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Tegan Cruwys, S.Alexander Haslam, Nicole E. Fox, Hayley McMahon



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Running head: NORMATIVE CHANGE IN GROUP INTERVENTIONS

**“That’s not what we do”: Evidence that normative change is a mechanism of action in
group interventions**

Tegan Cruwys

S. Alexander Haslam

Nicole E. Fox

Hayley McMahon

University of Queensland

Corresponding author: Tegan Cruwys, School of Psychology, University of Queensland, St
Lucia QLD 4072 AUSTRALIA. email: t.cruwys@uq.edu.au ; Fax: +61 7 3365 4466.

Abstract

Group interventions for mental health have proved very effective, but there is little consensus on their mechanism of action. In the present study, we posit that normative change is a plausible mechanism and provide a test of this in an eating disorder prevention group program. Participants were 112 women aged 15-25 years with body, shape or weight concerns who completed five questionnaires across the four session group-based intervention. Results indicated that participants experienced a significant reduction in thin-ideal internalization, body dissatisfaction and dieting intentions across the course of the program. These decrements were preceded by changes in group norms. Changes in both descriptive norms and injunctive norms in the first half of the program predicted improvement in thin ideal internalization, body dissatisfaction and dieting intentions in the second half. Implications for theoretical models of attitude change are discussed, as well as implications for group interventions more generally.

Keywords: group psychotherapy, mechanisms of change, social norms, normative influence, eating behavior, group processes.

“That’s not what we do”: Evidence that normative change is a mechanism of action in group interventions

Meta-analyses confirm that group interventions are effective for a wide variety of psychological conditions (Burlingame, Fuhriman & Mosier, 2003; Oei & Dingle, 2008). Group interventions have thus been promoted as a cost-effective way to address problems associated with the fact that there is a limited pool of suitably trained health professionals with which to address demand for clinical psychological intervention (Gould, Buckminster, Pollack & Michael, 1995; Tucker & Oei, 2007).

Yet while group interventions work, a more difficult question to answer has been *why* they work, and whether the mechanisms of action in a group context are comparable to mechanisms of action in individual therapy. Cognitive mechanisms, such as dissonance, or change in schemas and attribution style, are typically posited to operate in both contexts (Bandura, 1991; Beck, 2011; Jacobson et al., 1996). However, there is less evidence for the role of cognitive processes in the case of group interventions than in the case of individual therapy (Longmore & Worrell, 2007; Oei, Bullbeck & Campbell, 2006; Oei, McAlinden & Cruwys, 2014). It is also the case that patients often attribute their improvement to group factors (Burlingame, McClendon & Alonso, 2011; Yalom & Leszcz, 2005) and there is some evidence that group factors such as cohesion or group bonding might moderate the benefit of group intervention (Cruwys et al., 2014; Hornsey, Dwyer, Oei & Dingle, 2009).

Accordingly, it is certainly plausible that the mechanisms of group interventions may differ from those of individual therapy. In this regard, one mechanism that might be distinctly implicated in group interventions is *normative social influence* whereby participants modify their own behavior and attitudes in order to conform to group norms. The goal of the present study was to examine normative social influence in the context of an eating disorder prevention group.

Reducing the risk of eating disorders

Eating disorders are among the most widespread mental illnesses, affecting as many as 20% of women aged 15-25 (Crandall, 1988; Taylor et al., 2006). This high prevalence means that disordered eating is not only a clinical issue but also a public health and economic issue, creating a burden on the health system comparable to other mental illnesses such as schizophrenia (Simon, Schmidt, & Pilling, 2005). Given the difficulty and expense of treating eating disorders (Mahon, 2000; Wilson, 2005), along with the “iceberg” of subclinical disordered eating (Neumark-Sztainer, 2003), recent research has focused on the goal of preventing eating disorders from developing. The most well-validated program to date is the *Body Project* (Stice, Shaw, Burton, & Wade, 2006; Stice, Shaw, & Marti, 2007), a group program for young women with body, shape or weight concerns. The Body Project has been validated in at least five randomized controlled trials (Becker, Smith & Ciao, 2005; Mitchell, Mazzeo, Rausch & Cooke, 2007, Stice, Chase, Stormer & Appel, 2001; Stice, Mazotti, Weibel & Agras, 2000; Stice, Trost & Chase, 2003). These trials have provided consistent evidence that the program works to reduce body dissatisfaction, thin-ideal internalization, unhealthy dieting behaviors, and eating disorder onset at one-, two- and three-year follow-up (Stice et al., 2006; Stice, Marti, Spoor, Presnell & Shaw, 2008).

The Body Project was developed on the basis of evidence that thin-ideal internalization is a primary risk factor for eating disorders (the dual pathway model; Seidel, Presnell & Rosenfield, 2009; Stice, 2002; Thompson & Stice, 2001). The manualized activities of the Body Project explicitly encourage participants to challenge the thin ideal through activities such as writing a letter of advice to oneself as a younger girl (Stice, Rohde & Shaw, 2013). Conceptually, these tasks are seen to work by creating *cognitive dissonance* (Festinger, 1957) with developers of the Body Project stating that “this intervention gives young women an opportunity to talk themselves out of pursuing the thin ideal” (Stice, et al.,

2013, p.15). This explanation focuses on how each individual observes *herself* arguing against the thin ideal, which is said to lead to the experience of dissonance and, consequently, to promote attitude change (Stice, Shaw, Becker & Rohde, 2008). Speaking to this suggestion, one study found that dissonance could partially account for the effectiveness of the Body Project (McMillan, Stice & Rohde, 2011), while another study found limited evidence for dissonance as a mechanism (Green, Scott, Diyankova, Gasser & Pederson, 2005).

