Received: 6 February 2025 | Accepted: 14 May 2025

DOI: 10.1111/bjhp.12806

ARTICLE

Ambivalence towards food, healthy eating and the role of self-compassion

Roeline G. Kuijer | **Madeline K. Tunley**

University of Canterbury, Christchurch, New Zealand

Correspondence
Roeline G. Kuijer, School of Psychology, Speech and Hearing, University of Canterbury. Private Bag 4800, Christchurch 80140, New Zealand.
Email: roeline.kuijer@canterbury.ac.nz

Abstract

Objectives: Many people experience ambivalence about food (e.g., broccoli is healthy, but boring; chocolate is tasty, but fattening). However, research examining the link between ambivalence and eating behaviour is scarce and findings are mixed. Self-compassion may influence the extent to which ambivalence is experienced and regulated. In two studies, we investigated the relationship between ambivalence towards healthy and unhealthy food and eating behaviour, and examined the role of self-compassion.

Design: A cross-sectional study (Study 1) and a short-term prospective study (Study 2).

Methods: Ambivalence (degree and strength of opposing evaluations) was assessed in relation to images of healthy and unhealthy foods. Study 1 ($N = 206$) assessed ambivalence, self-compassion and self-reported eating behaviour measures cross-sectionally. Study 2 ($N = 155$) measured ambivalence and self-compassion at baseline and self-reported eating behaviour measures 3 weeks later.

Results: Unhealthy foods elicited more ambivalence than healthy foods. As expected, greater self-compassion was related to healthier eating behaviours and healthy food ambivalence mediated this relationship. Individuals high in self-compassion exhibited less ambivalence to healthy food images, which in turn was related to overall healthier eating patterns. In contrast, ambivalence to unhealthy foods was unrelated to self-compassion and mostly unrelated to the eating behaviour measures. Findings were consistent across both studies.

Conclusions: Individuals with higher levels of self-compassion exhibited less ambivalence towards healthy foods (but not unhealthy foods). Although healthy foods

generated less ambivalence than unhealthy foods did, greater healthy food ambivalence was consistently related to unhealthier eating behaviour patterns.

KEYWORDS
ambivalence, healthy eating, self-compassion

Statement of contribution

What is known

- Unhealthy foods elicit more ambivalence than healthy foods.
- Research examining the link between ambivalence and eating behaviour is mixed.
- Self-compassion promotes adaptive self-regulation.

What this study adds

- Greater healthy food ambivalence is related to unhealthier eating behaviours.
- Self-compassion is related to lower healthy food ambivalence.
- Healthy food ambivalence mediates the link between self-compassion and eating behaviour.

INTRODUCTION

Many people experience ambivalence about food (e.g., broccoli is healthy, but boring; chocolate is tasty, but fattening). These feelings of ambivalence may make it more difficult to regulate our behaviour and make healthy food choices (Norris et al., 2019). In this paper, we investigated the link between healthy and unhealthy food ambivalence and healthy eating behaviours and examined the role of an individual difference variable: self-compassion. A growing body of literature has found that self-compassion—defined as taking a kind, compassionate and accepting stance towards oneself (Neff, 2003a, 2003b)—is linked to higher engagement in health-promoting behaviours, including healthier eating habits (Phillips & Hine, 2021; Sirois et al., 2015). In the current research, we examined whether the relationship between self-compassion and eating behaviour is mediated by ambivalence. We also examined the possibility that people with high levels of self-compassion deal with ambivalence differently, buffering them from the potential negative impact of ambivalence on eating behaviour.

Ambivalence towards food

Ambivalence refers to the extent to which an individual has mixed views—holds positive and negative evaluations at the same time—about an object (Conner et al., 2002; Van Harreveld et al., 2015). For example, a piece of chocolate cake may simultaneously elicit positive evaluations because of its sweet taste and negative evaluations because of its high caloric content. The co-occurrence of positive and negative evaluations produces a motivational conflict between wanting to eat the cake (approach) and not wanting to eat the cake (avoidance) (Gillebaart et al., 2016; Norris et al., 2019). Ambivalence towards unhealthy food tends to be driven by a trade-off between immediate hedonic pleasure and long-term outcomes (e.g., on health, weight, appearance). This may be true for ambivalence towards healthy food

too. Although eating healthy foods may have positive long-term consequences, healthy foods are often seen as less tasty (Raghunathan et al., 2006). Previous research shows that although both types of food elicit ambivalence, people tend to be more ambivalent about unhealthy foods than they are about healthy foods (Gillebaart et al., 2016; Norris et al., 2019; Urland & Ito, 2005).

Ambivalence is a conflicting emotional state that is thought to be unpleasant and physiologically arousing (Van Harreveld et al., 2015). The resulting negative affect may make it more difficult to regulate eating behaviour and make healthy food choices (Macht, 2008; Norris et al., 2019). This may be the case especially for ambivalence towards unhealthy food, as previous research has shown that the magnitude of the response conflict or ambivalence reported is larger for unhealthy foods (Gillebaart et al., 2016; Norris et al., 2019). Greater ambivalence may also be harder to overcome because it requires more self-control (Gillebaart & de Ridder, 2015; Stillman et al., 2017). This suggests that higher levels of ambivalence may be related to unhealthier eating behaviours. In a recent study, Rosenthal and Dietl (2022) found that greater ambivalence towards unhealthy or palatable food was indeed related to unhealthier eating habits in a sample of individuals wanting to maintain a healthy diet. Furthermore, research investigating the link between ambivalence and weight found that greater ambivalence towards unhealthy or palatable food was related to higher body mass index (Keller & van der Horst, 2013) and greater weight fluctuations over a 4-year period in females (Keller & Siegrist, 2015), suggesting that higher ambivalence may be related to unhealthier eating habits.

Ambivalence has also been identified as a dimension of attitude strength, with higher levels of ambivalence associated with a weaker attitude (Conner et al., 2002, 2003; Thompson et al., 1995). Several studies have shown that ambivalence towards healthy foods (e.g., vegetables and fruit, eating a low-fat diet) or unhealthy foods (chocolate, chips) attenuates the link between attitudes and self-reported (Armitage & Conner, 2000; Conner et al., 2002, 2003; Sparks et al., 2001) or observed (Batista et al., 2014) consumption of those foods. That is, in these studies, a positive attitude towards food was related to increased consumption of those foods, but this relationship was weaker for participants who reported higher levels of ambivalence. It is important to note that these studies did not look at the direct relationship between ambivalence and eating behaviour; rather, they examined ambivalence as a moderator of the attitude–behaviour link. However, if ambivalence reflects a lack of commitment, it could be expected to result in reduced consumption of the foods (healthy or unhealthy) one is ambivalent towards. Indeed, two studies examining ambivalence towards meat found that greater ambivalence was related to lower meat consumption (Berndsen & van der Pligt, 2004; Pauer et al., 2022).

In research investigating attitudinal ambivalence towards objects/situations other than food, ambivalence has been associated with greater indecision and increased systematic processing, thereby interrupting the automaticity of behaviour (Van Harreveld et al., 2015). In a study on ambivalence towards junk food, Yan (2015) found that greater attitudinal ambivalence predicted greater cognitive elaboration of a health message advocating reducing eating junk food. Interrupting automaticity may lead to reduced consumption of the foods (healthy or unhealthy) one is ambivalent towards. With regard to unhealthy food ambivalence, this reasoning is in line with counteractive control theory (Fishbach et al., 2010; Myrseth et al., 2009). Counteractive control theory postulates that temptations may activate people's long-term goals and, as such, can enable self-control. Gillebaart et al. (2016) proposed that response conflict or ambivalence associated with temptations may act as an 'alarm bell' that signals that the long-term goal is threatened and that action is required.

Taken together, the above suggests that greater ambivalence towards healthy food may be related to unhealthier eating habits, whether due to increased negative affect, a lack of commitment or interruption of automaticity. The relationship between unhealthy food ambivalence and eating behaviour seems less straightforward: increased negative affect may interfere with making healthy food choices, resulting in unhealthier eating behaviours, whereas the interruption of automaticity or lack of commitment may lead to reduced intake of unhealthy foods. To our knowledge, no previous research has examined the relationship between healthy food ambivalence and eating behaviour, and the few studies that have examined the relationship between unhealthy food ambivalence and eating behaviour have shown mixed results (Berndsen & van der Pligt, 2004; Pauer et al., 2022; Rosenthal & Dietl, 2022). Therefore, the

first aim of the current research was to investigate the relationship between healthy and unhealthy food ambivalence and eating behaviour.

