Explicit and implicit self-esteem and aggression: Differential effects of agency and communion.

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Abstract

Previous work has shown that self-esteem is related to aggression and violence. However, self-esteem is a multidimensional construct, and so we isolated self-esteem related to agency (e.g. competence and assertiveness) and self-esteem related to communion (e.g. warmth and morality) using both explicit and implicit techniques and examined their relationship to two forms of aggression (proactive and reactive aggression) in two samples. In an undergraduate sample (N = 130) high levels of explicit agency were associated with increased aggression but only for those with low implicit agency. On the other hand, high levels of either explicit or implicit communion showed reduced proactive aggression, while high levels of explicit communion were also associated with low levels of reactive aggression. In a community sample of people with problems due to homelessness (N = 101), we found that high levels of explicit communion were also associated with lower levels of both forms of aggression. The results show that different aspects of self-esteem, namely agency and communion, have quite different relationships to aggression and that implicit measures of these self-evaluations are also important constructs in the prediction of aggression. Implicit measures of self-esteem could be used by clinicians to understand the motivations behind an individual's aggression and its management.

Keywords: aggression, self-esteem, agency vs. communion, implicit self-esteem, proactive aggression, reactive aggression.

Explicit and implicit self-esteem and aggression: Differential effects of agency and communion.

There are many studies demonstrating that people with low self-esteem are more aggressive than those with high self-esteem (e.g. Teng, Liu, & Guo, 2015). However, other studies (e.g. Baumeister, Smart, & Boden, 1996) suggest the opposite notion – aggression is linked to high self-esteem. These opposing ideas can be understood if the notion of self-esteem is broken down further. One particular form of self-appraisal, that of narcissism, refers to people who have a grandiose view of their own talents and a craving for admiration. When this component of self-esteem is isolated, several lines of research converge on the finding that high narcissism is associated with increased aggression (Amad, Gray & Snowden, 2020; Barnett & Powell, 2016; Barry et al., 2007; Bushman & Baumeister, 1998; Donnellan, Trzesniewski, Robins, Moffitt, & Caspi, 2005; Fossati, Borroni, Eisenberg, & Maffei, 2010; Maples et al., 2010; Twenge & Campbell, 2003). Whilst this finding of a link between narcissism and aggression appears well established, the relationship of other forms of self-esteem to aggression remains more elusive.

Implicit and Explicit Self-esteem

Many aspects of cognitive life take place at an implicit level and may not be available for introspection (Custers & Aarts, 2010; Epstein, 1980; Greenwald & Banaji, 1995). In order to measure these implicit cognitions psychologists have developed a suite of indirect methods of measurement. Prominent among these is the implicit association test (IAT: Greenwald, McGhee, & Schwartz, 1998) which has been used to measure the concept of self-esteem on many occasions (e.g. Greenwald & Farnham, 2000). In this IAT the participant has to categorise some words as relating to either themselves or to other people, while another set of words have to be categorised as good words or bad words. This task is done under two conditions. In one condition the “me” and “good” words are paired in that they share the same response button (with “others” and “bad” words

sharing the other response button). In the other condition the pairings are reversed so that "me" and "bad" share a response button. It is believed that if a person has a strong association between themselves ("me") and high self-esteem ("good") then there will be little interference in condition one, but strong interference in condition two. A person with poor self-esteem would be slow in condition one but fast in condition two. Hence, their "implicit" self-esteem can be inferred by comparison of performance in conditions one and two.

These implicit self-cognitions may guide behavior under certain conditions, such as when there is little chance to consider one's actions (for example, under time pressure) and, hence, these implicit cognitions predict spontaneous behaviors (such as non-verbal behaviors) rather than deliberate behaviors (Fazio & Olson, 2003; Rudolph, Schroeder-Abe, Riketta, & Schuetz, 2010).

Few studies have examined the relationship between implicit self-esteem and aggression. Schroeder-Abe, Rudolph, and Schuetz (2007) used a measure of the outward manifestations of aggression in a young adult population and used the IAT to measure implicit self-esteem. No relationship was found. Sandstrom and Jordan (2008) measured both explicit and implicit self-esteem (via an IAT) in schoolchildren. The implicit measure was not directly associated with aggression, but there was an *interaction* between these measures such that a combination of low implicit self-esteem coupled with high explicit self-esteem was associated with aggression. Such findings seem to fit with the notion of narcissism (Zeigler-Hill, 2006), and "fragile narcissism" in particular (Kernis, 2003), where defensive and aggressive behaviors may be used to bolster a person's fragile self-perception (Baumeister, et al., 1996). This may result in a "macho" or narcissistic external presentation serving to disguise a vulnerable inner core. Hence, it maybe that the interaction between explicit and implicit self-esteem is more important in the prediction of aggression than just implicit self-esteem alone. Hence, our data analysis plan tested this hypothesis for the present studies.

