The relationship between individual differences in spontaneous self-affirmation and affect associated with self-weighing

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ABSTRACT

We investigate whether the tendency to self-affirm in response to threat is associated with how people feel when they weigh themselves. People who were preoccupied with their weight anticipated feeling less negative (Studies 1a and 1b) and felt less negative (Study 2) when self-weighing if they typically affirmed their strengths. Study 3 experimentally manipulated self-affirmation. Although this intervention prompted affirmation of strengths it did not influence how participants felt when they subsequently weighed themselves. Together, the findings suggest that the tendency to spontaneously affirm strengths, but not values or social relations, is associated with the psychological outcomes of self-weighing and thus provide the basis for understanding how such individual differences might moderate how people respond in other self-evaluative contexts.

1. Introduction

The present research investigates whether individual differences in the tendency to self-affirm (or "spontaneous self-affirmation", Harris et al., 2019) are associated with how people respond to self-weighing. Self-affirmation involves thinking about valued and sustaining self-images when threatened (Steele, 1988). Examining individual differences in self-affirmation represents a novel approach, as most research to date has employed experimental manipulations (for a review, see McQueen & Klein, 2006). To redress this imbalance, Harris et al. developed and tested a measure of individual differences in the tendency to self-affirm in response to threats. The resulting measure – the Spontaneous Self-Affirmation Measure (SSAM) – has been found to independently predict a wide range of outcomes, including the processing of, and response to, potential health threats (e.g., messages about the risks of ingesting the chemical acrylamide from fried and baked food, Harris et al., 2019) and other important outcomes, such as well-being (Emanuel et al., 2018). The current study extends this research to investigate whether and how individual differences in self-affirmation are associated with people's affective responses to another threat to self-integrity; namely, self-weighing.

Theoretical models such as Control Theory (Carver & Scheier, 1982, 1990) suggest that affect signals goal progress, such that relatively poor progress towards a goal is associated with negative affect, whereas positive affect ensues when progress is better than expected or desired (for empirical demonstrations, see Carver, Lawrence, & Scheier, 1999; Mack, Kouali, Gilchrist, & Sabiston, 2015; Moberly & Watkins, 2010; Reynolds, Webb, Benn, Chang, & Sheeran, 2018). Self-weighing may therefore present a self-evaluative threat to the extent that the information reflects negatively on the self. For example, information on weight might suggest that the person's behavior is problematic (e.g., that they are eating too much or exercising too little, Ogden & Whyman, 1997). Perhaps as a consequence, self-weighing can be an unpleasant experience, especially for people who are concerned about their weight and image (for a review, see Benn, Webb, Chang, & Harkin, 2016). For example, Cash, Counts, and Huffine (1990) found that currently and formerly overweight people feel tenser and more uncomfortable when weighing themselves than do people of normal weight, even before they find out how much they weigh. However, some people may be better able to deal with the self-evaluative implications of self-weighing than others. According to self-affirmation theory (Steele, 1988), affirming important

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aspects of identity, such as personal values, bolsters self-integrity ("the perception of oneself as morally and adaptively adequate", Cohen & Sherman, 2014, p. 334) and can allow people to process and accept potential threats to the self.

There are two interesting (and contrasting) possibilities regarding how individual differences in self-affirmation may relate to the affective consequences of self-weighing. On the one hand, self-affirmation might reduce any negative affective consequences of self-weighing because self-integrity is buffered from another source (e.g., strengths in some other domain) and so is less threatened by negative information about weight. For example, in experimental research, Armitage (2012) found that adolescent girls who were asked to consider past acts of kindness reported being more satisfied with their bodies and were less threatened by rating their body shape and weight than those who completed a control task. Furthermore, girls who completed the self-affirmation exercise reported higher levels of self-esteem and were less likely to derive their self-esteem from beliefs about their body shape and weight. It is possible that the tendency to spontaneously self-affirm might similarly reduce any negative affective consequences of self-weighing by shifting the source from which people derive their self-esteem away from body shape and weight.

On the other hand, people who tend to self-affirm when threatened might be more likely to experience negative affect as a consequence of self-weighing because such people are better able to accept the (potentially negative) implications of the information that they receive. For example, Vohs, Park, and Schmeichel (2013) found that participants who were prompted to self-affirm rated themselves as more of a failure (i.e., as less intelligent) than participants who completed a control task. Similarly, Jessop, Myers, Burn, and Ryda (2018) found that women who self-affirmed felt more anxious and less positive when asked to imagine themselves in the position of a woman experiencing a stressful birth when compared to women who did not self-affirm. Taken together, it seemed likely that individual differences in self-affirmation would be associated with affective reactions to self-weighing; however, there is insufficient evidence to predict whether self-affirmation will have a positive or negative relationship with affective reactions.

Although self-affirmation theory has not traditionally differentiated between different sources of self-affirmation (Steele, 1988; Tesser, 2001), some researchers have started to do so. For example, Chen and Boucher (2008) found that that some people view aspects of the self in relation to others as core to their identity, with the consequence that they are particularly likely to use them as self-affirmational resources in the face of threat. In addition to interpersonal aspects, people may also draw affirmation from personally important values and principles and/or personal resources such as strengths and attributes, positive traits, skills, and performances (McQueen & Klein, 2006). Furthermore, there is emerging evidence that affirming different aspects of the self can have different consequences. For example, Harris et al. (2019) found that the tendency to affirm strengths (e.g., things that one is good at) was associated with defensiveness and heuristic processing, whereas the tendency to affirm values (e.g., what one stands for) was associated with self-clarity and deeper processing of relevant information. It therefore seemed important to differentiate between different sources of self-affirmation – e.g., strengths and attributes, values and principles, and social relationships – and independently examine whether and how they are associated with how people response to a potential self-evaluative threat.

1.1. The present research

The present research measured individual differences in the tendency to affirm different aspects of the self when threatened (Studies 1a, 1b, and 2), as well as experimentally manipulating self-affirmation (Study 3). Our prediction was that self-affirmation would moderate the impact of factors that may lead people to view self-weighing as a self-evaluative threat (e.g., their concern about weight), which, in turn, may influence the affective consequences of self-weighing. However, as it remains unclear whether self-affirmation has a positive or negative association with the affective consequences of self-weighing, we were open to both possibilities, as well as the possibility that different sources of self-affirmation may have different effects.

2. Study 1a

Study 1a provided an initial test of our hypotheses that spontaneous self-affirmation would moderate the relationship between weight-related concern and affect associated with self-weighing.

2.1. Method

Given that no study to date has examined the (moderating) impact of spontaneous self-affirmation on the relationship between weight-related concern and affect associated with self-weighing, it was not possible to estimate the likely size of the effect in order to perform a power calculation for Study 1a. We therefore simply emailed participants at a large university in the UK and invited them to complete an online questionnaire in return for the chance to win a £50 Amazon voucher. N = 474 participants responded. Most participants were female (68%) and aged between 18 and 66 years (M = 29.01, SD = 11.19). The study was approved by the Ethics Committee in the Department of Psychology at [detail removed to permit masked review].

