



Eat organic – Feel good? The relationship between organic food consumption, health concern and subjective wellbeing



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ABSTRACT

Prior research has shown that people associate happiness and pleasure with the consumption of organic food. So far wellbeing has been studied mainly as a motivational antecedent of organic food consumption, not as a consequence. This study analyzes the relationship between organic food consumption, health concern, health beliefs and subjective wellbeing with a nationally representative online survey and an experimental study. Findings supported the hypothesized influence of organic food consumption on subjective wellbeing and revealed an underlying label effect. The observed partial mediation of the organic food effect by health beliefs indicates that the organic-wellbeing link can be explained in part by cognitive processes and elaboration of consumer's health beliefs, but that also automatic, emotional processes are involved. Effects were moderated by the individual's health concern, with stronger influences for the more health concerned consumers. Findings have significant implications for food-wellbeing theory development, as well as practical implications for organic food producers and consumers.

1. Introduction

Responding to societal concerns, researchers are increasingly interested in how food decision making influences health and wellbeing (Block et al., 2011; Bubltz et al., 2013). When prompted to think about foods and wellbeing, many consumers mention organic food (Ares et al., 2015). Consumers seem to associate happiness and pleasure with the consumption of organic food products (Vega-Zamora, Torres-Ruiz, Murgado-Armenteros, & Parras-Rosa, 2014). Research on the hedonic effects of organic food consumption is yet scarce, however. Does consuming organic enhance subjective wellbeing? Compelling empirical evidence of a causal influence of organic food consumption on subsequent perceived wellbeing has been lacking. The present study addresses this gap in the literature analyzing whether consuming organic leads to consumers feeling better. As yet, wellbeing has been studied mainly as a motivational antecedent of organic food consumption, not as a consequence. Hedonism and pleasure seeking have indeed been identified as important drivers of consumer's adoption of organic food (Bauer, Heinrich, & Schäfer, 2013; Lee & Yun, 2015; Zanolli & Naspetti, 2002). Establishing that consuming organic enhances perceived wellbeing would have significant theoretical implications related to the

explanation of variables and processes underlying consumer's wellbeing. In addition, there would be important practical implications for consumer policy aimed at enhancing consumer wellness and promoting organic food adoption, as well as for marketers of organic food products.

If such a relationship was established, a number of further questions remain. Which process mechanisms are involved? Can the organic-wellbeing link be explained by a labeling effect based on expectancy belief influences (Piqueras-Fiszman & Spence, 2015)? Do consumer's health beliefs and concerns intervene in this relationship? This research aims to provide answers also to these questions by analyzing the relationship between the frequency of organic food consumption, individual health concern, health beliefs, and subjective wellbeing. In particular, we also address the question whether the alleged influence of an organic diet on emotional wellbeing is the consequence of deliberate cognitive processing of health beliefs—that is, because consumers of organic perceive that their diet is healthier—or if this effect is an intuitive emotional reaction in absence of significant mental elaboration. Findings and contributions of this research are based on two studies, one nationally representative online survey and one experimental study.

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2. Organic food consumption and subjective wellbeing

An increasing stream of research examines how food decision making influences health and wellbeing (Bublitz et al., 2013). Block et al. (2011) referred with the term “Food well-being (FWB)” to the positive physical, psychological, emotional and social outcome individuals can experience as a consequence of adequate food consumption. Wellbeing is a broad concept lacking a unique definition. Assessing how consumers perceive wellbeing in a food-related context, Ares, de Saldamando, Giménez, and Deliza's (2014), Ares et al.'s (2015) qualitative five country study showed that wellbeing is mainly associated with calmness, health, happiness, positive emotions and satisfaction with specific aspects of life, and that food consumption can improve perceived wellbeing. The effects of foods on wellbeing were strongly related to perceived physical health, pleasure and emotional aspects. Ares et al.'s findings are in line with a number of studies showing that food does not affect consumer's wellbeing only in nutritional terms, but that it is also a source of pleasure-related emotions (Guillemin et al., 2016; Rozin, 2005; Rozin, Bauer, & Catanese, 2003) which affect individuals' wellbeing (Schnettler et al., 2015).

Evidence on a causal influence of organic food consumption on consumer wellbeing has been scarce so far. In Ares et al.'s (2015) study, organic was among the salient food characteristics mentioned in some countries when prompted to think about foods and wellbeing, together with such further attributes as flavor, quality, naturalness, and freshness. Vega-Zamora et al.'s (2014) qualitative study showed that consumers associate pleasure and happiness with the act of consuming organic food. Furthermore there are a number of studies pointing to a possible relationship, addressing however the opposite directional effect, that is, analyzing wellbeing as a motivational antecedent of organic food consumption. Zanolli and Naspetti (2002) showed that consumer's mental association of organic food with health, pleasure and wellbeing constitutes an important motive for organic food consumption. Similarly, Bauer et al. (2013) showed that health orientation and hedonism were two of the four main purchasing motives for organic food. However, there is still a significant gap in the literature with respect to a quantitative analysis of the possible influence of organic food consumption on consumer's perceived wellbeing. As the reviewed evidence points to such a relationship, we propose that the frequency of consuming organic food has a positive influence on the individual's experience of wellbeing.

H1. Organic food consumption leads to an increase in subjective wellbeing.

If such a relationship was confirmed, the question remains whether the effect is consequence of physiological or psychological processes. For instance, organic food may enhance overall health, and health improvement in turn may lead to individuals feeling well. On the other hand, the related process may be purely perceptual, consequence of attribute beliefs and expectations consumers associate with organic food. There is incidental evidence pointing to a psychological effect of organic food consumption. Vega-Zamora et al.'s (2014) qualitative research revealed that consuming organic comprises the consumption of experiences and sensations, in which the individual's feelings and emotions are more salient than the elaboration of product related information. The organic label may act as a heuristic cue that leads consumers to infer that the product has superior qualities which will benefit their wellbeing. It has been shown, for instance, that expectation about its likely product attributes created by linguistic and/or pictorial information provided before a food product is tasted will affect the sensory perception of the consumption experience. An organic label can alter consumer's beliefs about the product and expectations (Laureati, Jabes, Russo, & Pagliarini, 2013). Consumer expectations in turn can affect the sensory experience of consuming the product (Piqueras-Fiszman & Spence, 2015). Organic labeled products are, for instance, perceived as being lower in calories (Schuldt & Schwarz,

2010) and healthier than their non-organic counterparts (Ellison, Duff, Wang, & White, 2016; Sörqvist et al., 2015). Organic labeled food has been found to be more liked and rated as more flavorful and appetizing than an identical unlabeled product (Apaolaza, Hartmann, Echebarria, & Barrutia, 2017; Lee, Shimizu, Kniffin, & Wansink, 2013). Organic labeling can increase overall quality perception and liking, as well as willingness to pay a price premium (Wiedmann, Hennings, Behrens, & Klarmann, 2014). The influence of organic food consumption on experienced wellbeing may be the consequence of a label effect, rather than of a physiological health benefit accompanied by an improved feelings state.

H2. The influence of organic food consumption on subjective wellbeing can be the result of a label effect.

