

Implicit and explicit self-esteem discrepancies in paranoia and depression

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Abstract

The main purpose of the present study was to examine implicit and explicit self-esteem (SE) in patients with persecutory delusions. In samples of paranoid patients, depressed patients and healthy controls, implicit SE was assessed using the experimental task of Go/No-Go association, while explicit SE was measured using two self-reporting questionnaires: the World Assumption Scale (WAS) subscale of self-worth and the Scales of Psychological Well-Being (SPWB) subscale of self-acceptance. Our analysis revealed that depressed patients showed lower explicit SE than did paranoid and healthy control participants. However, participants with persecutory delusions had significantly lower implicit SE scores than healthy controls. We interpret the discrepancies observed between overt and covert measures in the paranoid group as psychological defense mechanisms. The present study stresses the clinical and theoretical importance of the use of implicit measures in psychopathology.

Key words: Implicit cognition, self-esteem, schizophrenia, persecutory delusions, paranoia.

Recent theoretical models of paranoia have incorporated data from research related to dysfunctional assumptions and cognitive schemas (Bentall, Corcoran, Howard, Blackwood & Kinderman, 2001; Freeman, Garety, Kuipers, Fowler & Bebbington, 2002). An important part of the research on cognitive schemas in psychosis is related to the contents of self-schemas and more specifically to patients' self-esteem (SE). There is growing evidence of low SE in psychotic patients, which has been found to be both a consequence of the illness and a maintaining factor (Freeman et al. 1998). Furthermore, some studies have found that SE can be a predisposing factor as well. For instance, in a community sample of 3,929 individuals, low SE scores were a significant predictor of first-ever onset of psychotic symptoms at three years after the first evaluation (Krabbendam, Janssen, Bak, Bijl, de Graaf & van Os, 2002).

One of the most common symptoms of psychosis is delusions, particularly paranoid ones (Sartorius, et al., 1986). Some current models of delusion have included SE as a key component, though there is no agreement on whether it causes delusion by acting through motivational or emotional pathways. From a motivational point of view, persecutory delusions have been claimed to function as a *self-serving bias*, leading the individual to blame others for adverse experiences in order to protect SE (Bentall et al., 2001). However, Freeman & Garety (2003) proposed that delusional explanations directly reflect negative self-beliefs, which are linked to anxiety and emotional concerns related to threatening content. Along this line, Freeman (2006) has argued that negative self-beliefs and lower SE and depression in clinical and non-clinical paranoia are a logical correlate of the patients' clinical situation and life difficulties, so that defensive processes need not be evoked as explanations.

Unfortunately, research on SE in paranoia has not yielded consistent findings. Some studies have found lower SE in paranoid patients, whereas others have found preserved SE. For

instance, whereas Bowins & Shugar (1998) found that psychotic patients had lower SE than that reported by the general population, Candido & Romney (1990) found relatively high SE scores in paranoid patients. These earlier studies had some important limitations: the results were not specific to paranoia (Bowins & Shugar, 1998), or the study did not include a healthy control group (Candido & Romney, 1990). These mixed findings about SE in paranoia may also be due to the fact that the label of 'paranoia' can include different types of disorder. Trower and Chadwick (1995) argued that there are two subtypes of paranoia. The first subtype, 'poor-me' paranoia, is characterised by the patients' belief that they are being unjustly and undeservedly persecuted. In the second subtype, 'bad-me' paranoia, patients show self-awareness of their failures and inferiorities and believe that others are justifiably punishing them for some flaw or misdeed. This distinction may be relevant to SE research: SE is relatively high in 'poor-me' paranoia, but it is low in 'bad-me' paranoia. Chadwick, Trower, Juusti-Butler & Maguire (2005) have found that, compared to the 'poor-me' subtype, the 'bad-me' group has lower SE, more negative self-evaluative thinking, less negative evaluations about others, and higher depression and anxiety.

Another possible source of contradictory SE findings can be related to conceptual limitations in current measures of SE. For instance, some important features of SE, such as its stability, are not adequately captured by typical SE questionnaires (Thewissen, Bentall, Lecomte, van Os & Myin-Germeys, 2008). Furthermore, certain conceptual issues related to the components of SE, such as negative vs. positive SE, are usually not addressed by researchers in this area (Bentall et al. 2008). Finally, there are methodological limitations related to standard measures of SE. As Farnham, Greenwald & Banaji (1999) suggested, self-reported SE, using explicit measures like questionnaires, captures self-presentation more than affective self-regard,

and this artefact can be avoided by using implicit measures of SE. In fact, there is accumulating evidence that explicit SE is not always an accurate and honest appraisal of the self because there is a widespread tendency to overestimate overtly one's traits and abilities (Farnham, et al., 1999).

The present study aims to distinguish explicit and implicit SE in patients with persecutory delusions. As Greenwald and Farnham (2000) have demonstrated, implicit and explicit SE are distinct constructs. Explicit SE refers to a cognitive mode attained through conscious and rational processing of self-relevant information (Schröder-Abé, Rudolph & Schütz 2007), while implicit SE refers to the experiential mode, which is more automatic and intuitive (Epstein & Morling, 1995, Greenwald & Banaji, 1995). Psychopathology can be enhanced by the use of implicit measures in clinical research (De Houwer, 2002). This approach may be highly relevant in paranoia research, since some models consider the presence of implicit motivations as an etiological factor in delusion formation, whereas others point out the lack of such motivations (Bentall et al., 2001).

Most studies show that high explicit SE is positively associated with well-being and psychological health (Baumeister, Campbell, Krueger, & Vohs, 2003). Nevertheless, high explicit self-esteem can also be associated with negative outcomes (e.g. Baumeister, Heatherton & Tice, 1993). Papps & O'Carroll (1998) argued that inconsistencies in explicit SE findings reflect the failure to take into account important mediating factors. As a solution, Kernis (2003) has underlined the importance of identifying the authenticity of SE, which allows one to distinguish between secure SE (well-anchored, safe, robust and non-defensive) and non-secure SE. Implicit SE measures may be perfectly suited to address this important distinction (Kernis, 2003).