Self-compassion and ambivalence

Self-compassion is a general positive and caring attitude towards the self and comprises three core elements: self-kindness versus self-judgement (being kind and understanding towards oneself, rather than blaming or criticizing oneself), mindfulness versus overidentification (having a balanced awareness of one's current state and emotions, rather than avoiding, suppressing or becoming emotionally overwhelmed) and common humanity versus isolation (recognizing imperfection as a shared human condition, rather than feeling alone in failings and suffering). The three elements combine to create a self-compassionate frame of mind (Neff, 2003a, 2003b). Greater trait self-compassion has been linked to a wide range of positive outcomes, including greater engagement in health protective behaviours such as healthier eating habits, exercise frequency and sleep (Sirois et al., 2015; see also Phillips & Hine, 2021). More specifically, in terms of dietary behaviours, trait self-compassion has been related to healthier dietary food choices (Brenton-Peters et al., 2023; Carbonneau et al., 2021; Li et al., 2020), lower motivation to eat palatable foods (Mantzios & Egan, 2018a) and lower levels of disordered eating (Turk & Waller, 2020).

Self-compassion is thought to facilitate engagement in health behaviours through adaptive self-regulatory processes (Sirois et al., 2015; Terry & Leary, 2011). The ability to avoid ambivalence and resolve it quickly when it occurs has been identified as a central aspect of self-regulatory success (Gillebaart & de Ridder, 2015; Schneider et al., 2019). We propose that one way in which self-compassion may be linked to healthier eating behaviour is through experiencing less ambivalence about food. Sirois et al. (2015) showed that self-compassion is related to positive health behaviours through a balance of healthy emotions. Other research has shown that self-compassion is related to more adaptive eating styles, such as intuitive eating (Carbonneau et al., 2021; Messer et al., 2023). People who eat intuitively rely on hunger and satiety, and are less likely to obsess over food, categorize foods as 'bad' or 'good' or eat in response to emotions (Messer et al., 2023). Moreover, mindfulness (a component of self-compassion) has been found to be related to reduced food cravings (Tapper, 2018). Together these lines of research suggest that people with high self-compassion may be less likely to experience conflicting feelings in response to food. Research specific to ambivalence is scarce. Haddock et al. (2017) found that greater mindfulness was related to reduced ambivalence scores across a range of attitude objects (e.g., abortion, blood donation, capital punishment). In addition, greater decentering ability (the ability to reflect on negative experiences from a self-distanced, rather than immersed perspective) has been related to lower ambivalence towards unhealthy food in individuals wanting to maintain a healthy diet (Rosenthal & Dietl, 2022).

However, self-compassion may also be a beneficial resource for dealing with ambivalence when it does occur. Haddock et al. (2017; Study 3) found that the link between ambivalence about one's sexual orientation and negative affect was buffered by mindfulness: greater ambivalence was related to increased negative affect among less mindful individuals only. More mindful individuals scored low on negative affect regardless of their degree of ambivalence. Moreover, greater self-compassion has been related to the use of more adaptive emotion regulation strategies (see for a review Inwood & Ferrari, 2018). For example, a recent prospective study found that greater self-compassion positively predicted adaptive emotional regulation strategies such as cognitive reappraisal, acceptance and tolerance, and negatively predicted maladaptive strategies such as avoidance, suppression and rumination (Paucsik et al., 2022). Thus, individuals high in self-compassion may be better able to cope with or downregulate the negative affect associated with ambivalence.

The current research

In two studies, we investigated the associations between trait self-compassion, ambivalence towards healthy and unhealthy food and eating behaviours. Study 1 was a cross-sectional study with participants

from the United States. Study 2 using a New Zealand sample assessed self-compassion and ambivalence at baseline and eating behaviour variables 3 weeks later. Study 2 was carried out to address some of the limitations from Study 1 and to replicate the findings from Study 1 in a second sample.

Ambivalence can be assessed in different ways. A distinction often made is between direct (subjective) and indirect (objective) measures (Conner & Sparks, 2002). Direct or subjective measures of ambivalence measure the perception of psychological conflict by asking participants to what extent they feel conflicted or experience mixed feelings (Priester & Petty, 1996). Indirect or objective measures of ambivalence obtain separate evaluations of positive and negative thoughts and feelings towards an object or situation. Ambivalence is then calculated using both evaluations (Kaplan, 1972; Thompson et al., 1995). In the current research, we used an indirect, objective measure of ambivalence as people may not always be aware of their mixed feelings or conflict.

Based on theory and previous research, we expected greater self-compassion to be related to healthier eating behaviours. We further expected greater self-compassion to be related to lower levels of healthy food ambivalence, which in turn would be related to healthier eating behaviours. Thus, we expected the relationship between self-compassion and healthy eating behaviours to be mediated by lower ambivalence towards healthy foods. We also expected greater self-compassion to be related to lower levels of ambivalence about unhealthy food. However, we did not formulate a hypothesis regarding the link between unhealthy food ambivalence and eating behaviour due to mixed findings in the literature. The inconsistent relationship between unhealthy food ambivalence and eating behaviour in particular suggests there may be a moderator at play. The current research therefore also explored the possibility that self-compassion moderates the link between ambivalence and eating behaviour. Figure 1 summarizes the relationships between self-compassion, ambivalence and eating behaviour examined in the current research. In this moderated mediation model, the independent variable (self-compassion) also functions as a moderator (Preacher et al., 2007).

STUDY 1

In this study, the cross-sectional relationships between trait self-compassion, healthy and unhealthy food ambivalence, and self-reported eating behaviours (healthy eating over the past 2 weeks, previous day intake of healthy and unhealthy foods) were investigated.

Method

Participants and procedure

Two hundred twenty-five participants from the United States were recruited through Mechanical Turk (www.mturk.com). Participants completed the study online and were compensated 3 USD for a session

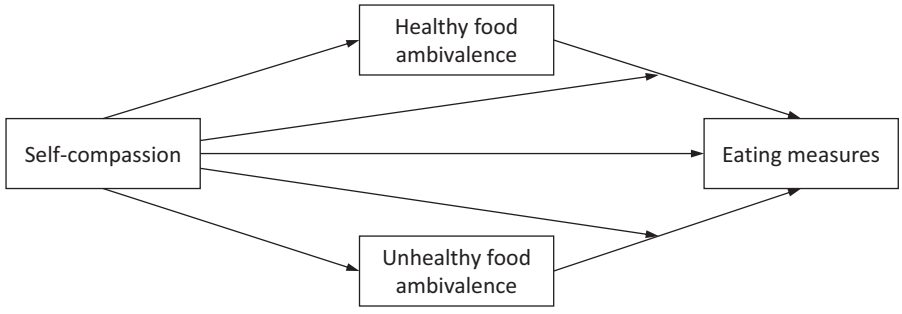

FIGURE 1 Proposed relationships between self-compassion, ambivalence and eating behaviour measures.

lasting on average 15 min. Participants reporting a food allergy ($n = 10$) were dropped from all analyses because some of the images used in the study (see below) contained foods with nuts, gluten and/or dairy. A further 9 participants failed the attention checks and were also dropped from the analyses. The final sample consisted of 206 participants (56% male; 44% female) aged between 22 and 75 years ($M = 38.36$; $SD = 9.57$). Participants provided informed consent prior to participation. The study was approved by the University of Canterbury Human Ethics Committee.

Materials and measures

Food stimuli

Participants were presented with 12 pictures of food: six healthy foods (assorted fruits, assorted vegetables, salad greens, wholemeal bread, wholemeal cereal, assorted nuts) and six pictures of unhealthy foods (pizza, crisps, fries, chocolate, sweet muffin, cheesecake). A pilot study on a separate sample ($N = 28$; no food allergies) showed that the healthy foods were rated as much more healthy ($M = 5.74$, $SD = .53$; rated on a scale from 1 to 7) than the unhealthy foods ($M = 1.82$, $SD = .69$), $t(27) = 23.68$, $p < .001$, $d = 4.48$, 95% CI [3.23, 5.71].