3. Deliberate cognitive processing of health beliefs vs. automatic emotional effects

Subjective knowledge has been shown to constitute an important factor in explaining organic food consumption (Pieniak, Aertsens, & Verbeke, 2010). Bublitz et al. (2013) argue that deliberative cognitive and automatic emotional processes compete to influence food choices. They suggest that feelings of satisfaction and goal achievement derived from making healthy food choices may contribute to experiencing emotional wellbeing. Can the alleged influence of consuming organic food be explained by a cognitive process of product belief elaboration? Or is this effect the consequence of automatic emotional processing? There is indeed significant evidence that, on the one hand consumers relate organic food with a healthy diet, and, on the other hand, as reviewed previously, a healthy diet increases subjective wellbeing. Such a pattern can explain an effect of organic consumption on wellbeing via cognitive processing and inferential attribute belief elaboration. In line with Bublitz et al.'s (2013) theoretical proposition, organic consumers may infer that their nutrition is healthy and, in turn, the feeling of satisfaction derived from making healthy food choices may induce the experience of emotional wellbeing. In addition, the belief that their nutrition benefits their health may lead consumers to feel healthier and consequently improve their overall wellbeing. In Ares et al.'s (2014, 2015) studies, physical health, food with a healthy nutritional composition, and organic food featured among the main concepts associated with food related wellbeing. Perceived healthiness of a product has been defined as the influence consumers believe consuming this product has on their health (Howlett, Burton, Bates, & Huggins, 2009).

Prior research has provided a stream of evidence on the perceived healthiness of organic food. In a number of experimental studies, organic labeled foods have been shown to be perceived as healthier and more nutritious than identical foods lacking the label (Ellison et al., 2016; Lee et al., 2013). Healthiness is a product attribute belief consistently associated with organic produce (Magnusson, Arvola, Hursti, Åberg, & Sjöden, 2003; Mondelaers, Verbeke, & van Huylenbroeck, 2009; Schuldt & Schwarz, 2010). Further evidence stems from research showing that healthiness constitutes one of the principal purchasing motives for organic food (Bauer et al., 2013; Magnusson et al., 2003; Vega-Zamora et al., 2014; Zanolli & Naspetti, 2002), particularly because of its wholesomeness and absence of chemicals (Schifferstein & Ophuis, 1998). Health conscious consumers are also more likely to consume organic food (Chen, 2007; De Magistris & Gracia, 2008; Goetzke, Nitzko, & Spiller, 2014; Torjusen, Lieblein, Wandel, & Francis, 2001).

Overall, there are significant arguments justifying a cognitive process based on deliberate belief elaboration explaining the effect of organic food consumption on wellbeing. Consumers of organic produce may believe that such food was healthy and that consequently their nutrition was healthy. The belief of having a healthier nutrition, in turn, may enhance their feelings of wellbeing. The influence of organic on

perceived wellbeing would therefore be indirect, mediated by consumer's health beliefs.

H3a. The effect of organic food consumption on subjective wellbeing is mediated by the individual's inferential belief of having a healthy diet.

Yet, the relationship between organic food consumption and perceived wellbeing possibly cannot be explained by cognitive processes alone. Food choices are significantly affected by automatic, emotional processes (Bublitz et al., 2013; Wood, 2010). Possibly, food consumption may not only have emotional antecedents, but also significant emotional consequences. Direct emotional processes may also be involved in the organic-wellbeing link. Laros and Steenkamp (2005) showed that the mere mentioning of different food types can evoke spontaneously distinct emotional responses. Consuming organic food may also affect wellbeing via non-cognitive, emotional processes. Thus, the indirect effect modelling the cognitive processes involved in this relationship may not entirely explain the wellbeing effect of organic food, that is, health related beliefs may not completely mediate the proposed influence of organic food on wellbeing, with a significant direct relationship between both variables remaining.

H3b. In addition to its indirect effect mediated by health beliefs, organic food consumption also exerts a direct influence on subjective wellbeing.

4. The moderating role of health concern

Expectations affecting how food is perceived are determined by consumer's previous experience, beliefs, attitudes, and personality. Such expectations have been shown to affect the food consumption experience (Piqueras-Fiszman & Spence, 2015). It seems thus reasonable to assume that there are also a number of internal variables moderating the potential effects of organic food consumption on wellbeing. Health concern is a salient candidate for such a moderator variable. As discussed in the previous section, organic consumption and health concern have a significant relationship, with more health concerned consumers being more likely to consume organic food (e.g., Chen, 2007; De Magistris & Gracia, 2008; Goetzke et al., 2014). Also, organic consumers are more health concerned and more likely to develop behaviors to protect their health (Schifferstein & Ophuis, 1998). Chrysoschou and Grunert (2014) found that health concern moderated significantly the effect of organic claims on perceived healthiness of food, as well as purchase intention. Health concerned consumers may experience a more beneficial effect from consuming organic. The belief of having a healthy diet as a consequence of consuming organic may reduce concerns and preoccupations related to their health and positively reinforce satisfaction with their nutritional choices. Such a process mechanism would therefore enhance perceived wellbeing particularly for already health concerned consumers. Thus health concern can be expected to moderate positively the effect of organic on wellbeing, particularly the indirect effect via perceived nutritional healthiness.

H4a. The indirect effect of organic food consumption on subjective wellbeing mediated by health beliefs is positively moderated by health concern.

However, given the important role of automatic and emotional processing in food consumption behavior (Bublitz et al., 2013; Shiv & Nowlis, 2004; Wood, 2010), the proposed moderation effect probably will not be limited to the conscious and cognitive level but may also affect non-cognitive emotional processes. Thus also the direct effect of organic food on wellbeing, lacking the cognitive elaboration explained by the mediation process, should be stronger for more health concerned consumers.

H4b. The direct effect of organic food consumption on subjective wellbeing is positively moderated by health concern.

5. Study 1

5.1. Participants and procedure

Study 1 was designed to test the hypothesized relationship between the frequency of organic food consumption and subjective wellbeing, as well as the proposed mediation and moderation effects (H1, Hypotheses 3 and 4 and Hypotheses 5 and 6). The label effect as hypothesized in H2 was not addressed in this study. The sample was drawn from a nationally representative online-panel of the Spanish population (age 25+) recruited by a commercial panel provider (N = 600, 50% female, $M_{age} = 44.38$, $SD = 15.25$, age ranging from 25 to 87). Subjects were selected randomly from the panel until completing quota in age, sex, household income, education and province of residence (see Appendix for sample characteristics). The quotas were set to match the population approximately in those socio-demographic descriptors. Participants responded to an online questionnaire, assessing frequency of consuming organic food, health concern, the perception that their nutrition was healthy, as well as their perceived wellbeing.

5.2. Measurement

The frequency of participants' organic food consumption was assessed with a scale based on Goetzke et al.'s (2014) measure. The scale included one item addressing overall organic food consumption and seven items assessing consumption of specific organic produce. Participants rated on identical six point scales how often during the last six month they had consumed organic food in general; organic fruit; organic vegetables; organic dairy products; organic meat products; organic eggs; organic cereals, bread and/or other bakery products; organic drinks (e.g., coffee, chocolate, tea, juice, wine, etc.). All rating scales were labeled never = 1, rarely = 2, occasionally = 3, frequently = 4, very frequently = 5, nearly always = 6. The overall frequency of organic food consumption was computed by averaging the ratings of all scale items. Measurement properties and scale reliability were assessed with confirmatory factor analysis (CFA) using SPSS Amos 20 and Cronbach's alpha computed with SPSS 20. Properties of the scale were satisfactory with 56% explained variance, factor loadings ranging from 0.60 to 0.91, and Cronbach's alpha of 0.91. Fig. 1.

