



An exploration of interactions between Conscientiousness and Consideration of Future Consequences on healthy eating



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ABSTRACT

Research in personality and health indicates that Conscientiousness and Consideration of Future Consequences (CFC) individually predict health behavior, but little is known about their combined effects. Two studies explored interactions between Conscientiousness and CFC on healthy eating outcomes in university students. CFC predicted higher intention to consume more fruits and vegetables (Study 1, $n = 146$) and higher intention to eat healthy (Study 2; $n = 191$) when Conscientiousness was low but not when it was high. Additionally, high Conscientiousness attenuated the negative association between CFC–Immediate and healthy eating intentions. Compensatory relationships between CFC and Conscientiousness may have implications for health and public policy.

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1. Introduction

Healthy eating predicts long-term health and mortality (Wirt & Collins, 2009). However, healthy eating may require more planning and time (e.g., shopping, preparation of fruits and vegetables) and self-discipline than consumption of immediately available “fast” food that is typically high in sodium and fat and damaging to long-term health (Wirt & Collins, 2009). Therefore, prioritizing long-term (health) over immediate (convenience, time) consequences that describes the individual difference variable of Consideration of Future Consequences (CFC; Strathman, Gleicher, Boninger, & Edwards, 1994), and discipline and organization characteristic of the Big Five Factor of Conscientiousness (McCrae & John, 1992) may be important in predicting healthy eating. While CFC (Joireman, Shaffer, Balliet, & Strathman, 2012) and Conscientiousness (Bogg & Roberts, 2004) independently predict health-related behaviors, few studies have examined their combined influence, particularly with respect to positive health behaviors such as healthy eating.

Moreover, while some research has examined interactions between CFC and other variables (e.g., messages emphasizing short vs. long term consequences of behavior; Joireman et al., 2012) and interactions between Big Five Factors (Carver & Connor-Smith, 2010), interactions between CFC and Conscientiousness have not been studied, to the best of my knowledge. Personality

interactions are important because personality variables do not exist in isolation (Carver & Connor-Smith, 2010). Indeed, high Neuroticism predicted high job dissatisfaction for low but not high Agreeableness (Grant & Langan-Fox, 2006). High Conscientiousness or high Extraversion offset the association between Neuroticism and stress (Vollrath & Torgersen, 2000); combinations of high Neuroticism with low Conscientiousness, and low Neuroticism with high Conscientiousness, predicted the highest and lowest stress experiences, respectively (Carver & Connor-Smith, 2010).

Interactions between Conscientiousness and CFC on healthy eating are the focus of the present research. Research on individual and joint influence of Conscientiousness and CFC on health behaviors is first summarized, with a focus on dietary behavior and includes dietary intention that predicts dietary behavior (Mullan, Allom, Brogan, Kothe, & Todd, 2014).

1.1. Conscientiousness

Conscientiousness negatively predicts unhealthy behaviors (Jokela et al., 2013), including unhealthy eating (Bogg & Roberts, 2004). Conscientiousness also positively predicts healthy behaviors of exercise (Bogg & Roberts, 2004) and fruit consumption (de Bruijn, Brug, & Van Lenthe, 2009). Facets may have stronger associations than total Conscientiousness (Hagger-Johnson & Whiteman, 2007; Paunonen, 1998) and may differentially predict eating. For example, most Conscientiousness facets predicted lower consumption of fatty snacks, but only orderliness predicted daily

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fruit intake (O'Connor, Conner, Jones, McMillan, & Ferguson, 2009). Low impulsivity may underlie positive associations between Conscientiousness and healthy eating (Shanahan, Hill, Roberts, Eccles, & Friedman, 2012).

1.2. CFC

CFC negatively predicts unhealthy behaviors and positively predicts healthy behaviors (Joireman et al., 2012), including eating breakfast (Daugherty & Brase, 2010). While most research has used the original, unitary CFC measure (Strathman et al., 1994), some studies (e.g., Adams, 2012; Joireman, Balliet, Sprott, Spangenberg, & Schultz, 2008; Joireman et al., 2012) used two subscales of preference for immediate (CFC–Immediate) and future (CFC–Future) consequences, which are moderately and negatively associated. CFC–Future predicted healthy eating intention via a promotion regulatory orientation focused on actively pursuing positive future outcomes (Joireman et al., 2012). A food-specific CFC–Immediate subscale negatively predicted healthy eating behavior (van Beek, Antonides, & Handgraaf, 2013).