Ambivalence

Negative and positive thoughts in relation of to each the pictured foods were measured separately using unipolar scales, ranging from 0 (not at all positive/negative) to 7 (extremely positive/negative) (Kaplan, 1972). Specifically, participants were instructed to rate each food based on their positive (or negative) thoughts and feelings, while ignoring or setting aside any negative (or positive) feelings. Participants viewed the pictures twice: once to report their negative ratings, and once to provide their positive ratings. The order in which participants completed the unipolar scales (i.e., negative ratings first or positive ratings first) was counterbalanced across participants. The food pictures were presented in random order.

Ambivalence scores for each food item were computed using the following formula: $((P + N)/2) - |P - N|$ (Kaplan, 1972; Thompson et al., 1995) where P refers to the positive ratings and N to the negative ratings. This formula is known as the Griffin formula and calculates ambivalence in such a way that ambivalence scores increase as the positive and negative judgements become more extreme, and as they become more equal in absolute value. A constant of 3.5 was added so that ambivalence scores ranged from 0 (no ambivalence) to 10.5 (maximum ambivalence). Ambivalence scores for healthy and unhealthy foods were summed and then averaged. The internal consistency of both scales was good with a Cronbach's alpha of .79 for healthy food ambivalence and .86 for unhealthy food ambivalence.

Eating behaviour

Participants were asked to recall their eating behaviour over the past 2 weeks (based on Baker et al., 2003; see Kuijer & Boyce, 2012). The items asked: 'In the past 2 weeks, on how many days did you…' followed by 5 items, for example, 'eat in a balanced way with a lot of fruit and vegetables' and 'eat snack food (e.g., potato chips, desserts, sweets, candy bars, etc)'. All items were scored on a 5-point scale (1 = *every day,* 5 = *less than once a week*) and were scored in such a way that a higher score on the summed scale indicates healthier eating behaviours. Kuijer and Boyce (2012) reported that data from a small validation study showed that the recall of the eating behaviours correlated highly with a 2-week diary report of those behaviours. Cronbach's alpha was .68 in the current study.

Previous day healthy and unhealthy food intake

Participants were asked to report how many servings of seven types of food they ate on the day preceding their participation: three were healthy foods (1: fruits, 2: vegetables, 3: wholegrain cereals or bread) and 4 were unhealthy foods (1: crisps, corn snacks or corn chips, 2: hot chips, fries or wedges, 3: lollies (candy), sweets, chocolate or other confectionary items, 4: biscuits (cookies), cake, muffin or buns)

(based on Conner et al., 2015; Russell et al., 1999). For each type of food, it was explained how much one serving was. Answers were given on a 6-point scale (1 = *0 servings*, 6 = *4 or more servings*). The healthy and unhealthy foods were summed and then averaged to create a measure for healthy food intake and unhealthy food intake, respectively.

Self-compassion

The Self-Compassion Scale Short-Form (SCS-SF; Raes et al., 2011) was used to measure trait self-compassion. This 12-item scale is a shortened version of the 26-item Self-Compassion Scale (Neff, 2003a). The SCS-SF correlates .97 with the full scale (Raes et al., 2011) and shows strong temporal stability (Medvedev et al., 2021; Raes et al., 2011). Items are rated on a scale ranging from 1 (*almost never*) to 5 (*almost always*). Sample items are: 'I try to be understanding and patient towards those aspects of my personality I don't like' (self-kindness), 'When something upsets me, I try to keep my emotions in balance' (mindfulness) and 'I try to see my failings as part of the human condition' (common humanity). Negatively worded items are reverse scored. Items are combined to form a total self-compassion score. Cronbach's alpha was .91 in the current study.

Control variables

An abbreviated version of the Dietary Intent Scale (DIS; Stice, 1998) consisting of 4 items was used to measure dietary restraint (Cronbach's alpha = .92). A sample item is: 'I hold back at meals in an attempt to prevent weight gain'. Self-reported height and weight were used to calculate Body Mass Index (kg/m^2).

Analyses

Normality assumptions were checked for each variable prior to analysis. BMI had high kurtosis and was therefore log transformed. All other variables were normally distributed. Following descriptive and correlational analyses, path analyses were run using IBM AMOS 29.0, bootstrapping with 10,000 subsamples at a 95% bias-corrected confidence interval. Specifically, it was examined whether ambivalence mediated the relationship between self-compassion and the eating measures, and whether self-compassion moderated the link between ambivalence and the eating measures (see Figure 1). Variables involved in the interaction terms (self-compassion and the ambivalence measures) were mean-centred to avoid multi-collinearity. Significant interaction effects were followed up with simple slope analyses at low (1 *SD* below the mean) and high (1 *SD* above the mean) levels of the moderator. Separate analyses were run for each of the eating measures as dependent variables. Demographic variables and control variables (i.e., age, gender, BMI and restraint) were included as covariates if they significantly correlated with one or more of the variables involved in the path analyses (see Table 1, correlations above the diagonal).

Post hoc power analyses showed that a sample size of 206 was adequately powered (power = .80) to detect small- to medium-sized mediation effects (Schoemann et al., 2017) and small- to medium-sized interaction effects (G*Power; Faul et al., 2007).

Results and discussion

Descriptive statistics and inter-correlations between the variables are presented in Table 1. Unhealthy food images elicited more ambivalence ($M = 3.27$, $SD = 2.06$) than did healthy food images ($M = 2.63$, $SD = 1.56$), $t(205) = 4.38$, $p < .001$, $d = .31$, 95% CI [.17, .45], and both ambivalence measures were significantly positively correlated.

As expected, greater self-compassion was significantly related to overall healthier eating behaviour (Table 1, above the diagonal). The path analyses presented in Table 2 show that the link between

TABLE 1 Descriptive statistics and correlations for Study 1 (above the diagonal) and Study 2 (below the diagonal).

		1	2	3	4	5	6	7	8	9	10	11	12
1 H food ambiv.			.35***	–	−.17*	−.05	−.06	−.05	−.29***	−.31***	−.11	.28***	–
2 UH food ambiv.		.38***			−.14*	.05	−.02	.09	−.11	−.02	.16*	.11	–
3 Non-food ambiv.		.39***	.23**		–	–	–	–	–	–	–	–	–
4 Gender		−.09	−.01	−.12		.16*	.04	.18*	−.00	−.01	−.02	−.08	–
5 Age		−.20*	−.12	−.19*	.28***		.16*	.09	−.06	−.03	−.08	−.04	–
6 BMI		.07	−.11	−.01	.29***	.11		.09	−.18*	−.27***	−.16*	.04	–
7 Restraint		−.07	.09	−.06	.22**	.09	.16		−.03	.15*	.11	−.13	–
8 Self-compassion		−.21**	−.03	−.03	−.04	.28***	−.15	−.09		.37***	.21**	−.25***	–
9 Eating behaviour		−.23**	−.03	.00	.05	.04	−.21*	.07	.41***		.42***	−.46***	–
10 H food intake		−.24**	.08	−.05	.01	.03	−.13	.20*	.34***	.42***		−.00	–
11 UH food intake		.19*	.02	.01	−.07	−.12	.17*	−.09	−.33***	−.65***	−.20*		–
12 Menu choice		−.22*	.13	−.04	.14	.30***	−.26**	.14	.31***	.46***	.29**	−.42***	
Study 1	*M*	2.63	3.27	–	–	38.36	28.19	2.44	3.29	3.61	3.15	1.68	
	SD	1.56	2.06	–	–	9.57	7.67	1.00	.82	.64	1.00	.64	
Study 2	*M*	2.21	3.47	2.74	–	43.41	28.79	2.39	3.02	3.79	13.94	6.57	1.51
	SD	1.40	1.86	1.83	–	14.96	6.70	.90	.73	.74	5.26	3.26	.99

Note: Correlations for Study 1 reported above the diagonal and for Study 2 below. Non-food ambivalence and menu choice were measured in Study 2 only. H food intake = healthy food intake reported for the previous day (Study 1) or as part of the normal diet (Study 2). UH food intake = unhealthy food intake reported for the previous day (Study 1) or as part of the normal diet (Study 2). Gender: 1 = male, 2 = female; participants identifying as gender diverse in Study 2 ($n = 1$) were excluded from correlational analyses with gender.

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

TABLE 2 Study 1 path analyses.

