



## Dropping the weight stigma: Nostalgia improves attitudes toward persons who are overweight

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### ABSTRACT

Weight stigma, a negative attitude toward persons who are overweight, can lead to emotional detriment (increased vulnerability to depression and anxiety, decreased self-esteem) and discriminatory practices (denial of employment, lower wages, refusal of job promotion or college admission, healthcare deprivation), which have increased dramatically in the United States over the past decade. We report two experiments that implicate nostalgia as a resource or strategy for weight stigma reduction. We hypothesized and found that nostalgia about an encounter with a person who is overweight improves attitudes toward the group “overweight.” Undergraduates who recalled a nostalgic (vs. ordinary) interaction with an overweight person subsequently showed more positive outgroup attitudes. The effect of nostalgia on outgroup attitudes was mediated by greater inclusion of the outgroup in the self and increased outgroup trust (Experiments 1 and 2), as well as reduced intergroup anxiety and greater perceptions of a common ingroup identity (Experiment 2). The findings have interventional potential.

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### Introduction

“... nostalgic memories ... lead to a vivid sense of commonality [which] accelerates the process of acquaintance in a community where formerly only barriers may have existed.”

—Allport, 1954 (p. 454)

Persons who are overweight are perceived as lazy, socially inept, unhappy, ugly, and stupid (Puhl & Brownell, 2001; Puhl & Latner, 2007). This negative attitude, or *weight stigma*, has harmful repercussions for them including increased vulnerability to depression and anxiety, and decreased self-esteem (Puhl & Latner, 2007). Moreover, weight stigma leads to discrimination. Children who are overweight are victimized, verbally abused, and bullied or aggressed against, whereas overweight adults are denied employment, given lower wages, refused job promotion or college admission, and deprived of healthcare (Puhl, Andreyeva, & Brownell, 2008; Puhl & Brownell, 2001; Puhl & Latner, 2007). Weight discrimination has increased by 66% in the past decade in the United States, and is now at least as prevalent as racial discrimination and, in some cases, more prevalent than gender or age discrimination (Andreyeva, Puhl, & Brownell,

2008; Puhl et al., 2008). The root of discriminatory practices, weight stigma, needs to be tackled. We propose and test the idea that nostalgia reduces weight stigma.

### Nostalgia

Nostalgia, “a sentimental longing or wistful affection for the past” (The New Oxford Dictionary of English, 1998, p. 1266), was historically regarded a brain malfunction, psychiatric disorder, or variant of depression (Sedikides, Wildschut, Arndt, & Routledge, 2006; Sedikides, Wildschut, & Baden, 2004). Recent research, however, has rehabilitated nostalgia. This research indicates that nostalgia is a predominantly positive emotion that serves vital psychological functions (Hepper, Ritchie, Sedikides, & Wildschut, 2011; Juhl, Routledge, Arndt, Sedikides, & Wildschut, 2010; Routledge et al., 2011; Sedikides, Wildschut, Gaertner, Routledge, & Arndt, 2008; Vess, Arndt, Routledge, Sedikides, & Wildschut, 2010; Wildschut, Sedikides, & Cordero, 2011). One such function is social connectedness.

The content of nostalgic narratives is substantially more positive than negative, as naturalistic and laboratory studies demonstrate (Wildschut, Sedikides, Arndt, & Routledge, 2006). Furthermore, nostalgic narratives are social: during nostalgic reverie, figures from the past become part of one’s present (Sedikides, Wildschut, Arndt, & Routledge, 2008; Sedikides, Wildschut, Routledge, Arndt, & Zhou, 2009). Also, nostalgia, when experimentally induced, engenders perceptions of social support, increases estimates of the number of friends one has, nurtures feelings of being protected and loved, lowers attachment anxiety and

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attachment avoidance, elevates perceptions of social competence, and fosters a communal or prosocial orientation (Wildschut, Sedikides, Routledge, Arndt, & Cordaro, 2010; Wildschut et al., 2006; Zhou, Sedikides, Wildschut, & Gao, 2008; Zhou, Wildschut, Sedikides, Shi, & Feng, in press).

In all, nostalgia, through its positivity and capacity to bolster social connectedness, gives rise to “an expansive state of mind” (Kaplan, 1987, p. 465) or an approach orientation (Stephan et al., 2011), whereby one opens up to the possibility of new relationships or others in general. Research on intergroup contact has documented that social interactions between members of different groups must be positive in order to improve intergroup relations (Allport, 1954; Pettigrew & Tropp, 2006). We capitalized on this finding to formulate our hypotheses regarding the role of nostalgia in reducing the weight stigma or improving attitudes toward persons who are overweight.

### Consequences of nostalgia for outgroup attitudes

Inclusion of others in the self is a marker of interpersonal closeness (Aron, Aron, & Smollan, 1992). When individuals become nostalgic about a known outgroup member, an increased sense of social connectedness will result in greater inclusion of that outgroup member in the self. Provided the group membership of that person is salient (Brown & Hewstone, 2005), inclusion of an outgroup member in the self will result in the inclusion of the entire outgroup in the self. A potential benefit of this is a more positive outgroup evaluation (Aron, Aron, Tudor, & Nelson, 1991). Thus, nostalgia about an overweight person will lead to inclusion in the self of the group “overweight,” which in turn will result in improved attitudes toward persons who are overweight.