Varieties of self-esteem: Agency and Communion

Several authors (Campbell, Rudich, & Sedikides, 2002; Kirkpatrick, Waugh, Valencia, & Webster, 2002; O'Brien, 1985; Tafarodi & Swann, 1995; Webster & Kirkpatrick, 2006) have noted that self-esteem is not a singular entity and any form of self-evaluation is likely to have many distinct components. These components may be intercorrelated but play quite different functions in the person's life and are activated in different contexts. The most widely used measure of self-esteem, Rosenberg's Self-Esteem Scale (RSES: Rosenberg, 1965), provides only a global measure of self-esteem and so most research has not examined which of several possible aspects of self-esteem might be linked to aggression. Given the importance of understanding the aetiology and maintenance of violent behavior, and to its prevention in individuals with a history of aggression, it is surprising that there has not been a greater effort to understand which elements of self-esteem lie behind the relationship with aggression. Such an understanding would help in the risk assessment of individuals and might contribute to treatment plans for those thought to be at high risk.

A popular theoretical distinction in discussions of human motivations, values and self-esteem are the concepts of "agency" and "communion" (Abele, & Wojciszke, 2018; Bakan, 1966; Helgeson, 1994; Saragovi, Koestner, DiDio, & Aube, 1997). Society and group living requires humans to compete for position in the social hierarchy (agency) and yet to cooperate also for the preservation of reciprocal alliances (communion). Agency refers to personality traits that have a focus on the self and autonomy (such as status, power, and intelligence), whilst communion refers to traits that consider how people relate to other people and relationships (such as kindness and morality). The distinction is nicely paraphrased by Hogan (1982) as "*getting ahead versus getting along*".

The relationship between these two concepts of agency and communion and aggression has received no direct empirical research to date. However, we note that the theory of interpersonal circumplex (Leary, 1957), with its orthogonal dimensions of Power (sometime labelled dominance

vs submissiveness) and Love (sometime labelled hostility vs friendliness), have strong similarities to agency and communion which have been noted and explored by others (Baken, 1966; Ghaed & Gallo, 2006). Using this framework Gallo and Smith (1998) examined the relationship of the two axis of the interpersonal circumplex to aggression as defined by the Buss-Perry Aggression Questionnaire (AQ) in a sample of undergraduates. They found that most forms of aggression were related to higher hostility scores (low communion), while verbal aggression was also related to higher dominance scores (high agency), and AQ defined hostility was related to lower dominance scores (low agency).

We hypothesised that those high on agentic traits would be aggressive due to their need to show dominance and power, especially under situations where these might be questioned. On the other hand, those low on communal self-concepts (i.e. those that feel unaccepted by others) are also likely to behave in an aggressive manner as they may feel rejected and ashamed of their behaviors leading to feelings of anger and hostility. Hence, we predict that high levels of agentic traits and low levels of communal traits will be predictive of aggressive behaviors in general. We note that a measure of self-esteem that has both agency and communion traits may therefore not produce any relationship to aggression due to these opposite predictions from agency and communion traits.

Varieties of aggression

Many researchers have made the distinction between acts of aggression that are reactive versus proactive (Parrott & Giancola, 2007). Reactive aggression occurs in a state of high arousal and is unplanned (hot-blooded). Proactive aggression tends to be planned, occurs for some purpose or some gain (e.g. robbery or revenge), and may be done in a state of relative low-arousal (cold-blooded). Amad et al. (2020) have shown that the two forms of aggression have different correlates to explicit self-evaluations in two community samples from different cultures. Reactive aggression was associated with low global self-esteem, while proactive aggression was associated with high levels of narcissism (see also Fossati et al., 2010).

The present studies

The present studies were designed to examine the role of both explicit and implicit self-esteem on aggressive behaviour, and to do this for both the agentic and communion aspects of self-esteem. Aggression was measured using the Reactive-Proactive Questionnaire (RPQ: Raine et al., 2006) so that proactive and reactive aggression could be independently assessed. Finally, we performed two different studies. In study 1 we used a convenience sample of college students, whereas in study 2 we used a "high risk" sample drawn from a charity that helps people with problems of housing and homelessness where there are known elevated risks of problem behaviors (e.g. substance abuse) as well as increased levels of aggressive behaviors.

Study 1

Methods

Participants.

Participants were 130 students (68 females; 52.3%) at a large urban University in the UK (*** University). They had a mean age of 20.1 years (SD = 1.9). The sample was recruited via advertisement that invited participants to take part in a study looking at various aspects of personality. Participants received either a cash payment or course credits for their participation.

Measures.

Agency IAT and communion IAT.

Our implicit measures of agency and communion followed those developed by Campbell, Bosson, Goheen, Lakey, and Kernis (2007). The agentic IAT included six high agency words (assertive, active, enthusiastic, outspoken, dominant, energetic) and six low agency words (quiet, reserved, inhibited, withdrawn, submissive, silent). The communal IAT included six high communion words (kind, friendly, generous, cooperative, affectionate, reserved) and six low communion words (cruel, mean, rude, stingy, quarrelsome, grouchy).

