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Evidence That Self-Affirmation Reduces Relational Aggression: A Proof of Concept Trial

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Evidence That Self-Affirmation Reduces Relational Aggression: A Proof of Concept Trial

Objective: Acts of relational aggression cause significant social and personal costs, and interventions are needed to reduce relational aggression in community as well as clinical settings. The present study used a persuasive message coupled with a self-affirmation manipulation to reduce relational aggression among a group of adolescents recruited from the community.

Method: Participants (N = 503) all received a persuasive message designed to reduce relational aggression and were randomly allocated to participate in a self-affirming or non-affirming task.

Results: Findings demonstrated a significant reduction in relational aggression over one-month among participants who were randomized to the self-affirmation condition (d = -0.50) in contrast with a small increase in relational aggression in the control condition (d = +0.20). Contrary to expectations these effects were not mediated by message processing or changes in interpersonal affect.

Conclusion: The present study used the novel approach of asking pupils to self-affirm following a persuasive message and showed that it was possible to reduce relational aggression. Self-affirmation shows considerable promise as a means of augmenting the delivery of interventions to reduce antisocial behavior in addition to other social and health behaviors.

Keywords: Relational aggression; self-affirmation; intervention; antisocial behavior; adolescence

Evidence That Self-Affirmation Reduces Relational Aggression: A Proof of Concept Trial

Being the victim of relational aggression is associated with increased risk of suicidal ideation (e.g., Hirschtritt, Ordonez, Rico, & LeWinn, 2015), negative affectivity and psychpathological traits (e.g., Tackett, Kushner, Herzhoff, Smack, & Reardon, 2014). The purpose of the present study was to test whether a brief psychological intervention based on self-affirmation theory (Steele, 1988) could reduce relational aggression in a community sample.

Relational Aggression

Relational aggression involves deliberate attempts to hurt others via social routes such as excluding victims from group activities or spreading malicious rumors (Crick & Grotpeter, 1995) and factor analysis shows that it is a separable component of antisocial behavior (Tackett, Daoud, de Bolle, & Burt, 2013). There are negative consequences for both the victim and aggressor (Crick & Grotpeter, 1996). For example, relational aggression at age 10 has been shown to predict psychosocial adjustment at age 15, with friendship quality at age 11 playing a mediating role (Kamper & Ostrov, 2013).

The peer environment grows in salience during the transition from childhood to adolescence and managing effective friendships is key to positive social development (Ladd, 2005). Trajectory classes of relational aggression have been identified in longitudinal data from age 8 to 13 (Ettekal & Ladd, 2015). These classes were largely discriminated on initial level of relational aggression, with relatively little intra-individual change across the period. Although relational aggression has been regarded as being more common in girls than boys, some evidence suggests relatively equal engagements in both genders, at a relatively high frequency. For example Keenan, Coyne, and Lahey (2008) found that 35% of girls and 43% of boys aged 9-17 years reported that they would “keep kids out of group” at least a little of

the time. The serious negative impact of these behaviors means that interventions to reduce relational aggression need to be developed; the high frequency with which relational aggression occurs suggests that such interventions may most usefully be delivered to children in the general population. A number of studies have tested the effectiveness of interventions on relational aggression (Leff, Waasdorp, & Crick, 2010). For example, Splett, Maras, and Brooks (2015) showed that a 10-week program of group counseling for girls and training for their parents effectively reduced relational aggression in girls aged 12-15.

One difficulty in developing interventions to change behavior, such as relational aggression, is that interventions can often be perceived as threatening by the intended recipient. For example, a range of research (e.g., Liberman & Chaiken, 1992; Lipkus, McBride, Pollak, Lyna, & Bepler et al., 2004) has shown that individuals process threatening health information in an unaccepting fashion or conclude that the message does not apply to them.

Self-Affirmation

Self-affirmation theory (Steele, 1988) provides one way of understanding people's responses to threatening information. According to self-affirmation theory, people are motivated to preserve a positive, moral and adaptive self-image and to maintain self-integrity (Steele, 1988). Thus, potentially, anti-aggression messages might be subject to defensive information processing because they are threatening to the self. Crucially, however, it seems that people defend only their *global* sense of self-worth, meaning that according to Steele's (1988) theory, self-affirming in one domain should reduce the need to be defensive when threatened in another domain. In other words, if a person's self-image can be bolstered (affirmed) in a domain that is important to them, they should be less likely to process threatening information defensively and consequently be more likely to change their behavior accordingly.

There is now a growing body of evidence showing that self-affirming leads to: (a) improvements in the way that potentially threatening messages are processed, (b) increases in motivation to behave in accordance with the message, and (c) changes in behavior. For example, Sherman, Nelson, and Steele (2000) asked female students to read a threatening article about the link between caffeine consumption and fibrocystic disease. They then induced self-affirmation by asking the female students to complete a 10-item scale that asked questions about their most cherished value (control participants completed a 10-item scale that asked questions about their least cherished value). Sherman et al. (2000) found that manipulating self-affirmation led high-risk students to greater acceptance of the threatening message and more positive intentions with respect to changing their behavior. In a second study on HIV/AIDs protection, Sherman et al. (2000) showed that affirmed students (who wrote a brief essay on the topic of their most cherished value) were more likely to intend to change their behavior in the future and were more likely to act in accordance with their intentions to change by buying more condoms. The implication derived from Steele's (1988) theory is that affirming an important aspect of the self bolsters global self-worth and thereby reduces defensive processing.