Nostalgia about an outgroup member may also generate outgroup trust. Trust is a positive expectation about another’s intentions and behavior (Turner et al., 2010). If perceivers experience an increased sense of social connectedness to an outgroup member as a result of nostalgia, they will feel more trusting towards that person. Provided group membership of that person remains salient (Brown & Hewstone, 2005), perceivers will generalize trust from the person to the entire outgroup. Benefits of trust include greater positivity toward the outgroup, and enhanced communication and cooperation (Dovidio, Gaertner, Kawakami, & Hodson, 2002). Thus, nostalgia about an overweight person will lead to increased trust of the group “overweight,” which in turn will result in improved attitudes toward person who are overweight.

## Experiment 1

We tested whether nostalgia counters the weight stigma. In particular, we hypothesized that nostalgia would improve attitudes toward persons who are overweight, and that this effect would be mediated by greater inclusion of the outgroup “overweight” in the self and by higher trust of the outgroup “overweight.”

### Method

#### Participants, design, and procedure

We tested 60 University of Leeds undergraduates (37 females, 23 males;  $M_{\text{age}} = 20.9$ ,  $\text{Range}_{\text{age}} = 19\text{--}22$ ,  $SD_{\text{age}} = .71$ ; none visibly overweight) in separate cubicles. We randomly assigned these participants to the nostalgia or control condition. We used a modified version of the nostalgia manipulation introduced by Wildschut et al. (2006) and rigorously validated by Hepper et al. (2011). We tailored the current version to the target group “overweight.”

In the *nostalgia condition*, participants were instructed as follows: “According to the Oxford Dictionary, ‘nostalgia’ is defined as a ‘sentimental longing for the past.’ Please bring to mind a nostalgic event in your life that involved interacting with an overweight person. Specifically, try to think of a past event involving an overweight person that makes you feel most nostalgic. Now we would like you to spend five

minutes imagining that you are back at this nostalgic event. Try and immerse yourself into this nostalgic event, remembering what it was like and how you felt at the time you interacted with the overweight person.”

In the *control condition*, participants were instructed as follows: “This is a study on autobiographical memory—that is, on your memory about your past. Please bring to mind an ordinary event in your life that involved interacting with an overweight person. Specifically, try to think of a past event involving an overweight person that is ordinary. Bring to mind an objective record of this event and think it through as though you were a scientist or historian recording factual details. Now we would like you to spend five minutes imagining that you are back at this event. Try and immerse yourself into this autobiographical event, trying to remember exactly what happened at the time you interacted with the overweight person.” In both conditions, participants wrote down a description of the event and then proceeded to complete a manipulation check and the measures (i.e., mediators, dependent variables) in the listed order.

#### Manipulation check

Participants responded to three items (Wildschut et al., 2006): “Right now, I am feeling quite nostalgic,” “Right now, I am having nostalgic feelings,” and “I feel nostalgic at the moment” (1 = *strongly disagree*, 6 = *strongly agree*;  $\alpha = .97$ ). A higher score reflected greater nostalgia.

#### Mediators

*Inclusion of the outgroup in the self (IOGS).* Participants indicated the nature of their relationship with the outgroup by selecting one from seven pairs of overlapping circles (Aron et al., 1992). The greater the overlap between the circles, the greater the IOGS.

*Outgroup trust.* Participants responded to five items assessing outgroup trust (adapted from Tam, Hewstone, Kenworthy, & Cairns, 2009): “Right now, I am able to trust an overweight person as much as any other person” (1 = *strongly disagree*, 7 = *strongly agree*), “Right now, I am able to trust an overweight person with personal information about myself” (1 = *strongly disagree*, 7 = *strongly agree*), “Do you think most overweight people would try to take advantage of you if they got the chance, or would they try to be fair?” (1 = *take advantage*, 7 = *be fair*), “Would you say that most of the time overweight people try to be helpful, or that they are mostly just looking out for themselves?” (1 = *out for themselves*, 7 = *helpful*), and “Generally speaking, would you say that overweight people can be trusted, or that you can’t be too careful?” (1 = *can’t be too careful*, 7 = *can be trusted*). A higher score reflected greater outgroup trust ( $\alpha = .83$ ).

#### Dependent variables: Outgroup attitudes

According to the tripartite model, attitudes have affective, cognitive, and behavioral components (Eagly & Chaiken, 1993). We assessed all three components.

*Affective component.* Participants indicated their feelings toward overweight persons by rating five 7-point semantic differential items: cold–warm, negative–positive, hostile–friendly, contempt–respect, and disgust–admiration (Wright, Aron, McLaughlin-Volpe, & Ropp, 1997). A higher score reflected a more positive outgroup attitude ( $\alpha = .91$ ).

*Cognitive component.* Participants rated (1 = *not at all*, 9 = *very much*) five statements assessing their beliefs regarding the amount of personal control a person has over their weight (Musher-Eizenman, Holub, Miller, Goldstein, & Leeper, 2004): “People have control over their weight,” “If a person is overweight, it is his or her fault,” “People are overweight because they eat too much,” “People are overweight because they don’t exercise,” and “Overweight people can become thin if they really try.”

We scored responses so that a higher ratings reflected more positive beliefs about persons who are overweight (i.e., the perception that persons who are overweight are not responsible for their size;  $\alpha = .80$ ).

**Behavioral component.** Participants indicated their behavioral intentions toward persons who are overweight by rating (1 = *does not describe my usual actions*, 9 = *describes my usual actions*) how likely they are to display six different reactions (Mackie, Devos, & Smith, 2000): “Right now, when thinking of overweight people I want to ‘... talk to them,’ ‘... find out more about them,’ ‘... spend time with them,’ ‘... avoid them,’ ‘... keep them at a distance,’ and ‘... have nothing to do with them.’” Responses were scored so that a higher ratings reflected more positive behavioral intentions ( $\alpha = .82$ ).