Frequency of self-weighing was measured with a question adapted from Klos, Esser, and Kessler (2012). Specifically, participants were asked to report how often they had weighed themselves over the past month (several times a day, once a day, several times a week, once a week, less than once a week, less than once a month, or never). Similar measures have been found to correlate with healthy weight management strategies (e.g., Wing et al., 2015), as well as a range of health behaviors and other outcomes (e.g., Houston, VanDellen, & Cooper, 2019; Quick, Loth, MacLehose, Linde, & Neumark-Sztainer, 2013)

Affect associated with self-weighing was measured by asking participants to imagine how they would feel if they were to weigh themselves later that day and find that they weighed more than they thought. They were then asked to rate the extent to which they expected to experience 22 emotions on a 5-point scale anchored by "very slightly or not at all" and "very much". This measure of affect was inspired by Carver (2003) paper on the origins and functions of affect, which distinguishes between the positive and negative emotions associated with making progress toward a desired outcome (e.g., to lose weight) and the emotions associated with making progress or not in avoiding an undesired outcome (e.g., gaining weight). Although we considered more established measures of affect (e.g., the Positive and Negative Affect Schedule, Watson, Clark, & Tellegen, 1988), they were not adopted because we felt it important to capture the affective consequences of information on goal progress, rather than general affect per se. Scale scores were computed by averaging the items focusing on negative affect (i.e., angry, scared, bad, dissatisfied, disappointed, stupid, depressed, anxious, guilty, fed up, ashamed, sad, and regretful, Cronbach's α = 0.97) and those focusing on positive affect (i.e., content, happy, eager, good, elated, calm, proud, satisfied, and relieved, Cronbach's α = 0.89).

Body image and weight-related concern were measured using the Appearance Scales of the Multidimensional Body-Self Relations Questionnaire (MBSRQ-AS; Brown, Cash, & Milkulka, 1990; Cash,

2000). This 34-item measure divides into five subscales (see Roncero, Perpina, Marco, & Sanchez-Reales, 2015, for evidence on the conceptual structure of the MBRSQ-AS) reflecting appearance evaluation (e.g., "My body is sexually appealing"), appearance orientation (e.g., "Before going out in public, I always notice how I look"), overweight preoccupation (e.g., "I am very conscious of even small changes in my weight"), self-classified weight (e.g., "I think I am very underweight/somewhat underweight/normal weight/somewhat overweight/very overweight"), and body satisfaction (participants are asked to indicate how satisfied they are with nine aspects of their body, including face, hair, torso, weight and so on). Participants were asked to respond to the statements on a 5-point scale from "Definitely disagree" to "Definitely agree" and each of the subscales proved internally consistent (Cronbach's α's = 0.89, 0.87, 0.76, 0.86, and 0.83, respectively). Scale scores were computed by averaging the items comprising each subscale.

Self-esteem was measured by asking participants to indicate the extent to which they agreed with the statement "I have high self-esteem". This measure has been shown to be comparable to multi-item measures in terms of its reliability and validity (Robins, Hendin, & Trzesniewski, 2001). Although we measured self-esteem, it was not included in the primary analyses, as previous research has demonstrated that individual differences in self-affirmation are distinct from indicators of positive self-regard, including self-esteem (Harris et al., 2019). However, we report the correlations between the measures of self-esteem and other constructs in the supplementary tables, for information.

Individual differences in the tendency to self-affirm in the face of threat were measured with the Spontaneous Self-Affirmation Measure (SSAM; Harris et al., 2019). Participants indicated how often they find themselves thinking about different aspects of themselves when feeling "threatened or anxious by people or events" (on a 5-point scale, anchored by "Disagree completely" and "Agree completely"). The measure comprises items reflecting the extent to which people focus on their strengths and attributes (e.g., "... I find myself thinking about my strengths"), values and principles (e.g., "... I find myself thinking about the things I believe in"), or social relationships (e.g., "... I find myself thinking about the people who believe in me"). The scale is designed to be used either as an overall measure of spontaneous self-affirmation or by using the subscales in instances where responses may be expected to differ with the source of self-affirmation. Each subscale was internally consistent (Cronbach's α's = 0.86, 0.86, and 0.91, respectively), as was the full scale (α = 0.88). Scores were computed by averaging the items comprising the full scale or subscale.

2.2. Results

Table S1 in the supplementary materials provides the descriptive statistics and correlations between the variables. The data from all studies will be shared on the Open Science Framework before publication and this sentence will be replaced with detail on how the data can be accessed.

2.2.1. Predictors of affect associated with self-weighing

Affect was regressed on the subscales of the MBRSQ-AS (see Table 1). The overall model was significant for both negative affect, $F(5, 332) = 64.40$, $p < .001$, $R^2 = 0.49$, and positive affect, $F(5, 332) = 10.06$, $p < .001$, $R^2 = 0.13$. Overweight preoccupation predicted negative affect (beta = 0.51, $t = 10.34$, $p < .001$), as did body satisfaction (beta = −0.22, $t = -3.31$, $p = .001$). Overweight preoccupation (beta = −0.16, $t = -2.47$, $p = .014$) and self-classified weight (beta = −0.22, $t = -3.75$, $p < .001$) predicted positive affect. Together, these findings suggest that people who are concerned about their weight are more likely to anticipate feeling bad and less likely to anticipate feeling good if they discover that they weigh more than they expected.

2.2.2. Self-affirmation as a moderator of the association between weight-related concern and affect

To investigate whether spontaneous self-affirmation moderated the association between weight related concern and affect associated with self-weighing, we conducted moderated linear regressions following the procedures described by Aiken and West (1991). The subscale of the MBRSQ that significantly predicted both negative and positive affect (namely, overweight preoccupation) along with the SSAM were standardized and entered in Step 1 of the regressions. Interaction terms were computed by multiplying overweight preoccupation with scores on the SSAM and were entered in Step 2 of the regressions. We first examined whether the overall measure of spontaneous self-affirmation was associated with affect and then considered the relationships with each SSAM subscale.

2.2.2.1. Negative affect. Starting with the analysis of the full SSAM, at Step 1 the model was significant, $F(3, 323) = 130.91$, $p < .001$, $R^2 = 0.45$. Consistent with the analyses reported above, participants who were more preoccupied with their weight were more likely to report negative affect (beta = 0.67, $t = 16.13$, $p < .001$). However, at Step 2, the SSAM did not uniquely predict levels of negative affect (beta = −0.05, $t = 1.24$, $p = .217$), or moderate the relationships between overweight preoccupation and negative affect (i.e., the interaction was not significant, beta = −0.04, $t = -1.06$, $p = .290$), and the addition of the interaction term did not increase the variance explained, $F_{cha}(1, 323) = 1.12$, $p = .290$, Cohen's $f = 0.004$.