There is growing interest in the assessment of implicit SE (Greenwald & Banaji, 1995). Implicit Association Test (IAT)-based measures of SE have been found to predict the reaction to success versus failure experiences (Greenwald and Farnham, 2000), as well as persistence in the face of failure (Jordan, Spencer and Zanna, 2002). Using other implicit procedures, SE has been found to predict non-verbally expressed anxiety (Spalding and Hardin, 1999) or the level of verbal defensiveness (Kernis, Lakey, & Heppner, 2008).

Research on implicit SE in paranoia is scarce and inconclusive. Using the Emotional Stroop Task, paranoids, like depressives, showed more interference than normal controls in color-naming negative self-referent words, which could be interpreted as negative implicit SE (Kinderman, 1994). Using the Self-Referent Incidental Recall Task (SRIRT), Bentall & Kaney (1996) found that, unlike controls, paranoids and depressives failed to show a recall bias towards positive words. However, other studies using SRIRT or Stroop procedures have not replicated these findings (Smith, Freeman, & Kuipers, 2005; Vázquez, Díez-Alegría, Hernandez-Lloreda & Nieto, 2008).

Although reliable evidence for a clear difference between implicit and explicit SE has been elusive, IAT-based measures of implicit SE show significant potential for the study of psychopathology. Recent studies using the IAT have provided some evidence for the self-serving model of paranoia. McKay, Langdon & Coltheart (2007) found that patients with persecutory delusions had lower implicit SE than healthy controls and patients with remitted persecutory delusions, but that all three groups had a similar level of overt SE. Moreover, Moritz, Werner & von Collani (2006) have given partial support to the notion that persecutory delusions serve as a defence against low implicit SE, although explicit SE was lower for paranoids than for healthy controls. Unfortunately, both of the above studies had rather small samples and used an IAT task

that, because of its bipolar nature (self vs. other), should not be regarded as a pure measure of SE (Karpinski, 2004).

Present study

The present study aimed to investigate implicit and explicit SE in paranoia. An assumption central to the self-serving model of paranoia (Bentall et al., 2001) is that paranoids will have low implicit and high explicit SE. Accordingly, it was hypothesized that paranoid participants would have the same level of explicit SE as healthy controls and a higher level than a clinical control group of depressives. A second hypothesis was that paranoids would have a similar level of implicit SE as depressives and a lower level than healthy controls.

Method

Participants and Procedure.

All participants volunteered to collaborate in the study after reading and signing a consent form. We assumed a symptom-oriented approach (Bentall, Kinderman, & Vázquez, 2007) and three groups of participants were formed:

The *Persecutory beliefs group* (PG) included 35 participants, 19 males and 16 females, who were treated in a University Hospital inpatient psychiatric unit. All participants were currently suffering persecutory beliefs as assessed by the Present State Examination (PSE-10, SCAN, WHO 1992) and had a score of ≥ 4 on the PANSS suspiciousness item. Participants with delusions of guilt were excluded, as these contents are usually associated with major depressive disorders with psychotic characteristics. Patients were selected through hospital records, and diagnoses were confirmed using a structured clinical interview (MINIPLUS, Sheehan & Lecrubier, 2002). Patients met DSM-IV diagnostic criteria (APA, 1994) for the following categories: schizophrenia paranoid type ($n = 18$), schizophreniform disorder ($n = 5$),

schizoaffective disorder (n = 3), delusional disorder (n = 6), brief psychotic disorder (n = 2), and psychotic disorder not otherwise specified (n = 1). All patients were receiving antipsychotic medication at the time of the study. The mean age was 34.94 years (SD 11.98). The mean age of illness onset was 28.23 years (SD 7.47), while the average mean illness duration was 84.13 months (SD 119.10).

The ***Depression group*** (DG) included 35 participants, 8 males and 27 females, who met DSM-IV criteria for a current depressive disorder (mainly outpatients) who had never experienced persecutory delusions. Diagnoses were confirmed using a structured clinical interview (MINIPLUS, Sheehan & Lecrubier, 2002). Patients met DSM-IV diagnostic criteria (APA, 1994) for the following categories: major depressive disorder (single episode) (n = 10), major depressive disorder (recurrent episode) (n = 21) and bipolar depression I (n = 4). All but four patients were receiving antidepressants at the time of the study. The mean age was 43.54 years (SD 11.40). The mean age of onset of the disorder was 35.0 years (SD 10.41), while the average mean duration of the disorder was 89.66 months (SD 119.86).

The ***Non-psychiatric control group*** (CG) comprised 44 participants, 20 males and 24 females, who were recruited via informal contacts. The mean age was 37.41 years (SD 13.05) (see Table 1). They were screened for the absence of any clinical syndrome, and they had never required psychological assistance for any mental disorder, nor did they have any concurrent medical condition.

Insert Table 1 around here

In the clinical groups, participants had a clinical interview that included the PANSS and the MINIPLUS; in addition, the PSE-10 was used for paranoid participants. For the control group, the interview was designed to screen for the absence of mental illness. After the interview, all participants were given a set of questionnaires to fill out. In a second session, questionnaires were collected and the GNAT task was administered. Following a brief explanation about the purpose of the study and after answering their questions, the participants were dismissed.

Measures

New Adult Reading Test (NART; Nelson, 1982). We used a version of the NART called the word accentuation test (WAT), which consists of a total of 30 multisyllabic, low-frequency words with atypical spelling-sound correspondences. The NART is used in clinical settings to estimate general intelligence levels. The WAT has adequate internal consistency ($\alpha=.97$) and construct validity ($r=.84$ with the Wechsler Adults Intelligence Scale) (Del Ser et al., 1997).