Responses on these three attitudinal components were substantially correlated: affective attitude–behavioral attitude,  $r(58) = .73$ ,  $p = .0005$ ; affective attitude–cognitive attitude,  $r(58) = .39$ ,  $p = .002$ ; and behavioral attitude–cognitive attitude,  $r(58) = .55$ ,  $p = .0005$ . Thus, we standardized each component ( $z$  scores) and then averaged the components to create a comprehensive single index of attitudes toward the overweight ( $\alpha = .93$ ).

Finally, we asked participants to record their age and gender, and to indicate (1) what they thought the purpose of the experiment was, and (2) whether they were suspicious about the purpose of the experiment. Although six participants reported feeling somewhat suspicious, no participants guessed the purpose of the experiment. We included these six participants in the analyses. Debriefing concluded the experimental session.

## Results

### Manipulation check

As intended, participants were more nostalgic in the nostalgia condition ( $M = 4.63$ ,  $SD = .78$ ) than in the control condition ( $M = 2.11$ ,  $SD = 1.33$ ),  $F(1, 58) = 79.65$ ,  $p = .001$ ,  $d = 2.31$ .

### Outgroup attitudes

We hypothesized that nostalgia would reduce weight stigma. Consistent with the hypothesis, nostalgic participants ( $M = .36$ ,  $SD = .61$ ) relative to control participants ( $M = -.36$ ,  $SD = .56$ ) held more positive attitudes toward persons who are overweight,  $F(1, 58) = 22.55$ ,  $p = .001$ ,  $d = 1.23$ .

### Mediational analyses

We then proceeded to examine the mediational role of IOGS and outgroup trust. We contrast coded the independent variable ( $-1 = \text{control condition}$ ,  $1 = \text{nostalgia condition}$ ) and conducted a series of regression analyses (Baron & Kenny, 1986).

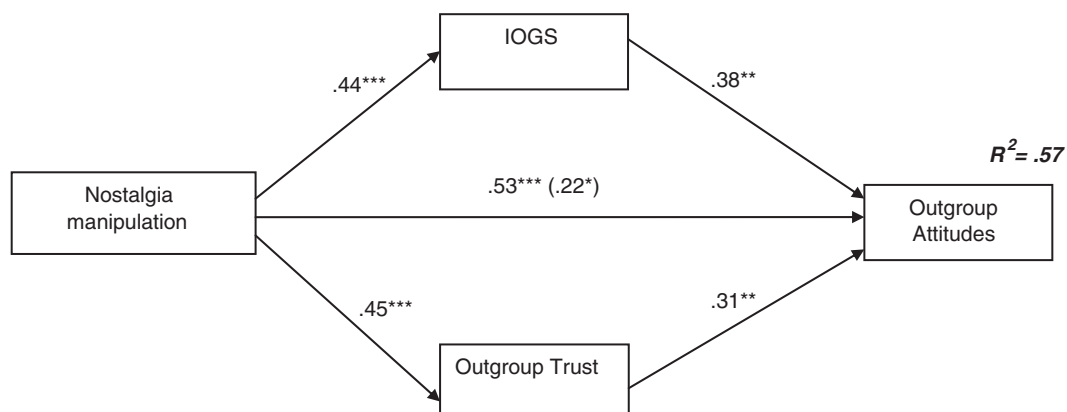
**Mediation by IOGS.** We hypothesized that IOGS would mediate the above-reported effect of nostalgia on outgroup attitudes ( $\beta = .53$ ,  $t[58] = 4.75$ ,  $p = .001$ ,  $d = 1.23$ ). Nostalgia affected the proposed mediator: Nostalgic participants ( $M = 3.43$ ,  $SD = 1.33$ ) reported greater IOGS than control participants ( $M = 2.03$ ,  $SD = 1.54$ ),  $\beta = .44$ ,  $t(58) = 3.76$ ,  $p = .001$ ,  $d = .97$ . Next, we regressed outgroup attitudes onto the nostalgia manipulation and IOGS (i.e., the mediator). There was a significant positive association between IOGS and outgroup attitudes (controlling for nostalgia),  $\beta = .54$ ,  $t(57) = 5.22$ ,  $p = .001$ . When IOGS was controlled, the effect of nostalgia on outgroup attitudes was reduced but remained significant,  $\beta = .29$ ,  $t(57) = 2.82$ ,  $p = .01$ . Thus, as hypothesized, IOGS mediated the effect of nostalgia on outgroup attitudes. Given that the nostalgia effect remained significant when the mediator was controlled, mediation was partial rather than full. In addition, we conducted bootstrapping analysis to examine the indirect effect of nostalgia on outgroup attitudes via IOGS (Preacher & Hayes, 2004): mean bootstrap estimate = .22, 95% confidence interval = .001/.43. This effect was significant, confirming mediation.

**Mediation by outgroup trust.** We followed the same procedure to test for mediation by outgroup trust. We hypothesized that outgroup trust would mediate the effect of nostalgia on outgroup attitudes. Nostalgia affected the proposed mediator: Nostalgic participants ( $M = 5.33$ ,  $SD = 1.06$ ) reported more outgroup trust than control participants ( $M = 4.15$ ,  $SD = 1.33$ ),  $\beta = .45$ ,  $t(58) = 3.80$ ,  $p = .001$ ,  $d = .98$ . When we regressed outgroup attitude onto the nostalgia manipulation and outgroup trust (i.e., the mediator), we found a significant positive association between outgroup trust and outgroup attitudes (controlling for nostalgia),  $\beta = .50$ ,  $t(57) = 4.73$ ,  $p = .001$ . When outgroup trust was controlled, the effect of nostalgia on outgroup attitudes was no longer significant,  $\beta = .06$ ,  $t(57) = .30$ ,  $p = .77$ . As hypothesized, then, outgroup trust fully mediated the effect of nostalgia on outgroup attitudes. Bootstrapping analysis confirmed that the indirect effect of nostalgia on outgroup attitudes via trust was significant: mean bootstrap estimate = .24, 95% confidence interval = .001/.46.