In order to present the concept of the self we chose to use ideographic information relating to the person. The self-referential '*me'* terms were generated by asking the participants to complete items within a demographic questionnaire (their first name, surname, gender, date of birth, and place of birth). These terms were then entered as stimuli into the self-esteem IAT. Predetermined foil stimuli to represent the concept "not me" were generated by using other first names, gender, etc to the person being tested. All foils were presented to the person prior to experimentation to ask if they had any self-relevance to them (e.g. mother's name). If they reported any self-relevance the items were substituted by other foils, etc. The idiographic stimuli in self-esteem IATs have been shown to be empirically superior to generic pronouns (Bluemke & Friese, 2012).

Each target stimulus appeared in the centre of the screen while category labels were displayed throughout the task at the top of the computer screen. In line with the original IAT (Greenwald et al., 1998), the descriptor words (e.g., "high vs low agency") were presented in lowercase letters, whereas the concept words ("me vs not-me") were presented in uppercase letters, in order to help the observer know which classification to use.

Participants were given instructions prior to commencing each IAT stage. Each IAT consisted of four stages, which all participants completed in the same order. In the first block, consisting of 20 practice trials, the words representing the concepts of me were paired with the response key for the high-attribute words on the left key, with the concepts of not-me and low-attribute words sharing the right key. Data from this block were not analysed. Block 2 was identical to Block 1, had 80 trials, and was used as the data for analysis. In Block 3 (20 practice trials) the classification of the descriptor words was changed so that the high-attribute required a right key press and the low-attribute ones a left key press, hence producing conditions where the concept "me" and the low-attribute words shared a response key. Data from Block3 were not analysed. Block 4 was identical to Block 3, had 80 trials, and was used for analysis.

As recommended by Greenwald et al. (2003), the IATs used a built-in error penalty, such that participants were required to provide a correct response after making any error. Participants who demonstrated more than 25% incorrect responses were excluded from further analyses. The IAT effect was computed using the D-scoring algorithm similar to that described by Greenwald et al. (2003). Data from the main blocks (2 and 4) were used but trials with very short (< 300 ms) or very long (> 3000 ms) were deleted. The difference in the mean RTs was divided by the pooled standard deviation to provide the D-score. Scores that are more positive are interpretable as greater implicit self-esteem.

Inventory of Communion and Agency Traits (ICAT).

To measure the constructs of agency and communion explicitly we decided to use the words for agency and communion that were in the implicit measure (IAT) as this would make for a more direct comparison between implicit and explicit measures than if we used an already available questionnaire – we term this the Inventory of Communion and Agency Traits (ICAT). Each of the words was shown to the person and they made explicit self-reports as to how well the word applied to them in their everyday life. Responses were on a 4-point scale (0 = "*not at all me*", 1 = "*a bit like me*", 2 = "*quite like me*", 3 = "*very much like me*"). Each scale has 12 items and produces scores from 0 to 36.

The ICAT was piloted in an undergraduate sample (N = 61; 37 female) and showed good reliability (agency $\alpha = .78$, communion $\alpha = .74$). We also examined its relations to the Personal Attributes Questionnaire (Spence & Helmreich, 1978) which has been widely used as a measure of agency and communion. Our results showed that the ICAT agency scale was strongly correlated to the Masculinity scale of the PAQ ($r = .64$) but not the Femininity scale ($r = .06$), whereas the ICAT community scale showed the opposite pattern of correlations (Masculinity: $r = -.02$; Femininity: $r = .50$). Hence, the agency and communion scales of the ICAT have good concurrent validity to this older conception of agency and communion.

Reactive-Proactive Aggression Questionnaire.

The Reactive-Proactive Aggression Questionnaire (RPQ; Raine, et al., 2006) is a 23-item self-report questionnaire where the participant rates how often an aggressive behavior has occurred in the past on a 3-point scale ("never", "sometimes", "often"). It provides two separate measures relating to amounts of Proactive Aggression (when the person has been aggressive in a deliberate and planned manner; e.g. "had fights with others to show who was on top"), and Reactive Aggression (when the person has been aggressive in reaction to a particular circumstance or in an unplanned manner; e.g. "reacted angrily when provoked by others"). Hence, this measure relies on the person being able to recall their acts of aggression and hence is reliant on explicit memories of these events.

Procedure.

Participants gave written informed consent to take part in the study. The two IATs were presented in a random order (decided via a random number table), and then the four questionnaires were completed. Following completion of these measures, participants were asked to watch a short comedy video to restore their mood. All procedures were developed with the assistance of ** University Student Counselling Services and were given approval by the Ethical Committee of the School of Psychology, ** University.

Data treatment.

Variables were inspected for outliers (> 3 SD from mean) and outliers were capped at this value (Winsorized). In line with the recommendations of Tabachnick and Fidell (2007) for large datasets, the data were inspected to see if it met the assumptions of a normal distribution. Most measurements appeared to be normally distributed. Further, levels of skew and kurtosis were all small (all values between -1 to +1), and so parametric statistics were used for analyses. The exception to this was the Proactive scale of the RPQ which showed a strong negative skew with a modal value of 0. Hence, no transformation could correct this to a normal distribution. For all

analyses involving this variable we also repeated the analysis using a non-parametric version. Results using the non-parametric versions of the analysis were similar to those from the parametric tests and so only these are presented for simplicity.