The Positive and Negative Syndrome Scale (PANSS; Kay et al., 1987). The PANSS is a 30-item rating scale completed by clinically trained research staff after a semi-structured interview and a chart review. We used the Spanish version of the PANSS published by Peralta and Cuesta (1994), which has shown good inter-rater reliability and construct validity. The PANSS was administered only to the PG and the DG. For the purposes of this study, we used the following three sub-scales: positive symptoms (PANSS-P, 7 items), negative symptoms (PANSS-N, 7 items) and general psychopathology (PANSS-PG, 16 items). All items were rated on a scale of 1 (*absent*) to 7 (*extreme*). In our study, internal consistency was $\alpha=.65$ for the PANSS-P, $\alpha=.83$ for the PANSS-N, and $\alpha=.64$ for the PANSS-PG. Assessment of inter-rater

reliability for raters in this study was found to be high, with an intra-class correlation of .85 for three blind raters observing the same five taped PANSS interviews.

The Persecution and Deservedness Scale (PaDS; Melo et al., 2009). This is a brief measure to assess both the severity of paranoid thinking and the perceived deservedness of persecution, and is suitable for clinical and non-clinical populations. For the purposes of the present study, we used a PaDS version translated into Spanish. The Spanish version was generated by two translators, then back-translated into English by a third translator. The back-translated version was compared to the original PaDS to check for correspondence. In this study we used only the persecution subscale of 10 statements, which assume that the individual is the object of others' malevolence (e.g., “There are times when I worry that others might be plotting against me”). The PaDS items cover a broad conceptualization of paranoia, with some items clearly persecutory (item 9, “I believe that some people want to hurt me deliberately”) and others concerning general mistrust (item 10, “You should only trust yourself). Participants were asked to rate each statement on a 5-point scale ranging from 0 (*certainly false*) to 4 (*certainly true*). Melo et al. (2009) have reported good internal reliability and a high correlation with the Paranoia Scale. In our study, internal consistency was $\alpha = .93$ for the persecution ideation subscale.

Beck Depression Inventory II (BDI-II; Beck et al., 1988). This is a widely used 21-item self-report questionnaire to assess depressive symptomatology. The Spanish version (Sanz et al., 2003) has shown good inter-item reliability and construct validity. Participants rated the occurrence of each symptom using a 4-point scale, and reliability was $\alpha = .94$ in our study.

Explicit Self-Esteem Index (E-SE). A composite explicit SE variable was created by summing normalized scores of the WAS-Self-worth subscale (World Assumption Scale; Janoff-Bullman, 1989) and the Spanish version (Díaz et al. 2006) of the SPWB-Self-acceptance

subscale (Scales of Psychological Well-Being; Ryff and Keyes, 1995) and dividing them by two. Both subscales assess positive self-feelings consistent with the current conceptualization of SE (e.g., Brown, 1993; Rosenberg, 1965), and were moderately correlated ($r = .53$). Internal consistency of the composite index was $\alpha = .80$.

Implicit Self-Esteem Task. The current study uses the Go/No-Go Association Task (GNAT) (Nosek, & Banaji, 2001), conceptually based on the IAT (Greenwald and Farnham, 2000). A drawback of the IAT is that it does not allow making inferences about the strength of association between the attribute concepts (e.g., positive vs. negative) and the target category (e.g., self); it can only provide information about the relative strength of various associations (e.g., self vs. other). The original IAT design opposes “Self” with “Other” categories. This design makes it difficult to interpret scores because the strength of the association between the “Self” and attributes is partially biased by the strength of the association between the “Others” and attributes. To avoid this potential contamination, we opted for a GNAT version, which allows assessment of the strength of single associations (i.e., self–negative vs. self–positive).

The GNAT version designed for this study used 40 stimulus words and assessed the strength of the automatic associations between concepts of “Self” (e.g., I, participant first name, participant last name, myself, participant nickname, mine), and positive attributes (e.g., admirable, skillful) and negative attributes (e.g., useless, annoying) (Table 2). Attribute adjectives were selected from a validation study of positive and negative adjectives related to self-worth (Jimenez, Vazquez & Hernangómez, 1998). The selected words were 14 adjectives with a negative emotionality lower than -5, and 14 adjectives with a positive emotionality higher than +5, as measured by a bipolar scale from -10 (totally negative) to +10 (totally positive) (Jimenez et al., 1998). The selected positive and negative adjectives showed no significant

differences in either word length ($t(26) = .15, p = .88$) or emotional intensity [$t(20,5) = .12, p = .90$].

This GNAT self-esteem version had two critical blocks presented in random order (Table 2). Each block consisted of practice and critical trials. It was presented using Inquisit (Millisecond Software, 2005). Trials involved the presentation of one word in the centre of the screen while informative labels for the correct response were placed in the upper left and right corners. For block 1, if the words referred to a Self Category or a positive attribute, then the participant had to press the space bar; if they referred to a negative attribute, the participant did not have to respond. For block 2, if the word items referred to a Self Category or a negative attribute, then the participant had to press the space bar; if they referred to a positive attribute, then the participant did not have to respond. Participants were instructed to press the space bar as quickly as possible. Each word remained on the screen until either the participant pressed the space bar or 1200 milliseconds elapsed. Feedback was given to participants during the task: correct responses were followed by a green “O” and incorrect responses by a red “X”.

Insert Table 2 around here

The GNAT allows computing several d-prime and reaction time indices (Rudolph, Schröder-Abe, Schütz, Gregg & Sedikides, 2008). In this study we used only reaction time indexes since they have higher internal consistency than d-prime indexes (see Table 3). To calculate the internal consistency of GNAT indexes, we employed standard indexes of internal consistency, based on equivalent split-halves and corrected using the Spearman-Brown formula, for the different critical blocks of the task (Self-Positive, Self-Negative). Following Rudolph et

al. (2008) we used an alternating method of deriving split-halves, which ensured maximal comparability between the two halves and equivalency of attributes and targets represented in each half.

Insert Table 3 around here

Following the GNAT procedure (Nosek, & Banaji, 2001), the implicit SE index was calculated by subtracting the reaction time in the Positive-Self block from the reaction time in the Negative-Self block and was named SE-GNAT. A positive score in this index indicates that the participant is faster associating “Self” with “Positive” adjectives than “Self” with “Negative” adjectives and it therefore suggests positive implicit SE.