Normative influence initiates attitude change

Yet, while recognizing that dissonance may be implicated in the success of the intervention, we argue that other plausible mechanisms of action may also be involved. More particularly, it is pertinent to note that the intervention is delivered in a group, and hence the majority of participants' time is not spent observing *themselves* arguing against the thin ideal, but instead observing *other group members* arguing against the thin ideal. Therefore, it seems possible that listening to similar others does part of the "heavy lifting" in explaining why the Body Project is so effective. Moreover, given that the thin-ideal is a socially-bound belief about what is attractive and desirable, listening to other young women explain why it is invalid seems likely to be a powerful means of changing an individual's perception of what is normative. Very quickly, participants' sense of what is normal in their peer group might shift from "young women wish they were thinner" to "young women reject the idea that it is good to be thinner". We propose that this shift in the perception of the group norm may be crucial to the effectiveness of group interventions.

This alternative hypothesis is suggested by laboratory- and survey-based research which has identified group norms as a primary predictor of health behavior, including eating (for a review, see Cruwys, Bevelander & Hermans, 2014). Normative influence is posited as a primary predictor in the Theory of Planned Behavior (Armitage & Connor, 2001) and the

social identity approach to health behavior (Haslam, Jetten, Postmes, & Haslam, 2009; Louis, Davis, Smith, & Terry, 2007). Evidence for the predictive utility of norms is substantial, including in the realm of unhealthy and disordered eating behaviors (Åstrom & Rise, 2001; Conner, Normal & Bell, 2002; Grønhøj, 2013; Pickett et al., 2012). For instance, several studies have shown the importance of friendship norms in determining the frequency of disordered eating behaviors, particularly in school and college environments (Crandall, 1988; Lieberman, Gauvin, Bukowski & White, 2001; Paxton, Eisenberg & Neumark-Sztainer, 2006). However, rarely has normative change been examined in a clinical intervention context. Indeed, so far as we are aware, no previous studies have investigated normative change as a potential mechanism for the effectiveness of group interventions.

The study's primary hypothesis was thus that the Body Project would achieve reductions in endorsement of the thin ideal via the mechanism of normative change.¹ More specifically, we anticipated that change in the perceived norms of the Body Project group would occur *prior* to change in correlates of disordered eating (thin-ideal internalization, body dissatisfaction, and dieting intentions)(H1) and that this change in norms would predict change in correlates of disordered eating, when controlling for both initial norms and initial correlates of disordered eating (H2).

To test these hypotheses the study investigated both *descriptive norms* (what other group members do) and *injunctive norms* (what other group members endorse as appropriate). However, as previous research has produced mixed findings about which type of norm has a stronger impact on health-related outcomes (e.g., Christensen, Rothgerber, Wood, & Matz, 2004; Larimer, Turner, Mallett, & Geisner, 2004; Smith & Louis, 2008; White, Smith, Terry, Greenslade, & McKimmie, 2009) we made no *a priori* predictions about which type of norm might best explain attitude change.

Method

Participants and Design

Participants were 112 female students aged 15-25 years ($M = 19.04$; $SD = 3.15$; 63% were either 17 or 18)². Participants were eligible to take part in the program if they were aged 15-25 and reported body, shape or weight concerns. However, those who had current disordered eating at clinical levels of severity were ineligible for the program (given that its primary focus is prevention not remediation). Two screening items from the Patient Health Questionnaire (PHQ; Spitzer et al., 1999) were asked during a screening interview: “Do you often feel that you can’t control what or how much you eat?” and “Do you often eat, within any two-hour period, what most people would regard as an unusually large amount of food?” Those who answered “Yes” to both questions were screened using the full PHQ eating disorder screening tool, which is based on the diagnostic criteria for eating disorders (American Psychiatric Association [APA], 2000). Respondents who endorsed at least three of the items were deemed to have a clinically severe eating disorder and were considered ineligible for participation, and were referred for evidence-based individual psychotherapy. Participants were also screened for anorexia nervosa using body mass index, but no participants were excluded on this basis.

The study was observational and had a repeated-measures design, with two measured predictor variables: descriptive norms and injunctive norms. The central dependent variable was thin-ideal internalization, but two other related constructs were also measured as outcome variables: body satisfaction and dieting intentions. Questionnaires were administered immediately prior to study commencement (T1; all measures), in a brief mini-questionnaire after Sessions 1, 2 and 3 (T2, T3, T4; norm and thin ideal questions only) and following completion of Session 4 (T5; all measures).

Procedure

Potential participants were invited to participate in a “Body Acceptance Group Program” via direct advertising to undergraduate students, through university counseling services, and via mail-outs to youth health services in the surrounding region. The Body Project intervention was run in accordance with the manualized program (Stice & Presnell, 2007; Stice et al., 2013). There were two group leaders (clinical psychology trainees) assigned to each group of between five and eight participants. Participation involved attending four weekly one-hour Body Project sessions that contained a range of exercises such as defining and discussing costs associated with the thin-ideal, participating in role plays to critique the thin-ideal, and exploring ways to view one’s body more positively. Participants were also required to complete short homework exercises each week. First-year psychology students received course credit for participation; other participants did not receive an incentive.

The study was approved by the ethical review committee at the researchers’ university (Approval Number: #2013000261).

Materials

Demographic information

The T1 questionnaire assessed age, ethnicity, self-reported height, and self-reported weight.

Body dissatisfaction

Body dissatisfaction was included as an affective correlate of disordered eating. The Contour Drawing Rating Scale (CDRS; Thompson & Gray, 1995) was used to measure body dissatisfaction. The CDRS is a validated measure of body image (Gardner & Brown, 2010; Wertheim, Paxton, & Tilgner, 2004) in which participants are presented with nine line-drawn figures of female figures ranging from well below a healthy weight (1) to obese (9). They are

first asked to indicate the figure that best represents their *current* body shape, and then the figure that best represents their *ideal* body shape. Our measure of body dissatisfaction was the absolute difference between these two ratings.

Dieting intentions

Dieting intentions were included as a behavioral correlate of disordered eating. The Dieting Intentions Scale (DIS; Cruwys, Platow, Rieger, & Byrne, 2013a) was used to measure intentions to diet in the next 3 months. The DIS contains 7 items (e.g., ‘In the next 3 months I intend to go on a diet’) and is measured on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*). The DIS had excellent internal consistency in the present study ($\alpha_{T1} = .88$, $\alpha_{T5} = .92$).