The data were first explored via the zero-order correlations between the measures of self-esteem and of aggression. The specific hypotheses were then tested via hierarchical multiple-regression. We performed four such regressions, in which we examined agency and communion variables separately to predict the Proactive or Reactive scale of the RPQ respectively. Participant gender was entered at step 1 of each regression model. At step 2, the explicit and implicit scores (*z*-scored, Aiken & West, 1991) were entered to determine their unique relationship with each aggression outcome. Finally, the explicit x implicit interaction was entered at step 3. At each step of the model, the ΔR^2 value was inspected. Where prediction had been significantly improved, individual β values were examined to determine which variables demonstrated a unique significant influence on the aggression outcome. Significant interaction terms were explored via calculation of simple slopes (Aiken & West, 1991). In describing the results found in terms of effect sizes we adopt the common convention of $r = .10$ as small, .30 as moderate, and .50 as large (Cohen, 1988).

Results

Descriptive statistics.

Table 1 presents the descriptive statistics. Both the IATs produced positive scores suggesting that most people have a positive implicit view of themselves on both agency and communion evaluations. The internal consistency for all measures is given in Table 1. The ICAT scales had good internal consistencies ($\alpha > .80$). The internal consistencies of the IATs were assessed by comparing the scores for the odd trials against those for the even trials (a form of split-half reliability) and correcting for the loss of trials via the Spearman-Brown method. The reliability of the IATs was > .60 which is high for RT-based measures (Cunningham, Preacher, & Banaji, 2001).

Analysis of zero-order correlations.

Correlations between the measures are presented in Table 1. The two scales of the ICAT (agency and communion) were not correlated with one another (r = .03) showing the two scales measure quite distinct aspects of self-evaluation. However, the two implicit measures did show a small correlation (r = .20). The explicit and implicit measure of agency showed a moderate correlation with each other (r = .37), as did the explicit and implicit measure of communion (r = .30).

The two explicit measures showed very different relationships to aggression. Explicit communion was *negatively* associated with both forms of aggression with small to moderate effects sizes (proactive aggression r = -.35; reactive aggression r = -.26), while explicit agency was *positively* associated to proactive aggression with a small effect size (r = .23). The only significant result between the implicit measures and aggression was that implicit communion was negatively associated with proactive aggression with a moderate effect size (r = -.30).

Predicting aggression from agency and communion.

Previous studies (e.g. Sandstrom & Jordan, 2008) found no direct effects of implicit self-esteem on aggression, but found that implicit self-esteem interacted with explicit self-esteem in the prediction of aggression. Therefore, we looked to see if the explicit and implicit measures interacted with each other to predict aggression via hierarchical multiple regression. The results are illustrated in Table 2 and Figure 1.

Agency and proactive aggression.

At stage 1, men reported greater proactive aggression than women (2.0 vs 0.8 respectively). The addition of the explicit and implicit measures at stage 2 significantly improved the model's fit, with aggression being related to high explicit agency but low implicit agency. Further, the interaction of these measures also improved the model's fit at stage 3 of the model. Calculation of simple slopes showed that increasing explicit agency was associated with greater proactive

aggression for those with low implicit agency, $\beta = .64$, $t(126) = 3.20$, $p < .001$, but not with high implicit agency, $\beta = .16$, $t(126) = 0.72$, *ns.*

Agency and reactive aggression.

At stage 1, there was no effect of gender on reactive aggression (7.0 vs 7.4 respectively). The addition of the explicit and implicit measures at stage 2 did not significantly improve the model's fit. However, at stage 3 the interaction term between explicit and implicit agency did produce a significant increase in model fit. Calculation of simple slopes showed that increasing explicit agency was associated with greater reactive aggression for those with low implicit agency, $\beta = .72$, $t(126) = 2.02$, $p = .03$, but not with high implicit agency, $\beta = -.22$, $t(126) = 0.50$, *ns.*

Communion and proactive aggression.

The addition of the explicit and implicit measures at stage 2 significantly improved the model's fit, with aggression being related to low explicit communion and with low implicit communion. Further, the interaction of these measures also improved the model's fit at stage 3 of the model. Calculation of simple slopes showed that high explicit communion was associated with a reduction in proactive aggression for those with low implicit levels of communion, $\beta = -.81$, $t(126) = 4.57$, $p < .001$, but not with high implicit levels of communion, $\beta = -.01$, $t(126) = 0.06$, *ns*.

Communion and reactive aggression.

The addition of the explicit and implicit measures at stage 2 significantly improved the model's fit, with aggression being related to low explicit communion, but no significant effect was found for implicit communion. The interaction term between explicit and implicit communion did not produce any increase in model fit in stage 3.

Summary and Discussion

We found that traits of communion were negatively associated with both forms of aggression, while those of explicit agency were associated with increased aggression (though this was not significant for reactive aggression). Hence, the two forms of self-worth (agency and

communion) show opposite relationships to aggression and emphasise the need to isolate these components if we are to understand the relationships between self-worth and aggression.