Kähkönen, Tuorila, and Rita's (1996) scale was used to assess health concern. The scale has been used in a number of previous studies (Bower, Saadat, & Whitten, 2003; Kähkönen & Tuorila, 1999; Kähkönen, Tuorila, & Lawless, 1997; Sun, 2008). The health concern scale captures respondents' concerns about food and health-related issues. Respondents rated their degree of agreement or disagreement with the following statements on five-point Likert-type agreement scales ranging from strongly disagree = 1 to strongly agree = 5: I am concerned about getting a lot of salt in my food; I am concerned about the

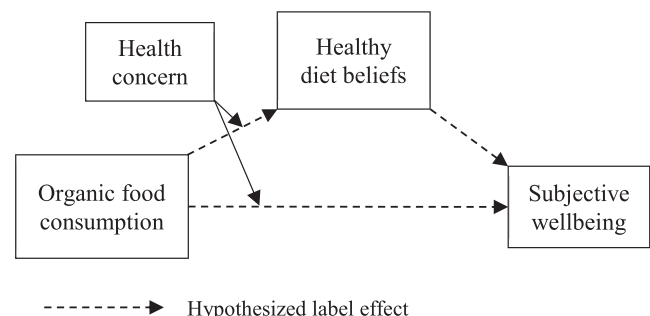


Fig. 1. Theoretical model of organic food effects on subjective wellbeing.

Table 1
Hypotheses testing.

Hypothesis	Study 1 (representative online survey)	Study 2 (experimental study)
H1: Organic food consumption leads to an increase in subjective wellbeing	✓	✓
H2: The influence of organic food consumption on subjective wellbeing can be the result of a label effect		✓
H3a: The effect of organic food consumption on subjective wellbeing is mediated by the individual's inferential belief of having a healthy diet	✓	✓
H3b: In addition to its indirect effect mediated by health beliefs, organic food consumption also exerts a direct influence on subjective wellbeing	✓	✓
H4a: The indirect effect of organic food consumption on subjective wellbeing mediated by health beliefs is positively moderated by health concern	✓	✓
H4b: The direct effect of organic food consumption on subjective wellbeing is positively moderated by health concern	✓	✓

risk of high blood pressure; I am concerned about the risk of coronary heart diseases; I am concerned about food additives (57% explained variance, factor loadings ranging from 0.48 to 0.93; Cronbach's alpha = 0.81).
Table 1.

The extent to which participants believed that they were having a healthy diet was assessed with six items of the Food Choice Questionnaire (FCQ; Steptoe, Pollard, & Wardle, 1995). Participants were asked to think about the food they normally consume and rate the degree to which they believed that their diet was *nutritious, free of harmful ingredients, high in protein, high in vitamins, healthy and gave them energy*. Rating scales were also anchored by *strongly disagree = 1 to strongly agree = 5* (50% explained variance, factor loadings ranging from 0.55 to 0.80; Cronbach's alpha = 0.85).

Subjective wellbeing was assessed on a scale composed of items of the perceived vitality scale (Ryan & Frederick, 1997) and the positive affect component of the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988). The vitality measure has been developed by Ryan and Frederick (1997) to assess organismic wellbeing. Participants rated four items concerning perceptions of energy and aliveness on scales ranging from *not true at all = 1 to very true = 7*, in terms of how they “*apply to you and your life lately*”: *I feel alive and vital; I feel so alive I want to burst; I have energy and spirit; I feel alert and awake*. The affective component of subjective wellbeing was measured on seven positive affective items extracted from PANAS. PANAS has been utilized in previous research to assess emotional wellbeing (e.g., Adler & Fagley, 2005). Participants were instructed to indicate how they felt was lately their dominant overall mood or feelings state rating the following emotional items on scales ranging from *not at all = 1 to extremely so = 7*: *active, enthusiastic, determined, excited, inspired, strong*. Both the vitality and the positive affect measure were combined into a unified measure of subjective wellbeing to assess a broader range of positive emotional responses than any of the two scales individually. We also did not expect strong discriminant validity for each of the scales individually. Indeed, assessment of scaling properties supported this approach. Confirmatory factor analysis over all wellbeing items indicated that the scale was unidimensional with one factor explaining 70% of the variance of the measure. Factor loadings ranged 0.76–0.92 and Cronbach's alpha was 0.96, supporting the reliability of the compound wellbeing scale.

5.3. Statistical analyses

Firstly, to explore the relationships between variables, a correlation analysis over all variables was conducted. The correlation analysis also provided an initial assessment of the relationship between the frequency of organic food consumption and the participants' subjective wellbeing as proposed in H1. Next, H3a was addressed, proposing that organic consumption exerts an indirect effect on wellbeing mediated by an increase in the individuals' belief of having a healthier diet. The indirect effect of organic consumption on wellbeing via health beliefs

provides a process explanation for the influence of organic food on wellbeing: The mediation analysis establishes whether the effect can at least partially be explained by an increase in health beliefs, that is, whether organic consumption leads to consumers perceiving that their diet is healthier, and whether it is this effect that in turn improves subjective wellbeing. The indirect regression coefficient was computed with mediated regression analysis using Hayes' (2013) PROCESS SPSS macro. Following Baron and Kenny (1986), PROCESS computes the indirect regression coefficient regressing at the same time *organic* on the variable *healthy diet* and both *organic* and *healthy diet* on *wellbeing*. The significance of the indirect effect via *healthy* was tested computing the Sobel test Z-value. Since the mediation analysis regresses at the same time organic food and the healthy diet variable on dependent variable wellbeing, the analysis also establishes whether a significant direct effect of organic on wellbeing remains, that is, whether the mediation is total and explains the whole effect of organic on wellbeing via healthy diet or if there is an additional remaining direct effect of organic on subjective wellbeing, not mediated by health beliefs, as proposed in H3b.

The following steps of the analysis addressed the moderating influence of health concern on the organic-wellbeing link (H4a and H4b), assessing whether the strength of the effect of organic on wellbeing varied depending on the level of the individuals' health concern. Since the effect of organic on wellbeing is proposed to be indirect, but with an additional direct effect remaining, the moderation analysis addressed the moderation of both the direct (H4b) and the indirect effect (H4a). The moderation of the direct effect of organic nutrition on subjective wellbeing by health concern (H4b) was analyzed with moderated regression analysis following Baron and Kenny (1986). The analysis computed the regression coefficient of the interaction term organic x health concern on dependent variable wellbeing and provides the significance of this interaction to test the moderation of the direct effect of organic on wellbeing as proposed in H4b. In addition, a conditional effect analysis was conducted to illustrate the varying influences of organic food on wellbeing at different values of the moderator health concern. The conditional effect analysis provides the regression coefficient of the organic effect on wellbeing at three different levels of health concern: i.) at one standard deviation below the health concern mean value (-1SD), ii.) at the health concern mean value (M), and iii.) at one standard deviation above the health concern mean value (+1SD).