Self-affirmation has been shown to improve people's receptiveness to threatening information across a range of domains including excess caffeine consumption (Reed & Aspinwall, 1998) and skin cancer (Jessop, Simmonds, & Sparks, 2009), as well as lifting the grades of African American school pupils (Cohen, Garcia, Apfel, & Master, 2006). Self-affirmation manipulations have also been applied successfully to domains that are associated with antisocial behaviors including HIV/AIDS-risk (Sherman et al., 2000) and smoking (Armitage, Harris, Hepton, & Napper, 2008). There are two strands of research to suggest that these findings could be extended to reducing relational aggression. First, given that research suggests that at least some children (grades 9-12) use relational aggression as a

means of bolstering their sense of self (e.g., Mayeux & Cillessen, 2008), it seems plausible that bolstering children's sense of self via self-affirmation might disrupt this process thereby reducing relational aggression. Consistent with this hypothesis, Thomaes, Bushman, de Castro, Cohen, and Denissen (2009) showed that self-affirmation reduced narcissistic aggression in young adolescents (mean age = 13.9 years) who scored high in narcissism over the period of a week. The present study seeks to extend the work of Thomaes et al. (2009) by: (a) challenging relational aggression among adolescents directly with a brief intervention, (b) examining the effects of self-affirmation on relational aggression in a sample not selected for narcissistic traits, and (c) assessing the longer-term effects of self-affirmation on relational aggression.

The second strand of research suggesting that the positive effects of self-affirmation could be extended to relational aggression is derived from Crocker, Niiya, and Mischkowski (2008), who showed among University students that self-affirmation increased positive interpersonal feelings such as loving, giving and connectedness. It seems likely that boosting such positive interpersonal feelings might also reduce relational aggression. The present study seeks to extend the work of Crocker et al. (2008) by examining the sustained effects of self-affirmation in a younger sample and by measuring relational aggression.

The Present Research

The present study examines the effectiveness of self-affirmation for reducing relational aggression in children aged 11 to 16. All children are presented with a simple information sheet explaining the negative consequences of engaging in relational aggression for both aggressor and victim. A baseline measure of relational aggression was taken immediately prior to the anti-relational aggression message and a follow-up evaluation was taken one month later. A measure of physical aggression was also included at baseline and follow-up to check the specificity of any improvement in relational aggression (e.g.,

Campbell & Fiske, 1959). The longer-term effects of self-affirmation in children/adolescents have been tested in just three published studies. In these studies, it has been shown that self-affirming significantly: (a) improves grades over the course of a school term (Cohen et al., 2006), (b) reduces alcohol consumption over a two-month interval (Armitage, Rowe, Arden, & Harris, 2014), and reduced narcissistic aggression in young adolescents who scored high in narcissism over the period of a week (Thomaes et al., 2009). The present study assesses whether any positive effects of self-affirmation on aggression can be sustained over the period of one month.

It is predicted that: (a) self-affirmation will reduce relational aggression; (b) the effects of self-affirmation will affect relational aggression specifically, and will not affect self-reports of physical aggression because the persuasive message targets relational aggression only; (c) self-affirmation will improve processing of an anti-relational aggression message and boost positive interpersonal feelings; and (d) the effects of self-affirmation on relational aggression will be mediated through differences in message processing (Steele, 1988) and interpersonal feelings (Crocker et al., 2008). These latter mediator hypotheses are based on potentially complementary explanations for the observed effects of self-affirming, namely, a reduction in defensive information processing (Steele, 1988) and a boost to interpersonal feelings (Crocker et al., 2008).

Method

Participants

Five hundred and three adolescents aged between 11 and 16 years were recruited from two schools in England (Figure 1). The sample consisted of both females (n = 259, 51.5%) and males (n = 229, 45.5%; n = 15 not reported) with an average age of 13 years (M = 13.33, SD = 1.41). We tested all the data for potential gender differences and potential gender x condition interactions and found none. Thus, consistent with Armitage and Rowe (2011,

Experiment 2), the self-affirmation manipulation did not exert differential effects on adolescent girls as opposed to adolescent boys.

Seventeen (3.4%) participants described themselves as "Asian", 12 (2.4%) as "Black", and 452 (89.9%) as "White". Three hundred and seventy nine (75.3%) adolescents described their parents as being in employment as opposed to being unemployed. Compared with data from the last UK census (2001, www.statistics.gov.uk), the present sample was representative in terms of gender (51.3% women in England versus 51.5% in the present sample), and ethnicity (90.9% White in England versus 89.9% in the present sample). Compared with data from the Labour Force Survey (2009, www.statistics.gov.uk), the present sample was representative in terms of employment status of parents (74.3% working age employed July-September 2008).