**Comparative strength of mediators.** When we included the predictor (manipulated nostalgia) and both mediators in the analysis simultaneously, the associations of IOGS ( $\beta = .38$ ,  $t[56] = 3.32$ ,  $p = .01$ ) and outgroup trust ( $\beta = .31$ ,  $t[56] = 2.68$ ,  $p = .05$ ) with outgroup attitude remained significant (Fig. 1).

## Discussion

Consistent with the hypotheses, nostalgia improved attitudes – encompassing affective, cognitive, and behavioral components – toward persons who are overweight. This salutary effect of nostalgia



**Fig. 1.** Mediation model showing IOGS and outgroup trust as mediators of the effect of nostalgia on outgroup attitudes (Experiment 1). Note: All coefficients = standardized betas. Figure in parenthesis on direct path is beta when controlling for mediators. \* $p = .05$ ; \*\* $p = .01$ ; \*\*\* $p = .001$ ;  $N = 60$ .



was mediated by increased IOGS and outgroup trust. However, the findings of this experiment can be criticized on the grounds that the manipulation of nostalgia may have simply induced positive mood, which in turn drove positive outgroup attitudes. That is, participants in the nostalgia condition might be more inclined to recall a positive experience, or a particularly liked overweight person, than participants in the control condition.

A second potential concern with this experiment is that we provided participants with different recall instructions *prior* to selecting an outgroup target. Therefore, the nostalgia manipulation may have influenced the type of outgroup member that participants selected. When asked to think of an ordinary autobiographical encounter with an outgroup member, participants may be likely to search their memory for an encounter with someone who is close to the group prototype (Rothbart & John, 1985). However, when asked to wax nostalgic about an outgroup member, thinking of a prototypical person might be more difficult. Accordingly, nostalgic participants may be compelled to choose a less typical outgroup member. This potential confound between the nostalgia manipulation and outgroup target (a)typicality clouds the interpretation of Experiment 1 findings. In addition, if nostalgic reflection does make people think of an atypical outgroup member, it is less likely to have benefits for intergroup relations, because this person is not particularly representative of the outgroup at large (Brown & Hewstone, 2005). Experiment 2 addressed these limitations.

## Experiment 2

In the current experiment, participants were again instructed to recall either a nostalgic or ordinary encounter with a person who is overweight. In contrast to the previous experiment, however, participants were instructed to identify an overweight person for the recall task *before* the introduction of the experimental manipulation. Thus, the manipulation could not influence the (a)typicality or positivity of the selected outgroup member. To ascertain this fact, we assessed liking and perceived typicality of the target outgroup member. We also assessed participants' mood in order to examine the possibility that recalling a nostalgic (compared to ordinary) encounter with a person who is overweight increases positive mood, which, in turn, improves outgroup attitudes.

Furthermore, we extended our investigation of the processes underlying the effect of nostalgia on outgroup attitudes. In Experiment 1, IOGS and outgroup trust emerged as mediators. In Experiment 2, we included two additional potential mediators: intergroup anxiety and common ingroup identity.

Nostalgia is likely to lower levels of intergroup anxiety, the negative arousal that can result as a consequence of expectations of rejection or discrimination during cross-group interactions or as a consequence of fears that the interaction partner, or the respondents themselves, may behave in an incompetent if not offensive manner (Stephan & Stephan, 1985). Intergroup anxiety is thought to poison intergroup encounters and lead to higher levels of prejudice (Plant & Devine, 2003). However, nostalgic individuals not only have a generally more positive orientation towards others, and are therefore less likely to hold negative expectations or be fearful, but they also feel more socially competent (Wildschut et al., 2006). They will be therefore likely to be less anxious about interacting with outgroup members and, in turn, will hold more positive outgroup attitudes.

Nostalgia is also likely to increase the perception that participants hold a shared identity with persons who are overweight. Nostalgia makes one feel more connected with those around him or her: one feels more supported, loved and protected by others, perceive oneself to have more friends, becomes more communal or prosocial, and adopts a more expansive and inclusive state of mind (Hepper et al., 2011; Wildschut et al., 2006, 2010; Zhou, Wildschut, et al., in press; Zhou et al., 2008). It would follow that, when people feel nostalgic, they are more likely to perceive those around them as part of one

large, all inclusive group. Gaertner and Dovidio (2000) proposed that, when members of two groups form a *common ingroup identity*, changing their cognitive representations from seeing two separate groups ('Us' versus 'Them') to one inclusive group ('We'), intergroup bias is reduced or eliminated. Supporting this assertion, Gaertner, Rust, Dovidio, Bachman, and Anastasio (1994) found that students at a multi-ethnic high school held more positive outgroup attitudes when they felt that the different ethnicities were "just one group."

In summary, we examined, once again, whether nostalgia can fight off the weight stigma. We hypothesized that nostalgia would improve attitudes toward persons who are overweight, and that this effect would be mediated by greater inclusion of the outgroup "overweight" in the self, increased trust of the outgroup, reduced intergroup anxiety, and stronger common group identity. We also sought to rule out alternative explanations, namely that the beneficial impact of nostalgia on outgroup attitudes is due to better mood, higher positivity of the selected outgroup member, or higher typicality of the selected outgroup member.