Thin-ideal internalization

Our primary dependent variable was thin-ideal internalization, a cognitive correlate of disordered eating. The Sociocultural Attitudes Towards Appearance Questionnaire-3 (SATAQ-3) Internalization-General subscale (Thompson, van den Berg, Roehrig, Guarda, & Heinberg, 2004) was used to measure the degree to which participants had internalized the notion that thinness is an ideal to be strived for. The subscale consists of nine items (e.g., ‘I compare my body to the bodies of people who are on TV’) measured on a scale from 1 (*definitely disagree*) to 5 (*mostly agree*). Thin-ideal internalization had excellent internal consistency ($\alpha_{T1} = .88$, $\alpha_{T5} = .90$).

Descriptive norms

The measure of descriptive norms for the pursuit of thinness among the Body Project group consisted of six items adapted from various sources (Astrosm & Rise, 2001; Smith et al., 2007; White, et al., 2009; e.g. ‘How often do you think members of your Body Acceptance group...’). Responses were made on a scale from 1 (*never*) to 7 (*frequently*) with response options intended to cover a broad range of norms relating to the three dependent

variables of dieting, thin-ideal endorsement and body dissatisfaction. They included: 'go on a diet', 'plan to lose weight', 'wish they were thinner', 'speak negatively about their appearance' and 'feel jealous of thin women'. The measure had excellent internal consistency ($\alpha_{T1} = .92, \alpha_{T5} = .96$).

Injunctive norms

The measure of injunctive norms consisted of four items measured on a seven-point scale adapted from various sources (Åstros & Rise, 2001; Smith et al., 2007; White et al., 2009): "Members of this Body Acceptance group think that dieting is a good idea" (*strongly disagree to strongly agree*), "If I were to lose weight, members of the Body Acceptance group would..." (*disapprove to approve*), "Members of this Body Acceptance group think I..." (*should not lose weight to should lose weight*), and "How many members of this Body Acceptance group would think that being thin is a good thing?" (*none of them to all of them*). The measure had poor internal consistency at T1 ($\alpha = .56$) but excellent internal consistency at all other time points ($\alpha_{T2} = .90; \alpha_{T3} = .91; \alpha_{T4} = .93; \alpha_{T5} = .83$).

Results

Sample Characteristics

Descriptive statistics are displayed in Table 1. Seventy-one per cent of participants reported their ethnicity as Caucasian, 21 per cent Asian, two per cent Middle-Eastern and five per cent Mixed ethnicity. This is (broadly speaking) representative of the local student population. The weight of participants was generally healthy, with 74.8% having a BMI between 18.5 and 25 (13.5% of the sample were underweight, 9% were overweight and 2.7% were obese). Participants were significantly elevated on all three correlates of eating pathology at T1, relative to normal samples. For example, previous studies have found college-aged women typically score approximately 35% lower on thin-ideal internalization ($M = 23.76$ in Thompson et al., 2004 versus $M = 31.87$ in this study) and 18% lower on

dieting intentions ($M = 4.15$ in Cruwys et al. 2013a versus $M = 4.89$ in this study). In this regard, the sample was comparable to previous samples of at-risk young women who have completed the Body Project.

Program Efficacy

Clearly our hypotheses only become relevant if the Body Project was first demonstrated to be effective in an Australian sample. To assess this, participants' scores on correlates of disordered eating at T1 and T5 were compared by means of within-subjects t -tests. Within-subjects effect sizes associated with these changes were then compared to previous trials. This second step was important because, in the absence of a control group, it would be possible for a natural decline in symptoms over time (i.e., in the form of regression to the mean) to be mistakenly interpreted as evidence of the effectiveness of the program. Table 1 presents the T1 and T5 values for each of the three outcome measures, as well as t -tests, effect sizes and comparable effect sizes from a previous randomized controlled trial. Participants experienced a substantial decrease on all three correlates of disordered eating between T1 and T5, with effect sizes at least as high as previous studies.

Process Analyses

Our first hypothesis was that norm change would precede attitude change (H1). The rate of change across the course of the program for thin-ideal internalization, descriptive and injunctive norms, can be seen in Figure 1 which displays the change in each variable at each time point as a proportion of the initial score. From this it is apparent that although change is incremental and similar in degree for all three variables, in line with H1, descriptive norms show the most pronounced change across the first three time points, while injunctive norms and thin-ideal internalization change more across the latter three time points. T -tests confirmed that the rate of change was higher for descriptive norms than for thin-ideal internalization between T1 and T3, $t(94) = 7.54$, $p < .001$. In contrast, the rate of change was

higher for thin-ideal internalization than for descriptive norms between T3 and T5, $t(94) = 10.10, p < .001$.

Our second hypothesis was that normative change would predict attitude change (H2). This was tested using six hierarchical regression models³ in which Step 1 included the T1 level of the dependent variable (thin ideal internalization, body dissatisfaction or dieting intentions) and the T1 level of perceived group norms (descriptive or injunctive). This controlled for individual differences in both initial severity and initial perceptions of norms (i.e., before the groups had commenced and participants had the opportunity to interact with other members of the groups). Step 2 then added the *change score* in perceived group norms between T1 and T3. In this way each model assessed whether perceived change in group norms in the first two sessions of the program could account for improvements in correlates of disordered eating across the full course of the program.

Results are presented in Table 2. Consistent with H2, in all six analyses change in group norms contributed significantly to the model — accounting for between 7 and 26% of the variance in degree of improvement in correlates of disordered eating. Effect sizes were similar between the two types of norms, although descriptive norm change was a particularly good predictor of change in dieting intentions. In line with H2, these analyses demonstrate that participants experienced the most improvement when they perceived that group norms were shifting towards more adaptive and healthy behaviors, both in terms of what group members *do* and what group members *believe should be done*.