Design and Procedure

The study was given ethical approval by the appropriate Internal Review Board. Legally authorized persons gave consent consistent with American Psychological Association guidelines; pupils were informed that they were free to choose whether or not to participate and that they could withdraw themselves or their data at any time. Pupils who chose not to participate were allowed to engage in unrelated tasks (e.g., reading their library book), but all invited pupils participated at baseline. The experiment was run in class rooms, where the participants completed questionnaire packs in exam conditions under the supervision of teachers. Participants were individually randomly allocated to the experimental (self-affirmation, $n = 247$) or control (distracter task, $n = 256$) condition on the basis of coin tosses, which dictated the order in which questionnaires were sorted and then delivered to class rooms. The experiment was conducted under the supervision of teachers who gave out the questionnaires but were not briefed about the nature of the manipulations meaning that allocation of participants to conditions was blind.

The first page of the study packs, entitled "personal attitudes and experiences questionnaire", gave instructions regarding consent and ethics, as well as instructions for completing the measures. The second page consisted of measures of socio-demographic variables and baseline assessments of physical and relational aggression. The only difference between the experimental and control conditions was the material that appeared on the third page, namely, the self-affirmation manipulation in the case of the experimental condition, and a distracter task in the case of the control condition.

After participants completed the self-affirmation/distracter task, they were asked to read a persuasive message designed to reduce relational aggression. After reading the message, participants were asked to rate their interpersonal feelings and then a series of questions designed to tap the extent to which they had processed the message. One month later, participants were contacted again to obtain measures of aggressive acts in the intervening period.

Materials

Self-affirmation manipulation. The self-affirmation manipulation was identical to that used by Reed and Aspinwall (1998) and Armitage et al. (2008), which has previously been piloted on adolescents (Armitage & Rowe, 2011). The self-affirmation manipulation encouraged participants to elaborate on their past acts of kindness, "a highly important personal value" (p. 107), according to Reed and Aspinwall's (1998) piloting. The manipulation consisted of ten questions designed to encourage participants to recall and give examples of past acts of kindness: "Have you ever forgiven another person when they have hurt you? *yes-no*", "Have you ever been considerate of another person's feelings? *yes-no*", "Have you ever been concerned with the happiness of another person? *yes-no*", "Have you ever put another person's interests before your own? *yes-no*", "Have you ever been generous and selfless to another person? *yes-no*", "Have you ever attended to the needs of another

person? *yes-no*", "Have you ever tried not to hurt the feelings of another person? *yes-no*", "Have you ever felt satisfied when you have helped another person?" *yes-no*, "Have you ever gone out of your way to help a friend even at the expense of your own happiness? *yes-no*", and "Have you ever found ways to help another person who was less fortunate than yourself? *yes-no*". When participants responded "yes", they were asked to provide specific examples of their behavior.

The kindness questionnaire self-affirmation manipulation, as opposed to writing essays about cherished values that are commonly used in the self-affirmation literature (e.g., Cohen, Aronson, & Steele, 2000), was chosen for its suitability for use with adolescents whose essay-writing skills are likely to be inferior to those of undergraduate students and to ensure that no one endorsed values that could inadvertently promote aggression (e.g., "toughness").

Control condition. The control condition was identical to that used by Reed and Aspinwall (1998) and Armitage et al. (2008; see also Armitage & Rowe, 2011) and was designed to contain no self-relevant statements and nothing related to the concept of kindness. Thus, participants randomized to the control condition were given a similar task to those in the experimental condition, but were asked to give their opinions on ten unrelated issues, including: "I think that winter is the most satisfying season of the year *yes-no*", and "I think that the most aromatic trees in the world are pine trees *yes-no*". Consistent with the experimental group, where participants responded "yes", they were asked to elaborate. The experimental and control procedures take approximately the same length of time to complete (Armitage et al., 2008).

Anti-relational aggression message. A message, designed for the purposes of the present study was developed on the basis of material from a US community service website designed to reduce relational aggression (www.namesdohurt.com). The potential for feeling

regret after engaging in relational aggression was emphasized, given that anticipated regret is an important component of decision-making (Rivis, Sheeran, & Armitage, 2009). The application to UK children was discussed with teachers and informally piloted using age appropriate children available to the researchers. The message was:

> "Please read the following article, and then tell us your thoughts and feelings about it.
>
> Looking out for your friends and classmates
>
> We all know that physically hurting our friends and classmates is unacceptable. We know that it will hurt them at the time and may make them depressed in the long-run. Perhaps they will fear coming to school over the next weeks in case they are attacked again.
>
> Sometimes children are mean to their friends and classmates by ignoring them, spreading gossip about them or leaving them out of group activities. This does not cause the victim any physical pain but can still make them very unhappy at the time. Often it is worse than physical pain. Victims may think they deserve this treatment because there is something wrong with them. This can make them anxious and depressed.
>
> It is very important that you do not try to hurt your classmates by ignoring them, spreading gossip or leaving them out of activities that you know they would enjoy. You could cause them a lot of emotional pain. This will make you feel very guilty. Instead consider how your actions will make your classmates feel. Try to do things that make them feel better about themselves. By doing this you can help to make your school a better place.
>
> Further information is available from: www.namesdohurt.com"

Measures

Interpersonal feelings were measured using the three items from Crocker et al. (2008) upon which self-affirmation exerted the greatest influence. Thus, participants were asked to rate their feelings of love, joy, and giving, on 5-point *not at all-extremely* scales. Using an identical rating scale, we additionally asked participants to rate their feelings of kindness to see whether arousing feelings of kindness explains the effects of the kindness questionnaire. The validity of these items have been shown by their responsiveness to self-affirmation manipulations in previous studies (Armitage & Rowe, 2011; Crocker et al., 2008).