Next, to assess also the moderation by health concern of the indirect effect of organic on wellbeing via mediator perceived healthy diet (H4a), as recommended by Hayes (2013), in a first step the interaction of the effects of organic food and moderator health concern on the mediator healthy diet was analyzed by moderated regression analysis to test whether the moderation was significant. A significant moderation of this first leg of the indirect effect of organic on wellbeing via health beliefs is a prerequisite for the moderation of the mediated influence. Subsequently, we tested whether also the indirect effect of organic on

wellbeing mediated by health beliefs was moderated by health concern as proposed in H4a. To analyze the moderation of the indirect effect, a moderated mediation analysis was conducted using Hayes' (2013) PROCESS SPSS macro. To test the significance of the moderation of indirect effects, PROCESS computes an index of moderated mediation and provides bias corrected bootstrap confidence intervals of this coefficient. We estimated the bias corrected bootstrap confidence interval with 10,000 bootstrap samples. The bootstrap interval is indicated in the result section, showing the upper and lower limits of the bootstrap confidence interval (Boot LLCI, Boot ULCI). The significance of the moderated mediation index is confirmed, when the corresponding bootstrap confidence interval does not contain zero (bootstrapping significance tests do not rely on p-values and are considered more robust than normal theory tests). Finally, conditional process analysis was conducted to illustrate also the varying indirect effects of organic on wellbeing. This analysis further addressed H4a by studying the variation of the indirect organic effect via health beliefs at the health concern mean value and at one standard deviation below and above the mean value respectively. The significance of the pertaining indirect coefficients is indicated by their bootstrap confidence intervals (Table 4), as in the case of the moderated mediation index. All analyses were conducted with SPSS 20 and the PROCESS macro for SPSS (Hayes, 2013).

5.4. Results

Correlation analysis confirmed a significant positive relationship between the frequency of consuming organic food and subjective wellbeing, providing initial support for H1 (Table 2). Further results showed that more frequent consumers of organic food were also more health concerned, while perceiving that their nutrition was healthier. On the other hand, the belief of having a healthy diet was positively related to wellbeing.

The analysis of the indirect effect of an organic diet on wellbeing mediated by the individuals' belief of having a healthier diet confirmed that the effect was significant ($b_{\text{indirect}} = 0.06$, $SE = 0.02$, $Z = 3.41$, $p < 0.001$) providing support for the mediation effect proposed in H3a. The effect of an organic diet on subjective wellbeing can therefore at least partially be explained by the individual's belief of having a healthier diet. On the other hand, as expected (H3b), apart from this indirect effect, there is also a remaining direct effect of organic food consumption on subjective wellbeing. Introducing organic together with mediator health beliefs into the regression confirms a significant wellbeing effect of both organic ($b = 0.14$, $SE = 0.04$, $t = 3.48$, $p < 0.001$) and health beliefs ($b = 0.60$, $SE = 0.07$, $t = 9.14$, $p < 0.001$). Organic food consumption therefore affects wellbeing via health beliefs and has also a direct influence on wellbeing.

To address the moderation of the direct effect of organic on subjective wellbeing by health concern (H4b) a moderated regression analysis was conducted. Results indicated a significant positive interaction of the effects of organic food consumption and health concern on subjective wellbeing ($b_{\text{organic} \times \text{health c.}} = 0.10$, $SE = 0.04$, $t = 2.72$, $p = 0.007$; Table 3), confirming the proposed moderating influence of health concern. The empirical model is presented in Fig. 2.

Conditional effect analysis illustrates the variation of the organic

Table 2
Variable correlations – study 1 (H1).

	O	HC	HD
Organic food consumption (O)	1.00		
Health concern (HC)	0.25***	1.00	
Healthy diet (HD)	0.15***	0.04	1.00
Subjective wellbeing	0.19***	0.03	0.37***

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

Table 3

Interaction of moderator health concern with the effects of organic food consumption on subjective wellbeing – Study 1 (H4b).

DV	Interaction effect			Conditional effect at values of the moderator			
	b	SE	t	Values (Mod.)	Cond. effect	SE	t
Healthy diet	0.04	0.02	1.94*	1.81 (–1SD)	0.04	0.04	1.16
				2.87 (M)	0.09	0.03	3.38***
				3.92 (+1SD)	0.13	0.03	4.00***
Subjective wellbeing	0.10	0.04	2.72**	1.81 (–1SD)	0.08	0.06	1.35
				2.87 (M)	0.19	0.04	4.34***
				3.92 (+1SD)	0.30	0.06	5.28***

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; values for quantitative moderators are the mean and plus/minus one SD from mean.

food effect on wellbeing at different values of the moderator health concern (Table 3). The effect of organic food on wellbeing is non-significant for the less health concerned consumers (at one standard deviation below the health concern mean value the effect is $b = 0.08$, $SE = 0.06$, $t = 1.35$, $p = 0.19$). However, for the more health concerned individuals, that is, subjects with an average health concern value ($M = 2.87$), the effect is significant ($b = 0.19$, $SE = 0.04$, $t = 4.34$, $p < 0.001$), and for highly health concerned individuals (health concern at one standard deviation above the health concern mean value) this effect is even stronger ($b = 0.30$, $SE = 0.06$, $t = 5.28$, $p < 0.001$). Results show that for the direct effect of organic on wellbeing to be significant, individuals must be at least to some extent health concerned. For non-health concerned individuals there is no significant direct effect of organic food on wellbeing.

Next, to assess also the health concern moderation of the indirect effect of organic on wellbeing via mediator perceived healthy diet (H4a), in a first step, the interaction of the effects of organic food and moderator health concern was confirmed by moderated regression analysis ($b_{\text{organic} \times \text{health c.}} = 0.04$, $SE = 0.02$, $t = 1.94$, $p = 0.05$; Table 3). The pattern of the conditional effect of organic on healthy diet is identical to that of the organic effect on wellbeing.

Subsequently, using Hayes' (2013) PROCESS, we tested whether also the indirect effect of organic on wellbeing mediated by health beliefs was moderated by health concern as proposed in H4a. The moderated mediation index computed supported the significance of the proposed moderated mediation (10,000 bootstrap samples) since zero was absent from the bootstrap confidence interval ($b_{\text{modmed}} = 0.02$, $SE = 0.01$, 90% CI [0.01, 0.05]). Results therefore confirmed that also the indirect effect of organic on wellbeing via mediator perceived healthy diet was moderated by health concern. Table 4 presents the pattern of the moderation of the indirect effect of organic on wellbeing mediated by healthy diet at different values of the moderator health concern. The pattern of conditional indirect effects was indeed identical to that of the direct effects. The indirect effect of organic on subjective wellbeing was non-significant for the least health concerned individuals (those with a health concern value of $-1SD = 1.81$, that is, one standard deviation below the health concern mean value), since the bootstrap confidence interval $[-0.01, 0.06]$ contained zero. However, the indirect effect was significant for subjects with an average health concern ($M = 2.97$) since zero was absent from the [0.02, 0.07] bootstrap confidence interval of the indirect effect ($b_{\text{indirect}} = 0.05$). For the more health concerned consumers at one standard deviation above the health concern mean ($+1SD = 3.92$), the effect was even more significant ($b_{\text{indirect}} = 0.07$).