## Method

### Participants, design, and procedure

We tested 50 University of Leeds undergraduates (40 females, 10 males;  $M_{\text{age}} = 19.6$ ,  $\text{Range}_{\text{age}} = 18\text{--}29$ ,  $SD_{\text{age}} = 1.90$ ; none visibly overweight). First, we provided all participants with the following instructions: "We are going to ask you to recall an interaction with someone you know. We would like you to bring to mind a person you know who is overweight. We would like you to choose someone you know well. This could be a (present or former) acquaintance, friend, partner, or family member. Please write down the name of this overweight person here. Next, we randomly assigned participants to the nostalgia or control condition. The instructions were identical to those of Experiment 1 apart from the following (italics added to highlight changes): "Please bring to mind a nostalgic/ordinary event in your life that involved interacting with the overweight person whom you identified on the previous page. Specifically, try to think of a past event involving this overweight person that makes you feel most nostalgic/is ordinary." Subsequently, participants completed the manipulation check (as in Experiment 1) and the measures in the following order: mood, positivity of selected outgroup member, typicality of selected outgroup member, IOGS, outgroup trust, intergroup anxiety, common ingroup identity, outgroup attitudes. Finally, participants were probed for suspicion. No participant indicated suspicion about, or was able to guess, the purpose of the experiment. Debriefing concluded the experimental session.

### Measures

The measures that we used for the manipulation check ( $\alpha = .94$ ), IOGS, outgroup trust ( $\alpha = .81$ ), as well as the affective ( $\alpha = .85$ ) cognitive ( $\alpha = .77$ ), and behavioral ( $\alpha = .85$ ) components of outgroup attitudes were identical to those of Experiment 1. Responses on the three attitude components were again substantially correlated: affective attitude–behavioral attitude,  $r(50) = .63$ ,  $p = .001$ ; affective attitude–cognitive attitude,  $r(50) = .53$ ,  $p = .001$ ; and behavioral attitude–cognitive attitude,  $r(50) = .40$ ,  $p = .01$ . We standardized each scale and then created a comprehensive aggregate measure of attitudes that included all three components ( $\alpha = .93$ ). We will describe only the newly introduced measures below.

*Intergroup anxiety.* Participants rated (0 = *not at all*, 4 = *extremely*) how they would feel, if they had to interact with an unknown overweight person (Stephan & Stephan, 1985). We used the following items, preceded by the stem "Right now, I feel": "awkward," "self-conscious," "defensive," "confident," "happy," "relaxed" ( $\alpha = .67$ ). We reverse-scored the last three items.

**Common ingroup identity.** Participants rated (1 = *not at all*, 7 = *very much*) two items: “To what extent do normal weight people and overweight people feel like members of the same group?” and “To what extent do normal weight people and overweight people feel like members of two separate groups?” (reverse scored). We aggregated responses, as they were highly correlated,  $r(50) = .74, p = .001$ .

**Mood.** To assess positive mood, participants rated (1 = *strongly disagree*, 7 = *strongly agree*) the following three statements: “Thinking about this interaction with an overweight person ...” “... puts me in a good mood,” “... makes me feel joyful,” “... makes me feel ecstatic” ( $\alpha = .70$ ). To assess negative mood, participants rated (1 = *strongly disagree*, 7 = *strongly agree*) the following three statements: “Thinking about this interaction with an overweight person...” “... makes me feel unhappy,” “... makes me feel sad,” “... makes me feel upset” ( $\alpha = .82$ ). We derived positive and negative mood indices, respectively.

**Positivity of selected outgroup member.** Participants rated the positivity of the overweight person involved in the recalled experience on the following two items: “How much do you like this individual?” (1 = *not at all*, 7 = *very much*) and “How positive is your attitude towards this individual?” (1 = *not at all positive*, 7 = *very positive*). We derived a relevant index,  $r(50) = .56, p = .001$ .

**Typicality of selected outgroup member.** Participants rated (1 = *not at all*, 7 = *very*) the typicality of the overweight person involved in the recalled experience on two items: “How typical do you think this individual is of overweight people in general?” and “How representative do you think this individual is of overweight people in general?” Again, we derived a relevant index,  $r(50) = .73, p = .001$ .

## Results

### Manipulation check

As intended, participants were more nostalgic in the nostalgia condition ( $M = 4.83, SD = .92$ ) than in the control condition ( $M = 3.66, SD = 1.33$ ),  $F(1, 48) = 12.88, p = .001, d = 1.42$ .

### Outgroup attitudes

We hypothesized that nostalgia would improve outgroup attitudes. This hypothesis was supported. Nostalgic participants ( $M = .20, SD = .60$ ) relative to control participants ( $M = -.20, SD = .60$ ) held a more positive attitude towards persons who are overweight,  $F(1, 48) = 5.43, p = .05, d = .67$ . With more stringent experimental control (i.e., outgroup target selection before the manipulation), the nostalgia effect on outgroup attitude was smaller than in Experiment 1 ( $d_{\text{Experiment 1}} = 1.23$  vs.  $d_{\text{Experiment 2}} = .67$ ) but remained substantial and statistically significant.

### Mediational analyses

We first examined the correlations between condition (nostalgic vs. ordinary event), outgroup attitudes, and the four potential mediators (i.e., IOGS, Outgroup Trust, Intergroup anxiety, Common Ingroup Identity). We present the results in Table 1. Condition is correlated with each potential mediator, which in turn is correlated with outgroup attitude, consistent with their putative role as mediators.