We also used implicit measures. The communion-IAT score was negatively correlated to proactive aggression. This, we believe, is the first report that an implicit measure of self-worth is directly related to aggression. However, for three of the four (the exception being communion predicting reactive aggression) we found that implicit levels of self-esteem interacted with explicit levels of self-esteem in the prediction of aggression. We will defer discussion of these results until the General Discussion.

Study 1 used a sample of undergraduates. This sample was not expected to have a high level of aggression, should be well educated, and tends to come from families of relatively high socioeconomic status. Therefore, in order to test the generalizability of these results to a more diverse population, we repeated the experiments in a "high risk" sample of people with current problems due to homelessness and associated behavioral problems.

Study 2

Methods

Participants were 101 people (36 females; 35.6%) who had contacted *** (a charity for homeless people). They had a mean age of 22.6 years (SD = 4.7). Nearly all the participants described themselves as White-British (98.0%).

Participants were identified through their appointments and visit to the S** centres and were recruited via the direct access hostel and a hostel in N****. Initial discussion with the manager of each scheme identified suitable participants by considering the risk assessment and lone working policy. Residents were approached by their keyworker (the staff member form the charity allocated to this individual) and offered the opportunity to participate in the research.

Each participant was given the Information Sheet with offer to withdraw at any time during the study and signed the written consent form. The keyworker administered the Schonell Reading

Test (Schonell, 1971) to determine the reading ability of the participants. Those participants identified as having reading ability below a reading age of 5 years were still included in the study but 1) they were not tested on the Agency and Communion IATs as these tests require a rapid response to word stimuli, and 2) the self-report measures were read aloud to these participant. The member of S*** also remained available throughout the procedure.

The same measures as Study 1 were used. Following completion of these measures participants were asked to watch a short comedy video to restore their mood. Participants were provided with a written debrief, thanked, and given compensation (i.e. a gift card) for their time. Ethical permission for the study was obtained from the ethics committee of the School of Psychology, ** University.

Data analysis was the same as Study 1. Sixteen participants did not complete the IATs due to poor literacy and another four had > 30% errors. These data were deleted pairwise from analyses.

Results

Descriptive statistics.

The descriptive statistics are given in Table 1. All instruments achieved acceptable levels of internal consistency (αs > .70). Levels of self-worth in this sample were not statistically different from the undergraduate sample in Study 1 (ps > .01), though there were increased levels of aggression (ps < .01) for the homeless sample.

Analysis of zero-order correlations.

Correlations between the measures are presented in Table 3. As in Study 1, the explicit measures of agency and communion were not significantly correlated (r = -.05). The explicit and implicit measures of agency showed a moderate correlation (r = .29), however, no other correlation between the explicit and implicit measures was significant.

As in Study 1, the two explicit measures showed very different relationships to aggression. Explicit communion was *negatively* associated with both forms of aggression with moderate effects

sizes (proactive aggression r = -.39; reactive aggression r = -.37), while explicit agency was *positively,* associated to aggression with a small effect size (proactive aggression r = .11; reactive aggression r = .13), though these failed to reach statistical significance.

Predicting aggression from agency and communion.

We performed four regressions in which we examined agency and communion variables separately to predict the Proactive or Reactive scale of the RPQ respectively. At stage 1 each aggression outcome was regressed onto participant gender. Men reported greater proactive aggression than women (4.1 vs 2.5), but there was no gender difference for reactive aggression (10.0 vs 10.6). At stage 2 the explicit and implicit measures were added, and finally at stage 3 the interaction between the explicit and implicit term was added. Table 4 displays these results.

Agency and aggression.

No significant effects of agency were found at stage 2 or stage 3 for either proactive or reactive aggression.

Communion and aggression.

The addition of the communion variables produced a significant increase in both models' fit at stage 2 with high explicit communion predicting less aggression for both forms of aggression. The addition of the interaction term at stage 3 did not significantly improve the model's fit.

General Discussion

We examined if measures of explicit and implicit self-esteem were predictive of proactive and reactive aggressive behavior in two separate samples. Our main findings are that: 1) low levels of explicit communion are predictive of both forms of aggression (in both samples), 2) high levels of explicit agency are associated with increase proactive aggression (UG sample only), 3) low levels of implicit communion are predictive of proactive aggression (UG sample only), and 4) implicit self-esteem interacts with explicit self-esteem to predict aggression (UG sample only).

Explicit self-esteem and Aggression

Our explicit measure of communion was negatively associated with both forms of aggression in both samples. Intuitively, this seems to make sense. Communion refers to a person's striving to be part of the community and to establish close relationships with others (e.g. Abele, Uchronski, Suitner, & Wojciszke, 2008). Hence, people who regard themselves as helpful, friendly and empathic should be less likely to use aggression against others. On the other hand, our explicit measure of agency was weakly (but in most cases not significantly) associated with higher levels of aggression. Again, this would seem to make sense. Agency refers to a person's striving for assertiveness and to protect oneself (e.g. Abele, et al., 2008) which may lead to aggressive acts.