Sensitivity analyses

Two types of sensitivity analysis were conducted to provide a more conservative assessment of the direction and timing of the relationship between norm change and change in correlates of disordered eating. These analyses utilized thin-ideal internalization, as this was the only dependent variable measured at all five time points. First, regression analyses

were repeated replacing the T1 measure of thin-ideal internalization with the T3 measure (after 2 sessions). This assessed whether norm change occurring across Sessions 1 and 2 could predict change in thin-ideal internalization occurring across Sessions 3 and 4. This provided a particularly conservative test of whether change in norms preceded change in thin-ideal internalization, as it required that the timing of these changes be completely non-overlapping. The results were replicated for injunctive norm change ($\beta = -.22, p = .008$) and were marginally significant for descriptive norm change ($\beta = -.22, p = .080$). This analysis thus provides further support for our hypotheses in suggesting that change in perceived norms regarding dieting both preceded (H1) and predicted (H2) change in correlates of disordered eating.

The second sensitivity analysis assessed the opposite relationship between norms and correlates of disordered eating — that is, to examine whether change in thin-ideal internalization in Sessions 1 and 2 could predict norm change across the course of the intervention. Results indicated that, after controlling for T1 norms and T1 thin-ideal internalization, change in thin-ideal internalization between T1 and T3 could not account for change in either descriptive norms ($\beta = -.05, p = .102$) or injunctive norms ($\beta = -.03, p = .213$). This provides further evidence for the claim that norm change and improved outcomes are not simply related to each other, but that norm change both precedes (H1) and predicts (H2) program efficacy.

Discussion

The current study had three important findings. First, we provide preliminary evidence for the effectiveness of the Body Project within a sample of Australian women. The pre–post effect sizes for decreases in correlates of disordered eating were as large as previously published RCTs, and the intervention was also associated with extremely high retention rates (greater than 90%). The study thus provides initial evidence for the utility of

this program in reducing risk factors for the onset of eating disorders in young Australian women.

Yet, important as this demonstration is, the primary purpose of the current study was to investigate a novel account of the mechanism through which the Body Project — as an exemplar of an effective form of group intervention — achieves these outcomes. Specifically, as an alternative to the prevailing cognitive dissonance model, we hypothesized that observing one's peers argue against the thin ideal can be a powerful trigger for normative change, whereby individuals come to believe that a key reference group (their fellow ingroup members) no longer embraces the thin ideal. In line with this hypothesis, the present study found that normative change preceded change in correlates of disordered eating among participants (H1) and that this shift was a predictor of program effectiveness (H2). This provides clear support for our claim that normative change is a mechanism through which the Body Project is successful.

Importantly, however, there is no reason to believe that the Body Project is unique in its capacity to modify perceptions of group norms. In fact, the majority of group psychotherapy programs devote a considerable proportion of therapeutic time to the process of allowing participants to express to one another their desire to change problematic behaviors and discussing their efforts to achieve such change. This is common, for example in interpersonal psychotherapy (Weissman, Markowitz & Klerman, 2000), Alcoholics Anonymous (Morgenstern, Labouvie, McCrady, Kahler & Frey, 1997) and most support groups (Davidson, Pennebaker & Dickerson, 2000). In this light, groups may be more than just a more cost-effective means of administering therapy (Tucker & Oei, 2007) — they *are* the therapy. Moreover, the present findings are consistent with the lived experience of participants in group psychotherapy who typically attribute their improvement to group factors (Yalom & Leszcz, 2005). The findings also speak to the importance of developing

and defining a shared identity for participants that coalesces around recovery (see also Dingle, Stark, Cruwys & Best, 2014; Cruwys et al., 2014).

Implications

The observation that group factors, such as normative change, underpin the effectiveness of group psychotherapeutic interventions is consistent with a growing body of literature that has identified the importance of group factors for health (Haslam et al., 2009; Jetten et al., 2012). In this regard, social group membership has been shown to influence not only eating behavior (Cruwys et al., 2012; Tarrant & Butler, 2011), but also smoking (Schofield, Pattison, Hill & Borfield, 2001), depression (Cruwys et al., 2013b; 2014), and adjustment after brain injury or trauma (Jones et al., 2011; 2012). Social factors in group interventions therefore warrant further exploration in future studies, in particular, to hone in more forensically on the “active ingredients” that clinicians might target and enhance for the benefit of patients.

More broadly too, the current study has implications for our conceptual understanding of individual-level clinical risk factors. Although such phenomena are often conceptualized as stable individual differences, they are nevertheless strongly influenced by social context. Others have argued that what is often *normative* for young women is to diet, dislike one’s body, and pursue thinness (Rodin, Silberstein & Striegel-Moore, 1984; Thompson & Stice, 2001). If group norms are typically maladaptive and yet malleable, this suggests the possibility that intervening at the normative (i.e., social) level might often be more appropriate and more effective than intervening at the individual (i.e., clinical) level.

Limitations

There are several limitations of this study that warrant consideration. First, there was no control group that did not complete the Body Project. Second, the T5 measures were taken immediately after completion of the fourth session. As a result, these data can provide only

weak evidence for efficacy of the Body Project, and no evidence of long-term efficacy. In light of these limitations, the contribution of this manuscript should be seen as relating not so much to its demonstration of the effectiveness of the Body Project (which is well-documented elsewhere) as to its analysis of psychological mechanism — a mechanism that is relevant not just to the Body Project but to group-based interventions in general.

Conclusion

The present investigation has found that perceived group norms — and the way that they change over time — is an important determinant of outcomes in group interventions. This conclusion is consistent with many decades of social-psychological research, but as things presently stand, group norms are not encompassed within the (typically cognitive) suite of candidate mechanisms seen to underpin the efficacy of group interventions. Yet in the present study, a single group process variable, normative change, accounted for up to 26% of patient improvement. We argue that this reflects the intensely *social* context in which group interventions take place, and that this is a site of psychological action that warrants far greater research attention than it has received to date. Participants in group interventions typically point to group factors to explain why such interventions are effective, and so too we need to ensure that our theorizing engages with the broader realities — and curative powers — of group life.