Similar analyses were run using each of the SSAM subscales (see Table 2). The strengths subscale of the SSAM was negatively associated with negative affect (i.e., participants who tended to affirm strengths tended to anticipate feeling less negative if they were to discover that they weighed more than expected, beta = −0.10,

Table 1
Multiple regressions of anticipated affect on the appearance subscales of the multidimensional body-self relations questionnaire (Study 1a).

	Anticipated Affect			
	Negative		Positive	
Predictor	Beta	*t*	Beta	*t*
MBSRQ – Appearance evaluation	−0.07	−1.08	0.00	0.02
MBSRQ – Appearance orientation	0.01	0.21	0.03	0.49
MBSRQ – Overweight preoccupation	0.51	10.34***	−0.16	−2.47*
MBSRQ – Self-classified weight	0.03	0.65	−0.22	−3.75***
MBSRQ – Body areas satisfaction	−0.22	−3.13**	0.09	1.01
F		64.40***		10.06***
R^2		0.49		0.13

* $p < .05$.
** $p < .01$.
*** $p < .001$.

Table 2
Hierarchical linear regressions of anticipated affect on overweight preoccupation, individual differences in the tendency to self-affirm, and interaction terms (Study 1a).

		Negative affect				Positive affect			
Step	Variable entered	Beta	*t*	Beta	*t*	Beta	*t*	Beta	*t*
SSAM Strengths									
1	MBSRQ – Overweight preoccupation	0.66	16.05***	0.66	16.12***	−0.28	−5.26***	−0.28	−5.26***
	SSAM – Strengths subscale	−0.11	−2.70**	−0.10	−2.51*	0.12	2.12*	0.12	2.27*
2	Strengths × Overweight preoccupation			−0.09	−2.11*			−0.04	−0.76
	ΔF		136.09***		4.46*		17.12***		0.57
	ΔR^2		0.46		0.01		0.10		0.00
	F		136.09***		93.18***		17.12***		11.59***
	R^2		0.46		0.46		0.10		0.10
SSAM Values									
1	MBSRQ – Overweight preoccupation	0.67	16.08***	0.67	16.06***	−0.29	−5.38***	−0.29	−5.37***
	SSAM – Values subscale	0.02	0.44	0.02	0.41	0.01	0.26	0.01	0.24
2	Values × Overweight preoccupation			0.02	0.37			0.01	0.26
	ΔF		129.70***		0.14		14.48***		0.07
	ΔR^2		0.45		0.00		0.08		0.00
	F		129.70***		64.70***		14.48***		9.65***
	R^2		0.45		0.45		0.08		0.08
SSAM Social relations									
1	MBSRQ – Overweight preoccupation	0.66	15.65***	0.66	15.46***	−0.29	−5.38***	−0.30	−5.38***
	SSAM – Social subscale	0.06	1.35	0.06	1.35	0.03	0.48	0.03	0.48
2	Social × Overweight preoccupation			−0.01	−0.13			0.02	0.45
	ΔF		131.18***		0.02		14.57***		0.83
	ΔR^2		0.45		0.00		0.08		0.00
	F		131.18***		87.19***		14.57***		9.76***
	R^2		0.45		0.45		0.08		0.08

* $p < .05$.
** $p < .01$.
*** $p < .001$.

$t = -2.51$, $p = .012$) and moderated the relationship between overweight preoccupation and negative affect (beta = −0.09, $t = -2.11$, $p = .035$). The addition of the interaction term in Step 2 significantly increased the variance explained, $F_{cha}(1, 323) = 4.46$, $p < .05$, Cohen's $f = 0.013$. The values and social relations subscales of the SSAM were not associated with negative affect, nor did they moderate the relationship between overweight preoccupation and negative affect. The interaction between SSAM strengths and overweight preoccupation was decomposed using simple slopes. As Fig. 1 illustrates, the relationship between overweight preoccupation and negative affect was weaker among those with higher SSAM strengths (beta = 0.72, $t = 7.63$, $p < .001$), than among those with low SSAM strengths (beta = 0.83, $t = 26.12$, $p < .001$).

2.2.2.2. Positive affect. For positive affect, the analysis of the full SSAM revealed that, at Step 1, the model was significant, $F(2, 322) = 15.27$, $p < .001$, $R^2 = 0.09$, and participants who were more preoccupied with their weight has lower levels of positive affect (beta = −0.29, $t = -5.39$, $p = .001$). However, at Step 2, the SSAM did not uniquely predict levels of positive affect (beta = 0.06, $t = 1.21$, $p = .228$), or moderate the relationship between overweight preoccupation and positive affect (i.e., the interaction was not significant, beta = 0.02, $t = 0.30$, $p = .762$), and the addition of the interaction term did not increase the variance explained, $F_{cha}(1, 322) = 0.09$, $p = .762$, Cohen's $f = 0.00$.

The equivalent analyses focusing on the SSAM subscales (see Table 2) identified that the strengths subscale of the SSAM was positively associated with positive affect (i.e., participants who tended to affirm strengths tended to anticipate feeling more positive if they discovered that they weighed more than expected, beta = 0.12, $t = 2.22$, $p = .027$), but did not moderate the relationship between overweight preoccupation and positive affect (beta = −0.04, $t = -0.76$, $p = .449$). The values and social relations subscales of the SSAM were not associated with positive affect, nor did they moderate the relationship between overweight preoccupation and positive affect.

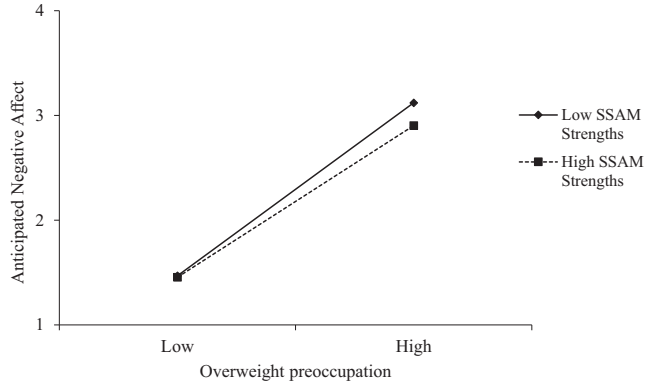

Fig. 1. Simple slopes for the effect of overweight preoccupation on negative affect for participants high (+1SD) versus low (−1SD) in the tendency to self-affirm strengths (Study 1).

2.3. Discussion

Study 1a confirmed that people who are concerned about their weight tend to expect to feel worse (i.e., more negative emotions and less positive emotions) when they weigh themselves. However, Study 1a also found that the relationship between overweight preoccupation and anticipated negative affect was moderated by spontaneous self-affirmation, but only for one specific source of self-affirming thoughts – namely, the tendency to reflect on strengths was associated with weaker relationships between overweight preoccupation and negative affect associated with self-weighing (i.e., these people tended not to expect to feel as bad). As this was the first study to find differences between the different sources of self-affirmation, we decided to conduct a pre-registered replication of Study 1a, with a larger sample of participants.