The findings appear to mirror research using quite different measures that may also be related to agency and communion. Kirkpatrick et al. (2002) constructed measures of a person's self-perceived superiority and their social inclusion. These notions of superiority and of social inclusion seem to bear great resemblance to the ideas of agency and communion, respectively. In their experiment, Kirkpatrick et al. (2002) had people aggress against a stooge (by administrating hot sauce) who had given them negative feedback on an earlier task related to essay writing. Feelings of superiority were positively related to aggression, but feelings of social inclusion were negatively related to aggression (when entered into a regression equation with the other self-esteem variables). On the other hand, when the task was changed to imitate a mating competition, neither of these variables was predictive of the aggressive behavior. Hence, this experiment shows that the relationship between self-esteem and aggression is context specific. However, it also supports the present findings that strong feelings of social inclusion or communion reduce aggression (at least in some settings), though we do not provide any strong evidence to support the idea that feelings of superiority or agency are also predictive of aggression.

Implicit Self-worth and Aggression

As well as examining explicit measures of self-esteem, we also examined if implicit measures could be linked to aggression either by themselves or in conjunction with explicit

measures. We found that low levels of implicit communion were predictive of proactive aggression in the student sample, but not in the homeless sample. We also found that levels of implicit self-worth interacted with explicit self-worth to predict aggression in several cases in the student sample. However, this was not replicated in the homeless sample.

Our findings in the student sample show that explicit agency is only associated with aggression (both proactive and reactive) in those with low implicit agency. Such a result appears to parallel some work using a global model of self-esteem. Sandstrom and Jordan (2008) showed that children's explicit self-esteem was associated with physical and relational aggression only in those with low implicit self-esteem. Hence, the results of Sandstrom and Jordan are in line with the present results for the agency measures but not for the communion measures, which may reflect that the measure they used (RSES) is heavily weighted towards agency (Locke & Nekich, 2000).

The pattern of high explicit along with low implicit self-esteem has been termed "defensive" or "fragile" self-esteem (e.g. Kernis, 2003) as their outward projection of high self-esteem is not matched by their implicit views of themselves. Kernis, Lakey, and Heppner (2008) have shown that such individuals have high levels of verbal defensiveness and this is thought to be due to their willingness to defend their feelings of high self-esteem (including attacking the source of any threat) and to show excessive reactivity and defensiveness (e.g. anger and hostility). On the other hand, individuals with secure self-esteem do not feel threatened in such situations and do not react in an angry or aggressive manner.

While the results using measures of agency appear to parallel previous work using global measures of self-esteem, our measure of communion showed a different pattern of results. For proactive aggression low levels of explicit communion were associated with increased aggression, however this was only apparent in those who also had low implicit levels of communion. So, unlike many other studies where discrepancies between explicit and implicit self-esteem appear linked to aggression (Sandstrom & Jordan, 2008), here having any form of high communion self-esteem

(either explicit, implicit, or both) appears protective against this form of aggression. On the other hand, reactive aggression is associated with low levels of explicit communion, with no indication that levels of implicit communion influence this relationship.

One way to think about these results is that implicit measures are often thought to assess fast, automatic associations or attitudes, while explicit measures may be more adept at measuring more controlled or deliberate processes (Fazio & Olson, 2003; Rudolph et al., 2010). Proactive aggression is, by its definition, done in a controlled manner and so we might expect such actions to be more influenced by controlled processes and so more associated with explicit measures of self, while reactive aggression involved a more automatic (less controlled) process and should be more influenced by implicit levels of communion. However, the pattern of results we obtained do not conform to these predictions – indeed, they are in the opposite direction to this prediction. It is worth noting that all the measures of aggression in the present study required the person to explicitly report on their previous behaviors. Human aggression probably involves both automatic reactions and deliberative processes (indeed, this is, in part, the distinction between reactive and proactive aggression), and it may be that these deliberative processes are the most important in governing the eventual manifestation of the aggressive behavior and/or in the recall of previous aggression that is measured by the RPQ. Perhaps indices of aggression that tap into more automatic evaluations or spontaneous aggression may provide an arena where implicit self-esteem may prove itself as a stronger predictor of behavior.

While the results from the explicit measures seem broadly comparable between the student and homeless sample, there were clear differences when using the implicit measures. While the reason for this is unknown, we speculate that the IAT may have some problems when being used in certain samples. Our version of the IAT required the person to classify words as either belonging to themselves or to others (me vs not me) or to low versus high agency (or communion). Though we

excluded people with a low reading age (< 5 years), it may be that many of the participants in the homeless sample were unable to perform such a classification task due to poor cognitive ability.