Overall results therefore show that consumers with average and high health concern are more susceptible to the effects of organic food consumption on wellbeing, while non-health concerned consumers are less so or not at all, and that this moderation takes place both for the

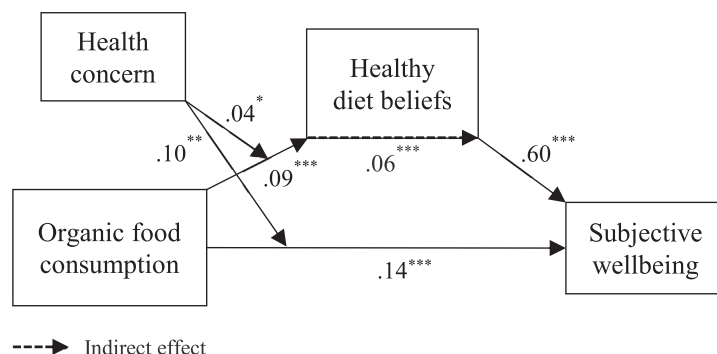


Fig. 2. Empirical model – study 1 (H1, H3b, H4b).

Note. *** $p < .001$; ** $p < .01$; * $p < .05$, all coefficients are unstandardized regression coefficients b.

Table 4

Moderated mediation analysis of organic food effects on subjective wellbeing mediated by healthy diet and moderated by health concern – study 1 (H4a).

Conditional indirect effect at values of the moderator				
Values (Mod.)	Cond. ind. effect	Boot SE	Boot LLCI	Boot ULCI
1.81 (–1SD)	0.02	0.02	–0.01	0.06
2.87 (M)	0.05	0.02	0.02	0.07
3.92 (+1SD)	0.07	0.02	0.03	0.11

Notes: 10,000 bootstrap samples for bias corrected 90% bootstrap confidence intervals, Boot SE = Bootstrap standard error, Boot LLCI = Bootstrap lower limit confidence interval, Boot ULCI = Bootstrap upper limit confidence interval, values for quantitative moderators are the mean (M) and plus/minus one SD from mean (–1SD/+1SD).

indirect influence of organic on wellbeing mediated by health beliefs and for its direct effect. Study 1 supported most of the proposed hypotheses with a representative sample (with exception of the label effect proposed in H2 which was not addressed in this study), showing in particular that a higher frequency of organic food consumption is related to an increase in subjective wellbeing.

6. Study 2

Study 2 was conducted to address two important limitations of study 1: first, that the cross-sectional survey data limited the possibility of causality inferences and second, that H2 could not be tested in study 1. H2 proposes that the influence of organic food consumption on wellbeing may be the consequence of a label effect rather than the result of an actual health benefit of organic food consumption. Since study 1 measured the frequency of actual organic food consumption, observed effects could have been the result of health effects of organic food. To rule out actual physiological effects of organic food, study 2 was designed as an experiment in which participants in the experimental group only believed to be consuming organic, but actually consumed the same non-organic product as people in the control group. Such an experiment can test whether a possible influence of organic on wellbeing could be the consequence exclusively of a labeling effect. In addition, Study 2 manipulated participant's health concern to rule out that the health concern moderation confirmed in study 1 was the result of a correlational effect rather than of a causal influence. The experimental setup of study 2 therefore aimed to confirm findings of study 1 while strengthening causality inferences and to address the question whether influences of organic may be the consequence of a label effect (H2). To enhance the robustness of the test of the proposed relationships, study 2 was conducted in a somewhat different, dominantly Anglo-Saxon, cultural environment (Australia). Assessing effects in two different cultural environments (Hispanic and Anglo-Saxon) should increase the external validity of findings.

6.1. Participants and procedure

Organic food consumption and health concern were experimentally manipulated in a 2 (organic vs. non organic) x 2 (health information vs. control) between-subjects factorial design. A sample of 160 undergraduate and graduate students from an Australian university (54% female, $M_{age} = 21.65$, $SD = 2.48$, age ranging from 18 to 32) took part in the experiment. Ethical approval was obtained. The study was conducted in a classroom. Participants were randomly assigned to four experimental groups. To the participants in the health information condition a text discussing health issues and nutrition was read by the experimenter. Participants in the control condition listened to a paragraph on a non-health related science topic (astronomy). Subsequently, participants received one glass of orange juice (approx. 200 ml) and were invited to drink the juice. They were informed that they would be asked their opinion on the juice. All participants drank all or most of the juice. In the “organic” group, participants were informed by the experimenter that the juice was certified organic and an official organic certification label was displayed on the main classroom screen. Participants in the non-organic condition did not receive any information on the juice. All participants drank an identical non-organic juice. Subsequently, participants completed a questionnaire assessing their beliefs regarding the healthiness of the orange juice, health concern and subjective wellbeing.

6.2. Measurement

To assess the degree to which the orange juice was perceived as healthy, study one's healthy diet measure (Stephens et al., 1995) was slightly adapted to the case of juice. Participants rated the degree to which they believed the orange juice was *nutritious, free of harmful ingredients, high in vitamins, gave them energy and was healthy*. The rating scales were anchored by *strongly disagree = 1* to *strongly agree = 5* (58% explained variance, factor loadings ranging from 0.57 to 0.88; Cronbach's alpha = 0.86). *Health concern* (Kähkönen et al., 1996) was rated on the same measurement scale as in study 1 (47% explained variance, factor loadings ranging from 0.62 to 0.86; Cronbach's alpha = 0.81).

In study 1, we measured subjective wellbeing as a long term overall mood or feeling state on a unified measure built on Watson et al.'s (1988) PANAS scale and Ryan and Frederick's (1997) vitality measure. Study 2 focused instead on feelings experienced immediately as a consequence of food intake. Since both PANAS and the vitality scale have a more long term orientation, are unspecific and mood focused, as well as not food related, we deemed that these scales were not ideal to assess immediate wellbeing responses related to food consumption. We therefore used the more specific WellSense Profile (King et al., 2015) to measure *food-related wellbeing*. King et al.'s (2015) WellSense Profile was developed specifically for the assessment of wellness responses associated with food consumption. The introducing question of the

WellSense Profile establishes a relationship of the individual's emotional wellbeing response with the intake of a specific food. The measure was therefore more appropriate to assess emotional responses directly related with the intake of a specific food product as in our experiment. King et al.'s measure is based on the wellness-questionnaire QOL-100 (WHOQOL Group, 1998) and on PANAS. A number of rating items were therefore the same as in study 1's wellbeing measure. King et al.'s scale is originally divided into 5 subscales assessing individually *emotional*, *intellectual*, *social*, *physical* and *spiritual* dimensions of *food related wellbeing*. Participants were asked to rate on the following items how drinking the orange juice made them feel: *calm*, *happy*, *satisfied* (emotional); *stimulated*, *curious*, *attentive* (intellectual); *friendly*, *connected*, *sociable* (social); *active*, *energetic*, *healthy* (physical); and *joyful*, *peaceful*, *fulfilled* (spiritual). Rating scales ranged *not at all* = 1 to *extremely so* = 7. In line with King et al. an overall food-related wellbeing measure was computed by averaging all measurement items. The properties of the overall wellbeing scale were assessed with CFA. The analysis confirmed that all items loaded on one factor. This factor explained 60% of the overall variance with factor loadings ranging from 0.63 to 0.88. Cronbach's alpha of the measure was 0.92, confirming the reliability of the scale.