	Effect	95% BCI	Path	*b*	95% BCI
Eating behaviour[a,b,c]					
Total	.26	[.16, .35]	SC → HFA	−.58***	[−.82, −.33]
Direct	.20	[.10, .30]	SC → UHFA	−.28	[−.62, .06]
Indirect HFA	.07	[.03, .12]	HFA → DV	−.11**	[−.17, −.06]
Indirect UHFA	−.01	[−.03, .00]	UHFA → DV	.02	[−.02, .06]
$R^2 = .28$			SC → DV	.20***	[.10, .30]
			SC × HFA → DV	.00	[−.06, .07]
			SC × UHFA → DV	.01	[−.04, .06]
Healthy food intake[a,b]					
Total	.23	[.05, .40]	SC → HFA	−.58***	[−.82, −.33]
Direct	.20	[.02, .38]	SC → UHFA	−.28	[−.63, .06]
Indirect HFA	.06	[.01, .13]	HFA → DV	−.10*	[−.20, −.01]
Indirect UHFA	−.03	[−.09, .00]	UHFA → DV	.11**	[.04, .18]
$R^2 = .13$			SC → DV	.20*	[.02, .38]
			SC × HFA → DV	−.01	[−.12, .10]
			SC × UHFA → DV	.03	[−.05, .11]
Unhealthy food intake[a,b]					
Total	−.19	[−.29, −.09]	SC → HFA	−.58***	[−.82, −.33]
Direct	−.14	[−.25, −.03]	SC → UHFA	−.28	[−.63, .06]
Indirect HFA	−.05	[−.11, −.01]	HFA → DV	.09*	[.02, .16]
Indirect UHFA	−.00	[−.02, .01]	UHFA → DV	.01	[−.04, .05]
$R^2 = .11$			SC → DV	−.14*	[−.25, −.03]
			SC × HFA → DV	.01	[−.06, .08]
			SC × UHFA → DV	−.02	[−.07, .02]

Note: *b* = unstandardised regression weight. Covariates: [a]gender, [b]BMI, [c]restraint; Number of bootstrap samples = 10,000.

Abbreviations: BCI, bias-corrected bootstrap confidence interval; DV, dependent variable; HFA, healthy food ambivalence; SC, self-compassion; UHFA, unhealthy food ambivalence.

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

self-compassion and all three eating measures was mediated by healthy food ambivalence (none of the confidence intervals for the indirect effect of HFA included zero, and the paths between SC → HFA and HFA → DV were all significant). The direct effects (SC → DV) remained significant for all three dependent variables, indicating that mediation was partial rather than full.

No mediation was found for unhealthy food ambivalence (all confidence intervals for the indirect effect of UHFA included zero). In contrast to our expectations, self-compassion was not significantly related to unhealthy food ambivalence (SC → UHFA). Unhealthy food ambivalence was significantly related to one of the eating measures only (previous day consumption of healthy food) (UHFA → DV). No support was found for moderation (none of the interaction effects between self-compassion and ambivalence were significant).

To summarize, unhealthy foods triggered more ambivalence than did healthy foods, which is in line with previous research (Gillebaart et al., 2016; Norris et al., 2019; Urland & Ito, 2005). As expected, greater self-compassion was related to healthier eating behaviour, and healthy food ambivalence mediated this relationship: individuals high in self-compassion exhibited less ambivalence to healthy food images, which in turn was related to overall healthier eating patterns. In contrast, ambivalence to unhealthy food images was unrelated to self-compassion and mostly unrelated to the eating behaviour measures, with one exception: those exhibiting more ambivalence to unhealthy food images reported

eating more healthy foods. The latter is in line with counteractive control theory, suggesting that unhealthy food ambivalence may act as a reminder to eat a healthy diet (Gillebaart et al., 2016; Myrseth et al., 2009). No support was found for self-compassion as a moderator in the current study.

A limitation of the current study was its cross-sectional design. Moreover, some of the food images used in the current study consisted of food groups, rather than individual food items, and ambivalence towards non-food items was not controlled for. Study 2 aims to replicate the findings from Study 1, addressing these limitations.

STUDY 2

In Study 2, self-compassion and ambivalence were assessed at baseline and eating behaviour variables 3 weeks later. Study 2 included an additional eating behaviour measure (a hypothetical menu choice) and assessed healthy and unhealthy food consumed as part of the normal diet instead of the past 24 hours, as was done in Study 1.

Methods

Participants and procedure

Participants living in New Zealand were recruited via social media (community groups), emails to participants who had previously participated in research and emails to personal contacts of the second author. Participants completed online questionnaires twice over a period of 3 weeks. Those who completed the study received a 10 NZD supermarket voucher and entered a draw to win one of two 50 NZD vouchers. Participants provided informed consent prior to participation. The study was approved by the University of Canterbury Human Ethics Committee.

Of the 243 participants who completed baseline (T1), 209 completed the 3-week follow-up (T2) (86% retention rate). As in Study 1, participants who reported suffering from food allergies ($n = 39$) and those who failed the attention checks ($n = 15$) were dropped from all analyses. The final sample consisted of 155 participants (79.4% female, 20% male, .6% gender diverse) aged between 19 and 83 years ($M = 43.41$; $SD = 14.96$).

Materials and measures

Demographic variables, self-compassion and ambivalence were assessed at T1; all other measures were assessed at T2.

Food stimuli

In Study 1, a number of the healthy food images consisted of food groups (i.e., assorted fruits, assorted vegetables, assort nuts) instead of individual food items. In Study 2, we used pictures of individual fruits (grapes, apples, kiwi) and vegetables (broccoli, carrots, tomato) and used a picture of almonds (instead of assorted nuts) and plain oats (instead of a bowl of cereal with milk). We also replaced the picture of a muffin with a picture of a donut as a more unambiguously unhealthy food item. In addition, 3 pictures of non-food objects (i.e., pen, stapler, chair) were included. Thus, participants viewed 9 healthy food images, 6 unhealthy food images and 3 non-food images.

Ambivalence

As in Study 1, participants completed two unipolar measures (one measuring negativity and one measuring positivity) for each of the pictured foods and non-foods. The order of the unipolar measures was

counterbalanced across participants. The food pictures were presented in a random order. Ambivalence scores were computed using the same formula as in Study 1. Cronbach's alpha was .82 for healthy food ambivalence, .83 for unhealthy food ambivalence and .83 for non-food ambivalence.

Self-compassion

Participants completed the Self-Compassion Short-Form Scale (Raes et al., 2011; see Study 1) (Cronbach's alpha = .90).

Eating behaviour

Eating behaviour was measured with the same questions as in Study 1 with one exception. The item 'eat snack food (e.g., potato chips, desserts, sweets, candy bars, etc)' was split into two items: eating sweet snacks and eating salty/savoury snacks. To reflect the time frame of the study, participants were asked to recall their eating behaviour over that past 3 weeks. Cronbach's alpha was .77.

Normal healthy and unhealthy food intake

Participants were asked how often they consumed seven types of food (the same food groups as in Study 1) as part of their normal diet. Answers were given on a 6-point scale (1 = *never or less than once a month*, 6 = *everyday*). Participants who indicated eating a type of food at least once a month were then asked to report the average number of servings they consumed on days they ate the food (1 = *less than one serving*, 5 = *4 or more servings*). Frequency of consumption was multiplied by the number of servings to calculate intake of each food type. Intake of healthy foods (3 food groups) and unhealthy foods (4 food groups, see Study 1) was summed and then averaged to create a measure for healthy food intake and unhealthy food intake, respectively.

Menu choice

Participants were asked to imagine that they were having dinner at a restaurant and were asked to choose a drink (choice between a healthy option and an unhealthy option), a main (2 healthy options, 2 unhealthy options) and a dessert (2 healthy options, 2 unhealthy options) (Gunby, 2022). Participants viewed a picture of each drink/dish with the description underneath. Healthy options were coded as 1 and unhealthy options as 0. Items were summed together (potential range 0–3).

Control variables

Participants completed the abbreviated version of the Dietary Intent Scale to measure dietary restraint at Time 2 (Stice, 1998; see Study 1) (Cronbach's alpha = .86). Self-reported height and weight were used to calculate BMI at Time 1 (kg/m^2).

Analyses

The same analyses as in Study 1 were carried out. Normality assumptions were checked prior to the main analyses. All variables were normally distributed. Demographic variables and control variables (i.e., age, sex, BMI and restraint) were included as covariates if they significantly correlated with one or more of the variables involved in the path analyses (see Table 1, below the diagonal).