Explicit vs Implicit Measures of Self-esteem

Though our studies were not designed directly to assess the relationship between explicit and implicit measures of self-esteem, they are able to contribute to this on-going debate. Most of the literature has noted that there appears to be little or even no relationship between a persons' explicit self-esteem and their results on implicit tests of self-esteem (Bosson, Swann, & Pennebaker, 2000; Greenwald & Farnham, 2000). However, these poor correlations may be partly due to differences in what aspect of self-esteem each was measuring rather than the measurement technique (Oakes, Brown, & Cai, 2008). The present studies support this idea. First, our two explicit measures of self-esteem, agency and communion, were uncorrelated. Therefore, it may be no surprise that our implicit measure of agency was not correlated with explicit communion, or that our implicit measure of communion was not correlated with explicit agency. However, explicit and implict agency were correlated (with moderate effects sizes), and explicit and implicit communion were also correlated in Study 1 (with a moderate effect size). We note that these "high" levels of correlation between explicit and implicit measures (compared to other estimates in the literature for self-esteem) were achieved by using exactly the same words in for both the explicit and implicit tests. Hence, it appears that when the implicit and explicit measures of self-esteem are well matched in what they are trying to measure, there is a moderate relationship between the two techniques suggesting there is some overlap in the constructs being evaulated by the two techniques.

Limitations

Our study has some limitations. The study has relied on self-report for several of its measures. It is quite feasible that people may not honestly report their aggressive for social desirability reasons. In our study, the participant's responses were anonymous and so we hoped such distortions were kept to a low level. Nevertheless, behavioral measures of aggression (e.g.

Webster & Kirkpatrick, 2006; Maples et al., 2010) might prove useful in examining the link between aggression and self-esteem.

Study 1 only contained students from a UK University and contained approximately equal numbers of men and women. Such a population can be characterised as predominantly young adult, white, well educated, and with low levels of criminal and antisocial behaviors. Hence, we must recognise the lack of diversity of such a sample and raise the question as to whether our results would hold for samples with quite different characteristics. To address some of these diversity issues, we also examined a sample from people in contact with a homeless charity. This sample, not surprisingly, was representative of this population, with a majority being young adult males, and almost exclusively white-British. As expected, levels of self-reported aggression were therefore higher in this sample than in study 1. However, this homeless sample had quite poor levels of literacy and we were unable to administer the IAT to a relatively high percentage (approximately 10%) of this sample. Tests that are not reliant on high levels of literacy may be needed in samples that contain people with lower reading abilities, such as violent offenders or prison samples.

Future directions

Previous studies have also shown that discrepancies in explicit and implicit self-esteem are predictive of other problem behaviors. For example, “damaged self-esteem” (low explicit but high implicit self-esteem) is predictive of greater self-harming in those with Borderline Personality Disorder (Vater, Schröder-Abé, Schütz, Lammers, & Roepke, 2010). It would be of interest to examine which aspects of self-esteem (e.g. agency and/or communion) underpin such effects.

Conclusions

Evaluation of self-esteem is related to aggression in a more complex manner than the simple view that low self-esteem is associated with aggression. In particular, we show that low communion is a strong predictor of aggression, and that implicit measures of aggression can be used in conjunction with explicit measures to provide a better predictor of past aggression. These findings

offer the opportunity to develop more accurate predictors of aggression that might be used in the prediction of future aggression and as possible indicators of treatment effects for those at risk of aggression.

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Table 1. Descriptive statistics for Study 1 and Study 2.

	Mean	SD	α	Mean	SD	α
	Study 1			Study 2		
1. Agency - ICAT	21.7	5.9	.84	23.2	6.0	.78
2. Communion - ICAT	29.2	4.0	.80	28.5	4.4	.74
3. Agency - IAT	0.23	0.33	.65	0.21	0.37	.84
4. Communion - IAT	0.47	0.22	.60	0.40	0.36	.81
5. Proactive aggression	1.4	1.8	.76	3.5	3.8	.82
6. Reactive aggression	7.2	3.4	.79	10.2	4.7	.85

Table 2. Correlations between measures in Study 1.

	1	2	3	4	5	6
1. Agency - ICAT	-	.03	.37**	.02	.23**	.10
2. Communion - ICAT		-	-.08	.30*	-.35**	-.26**
3. Agency - IAT			-	.20*	.01	.08
4. Communion - IAT				-	-.30**	-.08
5. Proactive aggression					-	.51**
6. Reactive aggression						.

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

Table 3. Results of hierarchical regression analyses in Study 1.

	Agency				*Communion*			
	Proactive Aggression		Reactive Aggression		Proactive Aggression		Reactive Aggression	
	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β
Step 1	.12**		.00		.11**		.00	
Gender		.34**		.06		.34**		.08
Step 2	.05*		.01		.11**		.06*	
Gender		.34**		.04		.25**		.03
Explicit		.23**		.08		-.26**		-.25**
Implicit		-.16*		.04		-.16*		-.00
Step 3	.02*		.02*		.04**		.00	
Gender		.33**		.03		.23		.03
Explicit		.23*		.07		-.23**		-.26**
Implicit		-.20*		.00		-.16*		-.00
Explicit * Implicit		-.16*		-.15*		.21**		-.03
n	130		130		130		126	

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

Table 4. Correlations between measures in Study 2.