3. Study 1b

The procedures and approach for Study 1b were pre-registered on the Open Science Framework (osf.io/ufyhe). Study 1b focused on overweight preoccupation, as the findings of Study 1a suggested that overweight preoccupation most clearly influenced how participants expected to feel when they weighed themselves. Based on the findings of Study 1a, we predicted that individual differences in the tendency to reflect on strengths would minimize the impact of potentially threatening information and that people would anticipate feeling better as a result.[1]

3.1. Method

A power analysis using https://www.danielsoper.com/statcalc/calculator.aspx?id=1 based on a linear regression suggested that a sample N = 1142 participants would provide 90% power to detect a small-sized effect (f^2 = 0.02), with alpha set at 0.01 (one-tailed, as hypotheses are directional).[2] An email was sent to a list of staff and student volunteers at three large Universities in the UK offering participants the chance to win a £50 Amazon voucher. The study was also advertised on Prolific (ww.prolific.co) and these participants were paid £5 each in return for their time. In total N = 1144 participants completed an online questionnaire that included the four items from the MBSRQ-AS (Brown et al., 1990; Cash, 2000) measuring overweight preoccupation (Cronbach's α = 0.80), the SSAM (Harris et al., 2019) (Cronbach's α full scale = 0.91, strengths = 0.87, values = 0.87, and social relations = 0.90), the single-item measure of self-esteem (Robins et al., 2001), and the same measures of affect associated with self-weighing as used in Study 1a (Cronbach's α negative affect = 0.96, positive affect = 0.91). There were more female than male participants (57%) and participants were aged between 15 and 82 years (M = 30.06, SD = 11.45).

3.2. Results

Table S2 in the supplementary materials provides the descriptive statistics and correlations between the variables. As in Study 1a, we conducted linear regressions to examine whether each subscale of the SSAM moderated the association between weight related concern and affect associated with self-weighing. Full details are provided in Table 3. As Study 1a did not find any evidence that the full SSAM scale was associated with affect associated with self-weighing, we focused on the subscales in Study 1b and subsequent studies. However, equivalent analyses using the full SSAM scale are reported in Supplementary Material 1.

3.2.1. Negative affect

On the basis of our preregistered criterion for rejecting the null hypothesis (p < .01), there was only marginal evidence that the strengths subscale of the SSAM moderated the effect of overweight preoccupation on negative affect (beta = −0.05, t = −2.07, p = .039) and the addition of the interaction term only contributed a marginally significant addition to the variance explained, $F_{cha}(1, 1121) = 4.28$, p = .039, Cohen's f = 0.004. However, as the direction of the effect was consistent with Study 1a, we explored the interaction further using simple slopes. Consistent with Study 1a, the relationship between overweight preoccupation and negative affect was weaker among those with high SSAM strengths (beta = 0.67, t = 14.77, p < .001), than among those with low SSAM strengths (beta = 0.77, t = 17.48, p < .001) (see Fig. 2). Although the values subscale was negatively associated with negative affect (i.e., people who tend to affirm values tended to anticipate feeling less negative if they discovered that they weighed more than expected, beta = −0.07, t = −3.00, p = .003), the interaction between the values subscale of the SSAM and overweight preoccupation was non-significant; as were the direct and interactive effects of the social relations subscale.

3.2.2. Positive affect

The equivalent analyses focusing on positive affect associated with weighing more than expected found that all three subscales of the SSAM were positively associated with positive affect (betas = 0.20, 0.14, and 0.09, for strengths, values, and social relations subscales, respectively, ts = 7.17, 5.05, and 3.39, ps < 0.001, <0.001 and =0.001). In other words, participants who tended to affirm strengths, values, or social relations, also tended to expect to feel more positive if they discovered that they weighed less than expected. There was no evidence, however, that any of the SSAM subscales moderated the relationship between overweight preoccupation and positive affect.

3.3. Discussion

The findings of Study 1b partially supported those of Study 1a. We once again found a relationship between overweight preoccupation and anticipated negative affect. In Study 1a we found evidence that this relationship was moderated by one specific source of self-affirming thoughts – namely, the tendency to reflect on strengths, whereas in Study 1b the results were inconclusive given our stricter alpha criterion. The simple slopes, however, replicated those of Study 1a and were significant at the new alpha criterion. In other words, participants who tend to self-affirm their strengths, also tended to felt less negative when imagining that they weighed more than they anticipated.

4. Study 2

Studies 1a and 1b focused on how people expected to feel if they weighed themselves (i.e., *anticipated* affect), rather than how they actually felt. Study 2 therefore adapted the procedure used by Winstanley and Dives (2005) and McFarlane, Polivy, and Herman (1998) and asked participants to weigh themselves on a set of scales and then report how they felt.

4.1. Method

A power analysis conducted using G*Power (Faul, Erdfelder, Buchner, & Lang, 2009) suggested that a sample of N = 120 participants would provide 90% power to detect a medium-sized R^2 deviation from zero (f^2 = 0.15) in a linear multiple regression with 3 predictors (overweight preoccupation, individual differences in self-affirmation, and their interaction) and alpha set at 0.01 (one-tailed). An email was sent to a list of staff and student volunteers at a large University in the UK. N = 405 participants completed an online questionnaire that included the four items from the MBSRQ-AS (Brown et al., 1990; Cash, 2000) measuring overweight preoccupation (Cronbach's α = 0.77), the SSAM (Harris et al., 2019)

[1] Based on a prior, exploratory analysis of Study 1a (which included self-esteem as a covariate and considered the interactions in a single regression, rather than in separate regressions), we also predicted that the relationship between OP and anticipated negative affect would be stronger among those with higher SSAM values, than among those with lower SSAM values. Study 1b tests this hypothesis; however, as it was not supported in any of the studies reported in this manuscript, we focus on the interaction between overweight preoccupation and SSAM strengths.

[2] Note that this power analysis was based on entering the SSAM subscales and respective interactions with overweight preoccupation in a single regression (i.e., with 8 predictors). However, as there were large-sized correlations between the subscales (rs = 0.44, 0.51, and 0.58, see Table S2), we examined the subscales in separate regressions (i.e., with 3 predictors); for which 856 participants provides equivalent (i.e., 90%) power in a one-tailed test.

Table 3
Hierarchical linear regressions of anticipated affect on overweight preoccupation, individual differences in the tendency to self-affirm, and interaction terms (Study 1b).