Results

Demographic and clinical status. A summary of participants’ characteristics is presented in Table 1. Statistical analyses revealed significant differences among groups in age, educational level, and employment status. The DG was older than the PG and CG. At the same time, the PG had fewer participants with university education and fewer participants currently employed than did the CG and DG. There was also a significant difference in sex among the three groups. The DG had a greater proportion of women than did the PG and CG. Differences in demographic variables can be explained if we assume that the depressed participants had later onset of illness than paranoid participants. Finally, statistical analyses revealed no significant difference among groups in their estimated IQ, as measured by the WAT.

Independent-samples t-tests explored the impact of clinical group (2: PG, DG) on levels of psychiatric symptomatology as measured by PANSS factors. Our analysis revealed that the

groups had significantly different scores on the PANSS-P ($\eta^2 = .53$). The PG had more positive symptoms than the DG (mean difference, 8.30, 95% CI 6.39 to 10.20). The groups showed no significant difference in mean scores for negative symptoms. However, the groups had significantly different scores on the PANSS-GP ($\eta^2 = .01$). The DG had higher mean scores in general psychopathology than did the PG (mean difference -6.68, 95% CI -10.38 to -2.98) (Table 4). These findings indicate that the PG had higher positive symptomatology and lower general symptomatology than the DG, but similar negative symptomatology.

Two, one-way ANOVAs explored the impact of group (3: PG, DG, CG) on persecution ideation as measured by PaDS, and on depression as measured by the BDI-II. There was a large and significant group effect for persecution ideation ($\eta^2 = .24$). Post hoc tests (Tukey HSD, $p < .05$) indicated that the PG and DG had significantly higher mean scores on persecutory ideation than did the CG. We conducted a series of chi-square tests to assess the proportion of depressed and paranoid participants who scored 2 or higher on each of the PaDS items. The only significant difference was found for item 9 (“I believe that some people want to hurt me deliberately”), an item related to intentional harm: a higher proportion of paranoid patients than depressive patients scored high on this item [$X^2 (1, n = 69) = 4.31, p = .03, phi = -.28$]. The main effect was also significant for BDI-II scores ($\eta^2 = .55$). Tukey HSD tests ($p < .05$) indicated that the DG had a significantly higher mean score on depression severity than did the PG and CG. Furthermore, the PG had a significantly higher mean score on depression than did the CG.

Insert Table 4 around here

Explicit and implicit SE. Despite demographic differences among the groups, only

gender had a significant effect on the E-SE [$t(113) = 2.16, p = .03$ (two-tailed)]. Males had a higher E-SE mean index than females. No other educational or employment status effects were found for the SE indexes. Moreover, there were no significant correlations linking age or estimated IQ with neither E-SE nor SE-GNAT. Thus, gender was used as a covariate; however, since it showed no significant effects on any of the analyses, it is not discussed further.

Correlation analyses were conducted to estimate relationships between explicit and implicit SE on one hand, with severity of paranoid ideation and depression on the other. As Table 5 shows, explicit SE was significantly related with severity of depression ($r = -.47, p < .001$), but not with severity of paranoid ideation. Implicit SE was significantly related with severity of persecutory ideation ($r = -.31, p < .001$), but not with severity of depression. In sum, higher levels of explicit SE were associated with lower levels of depression and higher levels of implicit SE were associated with lower levels of paranoia.

Insert Table 5 around here

For explicit SE, a one-way ANOVA of E-SE was carried out with group (3: PG, DG, CG) as the independent variable. This analysis showed a significant main effect ($\eta^2 = .22$). Tukey HSD tests ($p < .05$) indicated that the only significant difference was that the DG had lower mean scores than the PG and CG in E-SE (see Table 6).

For implicit SE, a similar one-way ANOVA with group (3: PG, DG, CG) as the independent variable and SE-GNAT as the dependent variable showed a significant main effect of group ($\eta^2 = .06$). Tukey HSD tests indicated that participants with persecutory delusions had significantly lower implicit SE scores than healthy controls. However, implicit scores in DG

were not significantly different from those in PG or CG (Table 6).

Insert Table 6 around here

Discussion

For explicit SE measures, our data show that paranoid participants and healthy controls show high levels of self-esteem, while depressed participants do not. These findings are consistent with our first hypothesis and the predictions of the self-serving bias model. In this way, our findings converge with results from previous research that have shown that explicit SE is preserved in paranoia (Candido & Romney, 1990).

Regarding our second hypothesis about implicit SE, our data seem to confirm an implicit positive bias in healthy controls that is absent in paranoid individuals. As predicted, paranoid and depressed participants did not have significantly different levels of implicit SE. At the same time, the mean SE-GNAT score of depressed individuals was positive and intermediate between scores for paranoid individuals and healthy controls, indicating an implicit positive bias. In line with IAT findings in the general population (Greenwald & Farnham, 2000), healthy participant responses were much faster when associating self with positive attributes than when associating self with negative ones, which is indicative of positive implicit SE. Overall, healthy controls tended to present congruent SE, i.e. positive implicit and explicit SE, which has been labeled as secure SE (Kernis, 2003). However, both depressed and paranoid groups lacked SE congruence, which has been taken to indicate emotional turmoil and maladjustment (Schröder-Abé, et al., 2007). Our results underline that not only the level of SE (high vs. low) but also SE discrepancies have implications for psychological adjustment.

Contrary to what the cognitive paradigm predicts, our data show that depressed participants associated positive attributes to self-items more quickly than negative attributes, which reflects an implicit positive self-bias. Self-reporting measures have provided overwhelming evidence that depressed subjects have lower SE than non-depressed ones (Ingram, Miranda & Segal, 1998). However, recent studies have found positive implicit SE in depression (Gemar, Segal, Sagrati & Kennedy, 2001; De Raedt, Schacht, Frank & de Houwer, 2006).