6.3. Statistical analyses

The analyses of study 2 were nearly identical to those of study 1, with the exception of additional ANOVA analyses conducted to assess the effects of the two experimental factors. Also, all analyses of study 2 addressed H2 proposing that the organic-wellbeing link may be the result of a labeling effect. In contrast to study 1, where the wellbeing effect could be the result of actual health benefits of organic food, any influence of organic consumption observed in study 2 could only be the consequence of a labeling effect, since both in the organic and in the control condition participants drank the same non-organic juice. First, one-way ANOVA analysis of between-group differences was conducted to assess the main effects of the organic manipulation on all dependent variables. The ANOVA analysis of the effect of organic on wellbeing provided an initial test of H1 and H2. A second one-way ANOVA was conducted to test whether the health information manipulation was successful, that is, whether mean-value differences were significant between the health information group and the control group. Further analyses were identical to study 1 and in the same order. Correlation analysis was followed by mediation analysis of the indirect effect of the organic manipulation on wellbeing via health beliefs with Hayes' (2013) PROCESS (H3a and H3b). Subsequently the moderation of the direct effect of organic on subjective wellbeing by health concern (H4b) was analyzed with moderated regression analysis (Baron & Kenny, 1986), and the moderation of the indirect effect mediated by health beliefs (H4a) was tested with moderated mediation analysis using PROCESS. For both the moderation of the indirect and direct effect of organic on wellbeing, a conditional effect analysis provided regression coefficients at the health concern mean (M) and at one standard deviation above (+1SD) and below (-1SD) the mean value.

6.4. Results

The analysis of mean value differences between the organic and the control group conducted to assess the effects of the organic manipulation confirmed significant mean differences in all variables except *health concern* (Table 5), supporting H1 and H2. Participants believing that the orange juice was organic perceived the juice as healthier and rated their food-related wellbeing significantly higher. Also the manipulation check of the health information manipulation indicated significant mean-value differences, confirming that perceived *health concern* was successfully manipulated, with $M_{\text{health c.}} = 3.66$ (SD = 0.87) in the health information group and $M_{\text{control}} = 3.22$ (SD = 0.98) in the control group. Regression analysis of the effect of

Table 5

Main effects of the organic manipulation – Study 2 (H1, H2).

Dependent variable	Experimental Factor				t
	Organic label		Control		
	M	SD	M	SD	
Health concern	3.38	0.96	3.50	0.94	0.81
Healthy	3.83	0.71	2.81	0.94	7.80***
Food wellbeing	4.77	0.97	3.19	1.17	9.27***

*** $p < 0.001$.

the health information manipulation on health concern results in a regression coefficient of $b = 0.43$, (SE = 0.15, $t = 2.97$, $p = 0.003$).

The health information manipulation had no significant effect on any other variable.

Correlation analysis revealed a positive correlation of 0.64 ($p < 0.001$) between food wellbeing and the perception of the orange juice as *healthy*. There was neither a significant correlation of food wellbeing with health concern nor of the *healthy* and health concern measures.

As part of the mediation analysis conducted to test H3a, regression analysis showed that the effect of the *organic* manipulation on the perception of the orange juice as *healthy* was $b = 1.03$ ($p < 0.001$) and that, in turn, the effect of *healthy* on wellbeing, when introduced together with *organic* was still $b = 0.61$ ($p < 0.001$). Consistent with results of study 1 and supporting H3a, mediation analysis of indirect effects computing the Sobel test Z-value confirmed a significant indirect effect of the organic manipulation on food-related wellbeing mediated by the perception of the juice as *healthy* ($b_{\text{indirect}} = 0.62$, SE = 0.12, $Z = 5.05$, $p < 0.001$). As in study 1, the mediation via health beliefs did however not explain completely the effect of the organic variable on wellbeing. As expected (H3b), a significant direct effect of organic on wellbeing still remained ($b = 0.95$, SE = 0.18, $t = 5.40$, $p < 0.001$).

The next steps of the analysis addressed the moderating influence of the health concern measure on the direct effect of the organic manipulation on food related wellbeing proposed in H4b. As explained previously, the subjects' health concern was manipulated as well and varied significantly between the health information and control group. Moderated regression analysis confirmed that the direct effect of the *organic* manipulation on overall *food wellbeing* was significantly moderated by the participants' *health concern* ($b_{\text{organic} \times \text{health c.}} = 0.41$, SE = 0.18, $t = 2.31$, $p = 0.02$) providing support for H4b. As the conditional effect analysis shows (Table 6), the direct effect of the organic manipulation on wellbeing is significantly higher for highly health concerned individuals than for the less health concerned. Fig. 3 shows the interaction between the effects of the organic manipulation and participants' health concern on perceived food wellbeing. The higher the individuals' health concern, the stronger is the influence of the organic manipulation on food-related wellbeing. The empirical model is depicted in Fig. 4.

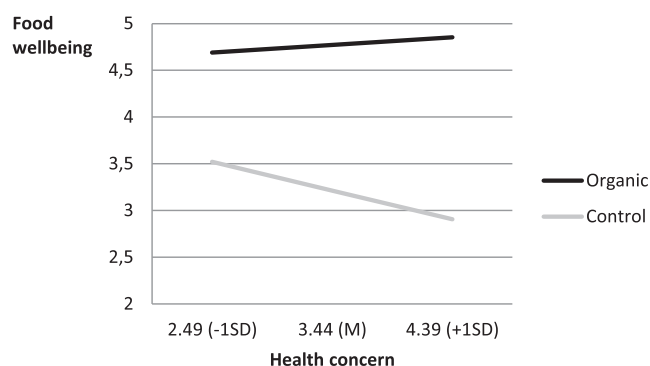
As in study 1, we tested subsequently whether the indirect effect of organic on wellbeing mediated by health beliefs (*healthy*) was also moderated by health concern as proposed in H4a. The moderated mediation index computed with Hayes' (2013) PROCESS SPSS macro again supported the significance of the proposed moderated mediation with a 95% bootstrap confidence interval (10,000 bootstrap samples) since zero was absent from the confidence interval (Table 7). Results therefore confirmed that the indirect effect of organic on wellbeing via mediator *healthy* was also moderated by health concern. The conditional effect analysis presented in Table 7 shows that the indirect effect of organic on wellbeing mediated by health beliefs is significantly stronger for more health concerned individuals than for the less health concerned.

Table 6

Interaction of moderator health concern with the effects of organic juice intake on health beliefs and wellbeing – Study 2 (H4b).

Interaction effect				Conditional effect at values of the moderator			
DV	b	SE	t	Values (Mod.)	Cond. effect	SE	t
Healthy	0.26	0.14	1.86 ⁺	2.49 (–1SD)	0.78	0.19	4.19***
				3.44 (M)	1.03	0.13	7.81***
				4.39 (+1SD)	1.27	0.19	6.84***
Food wellbeing	0.41	0.18	2.31*	2.49 (–1SD)	1.17	0.24	4.92***
				3.44 (M)	1.56	0.17	9.30***
				4.39 (+1SD)	1.95	0.24	8.21***

***p < 0.001; **p < 0.01; *p < 0.05; +p < 0.10; values for quantitative moderators are the mean and plus/minus one SD from mean.

**Fig. 3.** Moderating influence of health concern on the effect of the organic manipulation on food-related wellbeing – Study 2 (H4b).