In order to gain ethical approval, we needed to use self-report measures – as opposed to direct observations – of relational aggression. Given that the purpose of the study was to reduce relational aggression specifically, we decided to enhance confidence in the effects by measuring both relational aggression and physical aggression. The rationale behind this decision was that: If any effects were attributable to reporting biases, we would anticipate a reduction in both relational aggression and physical aggression. However, if the effects were genuine, we would anticipate a reduction in relational aggression but not physical aggression.

Relational aggression was measured at baseline and follow-up using Werner and Nixon's (2005) 5-item scale, for example: "In the last month, how many times did you threaten to stop being someone's friend in order to hurt them or get what you wanted from them?", and "In the last month, how many times did you get into an argument with classmates?". The five items were assessed with an open-ended format where participants reported the actual numbers of times they had engaged in each of the behaviors.

Physical aggression was measured at baseline and follow-up using Werner and Nixon's (2005) 4-item scale, including: "In the last month, how many times did you start a fistfight or shoving match?" and "In the last month, how many times did you threaten to hit or beat up others?" Again, all four items were open-ended meaning that participants could report the actual frequencies of each of these behaviors.

Werner and Nixon (2005) report that the physical and relational aggression items load onto separate factors in exploratory and confirmatory analyses and show good psychometric properties. They also found that the scales showed the expected pattern of relationships with measures of normative beliefs about physical and relational aggression. Specifically, beliefs about relational aggression uniquely predicted the relational aggression behavior scale, whereas beliefs about physical aggression were not independently predictive. The reverse pattern of prediction was identified when physical aggression was the dependent variable. In the present study, Cronbach's α indicated adequate internal reliability for the relational and physical aggression measures at baseline and follow-up, αs = .70 to .75. We also found that the relational aggression and physical aggression measures showed significant skew and so were subjected to a logarithmic transformation.

Reaction to the anti-relational aggression message was assessed in terms of message processing and perceived threat. *Message processing* was measured using Armitage and Talibudeen's (2010) item: "How much of the article did you read?" the validity of which is evidenced through responsiveness to intervention materials. Participants responded on a 6-point scale with the labels: *None*, *a bit*, *some*, *most*, *almost all*, and *all*. *Threat* was measured on five 7-point scales. Participants were presented with the stem, "The article made me feel…" to which they responded: *not at all frightened-very frightened*, *not at all anxious-very anxious*, *not at all worried-very worried*, *not at all scared-very scared*, and *not at all threatened-very threatened*, and has validity as shown through responsiveness to intervention materials (see Harris & Napper, 2005). Cronbach's α indicated high internal reliability for the perceived threat measure, α = .94.

Results

Randomization Check

The success of the randomization procedure was tested using ANOVAs with *condition* (self-affirmed versus not self-affirmed) as the independent variable and all the variables that were measured prior to the manipulations (i.e., age, gender, relational aggression and physical aggression) at baseline as the dependent variables. All the ANOVAs were nonsignificant, Fs(1, 503) < 3.82, ps > .05, η_p^2s < .01, ds < 0.18, indicating that randomization was successful.

Effects of Self-Affirmation on Reactions to the Message

The effects of self-affirmation on message processing after the manipulations were tested using ANOVAs with *condition* as the independent variable and interpersonal feelings, message processing, and perceived threat as the dependent variables. The ANOVAs revealed significant differences between conditions on threat (Table 1). As predicted, self-affirmed participants reported feeling less threatened than participants in the control condition. There were also trends in the predicted direction for the self-affirmation condition to have stronger feelings of giving, $F(1, 501) = 3.60$, $p = .06$, $\eta_p^2 = .01$, $d = +0.20$, and greater message processing, $F(1, 501) = 3.02$, $p = .08$, $\eta_p^2 = .01$, $d = +0.20$ (Table 1).

----Table 1 about here----

Effects of Self-Affirmation on Aggression

After a month, participants were contacted again and asked to provide a further measure of their aggressive behavior since baseline. Two hundred and sixty-nine participants (53.5%) were successfully contacted again and provided follow-up data. Those who did not provide follow-up data were either absent from school on the day of testing or exercised their right not to provide follow-up data. Potential differences between participants who completed the study and those who did not were explored using ANOVAs with *attrition* (completed the study versus did not complete the study) as the independent variable and randomly-allocated condition, age, gender, interpersonal feelings, aggression and reactions to

the message (i.e., all the baseline measures) as the dependent variables. All the tests were nonsignificant, Fs(1, 503) < 3.65, ps > .05, η_p^2s < .01, ds < 0.20, indicating that attrition did not affect the representativeness of the final sample.