Paranoid participants associated negative attributes to self-items more quickly than positive items, which reflects an implicit negative self-bias. This finding is contrary to the "weaker" formulation of Bentall et al. (Garety & Freeman, 1999), but it is consistent with studies that have found low implicit SE in paranoia (McKay, et al., 2007 and Moritz, et al., 2006). Participants with persecutory beliefs had low scores on implicit SE and high scores on explicit SE, which may reflect a non-secure SE, which suggests that motivational factors play a role in persecutory delusions (see McKay & Kinsbourne, 2010). Bentall et al. (2001) have argued that assuming that disappointments in life are caused by the intentional actions of others is a characteristic paranoid strategy to avoid negative effects on their SE. Non-secure SE can undermine effective functioning by heightening defensiveness, anger toward others and emotional reactivity (see Paradise & Kernis, 2001). This self-enhancing strategy may create a degree of self-complacency, but it is also a source of anxiety since one needs to be in a constant state of alertness and to engage in self-deception to maintain self-regard. In fact, Spalding and Harding (1999) found that people with low implicit SE have more overt anxiety in real-life situations. Our findings suggest the importance of addressing this distressing internal struggle in therapy for paranoia.

Although it provides several important and internally consistent results, the present study is limited in several ways. First of all, its cross-sectional nature does not allow a direct inference about causality. Another important issue, which deserves more research, is whether our results about implicit and explicit SE in paranoia and depression are stable or dependent on clinical state. Finally, implicit measures need further refinement and validation in their specific applications to psychopathology. Although the recent surge of interest in understanding implicit SE in psychopathology is exciting, there are critical unresolved questions that need to be addressed, such as whether implicit SE is generalizable (Gawronski & Bodenhausen, 2006). Nonetheless, the present results underscore the clinical and theoretical utility of implicit measures in psychopathology. Cognitive structures related to clinical disorders are often implicit and they influence behaviour automatically (De Houwer, 2002).

The present work also supports the distinction between implicit and explicit SE. Our study confirmed that while higher explicit SE is associated with less severe depression, higher implicit SE is associated with less severe paranoia. Interestingly, Epstein (1994) claimed that explicit SE refers to a cognitive mode and implicit SE to an experiential mode. It can be hypothesized that different cognitive operations subservise the different types of SE: whereas implicit SE results from automatic, intuitive processing of affective experiences (Epstein & Morling, 1995), explicit SE arises from conscious and rational processing of self-relevant information (Schröder-Abé, et al., 2007). Thus, the analysis of the cognitive processes behind different modes of SE is a fascinating challenge for psychopathology research.

References

- Aiken, L. S., West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, London, Sage.
- American Psychiatric Association (1994). *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*. Washington, DC: American Psychiatric Press.
- Baumeister, R. F., Heatherton, T. F., & Tice, D. M. (1993). When ego threats lead to self-regulation failure: Negative consequences of high self-esteem. *Journal of Personality and Social Psychology*, *64*, 141–156. doi: 10.1177/0146167206289408
- Baumeister, R. F., Campbell, J. D., Krueger, J. I., & Vohs, K. D. (2003). Does high self-esteem cause better performance, interpersonal success, happiness, or healthier lifestyles? *Psychological Science in the Public Interest*, *4*, 1-44. doi: 10.1111/1529-1006.01431
- Beck, A. T. (1976). *Cognitive therapy and the emotional disorders*. New York: International Universities Press.
- Beck, A. T., Brown, G., Epstein, N. & Steer, R. A. (1988). An inventory for measuring clinical anxiety: psychometric properties. *Journal of Consulting and Clinical Psychology*, *56*, 893-897. doi: 10.1037/0022-006x.56.6893
- Bentall, R., Kinderman, C., and Vázquez, C. (2007). Letter to Editor: The myth of schizophrenia. [Rapid Response to: Lieberman, J.A. and First, M.B. (2007). Renaming schizophrenia. *British Medical Journal*, 334: 108].
- Bentall, R. P., Corcoran, R., Howard, R., Blackwood, N., & Kinderman, P. (2001). Persecutory delusions: A review and theoretical interpretation. *Clinical Psychology Review*, *21*, 1143–1192. doi: 10.1016/S0272-7358(01)00106-4

- Bentall, R. P., & Kaney, S. (1996). Abnormalities of self-representation and persecutory delusions: A test of a cognitive model of paranoia. *Psychological Medicine*, *26*, 1231-1237. doi:10.1017/S0033291700035959
- Bentall R.P., Kinderman P, Howard R, Blackwood N, Cummins S, Rowse G, Knowles R & Corcoran R. (2008). Paranoid delusions in schizophrenia spectrum disorders and depression: The transdiagnostic role of expectations of negative events and negative self-esteem. *Journal of Nervous and Mental Diseases*, *196*, 375-383. doi: 10.1097/NMD.0b013e31817108db
- Bosson, J.K., Swann, W.B., & Pennebaker, J.W. (2000). Stalking the perfect measure of implicit self-esteem: The blind men and the elephant revisited. *Journal of Personality and Social Psychology*, *79*, 631–643. doi: 10.1037/0022-3514.79.4.631
- Bowins, B., & Shugar, G. (1998). Delusions and self-esteem. *Canadian Journal of Psychiatry*, *43*, 154–158. Retrieved from <http://publications.cpa-apc.org/browse/sections/0>
- Brown, J. D. (1993). Self-esteem and self-evaluation: Feeling is believing. Suls, Jerry M. (Ed.). *The self in social perspective. Psychological perspectives on the self*, Vol. 4. (pp. 27-58). Hillsdale, NJ, England: Lawrence Erlbaum Associates, Inc.
- Candido, C., & Romney, D. (1990). Attributional style in paranoid vs. depressed patients. *British Journal of Medical Psychology*, *63*, 355-363.
- Chadwick, P.D.J., Trower, P., Juusti-Butler, T.M., & Maguire, N. (2005). Phenomenological evidence for two types of paranoia. *Psychopathology*, *38*, 327-333. doi: 10.1159/000089453