		Negative affect				Positive affect			
Step	Variable entered	Beta	*t*	Beta	*t*	Beta	*t*	Beta	*t*
SSAM Strengths									
1	MBSRQ – Overweight preoccupation	0.65	29.15***	0.64	29.01***	−0.33	−11.96***	−0.33	−11.99***
	SSAM – Strengths subscale	−0.13	−5.84***	−0.13	−5.73***	0.20	7.17***	0.20	7.21***
2	Strengths × Overweight preoccupation			−0.05	−2.07*			−0.03	−0.94
	ΔF	481.92***		4.28*		114.05***		0.88	
	ΔR^2	0.46		0.00		0.17		0.00	
	F	481.92***		323.65***		114.05***		76.32***	
	R^2	0.46		0.46		0.17		0.17	
SSAM Values									
1	MBSRQ – Overweight preoccupation	0.66	29.77***	0.66	29.74***	−0.35	−12.62***	−0.35	−12.61***
	SSAM – Values subscale	−0.07	−3.07*	−0.07	−3.00*	0.14	5.05***	0.14	5.05***
2	Values × Overweight preoccupation			−0.03	−1.25			0.00	0.00
	ΔF	459.56***		1.56		99.14***		0.00	
	ΔR^2	0.45		0.00		0.15		0.00	
	F	459.56***		307.05***		99.14***		66.03***	
	R^2	0.45		0.45		0.15		0.15	
SSAM Social relations									
1	MBSRQ – Overweight preoccupation	0.67	29.98***	0.67	29.96***	−0.36	−12.92***	−0.36	−12.92***
	SSAM – Social subscale	−0.03	−1.12	−0.02	−1.06	0.09	3.39*	0.09	3.39*
2	Social × Overweight preoccupation			−0.03	−1.23			0.00	−0.11
	ΔF	452.21***		1.52		91.04***		0.01	
	ΔR^2	0.45		0.00		0.14		0.00	
	F	452.21***		302.12***		91.04***		60.64***	
	R^2	0.45		0.45		0.14		0.14	

** $p < .01$.
* $p < .05$.
*** $p < .001$.

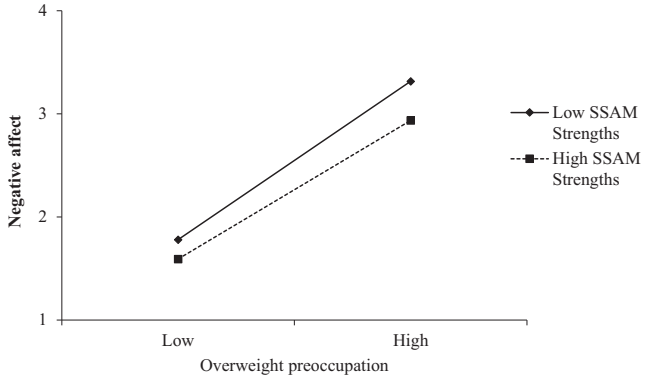

Fig. 2. Simple slopes for the effect of overweight preoccupation on negative affect for participants high (+1SD) vs. low (−1SD) in the tendency to self-affirm strengths (Study 1b).

(Cronbach's α strengths = 0.85, values = 0.87, and social relations = 0.89). Participants who gave their e-mail address at the end (N = 231) were contacted and offered the opportunity to take part in a study ostensibly about health behavior, in return for £5. Of those, N = 113 participants (77 females, mean age = 22.32, SD = 4.13) completed the full study. The procedures were approved by the Ethics Committee in the Department of Psychology at [detail removed to permit masked review].

Upon arrival, participants were asked to weigh themselves in private, write down their weight, and put the information in a sealed envelope. Participants were told that the researchers were interested in the average weight of the sample as a whole and so were assured that their weight would not be linked to them or to their responses. Unknown to the participants, half of them (n = 57, randomly selected) weighed themselves on a set of modified scales, which showed their weight to be approximately 5% above its true value, whereas the other half (n = 56, the control condition) weighed themselves on an accurate set of scales. Following the self-weighing procedure, participants completed a short questionnaire. As in Study 1, affect was measured by asking participants to rate the extent to which they felt 22 emotions on a 5-point scale anchored by "very slightly or not at all" and "very much". The measures of negative and positive affect both proved reliable (Cronbach's α = 0.92 and 0.88, respectively). Lastly, participants were asked to report how often they had weighed themselves over the previous month (using the measure described by Klos et al., 2012) and, in order to examine the validity of the manipulation, they were also asked what they thought the purpose of the study was, and to rate on a 5-point scale (from 'not at all' to 'very accurate'), whether they thought that the weighing scales they had used were accurate. Participants were then debriefed (including explaining that the scales had been modified for some participants) and offered the opportunity to weigh themselves on an accurate set of scales.

4.2. Results

Table S3 in the supplementary materials provides the descriptive statistics and correlations between the variables.

4.2.1. Manipulation check

First, we examined the degree to which participants trusted the information provided by the scales on which they weighed themselves. Participants who weighed themselves on the modified scales were significantly less likely to trust the information that they received (M = 3.37, SD = 1.10) than were participants who weighed themselves on the accurate scales (M = 3.95, SD = 0.89), $t(110) = -3.05$, $p = .003$, $d = -0.58$. Furthermore, there was no indication that participants who weighed themselves on the modified scales experienced more negative (M = 1.57, SD = 0.63) or less positive affect (M = 2.53, SD = 0.87), than participants who weighed themselves on the accurate scales (negative affect: M = 1.53, SD = 0.63; $t(111) = 0.34$, $p = .732$, $d = 0.06$; positive affect:

M = 2.77, SD = 0.78; $t(111)$ = −1.58, p = .118, d = 0.30). These findings suggested that the manipulation did not lead to a statistically significant change in positive or negative affect. We therefore decided to collapse across the two conditions and conduct subsequent analyses on the full sample.[3]

4.2.2. Self-affirmation as a moderator of the relationship between overweight preoccupation and affect

A series of moderated linear regressions were used to identify the predictors of affect experienced following self-weighing. Levels of overweight preoccupation, along with one of the three SSAM subscales (strengths, values, and social relations) were entered in Step 1 of the regressions. All variables were standardized before analysis. Interaction terms were computed by multiplying overweight preoccupation with each SSAM subscale and entered in Step 2 of the regressions. Equivalent analyses using the full SSAM scale are reported in Supplementary Materials 1.

4.2.2.1. Negative affect. Full details of the regressions are provided in Table 4; however, as in Studies 1a and 1b, the strengths subscale of the SSAM (but not the values or social relations subscales) moderated the relationship between overweight preoccupation and negative affect (beta = −0.28, t = −3.15, p = .002) and led to a statistically significant increment in the variance explained, $F_{cha}(1, 109)$ = 9.94, p = .002, Cohen's f = 0.091. The interaction between SSAM strengths and overweight preoccupation was decomposed using simple slopes. As Fig. 3 illustrates, there was a significant positive relationship between overweight preoccupation and negative affect following self-weighing among participants who do not tend to affirm strengths when threatened (beta = 0.32, t = 10.06, p < .001), but this relationship was not statistically significant for participants with stronger tendencies to affirm strengths when threatened (beta = −0.02, t = −0.17, p = .866).

4.2.2.2. Positive affect. The equivalent analyses focusing on the SSAM subscales did not find any evidence that individual differences in the tendency to self-affirm were associated with positive affect, nor did they moderate the relationship between overweight preoccupation and positive affect.