Results confirmed that, consistent with study 1, more health concerned consumers are more susceptible to the effect of organic food consumption on subjective wellbeing, and that this moderation affects both the indirect influence of organic food mediated by perceived healthiness and its direct effect. Findings thus support the proposition that both the cognitive processes involved in the wellbeing effects of organic food based on a deliberated elaboration of health beliefs and the automatic emotional processes enhancing wellbeing are dependent on the individual's health concern. Whereas wellbeing effects of study 1 could be the result of actual health benefits of organic food and/or perceptual effects, the influences observed in Study 2 are exclusively

Table 7

Moderated mediation analysis of organic food effects on food-related wellbeing mediated by healthy and moderated by health concern – Study 2 (H4a).

DV		Mod. med. index	Boot SE	Boot LLCI	Boot ULCI
<i>Index of moderated mediation</i>					
Food wellbeing		0.16	0.08	0.01	0.34
<i>Conditional indirect effect at values of the moderator</i>					
DV	Values (Mod.)	Cond. ind. effect	Boot SE	Boot LLCI	Boot ULCI
Food wellbeing	2.49 (−1SD)	0.47	0.13	0.24	0.77
	3.44 (M)	0.62	0.14	0.39	0.93
	4.39 (+1SD)	0.77	0.18	0.47	1.18

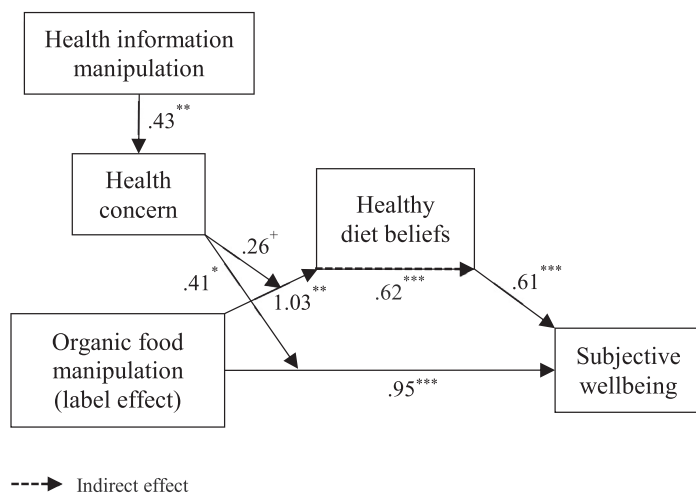
Notes: 10,000 bootstrap samples for bias corrected 95% bootstrap confidence intervals, Boot SE = Bootstrap standard error, Boot LLCI = Bootstrap lower limit confidence interval, Boot ULCI = Bootstrap upper limit confidence interval, values for quantitative moderators are the mean (M) and plus/minus one SD from mean (–1SD/+1SD).

consequence of a label effect (H2) since both in the organic and in the control condition participants drank the same non-organic juice. The experimental setup of Study 2 therefore confirms the existence of a causal influence of organic food intake on wellbeing as consequence of a label effect.

7. Discussion

7.1. The “organic effect” on subjective wellbeing

Prior research has indicated that consumers associate organic food with healthiness and increased wellbeing (e.g., Ares et al., 2015; Bauer et al., 2013; Vega-Zamora et al., 2014; Zanolli & Naspetti, 2002). However, a potential influence of organic food consumption on wellbeing has neither been proposed previously in an explicit manner nor studied with a quantitative method. The aim of our research was to address this gap in the literature by analyzing the influence of organic food consumption on subjectively experienced wellbeing with a quantitative study and a representative sample, as well as with an experimental research design. Both studies confirmed a significant causal relationship between consumption of organic food and subjectively experienced wellbeing as proposed in H1. This finding adds to the literature on both antecedents and consequences of organic food consumption: Organic food consumption can have positive emotional influences on the individual and, on the other hand, the reward expectation related to this

**Fig. 4.** Empirical model – study 2 (H1, H2, H3b, H4b).

Note. ***p<.001; **p<.01; *p<.05; +p<.10; all coefficients are unstandardized regression coefficients b.

effect may constitute an important motive to consume such food. By showing that organic food consumption can enhance subjective wellbeing, this research contributes to the growing stream of research addressing the relationship between food and consumer wellbeing (Ares et al., 2015; Block et al., 2011; Bublitx et al., 2013; Guillemin et al., 2016; Rozin, 2005; Rozin et al., 2003). Overall, organic food consumers perceive a higher degree of emotional wellbeing than consumers of non-organic food.

7.2. Is the organic influence on wellbeing consequence of a label effect?

Based on the extant research showing that an organic label can alter consumer's beliefs about the product and expectations (e.g., Ellison et al., 2016; Piqueras-Fiszman & Spence, 2015; Schuldt & Schwarz, 2010; Sörqvist et al., 2015), hypothesis two proposed that also the influence of organic food consumption on subjective wellbeing can be the consequence of such a label effect. Results of study 2 confirmed this hypothesis. With the experimental setup of study 2, the effect of organic food consumption can only be consequence of a label effect, since physiological health benefits, which could also explain an improved feelings state, were ruled out by using an identical non-organic food product in all experimental groups. These findings provide support for the theory on label effects, arguing that product belief expectancies can alter the perceived outcome of product use and consumption. With regard to a possible wellbeing effect of organic labeling, there had been only incidental previous evidence stemming from qualitative research pointing to psychological effects of organic food consumption (Vega-Zamora et al., 2014). Our study confirms that the organic claim acts as a heuristic cue leading consumers to infer that the product will benefit their wellbeing.

7.3. Health belief formation provides a partial process explanation

Findings of both studies also revealed a cognitive process explanation for the organic-wellbeing link based on the above-mentioned product belief expectancy influences. By showing that the effect of organic consumption on subjective wellbeing was mediated by the individual's inferential belief of having a healthy diet, our research confirmed that deliberate health belief elaboration can explain in part the organic-wellbeing link (H3a). Based on the belief that organic food is healthier, organic consumers expect that having a healthier nutrition will make them feel better and this expectancy belief enhances their perception of actual wellbeing. The findings are in line with Bublitx et al. (2013), who argued that for consumers of healthy food, the feeling of satisfaction derived from having made healthy food choices may contribute to experiencing emotional wellbeing. The results further add to the stream of evidence supporting the perceived healthiness of organic food (e.g., Bauer et al., 2013; De Magistris & Gracia, 2008; Ellison et al., 2016; Goetzke et al., 2014; Vega-Zamora et al., 2014; Zanoli & Naspetti, 2002). Because in study 2 the organic effect is exclusively consequence of a label effect, while the health belief mediation can still be observed, a further contribution of this research is to show that label effects can be belief based and take place even in the presence of elaborate cognitive processing.

The finding that the observed mediation is only partial with a significant direct effect remaining indicates that the identified cognitive process does not entirely explain the organic-wellbeing effect. Based on qualitative research, Vega-Zamora et al. (2014) argued that in organic food consumption, feelings and emotions are more salient than product belief elaboration. Our findings support hypothesis 3b, proposing that the health belief mediation is only partial, and that organic food consumption also exerts a direct influence on subjective wellbeing, because a significant part of the organic effect is based on automatic, emotional processing, apart from the cognitive elaboration of health beliefs. This proposition is in line with prior research showing that consumers have spontaneous emotional responses to food (Laros & Steenkamp, 2005).

Automatic emotional processes have also been found to be significantly involved in food choices (Bublitx et al., 2013; Shiv & Nowlis, 2004; Wood, 2010) and informational claims have been shown to have a lower effect on food evaluation than health related emotional imagery (Chrysoschou & Grunert, 2014).