References

- American Psychiatric Association. (2000). *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision* (Fourth Edi.). Washington, DC: American Psychiatric Association.
- Armitage, C. J., & Conner, M. (2001). Efficacy of the Theory of Planned Behaviour: a meta-analytic review. *British Journal of Social Psychology*, *40*(4), 471–499.
- Åstrosm, A. N., & Rise, J. (2001). Young adults' intention to eat healthy food: Extending the theory of planned behaviour. *Psychology & Health*, *16*(2), 223–237.
doi:10.1080/08870440108405501
- Becker, C. B., Smith, L. M., & Ciao, A. C. (2005). Reducing eating disorder risk factors in sorority members: A randomized trial. *Behavior Therapy*, *36*, 245–254.
- Burlingame, G. M., McClendon, D. T., & Alonso, J. (2011). Cohesion in group therapy. *Psychotherapy (Chicago, Ill.)*, *48*(1), 34–42. doi:10.1037/a0022063
- Burlingame, G. M., Fuhriman, A., & Mosier, J. (2003). The differential effectiveness of group psychotherapy: A meta-analytic perspective. *Group Dynamics: Theory, Research, and Practice*, *7*(1), 3–12. doi:10.1037/1089-2699.7.1.3
- Christensen, P. N., Rothgerber, H., Wood, W., & Matz, D. C. (2004). Social Norms and Identity Relevance: A Motivational Approach to Normative Behavior. *Personality and Social Psychology Bulletin*, *30*(10), 1295–1309. doi:10.1177/0146167204264480
- Conner, M., Norman, P., & Bell, R. (2002). The theory of planned behavior and healthy eating. *Health Psychology*, *21*(2), 194–201. doi:10.1037//0278-6133.21.2.194
- Crandall, C. S. (1988). Social contagion of binge eating. *Journal of Personality and Social Psychology*, *55*(4), 588–598.
- Cruwys, T., Bevelander, K., & Hermans, R. C. J. (2014). Social modeling of eating: A review of when and why social influence shapes food intake and choice. *Appetite*.
doi:10.1016/j.appet.2014.08.035
- Cruwys, T., Dingle, G. A., Haslam, S. A., Haslam, C., Jetten, J., & Morton, T. A. (2013a). Social group memberships protect against future depression, alleviate depression symptoms and prevent depression relapse. *Social Science & Medicine*, *98*, 179–186.
doi:10.1016/j.socscimed.2013.09.013
- Cruwys, T., Haslam, S. A., Dingle, G. A., Jetten, J., Hornsey, M. J., Chong, E. M. D., & Oei, T. P. S. (2014). Feeling connected again: Interventions that increase social identification

- reduce depression symptoms in community and clinical settings. *Journal of Affective Disorders*, 159, 139–146. doi:10.1016/j.jad.2014.02.019
- Cruwys, T., Platow, M. J., Angullia, S. A., Chang, J. M., Diler, S. E., Kirchner, J. L., ... Wadley, A. L. (2012). Modeling of food intake is moderated by salient psychological group membership. *Appetite*, 58(2), 754–757. doi:10.1016/j.appet.2011.12.002
- Cruwys, T., Platow, M. J., Rieger, E., & Byrne, D. G. (2013b). Development and validation of the Dieting Intentions Scale (DIS). *Psychological Assessment*, 25(1), 264–278. doi:10.1037/a0030547
- Davison, K. P., Pennebaker, J. W., & Dickerson, S. S. (2000). Who talks? The social psychology of illness support groups. *American Psychologist*, 55(2), 205.
- Dingle, G. A., Stark, C., Cruwys, T., & Best, D. (2009). Breaking good: Breaking ties with social groups may be good for recovery from substance misuse. *British Journal of Social Psychology*. doi:10.1111/bjso.12081
- Festinger, L. (1957). *A theory of cognitive dissonance*. Stanford, CA: Stanford University Press.
- Gardner, R. M., & Brown, D. L. (2010). Body image assessment: A review of figural drawing scales. *Personality and Individual Differences*, 48(2), 107–111. doi:10.1016/j.paid.2009.08.017
- Gould, R. A., Buckminster, S., Pollack, M. H., & Michael, W. O. (1995). Cognitive-behavioral and pharmacological treatment for social phobia: A meta-analysis. *Clinical Psychology: Science and Practice*, 4, 291–306.
- Green, M., Scott, N., Diyankova, I., Gasser, C., & Pederson, E. (2005). Eating disorder prevention: An experimental comparison of high level dissonance, low level dissonance, and no treatment control. *Eating Disorders*, 13, 157–170.
- Grønhøj, A. (2013). Using theory of planned behavior to predict healthy eating among Danish adolescents. *Health Education*, 113(1), 4–17. doi:10.1108/09654281311293600
- Haslam, S. A., Jetten, J., Postmes, T., & Haslam, C. (2009). Social identity, health and well-being: An emerging agenda for applied psychology. *Applied Psychology: An International Review*, 58(1), 1–23.
- Hornsey, M. J., Dwyer, L., Oei, T. P. S., & Dingle, G. A. (2009). Group processes and outcomes in group psychotherapy: is it time to let go of “cohesiveness”? *International Journal of Group Psychotherapy*, 59(2), 267–78. doi:10.1521/ijgp.2009.59.2.279
- Hill, A. J. (2004). Does dieting make you fat? *British Journal of Nutrition*, 92, S15–S18.