1.3. Conscientiousness and CFC

Given that CFC is moderately associated with Conscientiousness (Strathman et al., 1994), some research has examined whether CFC adds to prediction of health behavior over Conscientiousness. After controlling for Conscientiousness, CFC added unique variance to prediction of exercise (Daugherty & Brase, 2010) and smoking (Adams & Nettle, 2009; Strathman et al., 1994), but not alcohol consumption, possibly because alcohol's future negative consequences are less known (Strathman et al., 1994). Conversely, after controlling for CFC, Conscientiousness did not add to prediction of smoking or alcohol (Strathman et al., 1994). The possible interactive effect of combinations of different levels of CFC and Conscientiousness was not examined in these studies, however.

1.4. Objective, rationale, hypotheses and overview

The objective of the present research was to explore interactions between Conscientiousness and CFC on healthy eating, according to the following rationale. CFC and Conscientiousness are not identical (Strathman et al., 1994), and, as reviewed above, are individually associated with healthy eating outcomes. Combined together, strengths in one variable might compensate for the other's weaknesses, or add to its strengths. For example, low impulsivity associated with high Conscientiousness might help someone high in CFC–Immediate resist the pull of immediately available but unhealthy fast food. A strong goal of future good health associated with high CFC–Future might counteract high impulsivity in low Conscientious individuals, and, perhaps, complement low impulsivity in high Conscientiousness, resulting in healthier food choices than would be predicted by low or high Conscientiousness alone.

Specific exploratory hypotheses are that increases in CFC–Immediate predict *lower* healthy eating when Conscientiousness is low but not when Conscientiousness is high, and increases in CFC/CFC–Future predict *higher* healthy eating when Conscientiousness is low, and, possibly, even higher increases when Conscientiousness is high. Study 1 explored interactions between CFC and Conscientiousness on intention to eat fruits and vegetables. Study 2 was designed to replicate and extend Study 1 to a more general healthy eating intention and also healthy eating behavior. Study 2 also explored CFC interactions with Conscientiousness facets.

2. Study 1

2.1. Method

2.1.1. Participants

After receiving ethics approval by the university's psychology ethics board, the study was completed by 146 primarily (71.4%) Caucasian university students (109 females, 36 males, one unspecified) whose average age was 20.27 ($SD = 3.54$).

2.1.2. Materials

Table 1 presents descriptive statistics and internal consistency reliability for all measures.

2.1.2.1. Intention. Participants rated four items about intention to increase consumption of fruits and vegetables on a 6-point Likert-type scale: "I intend to consume more fruits and vegetables over the next month (strongly agree–strongly disagree)", "How likely is it that you will consume more fruits and vegetables over the next month? (very likely–very unlikely)", "I intend to consume more fruits and vegetables over the next month (definitely intend–definitely do not intend)," and "I plan to consume more fruits and vegetables over the next month (strongly agree–strongly disagree)". This measure had high reliability. Mean scores were computed with higher scores indicating higher intention to consume more fruits and vegetables. Intention predicted fruit and vegetable consumption in university students (Mullan et al., 2014).

2.1.2.2. CFC. CFC was measured by the 12-item scale (Joireman et al. 2012; Strathman et al., 1994's 14-item scale had not been published when Study 1 was conducted). Items were rated on a 5-point Likert-type scale ranging from 1 (extremely uncharacteristic of me) to 5 (extremely characteristic of me). Average scores were computed for CFC–Future (five items) and CFC–Immediate (seven items) subscales (Joireman et al., 2008) as well as overall CFC (CFC), in which immediate items were reversed. Example items are "I am willing to sacrifice my immediate happiness or well-being in order to achieve future outcomes (future)," and "I only act to satisfy immediate concerns, figuring the future will take care of itself (immediate)." High scores on CFC and CFC–Future indicate high Consideration of Future Consequences, while high scores on CFC–Immediate reflect high consideration of immediate consequences. Reliability was good for CFC and CFC–Immediate, and acceptable for CFC–Future.

2.1.2.3. Conscientiousness. Participants completed only the 20-item Conscientiousness domain of the International Personality Item

Table 1
Bivariate correlations between variables in Study 1.

Variable	1	2	3	4	5
1. Conscientiousness	–				
2. CFC	.47**	–			
3. CFC–Future	.41**	.70**	–		
4. CFC–Immediate	–.39**	–.90**	–.32**	–	
5. Intention to eat more fruits and vegetables	.16*	.08	.16*	–.01	–
M	73.70	3.44	3.71	2.76	4.60
SD	12.86	0.61	0.66	0.80	1.14
Minimum	44.00	1.83	1.80	1.00	1.00
Maximum	100.00	5.00	5.00	5.00	6.00
Cronbach's alpha	0.93	0.84	0.72	0.82	0.97

Note: CFC = Consideration of Future Consequences.

* $p < .10$.

** $p < .05$.

** $p < .01$.

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