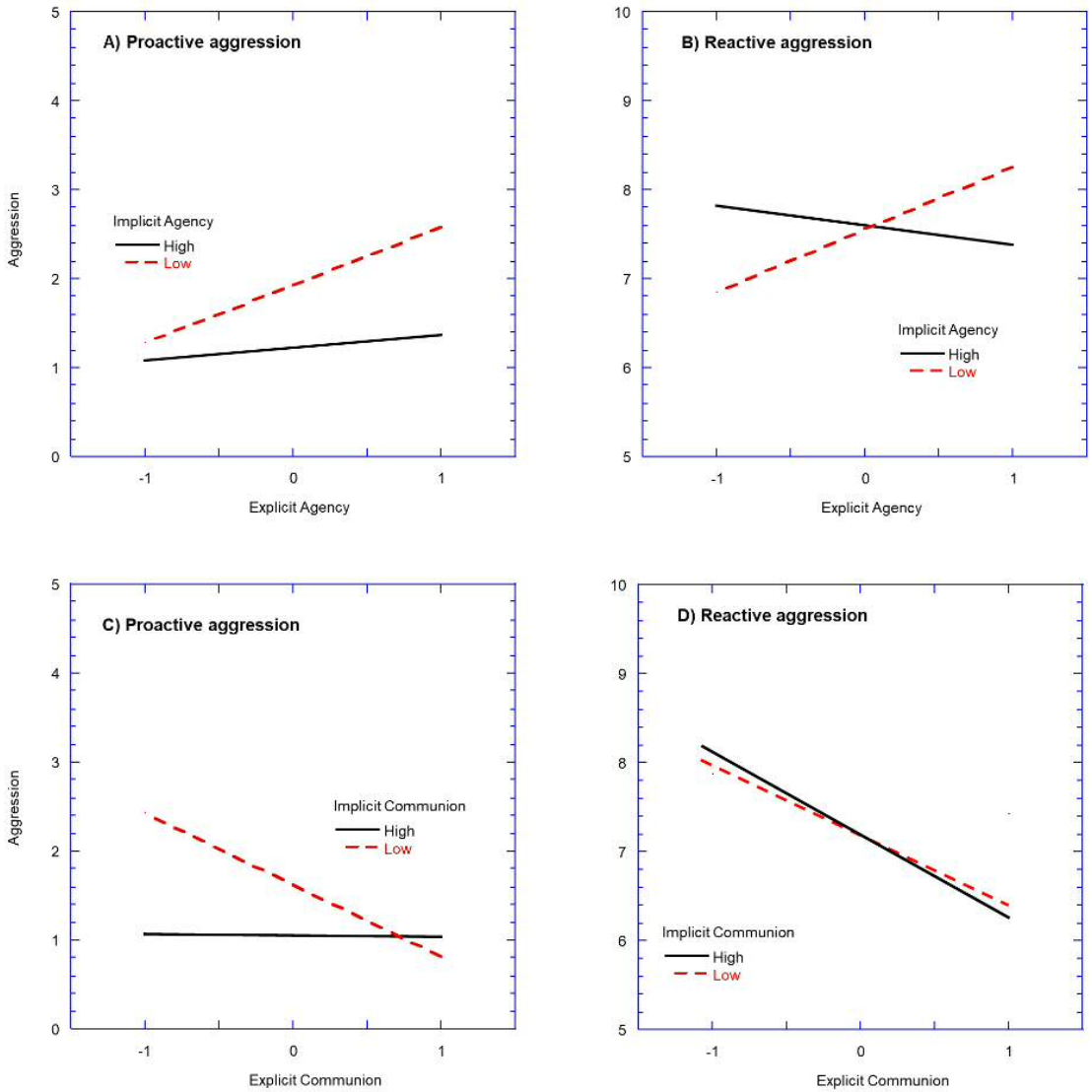
	1	2	3	4	5	6
1. Agency – ICAT (90)	-	-.05	.29**	.09	.11	.13
2. Communion – ICAT (90)		-	.14	.12	-.39**	-.37**
3. Agency – IAT (81)			-	.09	-.08	.03
4.Communion – IAT (86)				-	.03	-.05
5. Proactive aggression (10)					-	.71**
6. Reactive aggression (101)						.

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

Table 5. Results of hierarchical regression analyses in Experiment 2.

	Agency				*Communion*			
	Proactive Aggression		Reactive Aggression		Proactive Aggression		Reactive Aggression	
	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β
Step 1	.07*		.00		.06*		.00	
Gender		.24*		-.02		.24*		-.04
Step 2	.01		.00		.15**		.16*	
Gender		.25*		-.03		.20*		-.09
Explicit		.09		.06		-.39**		-.40**
Implicit		-.09		.01		.08		-.01
Step 3	.00		.00		.02		.01	
Gender		.25*		-.03		.21*		-.08
Explicit		.09		.06		-.38**		-.40**
Implicit		-.09		.01		.07		-.02
Explicit * Implicit		.01		-.04		-.14		-.08
n	81		81		85		85	

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


A) Proactive aggression
Aggression
Implicit Agency
High
Low
Explicit Agency
B) Reactive aggression
Implicit Agency
High
Low
Explicit Agency
C) Proactive aggression
Aggression
Implicit Communion
High
Low
Explicit Communion
D) Reactive aggression
Implicit Communion
High
Low
Explicit Communion

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