- Jetten, J., Haslam, C., & Haslam, S. A. (2012). *The social cure: Identity, health and well-being*. New York: Psychology Press.
- Johnson, F., & Wardle, J. (2005). Dietary restraint, body dissatisfaction, and psychological distress: A prospective analysis. *Journal of Abnormal Psychology, 114*, 119–124.
- Jones, J. M., Haslam, S. A., Jetten, J., Williams, W. H., Morris, R., & Saroyan, S. (2011). That which doesn't kill us can make us stronger (and more satisfied with life): the contribution of personal and social changes to well-being after acquired brain injury. *Psychology & Health, 26*(3), 353–69. doi:10.1080/08870440903440699
- Jones, J. M., Williams, W. H., Jetten, J., Haslam, S. A., Harris, A., & Gleibs, I. H. (2012). The role of psychological symptoms and social group memberships in the development of post-traumatic stress after traumatic injury. *British Journal of Health Psychology, 17*, 798–811. doi:10.1111/j.2044-8287.2012.02074.x
- Larimer, M. E., Turner, A. P., Mallett, K. A., & Geisner, I. M. (2004). Predicting drinking behavior and alcohol-related problems among fraternity and sorority members: Examining the role of descriptive and injunctive norms. *Psychology of Addictive Behaviors, 18*(3), 203–212.
- Lieberman, M., Gauvin, L., Bukowski, W. M., & White, D. R. (2001). Interpersonal influence and disordered eating behaviors in adolescent girls: the role of peer modeling, social reinforcement, and body-related teasing. *Eating Behaviors, 2*(3), 215–36. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/15001032>
- Longmore, R. J., & Worrell, M. (2007). Do we need to challenge thoughts in cognitive behavior therapy? *Clinical Psychology Review, 27*(2), 173–87. doi:10.1016/j.cpr.2006.08.001
- Louis, W. R., Davies, S., Smith, J. R., & Terry, D. (2007). Pizza and pop and the student identity: The role of referent group norms in healthy and unhealthy eating. *The Journal of Social Psychology, 147*(1), 57–74.
- Lowe, M. R., & Timko, C. A. (2004). Dieting: really harmful, merely ineffective or actually helpful? *British Journal of Nutrition, 92*, S19–S22.
- Mahon, J. (2000). Dropping out from psychological treatment for eating disorders: What are the issues? *European Eating Disorders Review, 8*(3), 198–216. doi:10.1002/(sici)1099-0968(200005)8:3<198::aid-erv356>3.0.co;2-3
- McMillan, W., Stice, E., & Rohde, P. (2011). High- and low-level dissonance-based eating disorder prevention programs with young women with body image concerns: an

- experimental trial. *Journal of Consulting and Clinical Psychology*, 79(1), 129–34.
doi:10.1037/a0022143
- Mitchell, K. S., Mazzeo, S. E., Rausch, S. M., & Cooke, K. L. (2007). Innovative interventions for disordered eating: Evaluating dissonance-based and yoga interventions. *International Journal of Eating Disorders*, 40, 120–128.
- Morgenstern, J., Labouvie, E., McCrady, B. S., Kahler, C. W., & Frey, R. M. (1997). Affiliation with Alcoholics Anonymous after treatment: A study of its therapeutic effects and mechanisms of action. *Journal of Consulting and Clinical Psychology*, 65(5), 768.
- Neumark-Sztainer, D. (2003). Obesity and eating disorder prevention: An integrated approach? *Adolescent Medicine*, 14(1), 159–173.
- Neumark-Sztainer, D., Wall, M., Guo, J., Story, M., Haines, J., & Eisenberg, M. (2006). Obesity, disordered eating, and eating disorders in a longitudinal study of adolescents: How do dieters fare 5 years later? *Journal of the American Dietetic Association*, 106, 559–568.
- Oei, T. P. S., Bullbeck, K., & Campbell, J. M. (2006). Cognitive change process during group cognitive behaviour therapy for depression. *Journal of Affective Disorders*, 92(2), 231–241.
- Oei, T. P. S., & Dingle, G. (2008). The effectiveness of group cognitive behaviour therapy for unipolar depressive disorders. *Journal of Affective Disorders*, 107(1-3), 5–21.
doi:10.1016/j.jad.2007.07.018
- Oei, T. P. S., McAlinden, N. M., & Cruwys, T. (2014). Exploring mechanisms of change: The relationships between cognitions, symptoms, and quality of life over the course of group cognitive-behaviour therapy. *Journal of Affective Disorders*, 168C, 72–77.
doi:10.1016/j.jad.2014.06.040
- Paxton, S. J., Eisenberg, M. E., & Neumark-Sztainer, D. (2006). Prospective predictors of body dissatisfaction in adolescent girls and boys: A five-year longitudinal study. *Developmental Psychology*, 42(5), 888–899.
- Pickett, L. L., Ginsburg, H. J., Mendez, R. V, Lim, D. E., Blankenship, K. R., Foster, L. E., ... Sheffield, S. B. (2012). Ajzen's Theory of Planned Behavior as it relates to eating disorders and body satisfaction, *North American Journal of Psychology*, 14(2), 339–354.
- Rodin, J., Silberstein, L., & Striegel-Moore, R. (1984). Women and weight: A normative discontent. *Nebraska Symposium on Motivation*, 32, 267–307.