Post hoc power analyses showed that a sample size of 155 was adequately powered (power = .80) to detect small- to medium-sized mediation effects (Schoemann et al., 2017) and small- to medium-sized interaction effects (G*Power; Faul et al., 2007).

Results and discussion

As in Study 1, unhealthy food images elicited more ambivalence ($M = 3.47$, $SD = 1.86$) than did healthy food images ($M = 2.21$, $SD = 1.40$), $t(154) = 8.42$, $p < .001$, $d = .68$, 95% CI [.50, .85] and both food

ambivalence measures were significantly positively correlated (see Table 1, correlations below the diagonal). Individuals experiencing more ambivalence towards food also reported more ambivalence towards non-food objects, indicating they might be experiencing more ambivalence in general. Non-food ambivalence was therefore included as a covariate in all path analyses.

In line with Study 1 and our expectations, greater self-compassion was consistently related to overall healthier eating behaviours (Table 1, correlations below the diagonal). The path analyses presented in Table 3 show that the link between self-compassion and three of the four eating measures (i.e., eating behaviour over past 3 weeks, healthy food intake and hypothetical menu choice) was mediated by

TABLE 3 Study 2 path analyses.

	Effect	95% BCI	Path	*b*	95% BCI
Eating behaviour[a,b,d]					
Total	.35	[.20, .48]	SC → HFA	−.35*	[−.62, −.03]
Direct	.32	[.17, .46]	SC → UHFA	.01	[−.44, .47]
Indirect HFA	.04	[.00, .10]	HFA → DV	−.10*	[−.19, −.02]
Indirect UHFA	.00	[−.02, .02]	UHFA → DV	.01	[−.06, .08]
$R^2 = .24$			SC → DV	.32***	[.17, .46]
			SC × HFA → DV	.06	[−.05, .16]
			SC × UHFA → DV	−.01	[−.10, .07]
Healthy food intake[a,b,c,d]					
Total	2.86	[1.58, 4.13]	SC → HFA	−.36*	[−.64, −.04]
Direct	2.55	[1.33, 3.85]	SC → UHFA	.05	[−.40, .52]
Indirect HFA	.29	[.03, .78]	HFA → DV	−.81*	[−1.44, −.18]
Indirect UHFA	.02	[−.15, .31]	UHFA → DV	.37	[−.12, .85]
$R^2 = .24$			SC → DV	2.55***	[1.33, 3.85]
			SC × HFA → DV	−.05	[−.93, .93]
			SC × UHFA → DV	.01	[−.61, .66]
Unhealthy food intake[a,b,d]					
Total	−1.08	[−1.91, −.31]	SC → HFA	−.35*	[−.62, −.03]
Direct	−.96	[−1.77, −.22]	SC → UHFA	.01	[−.44, .47]
Indirect HFA	−.12	[−.38, .00]	HFA → DV	.34	[−.01, .71]
Indirect UHFA	.00	[−.10, .08]	UHFA → DV	−.07	[−.39, .24]
$R^2 = .20$			SC → DV	−.96**	[−1.77, −.22]
			SC × HFA → DV	−.80**	[−1.42, −.22]
			SC × UHFA → DV	.21	[−.19, .60]
Menu choice[a,b,d]					
Total	.18	[−.04, .38]	SC → HFA	−.35*	[−.62, −.03]
Direct	.13	[−.08, .34]	SC → UHFA	.01	[−.44, .47]
Indirect HFA	.05	[.00, .14]	HFA → DV	−.16*	[−.27, −.03]
Indirect UHFA	.00	[−.06, .06]	UHFA → DV	.12**	[.04, .20]
$R^2 = .34$			SC → DV	.13	[−.08, .34]
			SC × HFA → DV	.14	[−.03, .28]
			SC × UHFA → DV	−.13*	[−.22, −.03]

Note: *b* = unstandardised regression weight. Covariates: [a]age, [b]BMI, [c]restraint, [d]non-food ambivalence; Number of bootstrap samples = 10,000.
Abbreviations: BCI, bias-corrected bootstrap confidence interval; DV, dependent variable; HFA, healthy food ambivalence; SC, self-compassion; UHFA, unhealthy food ambivalence.
*$p < .05$. **$p < .01$. ***$p < .001$.

healthy food ambivalence (the confidence intervals for the indirect effect of HFA did not include zero, and the paths between SC → HFA and HFA → DV were significant). The direct effects (SC → DV) remained significant for eating behaviour and healthy food intake, indicating that mediation was partial rather than full.

Again, no mediation was found for unhealthy food ambivalence (all confidence intervals for the indirect effect of UHFA included zero). As in Study 1, self-compassion was not significantly related to unhealthy food ambivalence. Unhealthy food ambivalence was significantly related to one of the eating measures only (menu choice). This relationship was qualified by a significant interaction (see below).

Table 3 shows that there were two significant interaction effects: one between self-compassion and healthy food ambivalence predicting unhealthy food intake, and one between self-compassion and unhealthy food ambivalence predicting menu choice. Simple slope analyses revealed that the relationship between healthy food ambivalence and unhealthy food intake was significant at low levels of self-compassion ($b = .956$, $SE = .316$, $p < .001$), but not at high levels of self-compassion ($b = -.154$, $SE = .241$, $p = .518$). Similarly, the relationship between unhealthy food ambivalence and menu choice was significant at low levels of self-compassion ($b = .230$, $SE = .058$, $p < .001$), but not at high levels of self-compassion ($b = .038$, $SE = .060$, $p = .508$). Figure 2a,b depict the interactive effects. Individuals high in self-compassion consumed less unhealthy food (Figure 2a) and chose healthier hypothetical menu options (Figure 2b) regardless of their ambivalence towards healthy or unhealthy food. In contrast, individuals low in self-compassion ate more unhealthy food the more ambivalent they were towards healthy food (Figure 2a) and chose unhealthier menu options the less ambivalent they were towards unhealthy food (Figure 2b).

To summarize, Study 2 largely replicated the findings from Study 1. Greater self-compassion was related to healthier eating behaviours (all eating measures), and healthy food ambivalence mediated the relationship for three out of the four eating measures. As in Study 1, self-compassion was unrelated to unhealthy food ambivalence, and unhealthy food ambivalence was largely unrelated to the eating measures. In the current study, some support was found for self-compassion as a moderator, suggesting that high self-compassion may buffer individuals from the negative impact of high healthy food ambivalence and low unhealthy food ambivalence.

GENERAL DISCUSSION

Confirming findings from previous research (Gillebaart et al., 2016; Norris et al., 2019; Urland & Ito, 2005), we found that unhealthy foods elicited more ambivalence than healthy foods. We further found that, as hypothesized, greater healthy food ambivalence was related to unhealthier eating behaviour. In contrast, unhealthy food ambivalence was largely unrelated to the eating behaviour measures in the current research. To our knowledge, the current research is the first to examine the relationship between healthy food ambivalence and eating behaviour. Our findings show that although healthy foods tend to generate much less ambivalence than do unhealthy foods, the ambivalence that does occur is consistently related to unhealthier eating behaviour patterns. Supplementary analyses revealed that ambivalence towards healthy food was mostly driven by elevated negativity ratings and less so by reduced positivity ratings (see Supporting Information). Previous research has shown that finding healthy foods unattractive and boring is important barriers to healthy food intake (McMorrow et al., 2017). Thus, although eating healthy foods may have positive long-term consequences, a lack in immediate hedonic pleasures associated with these foods may make them less attractive. This implies that one way to reduce ambivalence and encourage people to consume more healthy foods is by highlighting the hedonic aspect of healthy foods. Research looking at the effects of taste-focused labelling of healthy foods (e.g., 'Crispy veggie straws with decadent miso dip') compared to traditional health-focused labelling ('Fibre-packed vegetables with nutritious miso sauce') has shown that taste-focused labelling increases the selection of those healthy foods (Turnwald & Crum, 2019) and that this relationship is mediated by increased expectations of positive experiences after taste-focused labelling (Turnwald et al., 2019).