4.3. Discussion

The findings of Study 2 support those of Studies 1a and 1b, but extend them to the affect experienced following weighing, rather than expected affect as a result of (hypothetical) weighing. Specifically, the findings of Study 2 suggest that individual differences in the tendency to report affirming strengths when threatened moderate the relationship between overweight pre-occupation and (negative) affect following self-weighing. Together with the findings of Studies 1a and 1b, these findings suggest that people who spontaneously affirm strengths when threatened tend to feel (or expect to feel) less negative when they learn what their weight is.

[3] We decided to combine the conditions on the basis that condition did not have a main effect on affect; however, we also ran additional analyses to check that condition did not predict affect indirectly, via an interaction with any of the other variables. Specifically, we regressed negative and positive affect on condition in Step 1, the two-way interactions between condition and overweight preoccupation and between condition and the respective SSAM sub-scale (i.e., strengths, values, or social relations) in Step 2, and the three-way interactions between condition, overweight preoccupation and the respective SSAM sub-scale in Step 3. Only one of the interaction terms (between condition and SSAM values) significantly predicted (positive, but not negative) affect.

5. Study 3

Studies 1a, 1b, and 2 found evidence that individuals who spontaneously self-affirm strengths experience less negative affect when they imagine weighing themselves or actually weigh themselves. Study 3 investigated whether these relations also hold when self-affirmation is manipulated 'in the moment' by asking people to reflect on their desirable characteristics (i.e., strengths). In addition to providing an experimental test of our hypotheses, manipulating self-affirmation might inform interventions to help people to deal with the emotional impact of self-weighing and, thus, facilitate striving for weight-related goals.

5.1. Method

A power analysis conducted using G*Power (Faul et al., 2009) suggested that a sample of N = 177 participants would provide 90% power to detect a small-to-medium-sized R^2 deviation from zero (f^2 = 0.10) in a linear multiple regression with 3 predictors (overweight preoccupation, individual differences in self-affirmation, and their interaction) and alpha set at 0.01 (one-tailed). Potential participants at a large University in the UK were emailed an invitation to take part in a study about health behaviors and N = 877 followed a link to an online questionnaire that included the four items from the MBSRQ-AS (Brown et al., 1990; Cash, 2000) measuring overweight preoccupation (Cronbach's α = 0.79), the SSAM (Harris et al., 2019) (Cronbach's α's: strengths subscale = 0.87, values subscale = 0.86, and social relations subscale = 0.83), and the Hospital Anxiety and Depression Scale (HADS: Zigmond & Snaith, 1983). Participants who completed the questionnaire and provided their email address (N = 545) were contacted and offered the opportunity to come into the laboratory and complete additional tasks in return for course credits or £10. Of those, N = 231 (171 females, mean age = 25.04, SD = 8.64) completed the full study. The procedures were approved by the Ethics Committee in the Department of Psychology at [detail removed to permit masked review].

Upon arrival, participants were randomly allocated to the control (n = 117) or self-affirmation condition (n = 114) under the pretense of a "short task for another study looking at memory and cognitive capacity". Following Harris, Mayle, Mabbott, and Napper (2007), participants in the self-affirmation condition were asked to reflect on their strengths by recalling and writing down as many of their desirable characteristics as they could. Following Napper, Harris, and Epton (2009), participants in the control condition were asked to recall and write down as many of the landmarks (e.g., shops and buildings) that they pass on a route that they travelled regularly.

Next, participants were asked to weigh themselves in private, write down their weight, and put the information in a sealed envelope. All participants weighed themselves on a modified set of scales, which showed their weight to be approximately 5% more than it actually was. Although participants trusted this scale relatively less than the accurate scales in Study 2, they did still trust the modified scales (M = 3.37 out of 5) and the findings from previous studies indicated that weighing on the modified scales was more likely to result in negative affect (McFarlane et al., 1998; Winstanley & Dives, 2005), thereby providing a more rigorous test of the idea that self-affirmation might moderate this impact. After weighing themselves, participants were asked to rate the extent to which they currently felt 22 emotions on a 5-point scale anchored by "very slightly or not at all" and "very much". The measures of negative and positive affect both proved reliable (Cronbach's α = 0.93 and 0.89, respectively).

Table 4
Hierarchical linear regressions of experienced affect on overweight preoccupation, individual differences in the tendency to self-affirm, and interaction terms (Study 2).

		Negative affect				Positive affect			
Step	Variable entered	Beta	*t*	Beta	*t*	Beta	*t*	Beta	*t*
SSAM Strengths									
1	MBSRQ – Overweight preoccupation	0.24	2.67**	0.25	2.85**	−0.23	−2.53*	−0.23	−2.55*
	SSAM – Strengths subscale	−0.23	−2.50*	−0.16	−1.77	0.17	1.82	0.14	1.51
2	Strengths × Overweight preoccupation			−0.28	−3.15**			0.10	1.07
		ΔF	6.94**		9.94**		5.01**		1.14
		ΔR^2	0.11		0.08		0.08		0.01
		F	6.94**		8.31***		5.01**		3.73*
		R^2	0.11		0.19		0.08		0.09
SSAM Values									
1	MBSRQ – Overweight preoccupation	0.24	2.58*	0.24	2.65**	−0.24	−2.53*	−0.23	−2.49*
	SSAM – Values subscale	−0.13	−1.14	−0.11	−1.18	0.03	0.28	0.03	0.32
2	Values × Overweight preoccupation			−0.10	−1.11			−0.03	−0.31
		ΔF	4.58*		1.22		3.31*		0.10
		ΔR^2	0.08		0.01		0.06		0.00
		F	4.58*		3.47*		3.31*		2.22
		R^2	0.08		0.09		0.06		0.06
SSAM Social relations									
1	MBSRQ – Overweight preoccupation	0.27	2.95**	0.29	3.07**	−0.27	−2.88**	−0.27	−2.97**
	SSAM – Social subscale	−0.15	−1.60	−0.15	−1.63	0.17	1.86	0.17	1.86
2	Social × Overweight preoccupation			−0.09	−0.98			0.02	0.25
		ΔF	4.97**		0.94		5.10**		0.07
		ΔR^2	0.08		0.01		0.09		0.00
		F	4.97**		3.63***		5.10**		3.39*
		R^2	0.08		0.09		0.09		0.09

* $p < .05$.
** $p < .01$.
*** $p < .001$.

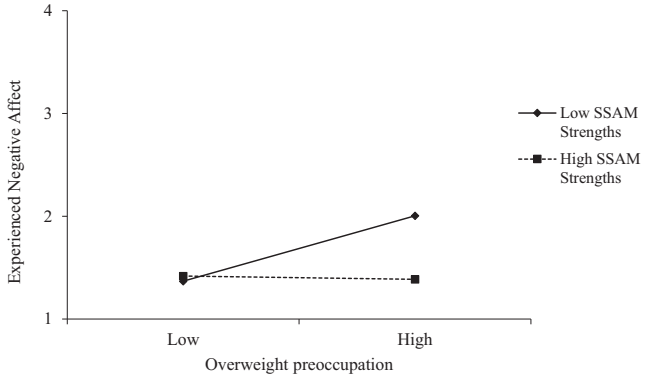

Fig. 3. Simple slopes for the effect of overweight preoccupation on negative affect for participants high (+1SD) vs. low (−1SD) in the tendency to self-affirm strengths (Study 2).