7.4. The moderating role of health concern

A further contribution to the literature on expectancy beliefs is provided by the confirmation of health concern as a moderator of the organic-wellbeing link. Expectations affecting the food consumption experience are determined by beliefs, attitudes, and personality (Piqueras-Fiszman & Spence, 2015). Particularly in more health concerned consumers, believing that consuming organic implies a healthy diet may reduce health preoccupations and concerns, enhancing perceived wellbeing by positively reinforcing satisfaction with their nutritional choices. Findings confirmed that, as proposed in H4a and H4b, both the indirect effect of organic food consumption on subjective wellbeing mediated by health beliefs and the remaining direct effect are positively moderated by the individual's health concern. Results are in line with prior research indicating that more health concerned consumers are more likely to consume organic food (e.g., Chen, 2007; De Magistris & Gracia, 2008; Goetzke et al., 2014), and that organic consumers are more health concerned and more likely to develop behaviors to protect their health (Schifferstein & Ophuis, 1998). The findings are furthermore consistent with previous research showing that health concern moderates the effect of organic claims on perceived healthiness of food, as well as purchase intention (Chrysoschou & Grunert, 2014). That the observed moderation is not limited to the mediated, cognitive based process (H4a), but also affects the direct effect of organic food on wellbeing (H4b), further underlines the significant role of automatic and emotional processing in food consumption behavior (Bublitx et al., 2013; Shiv & Nowlis, 2004; Wood, 2010).

7.5. Practical implications

Findings have significant practical implications. Consuming organic improves consumers' subjective wellbeing. To improve personal wellbeing, consumers may be well advised to incorporate organic food into their diet, particularly the more health concerned. On the other hand, this research shows that improved feeling states may be exclusively the consequence of a label effect, instead of a physiological health benefit. Indeed, scientific evidence supporting actual health benefits of an organic diet is extremely scarce. As yet there has been virtually no rigorous research addressing effects of organic versus conventionally-grown foods on human health (Dangour et al., 2010). Still, even with only a psychological label effect in place, an increase in subjective wellbeing should be welcomed. After all, organic food consumption, apart from somewhat higher costs for the individual, will not have any negative consequences, while the impact on the environment as well as on the economies of more local and smaller producers should be mostly positive. In view of our findings it makes much sense to promote organic food consumption appealing at health motives. Indeed, the experimental health concern manipulation showed that health concern can be increased providing health-relevant information, which in turn leads to a stronger organic-wellbeing link.

7.6. Limitations and suggestions for future research

The findings are robust due to the consistency of results across two studies with different samples and methods: an experiment with a student sample and a nationally representative online survey. However, the characteristics of a survey restrict the possibility of causal inferences. While the experimental setup of study 2 addresses these limitations, the sample is less representative. In

Study 2 the timespan between experimental exposure and measurement of perceived wellbeing is short. Long term effects of organic food consumption could therefore not be assessed experimentally.

Future research should address these limitations. In an ideal experimental setup, participants in the experimental group would follow a diet based on organic food during several weeks or months while the control group consumed non-organic food. Wellbeing could be measured on a series of indicators several times during the experiment, allowing for the evolution of perceived wellbeing in both groups to be compared. If such a study could be conducted during several years, indicators for physiological wellbeing should be incorporated. This would allow addressing the near total lack of studies on organic food's health effects and would provide more informed findings to answer the question whether the organic food effect is only a placebo or additionally mediated by physical health benefits. Some of our findings and their theoretical implications provide further promising avenues for future research. There is still need to explain the mechanism of the direct emotional influence of organic on wellbeing. Does consuming organic directly elicit positive affective experiences or are there additional cognitive processes involved as mediators, apart from its effect via health beliefs? Also worth revisiting in future research is the label effect observed in belief elaboration. To which extent cognitive processing of food related information can be susceptible to such label effects?

Appendix

Table A
Sample characteristics – Study 1.

		Frequency	Percentage
Gender	Female	300	50
	Male	300	50
Age	25–29	152	25.3
	30–44	173	28.8
	45–59	140	23.3
	> 60	135	22.5
Household income	< 15.000 €	106	17.7
	15.000–24.999 €	139	23.2
	25.000–39.999 €	125	20.8
	40.000–54.999 €	53	8.8
	55.000–74.999 €	30	5
	75.000–89.999 €	8	1.3
	> 90.000 €	3	0.5
	I prefer not to say	136	22.7
Education	High School – Year 10 qualification	23	3.8
	High School – Year 12 qualification	217	36.2
	Tafe/College	144	24
	University – Undergraduate	123	20.5
	University – Postgraduate	82	13.7
	University – Doctorate	11	1.8
Profession	Employed	338	56.3
	Retired	110	18.3
	Not currently working/has been working before	81	13.5
	Not currently working/looking for first employment	17	2.8
	Student	31	5.2
	Home duties	23	3.8
Number of	0	286	47.7

(continued on next page)

8. Conclusions

This research analyzed the influence of organic food consumption on subjectively experienced wellbeing with two studies: a representative online survey and an experimental laboratory study. Findings confirmed the proposed organic-wellbeing link, while also providing evidence that the observed relationship can be exclusively the consequence of a label effect. Further results provided a partial process explanation based on cognitive health belief elaboration and showed that the influence of organic food consumption on wellbeing is stronger for more health concerned individuals. Findings indicate that consumers may improve subjective wellbeing by incorporating organic food into their diet. This recommendation applies in particular for health concerned individuals. A further implication of this research is that the adoption of organic food can be fostered by appealing at consumer's health motives and by increasing health concern providing health-related information.

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Table A (continued)

		Frequency	Percentage
children	1	99	16.5
	2	153	25.5
	> 2	62	10.3
Province of residence	Álava/Araba	7	1.2
	Albacete	1	0.2
	Alicante/Alacant	16	2.7
	Almería	5	0.8
	Ávila	2	0.3
	Badajoz	11	1.8
	Balears (Illes)	13	2.2
	Barcelona	93	15.5
	Burgos	6	1
	Cáceres	3	0.5
	Cádiz	8	1.3
	Castellón/Castelló	2	0.3
	Ciudad Real	7	1.2
	Córdoba	6	1
	A Coruña	12	2
	Cuenca	1	0.2
	Girona	9	1.5
	Granada	12	2
	Guadalajara	4	0.7
	Guipúzcoa/Gipuzkoa	5	0.8
	Huelva	4	0.7
	Huesca	3	0.5
	Jaén	5	0.8
	León	3	0.5
	Lleida	10	1.7
	La Rioja	5	0.8
	Lugo	3	0.5
	Madrid	119	19.8
	Málaga	16	2.7
	Murcia	13	2.2
	Navarra	4	0.7
	Ourense	4	0.7
	Asturias	10	1.7
	Palencia	1	0.2
	Las Palmas	10	1.7
	Pontevedra	7	1.2
	Salamanca	9	1.5
	Santa Cruz de Tenerife	8	1.3
	Cantabria	9	1.5
	Segovia	6	1
	Sevilla	29	4.8
	Soria	3	0.5
	Tarragona	6	1
	Toledo	7	1.2
	Valencia/València	25	4.2
	Valladolid	22	3.7
	Vizcaya/Bizkaia	21	3.5
	Zamora	2	0.3
	Zaragoza	13	2.2
	Total	600	100.0

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