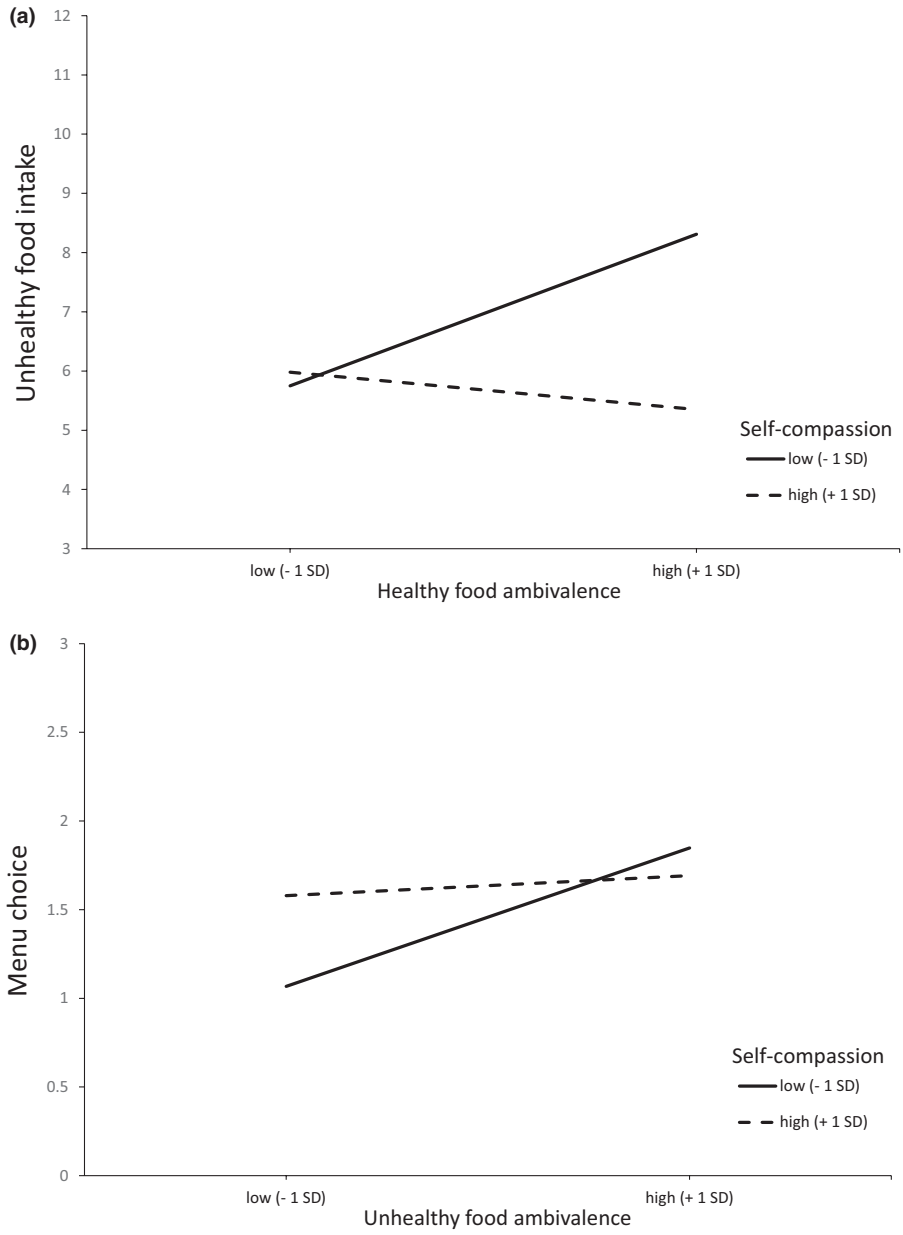

FIGURE 2 (a) Interactive effect of self-compassion and healthy food ambivalence on unhealthy food intake. (b) Interactive effect of self-compassion and unhealthy food ambivalence on menu choice.

Unhealthy food ambivalence was largely unrelated to the eating behaviour measures in the current research. The two significant relationships that were found were in line with counteractive control theory (Fishbach et al., 2010; Myrseth et al., 2009) suggesting that unhealthy food ambivalence may act as a reminder to eat a healthy diet: those exhibiting more ambivalence to unhealthy food images reported eating more healthy foods in Study 1 and made healthier food choices in the hypothetical menu choice in Study 2 (individuals low in self-compassion only). These findings should be interpreted with caution given that they were not consistent across measures and across the two studies. However, the current research found no support for the idea that unhealthy food ambivalence would be related to *unhealthier* eating behaviours. The absence of an overall significant relationship may mean that unhealthy food ambivalence is related

to unhealthier eating behaviours for some, but not for others. In the current research, we explored self-compassion as a potential moderator. We found one significant interaction effect, but in the opposite direction (see above). Another possible moderator is dietary restraint. The goal conflict model of eating (Stroebe et al., 2013) proposes that restrained eaters are more prone to feeling ambivalent towards palatable, unhealthy foods than unrestrained/normal eaters, and that for these individuals (but not unrestrained eaters) greater ambivalence towards unhealthy foods is related to unhealthier eating behaviours. We therefore examined dietary restraint as a moderator in supplementary analyses but found no support for moderation (see Supporting Information). A limitation of the current research is that we did not examine the underlying mechanism linking ambivalence to eating behaviours (through increased negative affect, lack of commitment, interruption of automaticity). To increase our understanding of why healthy food ambivalence was related to overall unhealthier eating behaviours and unhealthy food ambivalence was not, it would be important to examine these mechanisms in future research.

The current research further sought to examine the role of self-compassion. As expected, we found that in line with previous research greater self-compassion was related to overall healthier eating behaviours and choices in both studies (Brenton-Peters et al., 2023; Carbonneau et al., 2021; Li et al., 2020). The current research found that the relationship between self-compassion and the eating behaviour measures was mediated by healthy food ambivalence: Individuals high in self-compassion exhibited less ambivalence to healthy food images which in turn was related to overall healthier eating patterns. This finding contributes to our understanding of how self-compassion 'works'. Self-compassion is thought to promote engagement in health behaviours through adaptive self-regulatory processes (Sirois et al., 2015; Terry & Leary, 2011). One such adaptive process may be the ability to avoid ambivalence or resolve it quickly when it does occur (Gillebaart & de Ridder, 2015; Schneider et al., 2019). The current research suggests that reduced ambivalence towards healthy food in particular may be important in this respect.

The fact that self-compassion was unrelated to unhealthy food ambivalence was unexpected. Based on previous research (Haddock et al., 2017; Rosenthal & Dietl, 2022) focusing on mindfulness (which is a component of self-compassion) and ambivalence, we expected self-compassion to be related to decreased ambivalence towards both healthy and unhealthy foods. However, self-compassion consists of three components (self-kindness, mindfulness and common humanity) and it is possible that not all components are related to ambivalence in the same way. Being kind to oneself may mean different things to people. For some people, an act of self-kindness may mean indulging or overindulging in their favourite food or activity (e.g., eating chocolate, watching television, binge drinking), whereas for others it may mean cooking and eating a healthy nourishing meal or going for a walk in nature (Mantzios & Egan, 2018b). If being kind to oneself means indulgence or treating oneself with unhealthy, palatable foods, self-kindness may be related to increased ambivalence towards unhealthy food, thereby offsetting the potential negative relationship between the other two self-compassion components and unhealthy food ambivalence. The current study used the brief version of the self-compassion scale. Although this version has a near perfect correlation with the original scale, it is not suitable for breaking down into the three components (Raes et al., 2011). Future research should examine the potential differential relationships between ambivalence and the underlying components of self-compassion.

Limited support was found for a moderating role of self-compassion. In Study 2, we found that greater healthy food ambivalence was related to increased unhealthy food intake, but only for individuals low in self-compassion. Similarly, we found that lower unhealthy food ambivalence was related to unhealthier hypothetical menu choices, again only for individuals low in self-compassion. Individuals high in self-compassion consumed less unhealthy food and chose healthier menu options regardless of their ambivalence towards healthy or unhealthy foods. These findings suggest that high self-compassion may buffer individuals from the negative impact of high healthy food ambivalence and low unhealthy food ambivalence. However, no support for moderation was found in Study 1 and in Study 2 the findings were not consistent across outcome measures. Therefore, these findings should be interpreted with caution and require replication in future research.