Lastly, participants reported how often they had weighed themselves over the previous month (Klos et al., 2012), what they thought the purpose of the study was (which none of them correctly identified), and how accurate they thought the scales were. Participants were then debriefed (including explaining that the scales had been modified) and offered the opportunity to weigh themselves on an accurate set of scales.

5.2. Results

Table S4 in the supplementary materials provides the descriptive statistics and correlations between the variables.

5.2.1. Randomization check

MANOVA revealed no significant multivariate differences between the control and self-affirmation conditions in age, frequency of self-weighing, individual differences in the tendency to affirm strengths, values, or social relations, overweight preoccupation, anxiety or depression at baseline, or extent to which participants believed that the scales were accurate, $F(9, 210) = 1.14$, $p = .334$, $\eta_p^2 = 0.05$. However, the univariate statistics suggested that participants in the self-affirmation condition tended to be less depressed ($M = 11.00$, $SD = 2.94$) than those in the control condition ($M = 11.94$, $SD = 3.61$), $F(1, 218) = 4.45$, $p = .036$, $\eta_p^2 = 0.02$ and were more likely to affirm values when threatened ($M = 3.58$, $SD = 0.85$) than those in the control condition ($M = 3.34$, $SD = 0.85$), $F(1, 218) = 4.27$, $p = .040$, $\eta_p^2 = 0.02$. We therefore controlled for depression and individual differences in the tendency to affirm values in subsequent analyses.[4]

5.2.2. Manipulation check

In order to check that participants who were asked to recall and write down their desirable characteristics indeed identified their strengths, rather than affirmed values or social relations (or wrote something else altogether), we coded the number of strengths (e.g., I am open minded, I have nice big eyes, I am trustworthy), values (e.g., I have strong religious values), and social relations (e.g., I have a caring boyfriend) that participants wrote in response to our instructions. On average, participants in the self-affirmation condition identified around 12 strengths ($M = 12.50$, $SD = 5.62$), but did not typically report values ($M = 0.08$, $SD = 0.38$) or social relations ($M = 0.03$, $SD = 0.21$), suggesting that the manipulation worked as intended.

5.2.3. Self-affirmation as a moderator of the relationship between overweight preoccupation and affect

Moderated linear regressions were used to test whether the experimental manipulation of self-affirmation moderated the relationship between overweight preoccupation and (positive and negative) affect following self-weighing. At Step 1, we entered baseline

[4] Equivalent analyses without the covariates are reported in Supplementary Material 2.

Table 5
Hierarchical linear regressions of experienced affect on overweight preoccupation, condition, and interaction (Study 3).

	Negative Affect	Positive Affect											
Step	Variable entered	Beta	*t*	Beta	*t*	Beta	*t*	Beta	*t*	Beta	*t*	Beta	*t*
1	Baseline Depression	0.32	5.40***	0.33	5.42***	0.33	5.41***	−0.20	−3.01**	−0.19	−2.96**	−0.19	−2.90**
	SSAM – Values subscale	0.16	2.60*	0.15	2.54*	0.15	2.53*	0.20	3.09**	0.20	3.04**	0.20	3.07**
	MBSRQ – Overweight preoccupation	0.38	6.49***	0.38	6.44***	0.39	2.05*	−0.05	−0.80	−0.05	−0.82	0.16	0.77
2	Condition			0.03	0.54	0.03	0.54			0.02	0.35	0.02	0.34
3	Condition × Overweight preoccupation					−0.02	−0.08					−0.22	−1.08
	ΔF	24.63***		0.29		0.01		8.83***		0.13		1.16	
	ΔR^2	0.15		0.00		0.00		0.11		0.00		0.00	
	F	24.63***		18.49***		14.72***		8.83***		6.63***		5.54***	
R^2	0.25		0.25		0.25		0.11		0.11		0.11		

* $p < .05$.
** $p < .01$.
*** $p < .001$.

depression, SSAM values, and levels of overweight preoccupation. Condition (self-affirmation vs. control) was entered at Step 2 and the interaction between condition and overweight preoccupation was entered in Step 3. Table 5 summarizes the results.

5.2.3.1. Negative affect. At Step 1, the model was significant, $F(3, 225) = 24.63$, $p < .001$, $R^2 = 0.25$, and levels of negative affect following self-weighing were predicted by baseline levels of depression (beta = 0.32, $t = 5.40$, $p < .001$), individual differences in the tendency to affirm values (beta = 0.16, $t = 2.60$, $p = .010$), and overweight preoccupation (beta = 0.38, $t = 6.49$, $p < .001$). The inclusion of condition at Step 2 and the interaction between condition and overweight preoccupation at Step 3 did not, however, significantly increase the variance explained.

5.2.3.2. Positive affect. Equivalent analyses with levels of positive affect following self-weighing revealed that, at Step 1, the model was significant, $F(3, 225) = 8.83$, $p < .001$, $R^2 = 0.11$. Levels of positive affect following self-weighing were predicted by baseline levels of depression (beta = −0.20, $t = -3.01$, $p = .003$) and individual differences in the tendency to affirm values (beta = 0.20, $t = 3.09$, $p = .002$). The inclusion of condition at Step 2 and the interaction between condition and overweight preoccupation at Step 3 did not, however, significantly increase the variance explained.

5.3. Discussion

Study 3 investigated whether experimentally inducing participants to self-affirm strengths would affect how participants – particularly those who are preoccupied with their weight – feel after weighing themselves. The findings suggested that prompting participants to self-affirm by focusing on their strengths did not influence how participants felt when they weighed themselves or the relationship between overweight preoccupation and experienced affect. Taken together with the findings of the previous studies, it seems that individual differences in spontaneous self-affirmation can influence relations when manipulations of self-affirmation do not, at least in the context of self-weighing. However, additional research is needed, especially as self-affirmation is more commonly manipulated by having participants select a value that is most important to them and write a short statement about why it is important to them (for a review, see McQueen & Klein, 2006). This raises the possibility that published effects may primarily reflect the effects of affirming values, rather than strengths, or that constraining participants' choice in any way reduces the importance of the chosen affirmation and undermines its capacity to offset the threat.