**Mediation by IOGS.** We hypothesized that IOGS would mediate the above-reported effect of nostalgia on outgroup attitudes (i.e.,  $\beta = .32, t[48] = 2.33, p = .05, d = .67$ ). Nostalgia affected the proposed mediator: Nostalgic participants ( $M = 4.52, SD = 1.66$ ) reported greater IOGS than control participants ( $M = 2.92, SD = 1.32$ ),  $\beta = .48, t(48) = 3.77, p = .001, d = 1.07$ . When we regressed outgroup attitude onto the nostalgia manipulation and IOGS (i.e., the mediator), we obtained a significant positive association between IOGS and outgroup attitudes (controlling for nostalgia),  $\beta = .51, t(47) = 3.68, p = .001$ . When IOGS

**Table 1**

Means, standard deviations and correlations between predictor, mediator and criterion variables in Experiment 2.

	1	2	3	4	5	6
1. Nostalgia vs. control	–					
2. IOGS	.48***	–				
3. Outgroup trust	.28*	.31*	–			
4. Intergroup anxiety	–.51***	–.31*	–.51***	–		
5. Common ingroup identity	.33*	.61***	.57***	–.42**	–	
6. Outgroup attitudes	.32*	.55***	.44***	–.54***	–.59***	–

$N = 50$ .

\*\*\*  $p = .001$ .

\*  $p = .05$ .

\*\*  $p = .01$ .

was controlled, the effect of nostalgia on outgroup attitudes was no longer significant,  $\beta = .08, t(47) = .54, p = .59$ . Thus, as hypothesized, IOGS fully mediated the effect of nostalgia on outgroup attitudes. In addition, we conducted bootstrapping analysis to examine the indirect effects of nostalgia on outgroup attitudes via IOGS (Preacher & Hayes, 2004): mean bootstrap estimate = .15, 95% confidence interval = .06/.25. This effect was significant, confirming mediation.

**Mediation by outgroup trust.** We hypothesized that outgroup trust would mediate the effect of nostalgia on outgroup attitudes. Nostalgic participants ( $M = 5.34, SD = .64$ ) reported greater trust than control participants ( $M = 4.89, SD = .93$ ),  $F(1, 48) = 3.98, p = .05, d = .55$ . Furthermore the association between outgroup trust and outgroup attitudes was significant (controlling for nostalgia),  $\beta = .39, t(47) = 2.91, p = .005$ . When outgroup trust (i.e., the mediator) was controlled, the effect of nostalgia on outgroup attitudes was no longer significant,  $\beta = .21, t(47) = 1.60, p = .12$ . Bootstrapping analysis confirmed mediation: mean bootstrap estimate = .07, 95% confidence interval = .002/.18.

**Mediation by intergroup anxiety.** We hypothesized that intergroup anxiety would mediate the effect of nostalgia on outgroup attitudes. Nostalgic participants ( $M = 2.08, SD = .42$ ) reported less intergroup anxiety than control participants ( $M = 2.70, SD = .62$ ),  $\beta = -.51, F(1, 48) = 16.71, p = .001, d = 1.17$ . Furthermore, the association between intergroup anxiety and outgroup attitudes was significant (controlling for nostalgia),  $\beta = -.51, t(47) = -3.57, p = .001, d = 1.04$ . When intergroup anxiety (i.e., the mediator) was controlled, the effect of nostalgia on outgroup attitude became non-significant,  $\beta = .06, t(47) = .42, p = .67, d = .12$ . As hypothesized, then, intergroup anxiety fully mediated the effect of nostalgia on outgroup attitudes. Bootstrapping analysis confirmed that the indirect effect of nostalgia on outgroup attitudes via intergroup anxiety was significant: mean bootstrap estimate = .15, 95% confidence interval = .05/.27.

**Mediation by common ingroup identity.** Finally, we hypothesized that perception of a common ingroup identity would mediate the effect of nostalgia on outgroup attitudes. Nostalgic participants ( $M = 4.82, SD = 1.57$ ) perceived overweight people and normal weight people as members of one group more than control participants did ( $M = 3.84, SD = 1.31$ ),  $\beta = .33, F(1, 48) = 5.72, p = .05, d = .68$ . Furthermore, the association between common ingroup identity and outgroup attitudes was significant (controlling for nostalgia),  $\beta = .55, t(47) = 4.50, p = .001, d = 1.31$ . When common ingroup identity (i.e., the mediator) was controlled, the effect of nostalgia on outgroup attitudes became non-significant,  $\beta = .14, t(47) = 1.14, p = .26, d = .33$ . As hypothesized, common ingroup identity mediated the effect of nostalgia on outgroup attitudes. Bootstrapping analysis confirmed that the indirect effect of nostalgia on outgroup attitudes via common ingroup identity was significant: mean bootstrap estimate = .11, 95% confidence interval = .02/.24.

*Path model testing the comparative strength of mediators.* We next tested a path model in which we included the predictor (manipulated nostalgia) and all four significant mediators in the analysis simultaneously. Whereas the associations of IOGS ( $\beta = .31$ ,  $t[44] = 2.16$ ,  $p = .05$ ) and intergroup anxiety ( $\beta = -.38$ ,  $t[44] = -2.97$ ,  $p = .01$ ) with outgroup attitudes remained significant, and the effect of common ingroup identity remained marginal ( $\beta = .26$ ,  $t[44] = 1.67$ ,  $p = .10$ ), the effect of outgroup trust was no longer significant ( $\beta = .04$ ,  $t[44] = .31$ ,  $p = .76$ ). We therefore removed outgroup trust from the model. The resulting model, presented in Fig. 2, in which IOGS, common ingroup identity, and intergroup anxiety fully mediate the relation between the nostalgia manipulation and outgroup attitudes, fit the data well:  $\chi^2(2) = .81$ ,  $p = .37$ ; RMSEA = .01, CFI = .99.