- Schofield, P. E., Pattison, P. E., Hill, D. J., & Borland, R. (2001). The influence of group identification on the adoption of peer group smoking norms. *Psychology and Health, 16*, 1–16.
- Seidel, A., Presnell, K., & Rosenfield, D. (2009). Mediators in the dissonance eating disorder prevention program. *Behavior Research and Therapy, 47*, 645–653.
- Simon, J., Schmidt, U., & Pilling, S. (2005). The health service use and cost of eating disorders. *Psychological Medicine, 35*, 1543–1551.
- Smith, J. R., & Louis, W. R. (2008). Do as we say and as we do: The interplay of descriptive and injunctive group norms in the attitude-behaviour relationship. *British Journal of Social Psychology, 47*, 647–666.
- Spitzer, R. L., Kroenke, K., Williams, J. B. W., & Group (1999). Validation and utility of a self-report version of PRIME-MD. *JAMA: The Journal of the American Medical Association, 282*(18), 1737–1744. doi:10.1001/jama.282.18.1737
- Stice, E. (2002). Risk and maintenance factors for eating pathology: A meta-analytic review. *Psychological Bulletin, 128*(5), 825–848.
- Stice, E., Chase, A., Stormer, S., & Appel, A. (2001). A randomized trial of a dissonance-based eating disorder prevention program. *International Journal of Eating Disorders, 29*, 247–262.
- Stice, E., Marti, C. N., Spoor, S., Presnell, K., & Shaw, H. (2008). Dissonance and healthy weight eating disorder prevention programs: long-term effects from a randomized efficacy trial. *Journal of Consulting and Clinical Psychology, 76*(2), 329–40. doi:10.1037/0022-006X.76.2.329
- Stice, E., Mazotti, L., Weibel, D., & Agras, W. S. (2000). Dissonance prevention program decreases time-ideal internalization, body dissatisfaction, dieting, negative affect, and bulimic symptoms: A preliminary experiment. *International Journal of Eating Disorders, 27*, 206–217.
- Stice, E., & Presnell, K. (2007). *The body project: Promoting body acceptance and preventing eating disorders: Facilitator guide*. Oxford University Press.
- Stice, E., Rohde, P., & Shaw, H. (2013). *The Body Project: A dissonance based eating disorder prevention intervention*. Oxford: Oxford University Press.
- Stice, E., Shaw, H., Becker, C. B., & Rohde, P. (2008). Dissonance-based Interventions for the prevention of eating disorders: using persuasion principles to promote health. *Prevention Science : The Official Journal of the Society for Prevention Research, 9*(2), 114–28. doi:10.1007/s11121-008-0093-x

- Stice, E., Shaw, H., Burton, E., & Wade, E. (2006). Dissonance and healthy weight eating disorder prevention programs: a randomized efficacy trial. *Journal of Consulting and Clinical Psychology, 74*(2), 263–75. doi:10.1037/0022-006X.74.2.263
- Stice, E., Shaw, H., & Marti, C. N. (2007). A meta-analytic review of eating disorder prevention programs: encouraging findings. *Annual Review of Clinical Psychology, 3*, 207–31. doi:10.1146/annurev.clinpsy.3.022806.091447
- Stice, E., Trost, A., & Chase, A. (2003). Healthy weight control and dissonance-based eating disorder prevention programs: Results from a controlled trial. *International Journal of Eating Disorders, 33*, 10–21.
- Tarrant, M., & Butler, K. (2011). Effects of self-categorization on orientation towards health. *British Journal of Social Psychology, 50*, 121–139.
- Taylor, C. B., Bryson, S., Luce, K. H., Cunnings, D., Doyle, A. C., Abascal, L. B., ... Wilfley, D. E. (2006). Prevention of eating disorders in at-risk college-age women. *Archives of General Psychiatry, 63*, 881–888.
- Thompson, J. K., & Stice, E. (2001). Thin-Ideal Internalization: Mounting Evidence for a New Risk Factor for Body-Image Disturbance and Eating Pathology. *Current Directions in Psychological Science, 10*(5), 181–183. Retrieved from <http://www.jstor.org/stable/20182734>
- Thompson, M. A., & Gray, J. J. (1995). Development and validation of a new body-image assessment scale. *Journal of Personality Assessment, 64*(2), 258–269.
- Thompson, J. K., van den Berg, P., Roehrig, M., Guarda, A. S., & Heinberg, L. J. (2004). The sociocultural attitudes towards appearance scale-3 (SATAQ-3): development and validation. *International Journal of Eating Disorders, 35*(3), 293–304. doi:10.1002/eat.10257
- Tucker, M., & Oei, T. P. S. (2007). Is group more cost effective than individual Cognitive Behaviour Therapy? The evidence is not solid yet. *Behavioural and Cognitive Psychotherapy, 35*(01), 77–91. doi:doi:10.1017/S1352465806003134
- Weissman, M., Markowitz, J., & Klerman, G. L. (2000). *A comprehensive guide to interpersonal psychotherapy*. New York: Basic Books.
- Wertheim, E. H., Paxton, S. J., & Tilgner, L. (2004). Test-retest reliability and construct validity of Contour Drawing Rating Scale scores in a sample of early adolescent girls. *Body Image, 1*(2), 199–205. doi:10.1016/S1740-1445(03)00024-X
- White, K. M., Smith, J. R., Terry, D. J., Greenslade, J. H., & McKimmie, B. M. (2009). Social influence in the theory of planned behaviour: The role of descriptive, injunctive,

and in-group norms. *British Journal of Social Psychology*, 48(1), 135–158.

doi:10.1348/014466608x295207

Wilson, G. T. (2005). Psychological treatment of eating disorders. *Annual Review of Clinical Psychology*, 1(1), 439–465. doi:doi:10.1146/annurev.clinpsy.1.102803.144250

Yalom, I. D., & Leszcz, M. (2005). *Theory and practice of group psychotherapy* (5th ed.). New York: Basic Books, Inc.

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Footnotes

¹ It is worth noting that testing our hypotheses was contingent on the Body Project being effective in reducing thin ideal internalisation (and body dissatisfaction, and dieting intentions). The effectiveness of the Body Project has not yet been demonstrated in a sample of Australian women. However, given the effectiveness of the Body Project has been demonstrated in five randomised controlled trials in similar cultural contexts, we considered this to be a kind of “manipulation check” in our design.

² 123 participants commenced Body Project groups, of which 112 (91%) completed the program and had sufficient data available at both T1 and T5. Of these, 110 completed the questionnaire at T2, 95 completed T3, and 96 completed T4.

³ Note that initially multi-level modeling was considered most appropriate for these analyses, as participants were situated within 18 different Body Acceptance groups. However, the intra-class correlation indicated that the group level of analysis did not account for a significant amount of the variance in thin ideal internalization, body dissatisfaction, or dieting intentions ($r_s < .05$). Therefore, the simpler hierarchical regression models are reported here.

Table 1.

Overall effectiveness of the Body Project in Australia with comparison effect sizes from RCT.