6. General discussion

The findings of Studies 1a, 1b, and 2 support the idea that individual differences in the tendency to report spontaneously self-affirming in response to threat moderates how people who are concerned about their weight feel when they weigh themselves. However, only one specific source of self-affirming thoughts was consistently associated with how people felt – namely, the tendency to reflect on strengths was associated with weaker relationships between overweight preoccupation and negative affect associated with self-weighing (i.e., people who typically affirm strengths tended not to feel as negative as those who do not typically affirm strengths). The size of this (interaction) effect was small (Cohen's $f = 0.013$, 0.004, and 0.091, in Studies 1a, 1b, and 2, respectively); however, the effect was consistent across the studies and there was some evidence that individual differences in the tendency to affirm strengths had a slightly larger effect on experienced affect (i.e., $f = 0.091$ in Study 2) than on anticipated affect (i.e., $f = 0.013$ and 0.004, in Studies 1a and 1b, respectively). This might suggest that spontaneous self-affirmation has a larger effect when people are actually confronted with the reality of the potential threat (in this case self-weighing) than when simply imagining how they might feel. Taken together, the findings suggest that the tendency to link self-integrity to a source of affirmation (e.g., strengths in another domain) when threatened means that self-integrity is less likely to be jeopardized by negative information about weight.

The findings also contribute to a growing body of evidence that the association between self-affirmation and outcomes can depend on the nature of what people affirm (e.g., Burson, Crocker, & Mischkowski, 2012; Chen & Boucher, 2008; Schimel, Arndt, Banko, & Cook, 2004). Specifically, individual differences in the tendency to report affirming strengths when threatened was associated with less negative affect when self-weighing, whereas individual differences in tendency to focus on values or social relations was not. One explanation is that the tendency to affirm strengths is associated with greater defensiveness (Harris et al., 2019) and so protects against information that threatens the self. For example, the information may not be fully processed or people may not take responsibility for actions that could have contributed to the outcome (e.g., they might attribute overeating to external causes, such as social obligations). The tendency to affirm values may not have the same effect because it is associated with greater self-clarity and deeper processing. It is also worth noting that, in the context of spontaneous self-affirmation, strengths reflect perceptions of the current self (e.g., what attributes and skills the person believes they have); however, values can reflect things that the

person aspires toward achieving. The tendency to focus on values when threatened may therefore lend a broader, more abstract perspective than focusing on strengths, which allows people to see, for example, that their weight may threaten their health (see, e.g., Jessop et al., 2018) with the consequent implications for affect.

Another possible explanation is that the tendency to reflect on strengths has more positive emotional implications that affirming other aspects of the self. For example, evidence suggests that people who are encouraged to use their 'signature strengths' (i.e., strengths that are most typical of them, Peterson & Seligman, 2004) report feeling happier and less depressed than those in control conditions (who are encouraged to use their 'lesser strengths' or to reflect on early memories, Proyer, Gander, Wellenzohn, & Ruch, 2015; Seligman, Steen, Park, & Peterson, 2005). Thus, the tendency to focus on strengths may lead people to experience positive feelings that counteract any negative affective implications of self-weighing (c.f., the notion that positive mood can serve as a resource; Gervey, Igou, & Trope, 2005). It is important to remember, however, that there is both theoretical and empirical overlap between the response tendencies. For example, strengths are sometimes referred to as 'values in action' (Peterson & Seligman, 2004) and the present research found that the response tendencies are correlated (see, for example, Tables S1–S4). Therefore, the tendency to affirm different sources of self-integrity reflects relative differences in emphasis rather than absolute differences in focus.

The present research focused on self-weighing as an example of a context that provides information that might be construed as a threat to self-integrity. As such, the findings provide the basis for generating hypotheses about the likely effects of individual differences in self-affirmation on how people respond to other self-evaluative threats. For example, Jennings and McLean (2013) investigated how people cope with information which suggests that they are prejudiced. They found that participants who were given the opportunity to affirm character strengths (e.g., to respond to self-statements like "People in my life feel that I am a person that can be trusted") were better able to repair their affect following false feedback about their physiological response to pictures of African Americans and obese people than were participants who reflected on their ability to be tolerant (e.g., wrote about a time that demonstrated that they are a tolerant person or rated their ability to be tolerant). The present findings suggest that individual differences in the tendency to affirm strengths might moderate responses to such information in a similar way to how Jennings and McLean found that experimental manipulations of self-integrity repair affect after the threat. Given the pervasiveness and range of self-evaluative threats, considering whether and how individual differences in spontaneous self-affirmation are associated with how people respond would provide the empirical basis to make predictions about how individual differences, the nature of the threat, and subsequent opportunities to repair self-integrity shape outcomes, both directly and in interaction.

6.1. Limitations

Any conclusions drawn from the present findings should be couched in the context of some limitations. First, the present evidence should not be taken as conclusive, as the significance of the interactions is based on relatively liberal *p*-values (e.g., were not adjusted for multiple tests) and some of the studies were likely underpowered. Study 1b provided the most robust test of the moderating effect of individual differences in spontaneous self-affirmation and affect associated with self-weighing, but this test focused on anticipated, rather than experienced affect. Furthermore, it only partially replicated the findings of Study 1a, as individual differences in the tendency to affirm values moderated the relationship between overweight preoccupation and anticipated affect in Study 1a, but not Study 1b. As Study 1a was likely underpowered and our subsequent studies also did not find moderating effects of the tendency to affirm values, we focus our conclusions on the moderating effect of individual differences in the tendency to affirm strengths. Second, we suggest that future research measures how people feel when they actually gain versus lose weight, and whether the tendency to reflect on different sources of self-affirmation when threatened moderates these feelings, in the same way as our studies suggest that they do for the feelings that people experience when led to believe, or asked to imagine that, they have gained weight. Finally, it will also be important to think carefully about which covariates to include, if any, in analyses examining the relationship between spontaneous self-affirmation and outcomes and how their inclusion versus exclusion affects conclusions. Sensitivity analyses suggest that the present findings are likely robust to such decisions (see Supplementary Material 2), but there may be other covariates that are worth considering n subsequent work. For example, Harris et al. (2019) compared findings with and without controls for self-esteem and habitual positive self-thought to assess the role of positive self-regard when investigating the relationship between spontaneous self-affirmation and outcomes.

6.2. Conclusion

The present research investigated whether and how individual differences in the tendency to spontaneously self-affirm are associated with how people respond to a procedure designed to provide self-relevant information – in this case, how people who are concerned about their weight respond to self-weighing. The investigation combined a correlational approach with experimental procedures – that is, in Studies 2 and 3, participants actually came into the lab and experienced a "controlled" event, following which we measured responses. There were some notable and theoretically important consistencies in the findings of the studies – specifically, we consistently found a weaker relationship between overweight preoccupation and negative emotions among participants who reported spontaneously affirming strengths, than among participants who do not tend to affirm strengths. These findings contribute to the evidence concerning distinctions between different sources of self-affirmation and point to the importance of considering individual differences in the tendency to affirm different aspects of the self when seeking to understand how people respond to, and feel about, self-relevant information.

Author notes

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Author contributions

Thomas Webb identified the research question and approach, Yael Benn, Betty Chang, James Reynolds, and Ahmad Assinnari collected the data and prepared the dataset, Thomas Webb and Yael Benn analyzed the data and prepared the first draft of the report. Fuschia Sirois and Peter Harris provided advice throughout and all authors commented on drafts of the manuscript.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary material

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jrp.2020.104020.

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