A strength of the current research was that the main findings were replicated across two different samples and study designs and across different measures of eating behaviour. However, this research

also had limitations. First, the use of self-report measures to assess eating behaviour is a limitation. Future research should use more objective measures of eating and food intake to assess the relationship between self-compassion, ambivalence and eating behaviour. Second, although the prospective design of Study 2 was an improvement on the cross-sectional design of Study 1, both studies were correlational in nature, which means that assumptions about causality cannot be determined. We argued that ambivalence affects eating behaviour; however, it is likely that the relationship is bidirectional and that eating habits and patterns also influence ambivalence. Another limitation mentioned earlier is that the current research did not examine the underlying mechanisms linking ambivalence to eating behaviour. Future studies could use experimental designs that manipulate ambivalence and assess the impact on affect, commitment, automaticity and food intake.

To conclude, this research showed that individuals with higher levels of self-compassion exhibited less ambivalence towards healthy foods. Geater healthy food ambivalence (but not unhealthy food ambivalence) was consistently related to unhealthier eating behaviours. One way in which ambivalence towards healthy foods may potentially be reduced is through a greater focus on hedonic (e.g. 'tasty') and sensory (e.g. 'crunchy') aspects of these foods, thereby making the healthy choice also the tasty/enjoyable choice (Turnwald et al., 2019; Turnwald & Crum, 2019).

AUTHOR CONTRIBUTIONS

Roeline G. Kuijer: Conceptualization; methodology; investigation; formal analysis; supervision; writing – original draft; writing – review and editing; project administration. **Madeline K. Tunley:** Investigation; writing – review and editing; project administration.

DATA AVAILABILITY STATEMENT

The data that support the findings of this research are available on request from the corresponding author. The data are not publicly available due to ethical restrictions.

ACKNOWLEDGEMENT

Open access publishing facilitated by University of Canterbury, as part of the Wiley - University of Canterbury agreement via the Council of Australian University Librarians.

ORCID

Roeline G. Kuijer https://orcid.org/0000-0001-8811-4202

REFERENCES

Armitage, C. J., & Conner, M. (2000). Attitudinal ambivalence: A test of three key hypotheses. *Personality and Social Psychology Bulletin*, *26*(11), 1421–1432. https://doi.org/10.1177/0146167200263009

Baker, C. W., Little, T. D., & Brownell, K. D. (2003). Predicting adolescent eating and activity behaviors: The role of social norms and personal agency. *Health Psychology*, *22*, 189–198. https://doi.org/10.1037/0278-6133.22.2.189

Batista, M. T., Lima, M. L., Pereira, C., & Alves, H. (2014). I love chips and (h)ate them too: The role of ambivalence and contextual cues on attitudinally based eating behaviour. *International Journal of Social Psychology*, *29*, 430–461. https://doi.org/10.1080/02134748.2014.981387

Berndsen, M., & van der Pligt, J. (2004). Ambivalence towards meat. *Appetite*, *42*(1), 71–78. https://doi.org/10.1016/S0195-6663(03)00119-3

Brenton-Peters, J., Consedine, N. S., Roy, R., Cavadino, A., & Serlachius, A. (2023). Self-compassion, stress, and eating behaviour: Exploring the effects of self-compassion on dietary choice and food craving after laboratory-induced stress. *International Journal of Behavioral Medicine*, *30*(3), 438–447. https://doi.org/10.1007/s12529-022-10110-9

Carbonneau, N., Holding, A., Lavigne, G., & Robitaille, J. (2021). Feel good, eat better: The role of self-compassion and body esteem in mothers' healthy eating behaviours. *Nutrients*, *13*(11), 3907.

Conner, M., Povey, R., Sparks, P., James, R., & Shepherd, R. (2003). Moderating role of attitudinal ambivalence within the theory of planned behaviour. *British Journal of Social Psychology*, *42*(Pt 1), 75–94. https://doi.org/10.1348/014466603763276135

Conner, M., & Sparks, P. (2002). Ambivalence and attitudes. *European Review of Social Psychology*, *12*(1), 37–70. https://doi.org/10.1080/14792772143000012

Conner, M., Sparks, P., Povey, R., James, R., Shepherd, R., & Armitage, C. J. (2002). Moderator effects of attitudinal ambivalence on attitude-behaviour relationships. *European Journal of Social Psychology*, *32*(5), 705–718. https://doi.org/10.1002/ejsp.117

Conner, T. S., Brookie, K. L., Richardson, A. C., & Polak, M. A. (2015). On carrots and curiosity: Eating fruit and vegetables is associated with greater flourishing in daily life. *British Journal of Health Psychology*, *20*(2), 413–427. https://doi.org/10.1111/bjhp.12113

Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, *39*, 175–191. https://doi.org/10.3758/BF03193146

Fishbach, A., Zhang, Z., & Trope, Y. (2010). Counteractive evaluation: Asymmetric shifts in the implicit value of conflicting motivations. *Journal of Experimental Social Psychology*, *46*, 29–38. https://doi.org/10.1016/j.jesp.2009.09.008

Gillebaart, M., & de Ridder, D. T. D. (2015). Effortless self-control: A novel perspective on response conflict strategies in trait self-control. *Social and Personality Psychology Compass*, *9*, 88–99. https://doi.org/10.1111/spc3.12160

Gillebaart, M., Schneider, I. K., & De Ridder, D. T. D. (2016). Effects of trait self-control on response conflict about healthy and unhealthy food. *Journal of Personality*, *84*(6), 789–798. https://doi.org/10.1111/jopy.12219

Gunby, J. R. (2022). Implicit identity as a predictor of eating behaviour. Doctoral Thesis. University of Canterbury. https://doi.org/10.26021/12840

Haddock, G., Foad, C., Windsor-Shellard, B., Dummel, S., & Adarves-Yorno, I. (2017). On the attitudinal consequences of being mindful: Links between mindfulness and attitudinal ambivalence. *Personality and Social Psychology Bulletin*, *43*(4), 439–452. https://doi.org/10.1177/0146167216688204

Inwood, E., & Ferrari, M. (2018). Mechanisms of change in the relationship between self-compassion, emotion regulation, and mental health: A systematic review. *Applied Psychology. Health and Well-Being*, *10*, 215–235. https://doi.org/10.1111/aphw.12127

Kaplan, K. J. (1972). On the ambivalence-indifference problem in attitude theory and measurement: A suggested modification of the semantic differential technique. *Psychological Bulletin*, *77*, 361–372. https://doi.org/10.1037/h0032590

Keller, C., & Siegrist, M. (2015). Ambivalence toward palatable food and emotional eating predict weight fluctuations. Results of a longitudinal study with four waves. *Appetite*, *85*, 138–145. https://doi.org/10.1016/j.appet.2014.11.024

Keller, C., & van der Horst, K. (2013). Dietary restraint, ambivalence toward eating, and the valence and content of spontaneous associations with eating. *Appetite*, *62*, 150–159. https://doi.org/10.1016/j.appet.2012.11.012

Kuijer, R. G., & Boyce, J. A. (2012). Emotional eating and its effect on eating behaviour after a natural disaster. *Appetite*, *58*, 936–939. https://doi.org/10.1016/j.appet.2012.02.046

Li, Y., Deng, J., Lou, X., Wang, H., & Wang, Y. (2020). A daily diary study of the relationships among daily self-compassion, perceived stress and health-promoting behaviours. *International Journal of Psychology*, *55*(3), 364–372. https://doi.org/10.1002/ijop.12610

Macht, M. (2008). How emotions affect eating: A five-way model. *Appetite*, *50*, 1–11. https://doi.org/10.1016/j.appet.2007.07.002

Mantzios, M., & Egan, H. (2018a). An exploratory examination of mindfulness, self-compassion, and mindful eating in relation to motivations to eat palatable foods and BMI. *Health Psychology Report*, *6*, 207–215. https://doi.org/10.5114/hpr.2018.73052

Mantzios, M., & Egan, H. (2018b). A qualitative exploration of self-kindness and "treating oneself" in contexts of eating, weight regulation and other health behaviours: Implications for mindfulness-based eating programmes. *Frontiers in Psychology*, *9*, 1–10. https://doi.org/10.3389/fpsyg.2018.00880

McMorrow, L., Ludbrook, A., Macdiarmid, J. I., & Olajide, D. (2017). Perceived barriers towards healthy eating and their association with fruit and vegetable consumption. *Journal of Public Health (Oxf)*, *39*(2), 330–338. https://doi.org/10.1093/pubmed/fdw038