The effect of self-affirmation on aggression was tested initially using repeated measures ANOVA with *condition* as the between-participants independent variable and *time* (baseline versus follow-up) as the within-participants independent variable. Aggression was the dependent variable. When physical aggression was the dependent variable, there was no statistically significant condition *x* time interaction, $F(1, 266) = 0.78$, $p = .38$, $\eta_p^2 < .01$, $d = 0.11$. However, with relational aggression as the dependent variable, a significant condition *x* time interaction did emerge, $F(1, 267) = 8.25$, $p < .01$, $\eta_p^2 = .03$, $d = 0.35$ (Table 2; Figure 2).

The statistically significant interaction was decomposed in two ways. First, separate within-participants ANOVAs were run for each of the control and experimental conditions. Consistent with the patterns of means reported in Table 2, there was a nonsignificant increase in relational aggression in the control group, $F(1, 130) = 1.94$, $p = .17$, $\eta_p^2 = .01$, $d = +0.20$, but a significant decrease in relational aggression in the experimental group, $F(1, 137) = 8.41$, $p < .01$, $\eta_p^2 = .06$, $d = -0.50$. Second, ANCOVA was used to test the effects of the manipulation on follow-up relational aggression while controlling for baseline relational aggression. The statistically significant effect, $F(1, 266) = 9.58$, $p < .01$, $\eta_p^2 = .04$, $d = -0.41$, indicated that at follow-up, participants in the experimental condition reported significantly lower relational aggression than did participants in the control condition.

----Table 2 about here----

What Mediates the Effects of Self-Affirmation on Relational Aggression?

Mediation was tested formally using the bootstrapping procedures outlined in Preacher and Hayes (2008). The basis for these analyses is that the indirect effect of self-affirmation on relational aggression is the product of the paths between self-affirmation and

mediator (i.e., threat), and between mediators and relational aggression. However, such indirect effects are not normally distributed, meaning that bootstrapping is necessary (Preacher & Hayes, 2008). Bootstrapping involves resampling random subsets of data in order to gain a nonparametric approximation of the sampling distribution of the product of the self-affirmation—mediator and mediator-relational aggression paths. The analyses presented here are based on 1,000 resamples, although repeating the analyses with up to 10,000 resamples made no difference to the findings. The analyses showed that none of our proposed mediating variables mediated the effects of self-affirmation on relational aggression.

Potential Moderating Effect of Adherence to Self-Affirmation Instructions

Adherence to the self-affirmation instructions was 76.1%: 33 out of 138 participants in the experimental group did not elaborate on any of the questions and just 11/138 (8.0%) failed to endorse a single item of the questionnaire. Consistent with previous research into the effects of compliance with instructions on the effects of self-affirmation (e.g., Armitage, Harris, & Arden, 2011), neither failure to elaborate, $F(1, 136) = 1.79$, $p = .18$, $\eta_p^2 = .01$, $d = 0.20$, nor failure to endorse a single item of the questionnaire, $F(1, 136) = 0.66$, $p = .42$, $\eta_p^2 < .01$, $d = 0.14$, moderated the effects of the self-affirmation manipulation on relational aggression.

Discussion

The present study examines the effects of self-affirmation in reducing relational aggression. We demonstrated that a simple information message combined with a self-affirming activity significantly reduced the frequency of relational aggression over a one-month period. The findings are therefore consistent with Thomaes et al. (2009) and extend them by showing that self-affirmation reduces relational aggression irrespective of whether the adolescents possess narcissistic traits. These effects were not mediated by reactions to the

message, or increases in positive interpersonal feelings. Although inconsistent with Steele's (1988) theorizing, the latter findings are consistent with an emerging body of work showing that self-affirmation—based interventions bring about behavior change apparently unmediated by changes in message processing or interpersonal feelings (e.g., Armitage et al., 2011, 2014; Wileman et al., 2014). The following discussion considers the limitations, clinical and policy implications, and research implications arising from the present research.

Limitations

Although the present research takes the literature on preventing antisocial behavior and on self-affirmation forward in some important respects, some potential limitations must be noted. First, all the measures were self-reports and it would be valuable to bolster these with additional assessments of behavior, such as parent, teacher and peer reports and observational measures of aggression, and it would be valuable to include these in future studies. Second, it is possible that response to the intervention will vary across development, from childhood to adolescence. We did not have sufficient power to address this issue, but testing interactions with age would be useful for future studies. Nevertheless, as a "proof of concept trial" (MRC, 2014), the present findings suggest that it would be worthwhile pursuing a larger trial having now established likely effect sizes, recruitment and retention rates, and tested protocols. Moreover, studies showing that self-affirmation exerts significant effects on objective outcomes in domains as diverse as academic achievement (Cohen et al., 2006) and adherence to phosphate medication (e.g., Wileman et al., 2014) give us grounds for cautious optimism that the effects of self-affirmation on self-reported relational aggression in the present study will extend to objectively-assessed relational aggression in the future.