	Pre-intervention (T1)	Post-intervention (T5)	<i>T</i> value	Significance (<i>p</i>)	Cohen's <i>d</i>	RCT comparison Cohen's <i>d</i> (for 1 month follow-up) ^a
Thin-ideal internalization	5.03 (1.19)	3.08 (1.27)	14.45	<.001	1.36	1.09
Body dissatisfaction	2.13 (1.20)	1.19 (1.11)	9.76	<.001	0.92	0.74
Dieting	4.89 (1.19)	2.93 (1.21)	14.91	<.001	1.41	0.77

N = 112

Note. Thin-ideal internalization has been scaled to a 1-7 scale, rather than a 5-45 scale, to make it readily comparable to other variables in the analysis.

- a. As reported in Stice, E., Shaw, H., Burton, E., & Wade, E. (2006). Dissonance and healthy weight eating disorder prevention programs: a randomized efficacy trial. *Journal of consulting and clinical psychology*, 74(2), 263–75. doi:10.1037/0022-006X.74.2.263

Table 2.

Hierarchical regression analyses show that early change in injunctive or descriptive norms predicts correlates of disordered eating.

Variable	R^2 change	<i>b</i>	<i>SE b</i>	β	Semi-partial <i>r</i>	Variable	R^2 change	<i>b</i>	<i>SE b</i>	β	Semi-partial <i>r</i>
<i>Thin-ideal internalization (T5)</i>						<i>Thin-ideal internalization (T5)</i>					
Step 1	.13*					Step 1	.13*				
Descriptive norms (T1)		.14	.12	.12	.11*	Injunctive norms (T1)		.18	.16	.11	.11
Thin ideal internalization (T1)		.36	.11	.32	.31*	Thin ideal internalization (T1)		.36	.11	.33	.32*
Step 2	.07*					Step 2	.08*				
Descriptive norm change (T1-T3)		-.41	.14	-.39	-.26*	Injunctive norm change (T1-T3)		-.28	.09	-.31	-.28*
<i>Body dissatisfaction (T5)</i>						<i>Body dissatisfaction (T5)</i>					
Step 1	.22*					Step 1	.22*				
Descriptive norms (T1)		.00	.08	.00	.00	Injunctive norms (T1)		.00	.12	.00	.00
Body dissatisfaction (T1)		.37	.07	.47	.47*	Body dissatisfaction (T1)		.37	.08	.47	.44*
Step 2	.10*					Step 2	.09*				
Descriptive norm change (T1-T3)		-.35	.10	-.46	-.31*	Injunctive norm change (T1-T3)		-.21	.06	-.32	-.29*
<i>Dieting Intentions (T5)</i>						<i>Dieting Intentions (T5)</i>					
Step 1	.05					Step 1	.08*				
Descriptive norms (T1)		.00	.11	.00	.00	Injunctive norms (T1)		.31	.17	.22	.18*
Dieting intentions (T1)		.21	.09	.23	.23*	Dieting intentions (T1)		.09	.11	.09	.08
Step 2	.26*					Step 2	.14*				
Descriptive norm change (T1-T3)		-.71	.12	-.78	-.51*	Injunctive norm change (T1-T3)		-.32	.08	-.41	-.38*

* $p < .05$

$N = 95$.

Entries are statistics for the step at which they are entered.

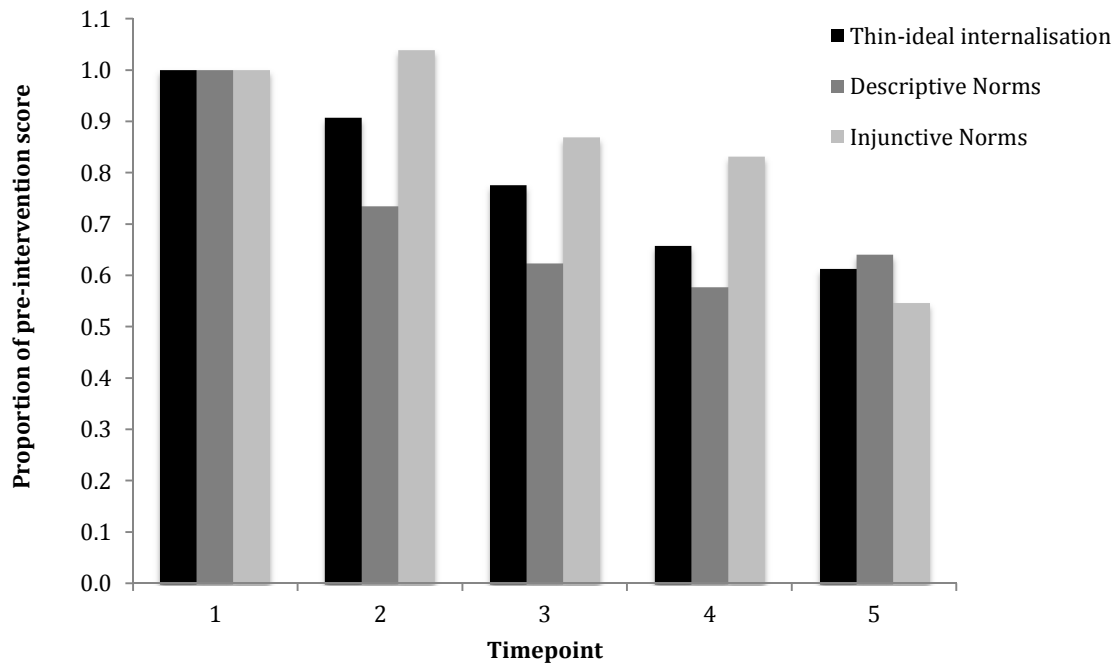


Figure 1. Rate of change across the intervention for thin-ideal internalization, descriptive and injunctive norms.

Highlights

- Group psychotherapy creates an ideal environment for normative influence
- This study examines normative influence in an eating disorder prevention group
- Change in descriptive norms preceded change in correlates of disordered eating
- Changes in descriptive and injunctive norms predicted intervention efficacy
- Social mechanisms of action warrant more attention in group psychotherapy research

Conflict of Interest

None to declare.

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