- De Houwer, J. (2002). The Implicit Association Test as a tool for studying dysfunctional associations in psychopathology: Strengths and limitations. *Journal of Behavior Therapy and Experimental Psychiatry*, *33*, 115-133. doi: 10.1016/S0005-7916(02)00024-1
- De Raedt, R., Schacht, R., Franck, E., & De Houwer, J. (2006). Self-esteem and depression revisited: Implicit positive self-esteem in depressed patients? *Behaviour Research and Therapy*, *44*, 1017-1028. doi: 10.1016/j.brat.2005.08.003
- Del Ser, T., Gonzalez-Montalvo, J.-I., Martinez-Espinosa, S., Delgado-Villapalos, C., & Bermejo, F. (1997). Estimation of premorbid intelligence in Spanish people with the Word Accentuation Test and its application to the diagnosis of dementia. *Brain and Cognition*, *33*, 343–356.
- Epstein, S. (1994). Integration of the cognitive and the psychodynamic unconscious. *American Psychologist*, *49*, 709–724. doi: 10.1037/0003-066X.49.8.709
- Epstein, S., & Morling, B. (1995). Is the self motivated to do more than enhance and/or verify itself? In M. H. Kernis (Ed.), *Efficacy, agency, and self-esteem* (pp. 9–29). New York: Plenum.
- Farnham, S. D., Greenwald, A. G., & Banaji, M. R. (1999). Implicit self-esteem. In D. Abrams & M. A. Hogg (Eds.), *Social identity and social cognition* (pp. 230-248). Oxford, U.K.: Blackwell Publishers.
- Fazio, R. & Olson, H. (2003). Implicit measures in social cognition research: their meaning and use. *Annual Review of Psychology*, *54*, 297-327. doi:10.1146/annurev.psych.54.101601.145225
- Freeman, D. (2006). Delusions in the non-clinical population. *Current Psychiatry Reports*, *8*, 191-204. doi: 10.1007/s11920-006-0023-1

- Freeman, D., Garety, P., Fowler, D., Kuipers, E., Dunn, G., Bebbington, P. & Hadley, C. (1998). The London East Anglia randomised controlled trial of cognitive-behaviour therapy for psychosis IV: Self esteem and persecutory delusions. *British Journal of Clinical Psychology*, *37*, 415-430. Retrieved from <http://www.bpsjournals.co.uk/journals/bjcp/>
- Freeman, D., & Garety, P. A. (2003). Connecting neurosis and psychosis: The direct influence of emotion on delusions and hallucinations. *Behaviour Research and Therapy*, *41*, 923–947. doi: 10.1016/S0005-7967(02)00104-3
- Freeman, D., Garety, P., Kuipers, E., Fowler, D., & Bebbington, P (2002). A cognitive model of persecutory delusions, *British Journal of Clinical Psychology*, *41*, 331-347. Retrieved from <http://www.bpsjournals.co.uk/journals/bjcp/>
- Garety, P. A., & Freeman, D. (1999). Cognitive approaches to delusions: A critical review of theories and evidence. *British Journal of Clinical Psychology*, *38*, 113-154.
- Gawronski, B., & Bodenhausen, G.V. (2006). Associative and propositional processes in evaluation: An integrative review of implicit and explicit attitude change. *Psychological Bulletin*, *132*, 692-731. doi:10.1037/0033-2909.132.5.692
- Gemar, M., Segal, Z., Sagrati S., & Kennedy, S. (2001). Mood-induced changes on the implicit association test in recovered depressed patients, *Journal of Abnormal Psychology*, *110*, 282–289. doi: 10.1037//0021-843X.110.2.282
- Greenwald, A. G., & Banaji, M. R. (1995). Implicit social cognition: Attitudes, self-esteem, and stereotypes. *Psychological Review*, *102*, 4-27. doi: 10.1037/0033-295X.102.1.4

- Greenwald, A. & Farnham, S. (2000). Using the implicit association test to measure self-esteem and self-concept. *Journal of Personality and Social Psychology*, 79, 1022-1038. doi: 10.1111.19.871
- Hetts, J.J., Sakuma, M., & Pelham, B.W. (1999). Two roads to positive regard: Implicit and explicit self-evaluation and culture, *Journal of Experimental Social Psychology*, 35, 512–559. doi: 10.1006/jesp.1999.1391
- Hetts, J.J. & Pelham, B.W. (2001). A case for the non-conscious self-concept In: G.B. Moskowitz, Ed., *Cognitive social psychology: The Princeton symposium on the legacy and future of social cognition*, Erlbaum, Mahwah, NJ, US, 105–123.
- Ingram, R. E., Miranda, J. & Segal, Z. V. (1998). *Cognitive vulnerability to depression*. New York: Guilford Press.
- Janoff-Bulman, R. (1989). Assumptive worlds and the stress of traumatic events: Applications of the schema construct, *Social Cognition*, 7 113–136. Retrieved from http://www.guilford.com/cgi-bin/cartsript.cgi?page=pr/jnco.htm&dir=periodicals/per_psych&cart_id
- Jiménez, F., Vázquez, C., & Hernangómez, L. (1998). Adjetivos de contenido depresivo autorreferente y de contenido neutral: normas de emocionalidad y frecuencia subjetiva de uso. *Revista de Psicopatología y Psicología Clínica*, 3, 199-215. Retrieved from <http://www.aepp.net/rppc.htm>
- Jordan, C.H., Spencer, S.J. and Zanna, M.P. (2002) I love me... I love me not: implicit self-esteem, explicit self-esteem, and defensiveness. In *Motivated Social Perception: the*

- Ninth Ontario Symposium*, ed. SJ Spencer, S Fein, MP Zanna, JM, Olson, pp. 117-45. Mahwah, NJ: Erlbaum.
- Karpinski, A. (2004). Measuring self-esteem using the implicit association test: the role of the other. *Personality and Social Psychology Bulletin*, 30, 22-34. doi: 10.1177/0146167203258835
- Kernis, M. H. (2003). Toward a conceptualization of optimal self-esteem. *Psychological Inquiry*, 14, 1-26. doi: 10.1207/S15327965PLI1401_01
- Kernis, M.H., Lakey, C.E. and Heppner, W.L. (2008) Secure versus fragile high self-esteem as a predictor of verbal defensiveness: Converging findings across three different markers. *Journal of personality* 76 (3): 477.
- Kinderman, P. (1994). Attentional bias, persecutory delusions and the self concept. *British Journal of Medical Psychology*, 67, 53-66. Retrieved from <http://www.apa.org/pubs/databases/psycinfo/index.aspx>
- Krabbendam, L., Janssen, I., Bak, M., Bijl Rob, V., de Graaf, R., & van Os J. (2002). Neuroticism and low self-esteem as risks factor for psychosis. *Social Psychiatry and Psychiatric Epidemiology*, 37, 1-6. doi: 10.1007/s127-002-8207-y
- McKay, R., Langdon, R., & Coltheart, M. (2007). The defensive function of persecutory delusions: An investigation using the Implicit Association Test. *Cognitive Neuropsychiatry*, 12, 1-24. doi: 10.1080/13546800500363996
- McKay, R. & Kinsbourne, M. (2010). Confabulation, delusion, and anosognosia: Motivational factors and false claims. *Cognitive Neuropsychiatry*, 15 (1/2/3), 288-318.