A third potential limitation is that the levels of aggression reported here were low, lower that reported in Werner and Nixon's (2005) original report of the measure. This may reflect a number of factors, including a different response format used here or a reporter bias,

for example introduced by the testing situation. However, this limitation does not impinge on our substantive results; our finding that the self-affirmation intervention was able to reduce relational aggression from an already low level provides more confidence in its efficacy. A fourth possible limitation concerns the one-month follow-up, which constitutes a relatively short period of time and it would be valuable to see whether the effects could be sustained in the longer-term. Nevertheless, emerging evidence suggests that self-affirmation effects can be sustained over several months (e.g., Armitage et al., 2014; Cohen et al., 2006; Wileman et al., 2014) meaning that cautious optimism in the sustained effects of the present findings might be warranted. Fifth, because self-affirmation theory (Steele, 1988) predicts that any effects of the manipulation would be mediated by responses to the persuasive message, we did not include conditions that tested the effects of the persuasive message independently of self-affirmation. The possibility therefore arises that self-affirmation and/or our persuasive message reduced relational aggression directly, and it would be valuable to tease apart these effects in future research.

Clinical and Policy Implications

The negative effects of relational aggression on both victim and perpetrator mean it is essential that prevention and reduction programs are developed. The high intra-individual stability in relational aggression across later childhood and early adolescence means that, without intervention, higher levels of relational aggression are likely to persist (Ettekal & Ladd, 2015). The present study suggests that self-affirmation could form an important component of this: The persuasive message was ineffective without the self-affirmation manipulation. More broadly, this is one of the few studies to have examined the longer term effects of self-affirmation (see also Cohen et al., 2006; Wileman et al., 2014) and the findings were encouraging, implying that the effects of self-affirmation may be sustained over time. However, the effect size associated with the principal condition *x* time interaction was *d* =

0.35, which is "small"-"medium" in Cohen's (1992) terms and "educationally significant" in Wolf's (1986) terms.

At first glance, an effect size of $d = 0.35$ seems week compared with existing programs: Leff, Waasdorp, and Crick's (2010) review of programs targeted at reducing relational aggression reported just 2/44 (4.5%) effect sizes smaller than $d = 0.35$ across all outcome measures. However, it is notable that the prototypical study included in Leff et al.'s (2010) review was considerably more resource-intensive in terms of numbers of sessions, professional input and training than the present intervention. Moreover, the fact that we were able to demonstrate a significant effect over and above ongoing anti-bullying programs suggests that self-affirmation may have utility as an adjunct to enhance the effectiveness of more intensive interventions (for a review see Leff et al., 2010). Given that the effect of self-affirmation is not necessarily limited to relational aggression, the opportunity arises that self-affirmation might also be used as an adjunct to enhance the effectiveness of other kinds of clinical, health or social interventions. Moreover, one practical advantage of the present technique was that the intervention could be administered in class rooms without necessitating professional intervention meaning this low-intensity intervention could prove cost-effective.

Research Implications

The question remains, however, as to what mediated the effects of the intervention: Although the intervention reduced perceived threat in those who were affirmed, perceived threat did not significantly mediate the effects of the intervention. Reviews of the literature similarly indicate that there is not yet a consistent picture regarding the variables that mediate the effects of self-affirmation. For example, self-esteem might be expected to mediate the effects of self-affirmation, but this has rarely been found to be the case (e.g., McQueen & Klein, 2006). Interestingly, Thomaes et al. (2009) found that self-affirmation reduced

narcissistic aggression directly, without presenting their participants with a persuasive message and they argue that, "self-affirmation temporarily attenuated the ego-protective motivations that normally drive narcissists' aggression" (p. 1540). Further work is required to identify the variables that consistently mediate the effects of self-affirmation manipulations.

One possible avenue for further research concerns implicit self-esteem. In a recent study on defensive self-esteem in children, Sandstrom and Jordan (2008) showed that high (explicit) self-esteem was predictive of aggression, but only when implicit self-esteem was low. Thus, the implication is that engaging in aggressive acts may compensate for low implicit self-esteem (Sandstrom & Jordan, 2008; for a review see Ostrowsky, 2009). Thus, it is plausible that some children use relational aggression as a means of self-affirming and thereby maintaining self-integrity. In the context of the present study, it implies that self-affirmation might have affected implicit self-esteem and thereby decreased relational aggression.

Sandstrom and Jordan's (2008) study has important implications for future research into self-affirmation: Although self-affirmation rarely affects explicit self-esteem (e.g., McQueen & Klein, 2006), it is plausible that self-affirmation improves implicit self-esteem. Had we measured implicit self-esteem in the present study, we might have found that it mediated the effects of self-affirmation in reducing relational aggression. Consistent with this view, Sherman, Cohen, Nelson, Nussbaum, Bunyan, and Garcia (2009) have shown that awareness of the process of self-affirmation actually attenuates its effects: The less aware participants were that they were being self-affirmed and that self-affirming protects self-integrity, the more powerful were the effects of self-affirmation. It would be valuable to measure implicit self-esteem in future research into self-affirmation interventions.