Medvedev, O. N., Dailianis, A. T., Hwang, Y. S., Krageloh, C. U., & Singh, N. N. (2021). Applying generalizability theory to the self-compassion scale to examine state and trait aspects and generalizability of assessment scores. *Mindfulness*, *12*, 636–645. https://doi.org/10.1007/s12671-020-01522-3

Messer, M., Lee, S., & Linardon, J. (2023). Longitudinal associations between self-compassion and intuitive eating: Testing emotion regulation and body image flexibility as mediating variables. *Journal of Clinical Psychology*, *79*, 2625–2634. https://doi.org/10.1002/jclp.23569

Myrseth, K. O. R., Fishbach, A., & Trope, Y. (2009). Counteractive self-control. *Psychological Science*, *20*(2), 159–163. https://doi.org/10.1111/j.1467-9280.2009.02268.x

Neff, K. D. (2003a). The development and validation of a scale to measure self-compassion. *Self and Identity*, *2*(3), 223–250. https://doi.org/10.1080/15298860309027

Neff, K. D. (2003b). Self-compassion: An alternative conceptualization of a healthy attitude toward oneself. *Self and Identity*, *2*(2), 85–101. https://doi.org/10.1080/15298860390129863

Norris, C. J., Do, E., Close, E., & Deswert, S. (2019). Ambivalence toward healthy and unhealthy food and moderation by individual differences in restrained eating. *Appetite*, *140*, 309–317. https://doi.org/10.1016/j.appet.2019.05.033

Paucsik, M., Nardelli, C., Bortolon, C., Shankland, R., Leys, C., & Baeyens, C. (2022). Self-compassion and emotion regulation: Testing a mediation model. *Cognition and Emotion*, *37*(1), 49–61. https://doi.org/10.1080/02699931.2022.2143328

Pauer, S., Rutjens, B. T., Ruby, M. B., Perino, G., & van Harreveld, F. (2022). Meating conflict: Toward a model of ambivalence-motivated reduction of meat consumption. *Food*, *11*(7), 921. https://doi.org/10.3390/foods11070921

Phillips, W. J., & Hine, D. W. (2021). Self-compassion, physical health, and health behaviour: A meta-analysis. *Health Psychology Review*, *15*, 113–139. https://doi.org/10.1080/17437199.2019.1705872

Preacher, K. J., Rucker, D. D., & Hayes, A. F. (2007). Addressing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivariate Behavioral Research*, *42*(1), 185–227. https://doi.org/10.1080/00273170701341316

Priester, J. R., & Petty, R. E. (1996). The gradual threshold model of ambivalence: Relating the positive and negative bases of attitudes to subjective ambivalence. *Journal of Personality and Social Psychology*, *71*(3), 431–449. https://doi.org/10.1037/0022-3514.71.3.431

Raes, F., Pommier, E., Neff, K. D., & Van Gucht, D. (2011). Construction and factorial validation of a short form of the self-compassion scale. *Clinical Psychology & Psychotherapy*, *18*(3), 250–255. https://doi.org/10.1002/cpp.702

Raghunathan, R., Naylor, R. W., & Hoyer, W. D. (2006). The unhealthy = tasty intuition and its effects on taste inferences, enjoyment, and choice of food products. *Journal of Marketing*, *70*(4), 170–184. https://doi.org/10.1509/jmkg.70.4.170

Rosenthal, J., & Dietl, E. (2022). The role of trait self-control, healthy eating habits and decentering ability in response conflict. *Personality and Individual Differences*, *188*, 111483. https://doi.org/10.1016/j.paid.2021.111483

Russell, D. G., Wilson, N., Parnell, W., Faed, J., University of Otago, L. A., & Health Research, U. (1999). *NZ food, NZ people: Key results of the 1997 National Nutrition Survey*. Ministry of Health.

Schneider, I. K., Gillebaart, M., & Mattes, A. (2019). Meta-analytic evidence for ambivalence resolution as a key process in effortless self-control. *Journal of Experimental Social Psychology*, *85*, 103846. https://doi.org/10.1016/j.jesp.2019.103846

Schoemann, A. M., Boulton, A. J., & Short, S. D. (2017). Determining power and sample size for simple and complex mediation models. *Social Psychological and Personality Science*, *8*(4), 379–386. https://doi.org/10.1177/1948550617715068

Sirois, F., Kitner, R., & Hirsch, J. (2015). Self-compassion, affect, and health-promoting behaviors. *Health Psychology*, *34*(6), 661. https://doi.org/10.1037/hea0000158

Sparks, P., Conner, M., James, R., Shepherd, R., & Povey, R. (2001). Ambivalence about health-related behaviours: An exploration in the domain of food choice. *British Journal of Health Psychology*, *6*, 53–68. https://doi.org/10.1348/135910701169052

Stice, E. (1998). Relations of restraint and negative affect to bulimic pathology: A longitudinal test of three competing models. *International Journal of Eating Disorders*, *23*, 243–260. https://doi.org/10.1002/(SICI)1098-108X(199804)23:3<243::AID-EAT2>3.0.CO;2-J

Stillman, P. E., Medvedev, D., & Ferguson, M. J. (2017). Resisting temptation: Tracking how self-control conflicts are successfully resolved in real time. *Psychological Science*, *28*(9), 240–1258. https://doi.org/10.1177/0956797617705386

Stroebe, W., van Koningsbruggen, G. M., Papies, E. K., & Aarts, H. (2013). Why most dieters fail but some succeed: A goal conflict model of eating behavior. *Psychological Review*, *120*(1), 110–138. https://doi.org/10.1037/a0030849

Tapper, K. (2018). Mindfulness and craving: Effects and mechanisms. *Clinical Psychology Review*, *59*, 101–117. https://doi.org/10.1016/j.cpr.2017.11.003

Terry, M. L., & Leary, M. R. (2011). Self-compassion, self-regulation, and health. *Self and Identity*, *10*(3), 352–362. https://doi.org/10.1080/15298868.2011.558404

Thompson, M. M., Zanna, M. P., & Griffin, D. W. (1995). Let's not be indifferent about (attitudinal) ambivalence. In R. E. Petty & J. A. Krosnick (Eds.), *Attitude strength: Antecedents and consequences* (pp. 361–386). Erlbaum.

Turk, F., & Waller, G. (2020). Is self-compassion relevant to the pathology and treatment of eating and body image concerns? A systematic review and meta-analysis. *Clinical Psychology Review*, *79*, 101856. https://doi.org/10.1016/j.cpr.2020.101856

Turnwald, B. P., Bertoldo, J. D., Perry, M. A., Policastro, P., Timmons, M., Bosso, C., Connors, P., Valgenti, R. T., Pine, L., Challamel, G., Gardner, C. D., & Crum, A. J. (2019). Increasing vegetable intake by emphasizing tasty and enjoyable attributes: A randomized controlled multisite intervention for taste-focused labeling. *Psychological Science*, *30*(11), 1603–1615. https://doi.org/10.1177/0956797619872191

Turnwald, B. P., & Crum, A. J. (2019). Smart food policy for healthy food labeling: Leading with taste, not healthiness, to shift consumption and enjoyment of healthy foods. *Preventive Medicine*, *119*, 7–13. https://doi.org/10.1016/j.ypmed.2018.11.021

Urland, G. R., & Ito, T. A. (2005). Have your cake and hate it, too: Ambivalent food attitudes are associated with dietary restraint. *Basic and Applied Social Psychology*, *27*(4), 353–360. https://doi.org/10.1207/s15324834basp2704_8

Van Harreveld, F., Nohlen, H. U., & Schneider, I. K. (2015). The ABC of ambivalence: Affective, behavioral, and cognitive consequences of attitudinal conflict. *Advances in Experimental Social Psychology*, *52*, 285–324. https://doi.org/10.1016/bs.aesp.2015.01.002

Yan, C. (2015). Persuading people to eat less junk food: A cognitive resource match between attitudinal ambivalence and health message framing. *Health Communication*, *30*(3), 251–260. https://doi.org/10.1080/10410236.2013.842525

SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

How to cite this article: Kuijer, R. G., & Tunley, M. K. (2025). Ambivalence towards food, healthy eating and the role of self-compassion. *British Journal of Health Psychology*, *30*, e12806. https://doi.org/10.1111/bjhp.12806