- Melo, S., Corcoran, R., Shryane, N., & Bentall, R. P. (2009). The Persecution and Deservedness Scale (PaDS). *Psychology and Psychotherapy: Theory, Research and Practice*, *82*, 247-260. doi: 10.1348/147608308X398337
- Moritz, S., Werner, R., & von Collani, G. (2006). The inferiority complex in paranoia readdressed: A study with the implicit association test. *Cognitive Neuropsychiatry*, *11*, 402–415. doi: 10.1080/13546800444000263
- Nelson, H.E. (1982). National Adult Reading Test. Test Manual. Windsor: NFER-Nelson.
- Nelson, H.
- Kay, S.R., Fiszbein, A., & Opler, L.A. (1987) The Positive and Negative Syndrome Scale for schizophrenia. *Schizophrenia Bulletin*, *13*, 261-276. doi:10.1093/schbul/13.2.261
- Nosek, B. A., & Banaji, M. R. (2001). The go/no-go association task. *Social Cognition*, *19*, 161-176. doi: 10.1521/soco.19.6.625.20886
- Nosek, B., Greenwald, A. & Banaji, M. (2005). Understanding and using the implicit association test: II. Method Variables and construct validity. *Personality and Social Psychology Bulletin*, *31*, 166-180. doi: 10.1177/0146167204271418
- Nuttin, M.J.Jr. (1985). Narcissism beyond Gestalt and awareness: The name letter effect. *European Journal of Social Psychology*, *15*, 353-361. doi: 10.1002/ejsp.2420150309
- Papps, B.P., & O'Carroll, R.E. (1998). Extremes of self-esteem and narcissism and the experience and expression of anger and aggression. *Aggressive Behavior*, *24*, 421–438. doi: 10.1002/(SICI)1098-2337(1998)24:6<421::AID-AB3>3.0.CO;2-3

- Paradise, A.W., & Kernis, M.H., (2002). Self-esteem and psychological well-being: implications of fragile self-esteem. *Journal of Social and Clinical Psychology, 21*, 345-361. doi: 10.1521/jscp.21.4.345.22598
- Peralta Martin V, Cuesta Zorita MJ. (1994) Validation of positive and negative symptom scale (PANSS) in a sample of Spanish schizophrenic patients. *Actas Luso-Española de Neurología y Psiquiatría, 22 (4)*, 171-7.
- Ryff, C., & Keyes, C. (1995). The structure of psychological well-being revisited. *Journal of Personality and Social Psychology, 69*, 719-727. doi:10.1037/0022-3514.69.4.719
- Rudolph, A., Schröder-Abé, M., Schütz, A., Gregg, A.P., & Sedikides, C. (2008). Through a glass, less darkly? Reassessing convergent and discriminant validity in measures of implicit self-esteem. *European Journal of Psychological Assessment. Special Issue: Advances and challenges in the indirect assessment of individual differences, 24*, 273-281. doi: 10.1027/1015-5759.24.4.273
- Sanz, J., Perdigón, A. & Vázquez, C. (2003). Adaptación española del Inventario para la Depresión de Beck-II (BDI-II): 2. Propiedades psicométricas en población general. *Clínica y Salud, 14*, 249-280
- Sartorius, N., Jablensky, A., Korten, A., Ernberg, G., Anker, M., Cooper, J. E., & R. Day (1986). Early manifestations and first-contact incidence of schizophrenia in different cultures. *Psychological Medicine, 16*, 909-928. doi: 10.1017/S0033291700011910
- Schröder-Abé, M., Rudolph, A., & Schütz, A. (2007). High implicit self-esteem is not necessarily advantageous: discrepancies between explicit and implicit self-esteem and

- their relationship with anger expression and psychological health. *European Journal of Personality*, 21, 319 – 339. doi: 10.1002/per.626
- Sheehan, D.V., & Lecrubier, Y. (2002). *MINI International Neuropsychiatric Interview for DSM-IV* (English Version 5.0.0). Tampa: University of South Florida.
- Smith, N., Freeman, D., & Kuipers, E. (2005). Grandiose delusions: an experimental investigation of the delusion-as-defence hypothesis. *Journal of Nervous and Mental Disease*, 193, 480-487. doi: 10.1097/01.nmd.0000168235.60469.cc
- Spalding, L. R., & Hardin, C. D. (1999). Unconscious unease and self-handicapping: Behavioral consequences of individual differences in spontaneous and deliberate self-esteem. *Psychological Science*, 10, 535–539. doi: 10.1111/1467-9280.00202
- Thewissen, V., Bentall, R.P., Lecomte, T., van Os, J., & Myin-Germeys, I. (2008). Fluctuations in self-esteem and paranoia in the context of daily life. *Journal of Abnormal Psychology*, 117, 143-153. doi: 10.1037/0021-843X.117.1.143
- Trower, P., & Chadwick P.D.J. (1995). Pathways to the defence of the self: A theory of two types of paranoia. *Clinical Psychology: Science and Practice*, 2, 263-278. doi: 10.1111/j.1468-2850.1995.tb00044.x
- Vázquez, C., Díez-Alegría, Hernández-Lloreda, M., & Nieto, M. (2008). Implicit and explicit self-schema in active deluded, remitted deluded and depressed patients. *Journal of Behavior Therapy and Experimental Psychiatry*, 3, 587-599. doi:10.1016/j.jbtep.2008.01.006

Vázquez, C. y Páez, D. (2010). Posttraumatic growth in Spain. In T. Weiss & Berger, R. eds.), *Posttraumatic Growth and Culturally Competent Practice: Lessons Learned from Around the Globe*. New York: Wiley.