Further research into implicit self-esteem would be considered the "self resources" perspective, which may complement or be contrasted with the "self-transcendence" perspective that focuses on possible interpersonal effects of self-affirmation (e.g., Lindsay & Creswell, 2014). The Crocker et al. (2008) measures of interpersonal affect that were included in the present study reflect one form of self-transcendence for which we found null effects. However, Lindsay and Creswell (2014) argue that a more nuanced approach to self-transcendence might be warranted and provide evidence that self-compassion (self-directed feelings of love and sympathy) may be one means by which self-affirmation works. Thus, a second possible avenue for further research into the mechanisms by which self-affirmation operates might usefully focus on the idea of self-compassion.

In addition to clarifying the possible mechanisms by which self-affirmation exerts its effects, it would be valuable to explore whether kindness is an essential element of the intervention reported in the present study. The present manipulation was chosen specifically to ensure that participants could not endorse values that could inadvertently promote aggression (e.g., "toughness"), but there are other self-affirmation manipulations (e.g., the self-affirming implementation intention, see Armitage et al., 2011) that manipulate self-affirmation but do not focus on kindness. It would be valuable to see whether affirming the value of kindness is essential in reducing aggression or whether self-affirming per se is sufficient to reduce aggression.

Conclusions

In sum, the present study showed that a simple information message combined with a self-affirming activity significantly reduced the frequency of relational aggression over a one-month period. Although the effects were not mediated by reactions to the message or increases in positive interpersonal feelings, it would be valuable to explore potential

mediators of these effects, most notably implicit self-esteem and self-compassion, in future research.

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Table 1

Effects of the Self-Affirmation Manipulation on Reactions to the Message

	Control (n = 256)		Experimental (n = 247)		F[a]
Dependent Variables	*M*	*SD*	*M*	*SD*	
Kindness	3.14	0.97	3.21	0.93	0.74
Love	2.83	1.08	2.98	1.00	2.59
Joy	2.96	1.14	2.93	1.05	0.05
Giving	2.86	1.02	3.03	0.98	3.60
Message processing	3.49	1.76	3.77	1.79	3.02
Threat	2.22	1.28	1.98	1.08	5.08*

Note. [a]Univariate *F*s testing differences between control and experimental conditions; *df* = 1, 503.

*$p < .05$.

Table 2

Effects of Self-Affirmation on Relational and Physical Aggression Between Baseline and Follow-Up

Dependent Variables	*Baseline*		*Follow-Up*		F^a
	M	*SD*	*M*	*SD*	
Relational Aggression					8.25**
Control Group (*n* = 131)	0.15	0.20	0.17	0.23	
Experimental Group (*n* = 138)	0.15	0.15	0.11	0.15	
Physical Aggression					0.78
Control Group (*n* = 131)	0.65	1.50	0.80	1.64	
Experimental Group (*n* = 138)	0.51	0.60	0.41	0.85	

Note. [a]*F*s testing the condition *x* time interactions; *df*s = 1, 267. Data were subject to a logarithmic transformation.