It is, of course, possible that a different causal order may be more appropriate. An alternative that comes readily to mind is a model in which nostalgia affects outgroup attitudes, which in turn predicts IOGS, common ingroup identity, intergroup anxiety, and outgroup trust. We therefore tested this potential alternative. However, this model provided a poor fit to the data:  $\chi^2(2) = 18.71$ ,  $p = .001$ ; RMSEA = .28, CFI = .86. We therefore retained the Fig. 2 model.

*Mood, positivity of selected outgroup member, and typicality of selected outgroup member.* No significant differences emerged between the nostalgic and ordinary event conditions on positive mood ( $F[1,48] = .55$ ,  $p = .46$ ), negative mood ( $F[1,48] = 1.89$ ,  $p = .17$ ), positivity of selected outgroup member, ( $F[1,48] = .50$ ,  $p = .48$ ), or typicality of selected outgroup member ( $F[1,48] = 1.21$ ,  $p = .28$ ). Moreover, even when all four variables were included in the analyses as covariates, participants in the nostalgia condition held more positive attitudes towards persons who are overweight than participants in the control condition did,  $F(1,44) = 4.5$ ,  $p = .04$ ,  $d = .67$ .

## Discussion

Nostalgia improved outgroup attitudes even when participants identified the target outgroup member prior to the nostalgia manipulation, meaning that the manipulation could not have influenced selection of the target outgroup member. In addition, the effect of nostalgia remained significant even when positive and negative mood, positivity of the selected outgroup member, and typicality of the selected outgroup member were simultaneously controlled for. Thus, we successfully addressed two potential limitations of Experiment 1. We also extended Experiment 1 by identifying two further mediators. Participants in the nostalgia (compared to control) condition not only scored

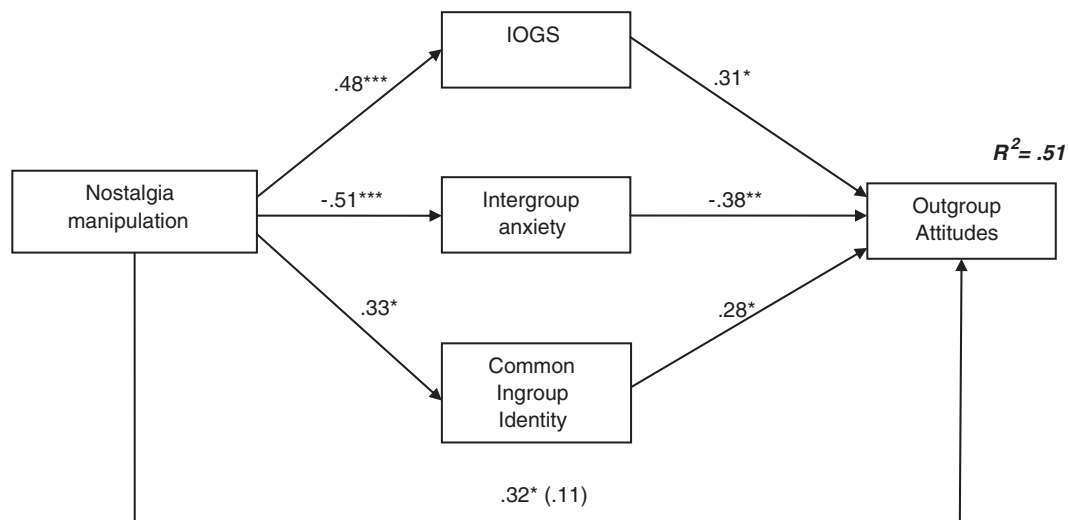
higher on IOGS and outgroup trust (replicating Experiment 1), but also showed reduced intergroup anxiety and increased common ingroup identity. In turn, each mechanism was associated with more positive outgroup attitudes.

IOGS, intergroup anxiety and common ingroup identity were significant mediators of the effect of nostalgia on outgroup attitudes when examined individually and simultaneously. However, whereas outgroup trust was an individual mediator, when included in an analysis with all four mediators, its effect on outgroup attitude no longer remained significant. It is possible that this reduction in the role of outgroup trust as a mediator of nostalgia (compared to Experiment 1) is related to the fact that Experiment 2 participants selected the outgroup target before (rather than after) exposure to the manipulation. Perhaps Experiment 1 participants were more likely to recall events involving a highly trusted overweight person when in the nostalgia (compared to control) condition.

Although it is reassuring that the salutary effects of nostalgia did not simply flow from positive mood, the null finding for positive mood contradicts previous research showing that recollection of nostalgic (compared to ordinary) autobiographical events increased positive mood (Wildschut et al., 2006, 2010; although null findings have also been obtained: Stephan et al., 2011; Zhou, Wildschut, et al., in press). In contrast to this previous research, however, we explicitly instructed participants in both conditions to recall an autobiographical event involving someone they know well (i.e., a present or former acquaintance, friend, partner, or family member). We suspect that this may have led participants in the control condition to recall more social and, hence, more enjoyable experiences than in previous research (i.e., ordinary events involving close others, such as a family dinner, can be very positive). If so, this would explain the attenuated positivity gap between the nostalgia and control conditions in the present (compared to some of the previous) research.

