again also associated with more depressive symptoms at 6 months follow-up. Based upon these findings one might conclude that a higher implicit self-esteem reveals a vulnerability for depression. The observation that, in the present study, the formerly depressed individuals and the never depressed controls showed no difference in implicit self-esteem at the cross-sectional level, might be indicative for the possibility that some participants in the never depressed group also show a latent vulnerability for depression. An explanation for the association between higher implicit self-esteem and more depressive symptoms at follow-up might be that implicit self-esteem is based on an automatic activation of latent self-related schemas, and this latent content might be indicative for an ideal-self schema. According to the cognitive theory of depression, some self-schemas may represent actual views of the self whereas others may refer to possible, idealized, or hoped-for views of the self (Clark et al., 1999). In this perspective, implicit tasks would measure the “ideal-self”, whereas explicit measures would tap “actual-self schemas”. This is in line with the findings of Giesler, Josephs, and Swann (1996), indicating that depressed individuals still possess positivity strivings, attenuated by their desire for negative self-evaluation. More depressive symptoms could then be related to a larger discrepancy between the actual and the ideal self. This could explain why a higher implicit self-esteem was related to more depressive symptoms at follow-up. However, the association between self-esteem discrepancy and more depressive symptoms would be revealed by a significant higher-order interaction between implicit and explicit self-esteem, and this higher-order interaction was not significant. Furthermore, our results are divergent to the results of Haeffel et al. (in press), who found that explicit but not implicit self-esteem interacted with life stress to predict prospective changes in depressive symptomatology. We found that implicit self-esteem and not explicit self-esteem predicted depressive symptoms at follow-up. This might be explained by three differences in methodology: First, we used a former patient population whereas Haeffell et al. used psychology undergraduates; Second, we used the NLPT and not the IAT to measure implicit self-esteem; Third, we did not include a measure of life stress.
Finally, the present study confirms the findings of the previous study of De Raedt et al. (2006), indicating that both currently depressed individuals and never depressed controls rated the initials of their name as more positive as compared to participants who did not have these letters in their names. The magnitude of these effects is consistent with that of previous studies (De Raedt et al., 2006; Koole et al., 2001). In addition, the formerly depressed individuals also demonstrated a positive name letter effect, not different from the other groups. In line with dual process theories of human behaviour, these results replicate the findings of Franck, De Raedt, and De Houwer (2006) demonstrating that currently depressed individuals exhibit an imbalance in their implicit and explicit attitudes towards the self. Moreover, the findings of a positive implicit self-esteem in all groups including the currently depressed individuals are in line with all previous studies demonstrating that automatic self-evaluation is generally positive (Paulhus, 1993; Swann, Hixon, Stein-Serroussi, & Gilbert, 1990).

A limitation of the present study is that the number of participants at follow-up was limited. This made a comparison of the predictive validity of implicit self-esteem for formerly depressed individuals and the predictive validity for never depressed controls separately impossible. Because this is the first study investigating the predictive validity of implicit self-esteem measured with the NLPT in predicting depressive symptoms at follow-up, it will be essential to replicate these findings in future studies before any permanent conclusions can be drawn.

In sum, although we found no group differences in implicit self-esteem using the NLPT, raising questions about the significance of implicit self-esteem in depression, we found that the magnitude of implicit self-esteem outperformed explicit self-esteem in predicting future depressive symptoms.

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