**$p < .01$.

Figure 1

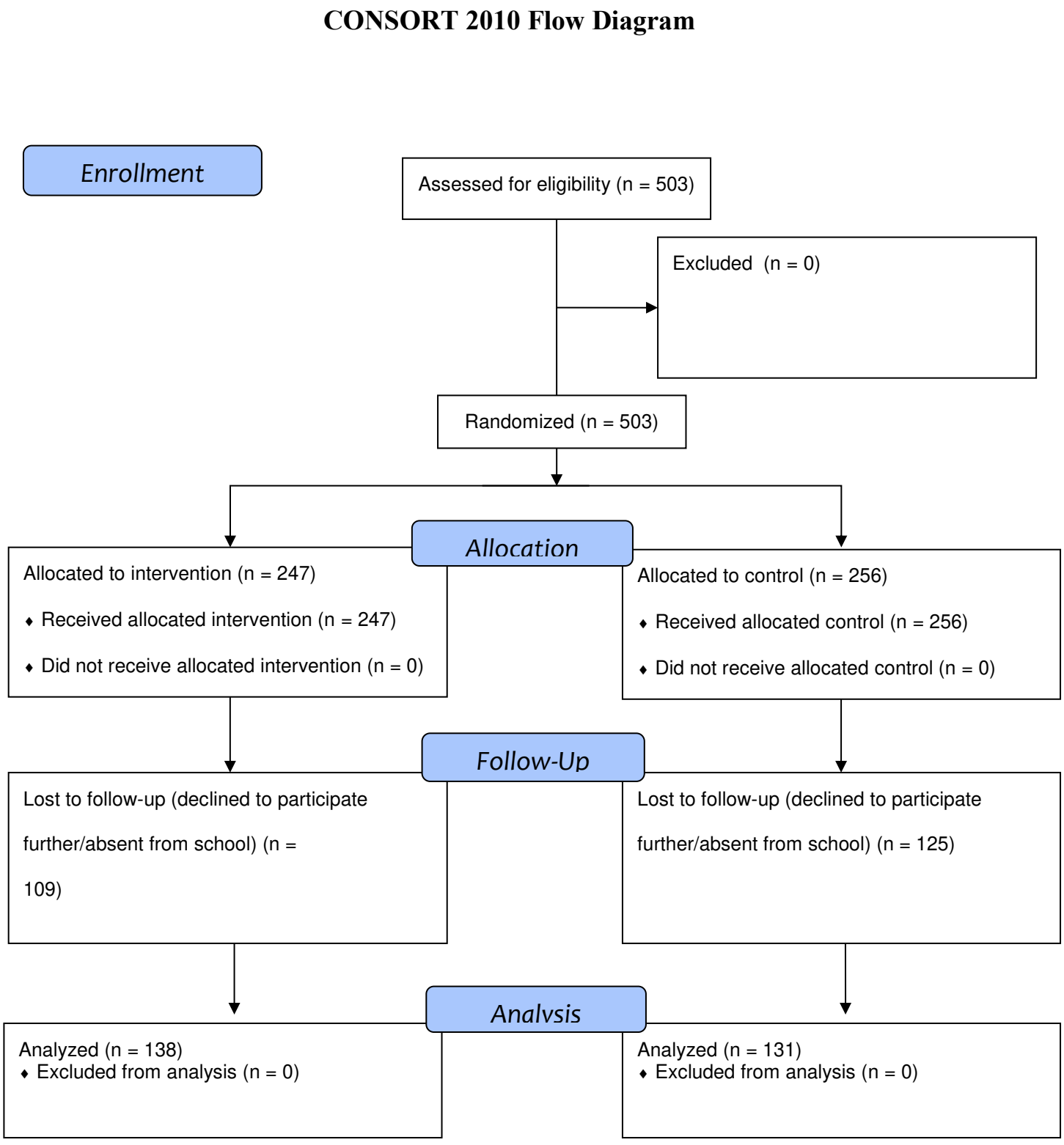
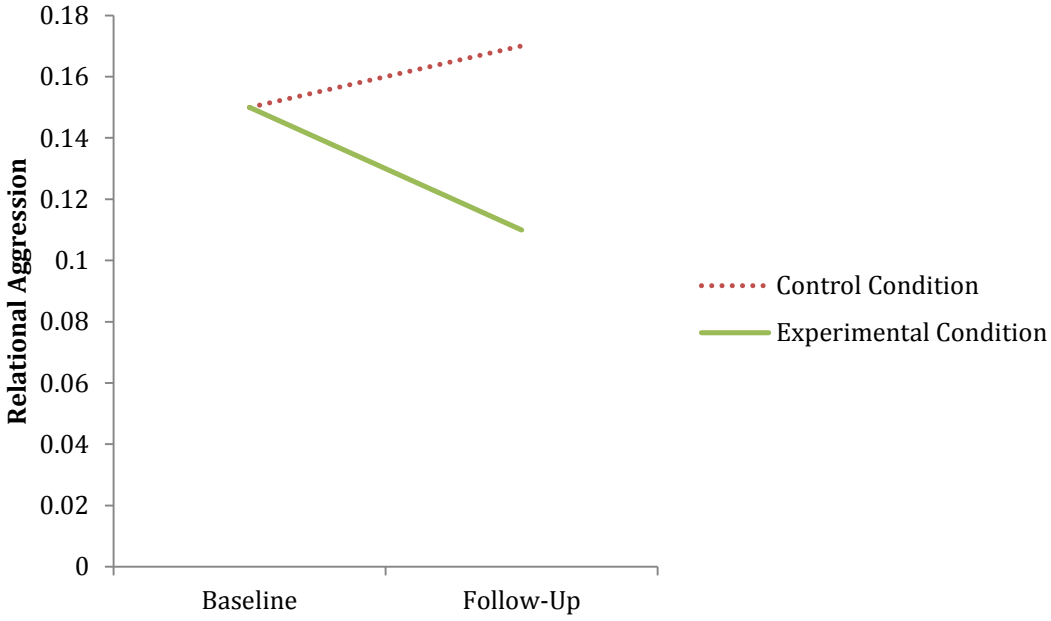

CONSORT 2010 Flow Diagram
Enrollment
Assessed for eligibility (n = 503)
Excluded (n = 0)
Randomized (n = 503)
Allocation
Allocated to intervention (n = 247)
♦ Received allocated intervention (n = 247)
♦ Did not receive allocated intervention (n = 0)
Allocated to control (n = 256)
♦ Received allocated control (n = 256)
♦ Did not receive allocated control (n = 0)
Follow-Up
Lost to follow-up (declined to participate further/absent from school) (n = 109)
Lost to follow-up (declined to participate further/absent from school) (n = 125)
Analysis
Analyzed (n = 138)
♦ Excluded from analysis (n = 0)
Analyzed (n = 131)
♦ Excluded from analysis (n = 0)

Figure 2

Significant Interaction Between "Condition" and "Time" for Relational Aggression