## General discussion

Nostalgia improved outgroup attitudes. Nostalgia fostered inclusion of the outgroup “overweight” in the self, strengthened outgroup trust, reduced intergroup anxiety, and increased perceptions of a common ingroup identity. In turn, each of these processes was associated with more positive attitudes toward persons who are overweight. These findings represent a substantial theoretical advancement. They illustrate that nostalgia benefits not only interpersonal relationships (Wildschut et al., 2006, 2010; Zhou, Wildschut, et al., in press; Zhou et al., 2008), but also society more generally (i.e., weight stigma reduction). The



**Fig. 2.** Mediation model showing IOGS, common ingroup identity, and intergroup anxiety as mediators of the effect of nostalgia on outgroup attitudes (Experiment 2). Note: All coefficients = standardized betas. The number in parenthesis on direct path is beta when controlling for mediators.  $^*p = .05$ ;  $^{**}p = .01$ ;  $^{***}p = .001$ ;  $N = 50$ .



findings also specify mechanisms through which nostalgia combats the weight stigma.

Importantly, in our second experiment, we ruled out many of the ambiguities intrinsic to the first one. In Experiment 1, participants were introduced to the manipulation *prior* to selecting an outgroup member. Accordingly, it was possible that the nostalgia manipulation may have influenced the type of outgroup member that participants selected. For instance, participants who recalled a nostalgic (compared to ordinary) event involving an outgroup member may have been more likely to select an atypical or a strongly liked outgroup member. These possible confounds clouded the interpretation of Experiment 1 findings. In addition, we did not measure mood and therefore could not rule out the possibility that Experiment 1 findings were due to participants in the nostalgia (compared to control) condition experiencing more positive (and less negative) mood. In Experiment 2, however, participants identified an overweight person for the recall task *before* they were exposed to the experimental manipulation, ensuring that the manipulation could not influence the positivity or (a)typicality of the selected target. We also included measures of selected outgroup member positivity, selected outgroup member typicality, and mood. Nostalgia still resulted in more positive outgroup attitudes, even when controlling for these three potential confounds.

### Limitations

In order to test the role of nostalgia, participants in the experimental condition were given a dictionary definition of nostalgia ('a sentimental longing for the past'), whereas in the control condition they were not. This nostalgia definition might be perceived as a warm, positive instruction. Accordingly, participants may simply have felt they had been instructed to be *nice* to overweight people, which in turn may have resulted in them reporting more positive perceptions of this group. We do not, however, believe that this potential explanation can adequately account for our findings for two reasons. First, Wildschut et al. (2006) found that participants who thought about a past event that made them feel nostalgic scored higher on measures of social bonding, positive self-regard and positive affect *regardless of* whether they were given a dictionary definition of nostalgia as part of their task instruction.

Second, there is evidence that nostalgia and its consequences can be induced in the absence of both the dictionary definition of nostalgia and the term nostalgia. Hepper et al. (in press) identified central (e.g., memories, relationships) and peripheral (e.g., calm/relaxed, daydreaming) features of laypersons' prototypical view of nostalgia. They then used these central and peripheral features to manipulate nostalgia. Specifically, participants were given a list of central features (or, in the control condition, peripheral features) and asked to bring to mind an event in their life that was characterized by at least five of these features. Participants who focused on an event characterized by central (compared to peripheral) features were more nostalgic and also reported greater positive affect, self-regard, and social connectedness. In sum, although the instructions given in the nostalgia and the control condition did not differ in their warmth or positivity, participants who recalled an event that was characterized by central (compared to peripheral) features of the nostalgia prototype reported more positive affect, self-regard, and social connectedness.

A further potential concern with the reported experiments is that they included relatively small samples of undergraduate students and therefore are not representative of the general population. However, we have replicated our findings across two independent samples. Furthermore, in both experiments, the effect sizes were large, suggesting that nostalgia has a powerful effect on outgroup attitudes.

Another potential limitation is that the experiments did not include a measure of self-reported or actual body weight, both of which are likely to have an impact on attitudes towards persons who are overweight, and may also moderate the effect of nostalgia on these attitudes. Note, however, that the current research was

not intended as an evaluation of the effectiveness of a prejudice-reduction intervention. Instead, the aim of the research was to provide a theory-based glimpse at one possible mechanism that might be used in a more comprehensive investigation to limit or reverse judgments of persons who are overweight. Nonetheless, future studies incorporating nostalgia as an applied intervention should ensure that more detailed measures of participants' characteristics are included (e.g., self-reported and actual body weight, socio-economic status, nationality, ethnicity).

### Broader implications

Nonetheless, these findings have interventional implications. Arguably, nostalgia is easier to implement and perhaps sustain than actual intergroup contact (Allport, 1954; Pettigrew & Tropp, 2006). The same can be said about imagined intergroup contact, where participants who imagine interacting with an outgroup member subsequently show more positive outgroup attitudes than control participants (Crisp & Turner, 2009; Turner, Crisp, & Lambert, 2007). That research has not drawn on participants' autobiographical memories as a source of imagined contact. Thus, persons might not spontaneously engage in this type of abstract mental imagery, this type of mental imagery is rather impoverished (lacking in texture and affect), and any intervention might be difficult to maintain (low adherence) and might produce suboptimal results. However, the present research provides insight into how imagined contact interventions may be implemented successfully by (1) capitalizing upon the known propensity for most persons to recall nostalgic memories on a regular basis (Wildschut et al., 2006) and (2) mining the rich deposits of nostalgic memories that undoubtedly will involve outgroup members. Indeed, this is the first empirical evidence supporting Allport's (1954) intuition – with which we opened this article – about the beneficial implications of nostalgia for intergroup contact.

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