World Health Organization (1992). *The ICD-10 Classification of Mental and Behavioural Disorders: Clinical Descriptions and Diagnostic Guidelines*. Geneva, Switzerland.

Table 1

Differences in demographic characteristics among groups

Characteristic	Paranoid Group (n=35)	Depression Group (n=35)	Control Group (n=44)	X^2	F	p
Sex:						
Women, n (%)	16 (45.1)	27 (77.1)	24(54.5)	0.26	----	.02*
Age in yr, mean (SD)	34.9 (12.0)	43.5 (11.4)	37.4(13.1)	----	4.62	.01**
Marital Status, n (%):						
Married	7 (20.6)	18 (54.5)	22 (51.2)	0.30	----	.001**
Single	27 (79.4)	15 (45.5)	21 (48.8)			
Education, n (%):						
Primary Education	16 (47.1)	7 (20.0)	5 (11.6)	0.36	----	.001**
Secondary School	7 (20.6)	9 (25.7)	10 (23.3)			
University Education	11 (32.4)	19 (54.3)	28 (65.1)			
Employment, n (%):						
Never employed	5 (15.2)	1 (2.9)	12 (28.6)	0.39	----	.01**
Unemployed>1 year	9 (27.3)	8 (23.5)	3 (7.1)			
Unemployed<1 year	5 (15.2)	3 (8.8)	2 (4.8)			
Employed	14 (42.4)	22 (64.7)	25 (59.5)			
Estimated IQ, mean (SD)	24.73 (5.24)	25.04 (3.86)	25.95(4.48)	----	.58	.56

Note. * $p < .05$; ** $p < .01$

Table 2

Go/No-Go Implicit Association Test (Self-esteem version)

	Press Key		Do Not Press Key
Practice 1	GO POSITIVE	SAMPLE ITEM	NO-GO NEGATIVE
(20 Trials)	✓	Strong	
		Mediocre	✓
Practice 2	GO NEGATIVE	SAMPLE ITEM	NO-GO POSITIVE
(20 Trials)		Strong	✓
	✓	Mediocre	
Practice 3	GO SELF	SAMPLE ITEM	NO-GO OTHERS
(20 Trials)	✓	Me	
		Others	✓
Block 1	GO SELF GO POSITIVE	SAMPLE ITEM	NO-GO NEGATIVE
(20 Practice Trials)		Stupid	✓
(60 Critical Trials)		Mediocre	✓
	✓	Me	
	✓	Carmen	
	✓	Strong	
Block 2	GO SELF GO NEGATIVE	SAMPLE ITEM	NO-GO POSITIVE
(20 Practice Trials)	✓	Carmen	
(60 Critical Trials)		Strong	✓
		Valuable	✓
		Admirable	✓
	✓	Incapable	

Note. Better performance in block 1 than in block 2 means that associating the concept of self with a positive valence is easier than associating the concept of self with a negative valence.

Table 3

Results of internal consistency analyses of SE-GNAT responses (split-half method with Spearman-Brown correction)

SE-GNAT response	Self-positive	Self-negative
Spearman-Brown coefficient for reaction time responses	.83	.90
Spearman-Brown coefficient for d-prime responses	.54	.62

Note. SE-GNAT = Self-esteem Go/No-Go Implicit Association Test

Table 4

Psychopathological differences among groups. The table shows mean values and standard deviations (in parenthesis).

Symptom	Paranoia Group (n=35)	Depression Group (n=35)	Control Group (n=44)	<i>F</i>	<i>t</i>	<i>p</i>
PANSS Score						
Positive symptoms	17.11 (5.13)	8.82 (1.97)	----	----	8.89	.001**
Negative symptoms	13.66 (6.14)	12.30 (5.05)	----	----	.99	.32
General psychopathology	33.20 (7.14)	39.88 (8.12)	----	----	-3.59	.001**
PaDS score						
Persecution ideation	1.72 (1.13)	1.41 (1.03)	.29 (.41)	28.91	----	.001**
BDI-II score						
	13.5 (12.36)	31.12 (10.14)	6.14 (5.57)	67.21	----	.001**

Note. PANSS = Positive and Negative Syndrome Scale; PaDS = Persecution and Deservedness Scale; BDI-II = Beck Depression Inventory II.

* $p < .05$ ** $p < .01$

Table 5.

Product-moment correlations for explicit and implicit self-esteem, and severity of psychopathology (depression and persecutory ideation)

Variable	(1)	(2)	(3)	(4)
(1) E-SE	----			
(2) RT Self-negative minus RT self-positive (SE-GNAT)	-.04	----		
(3) Depression (BDI-II)	-.47**	-.16	----	
(4) Persecutory ideation (PaDS)	-.17	-.31**	-.29**	----

Note. E-SE = explicit self-esteem; SE-GNAT = Self-esteem Go/No-Go Implicit Association Test; RT = Reaction time; PaDS = Persecution and Deservedness Scale; BDI-II = Beck Depression Inventory II.

* $p < .05$; ** $p < .01$

Table 6

Differences in explicit and implicit self-esteem among groups. The table shows mean values and standard deviations (in parenthesis).

Self-esteem measure	Paranoia Group (n=35)	Depression Group (n=35)	Control Group (n=44)	ANOVA Overall	<i>p</i>
E-SE	.17 (.94)	-.63 (.67)	.31 (.71)	14.84	.001**
SE-GNAT	-3.25 (81.35)	18.46 (75.65)	40.48 (57.60)	3.59	.03*

Note. E-SE = explicit self-esteem; SE-GNAT = Implicit Self-esteem Go/No-Go Implicit Association Test. Positive scores indicate that the reaction time in ms was greater for “Self” with “Negative” adjectives than for “Self” with “Positive” adjectives.

One outlier was dropped because its SE-GNAT score was 3 times below the mean.

* $p < .05$; ** $p < .01$