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22 **Abstract:**

23 The purpose of this narrative review is to evaluate the evidence for an
24 association between the Big Five dimensions of personality, dietary intake and
25 compliance to dietary recommendations. Poor diet is a known risk factor for
26 overweight and obesity and associated chronic lifestyle diseases and it has been

1 proposed that personality may be linked to dietary choices. Findings from
2 cross-sectional surveys across different countries and cultures show a positive
3 association between Openness and consumption of fruits and vegetables and
4 between Conscientiousness and healthy eating. While no evidence has been
5 found that personality dimensions are associated with adherence to dietary
6 recommendations over time, Conscientiousness is associated with a number of
7 prosocial and health promoting behaviors that include avoiding alcohol-related
8 harm, binge-drinking and smoking, and adherence to medication regimens.
9 With emerging evidence of an association between higher Conscientiousness
10 and lower obesity risk, the hypothesis that higher Conscientiousness may
11 predict adoption of healthy dietary and other lifestyle recommendations
12 appears to be supported.

13
14 **Key words: personality, Big Five, dietary intake, Openness, Conscientiousness**

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19 **Introduction**

20 Poor diet, low in consumption of fruit and vegetables, is a risk factor for overweight and
21 obesity and chronic lifestyle diseases including hypertension, type 2 diabetes, coronary heart
22 disease, stroke and some cancers [1]. It is also well established that the over-consumption of
23 energy-dense, high sugar and high fat foods is linked to the development of obesity [2],

1 which is associated with co-morbidities such as hypertension [3], type 2 diabetes [4] and
2 cardiovascular disease (CVD) [5]. Conversely, it has been shown that consumption of fruit
3 and vegetables, whole grains, nuts and low-fat dairy products may be protective against
4 obesity and these chronic diseases [3-5].

5 Many factors influence dietary intake [6]. Models of environmental and socio-cultural
6 influences show that socioeconomic area and social support have been associated with dietary
7 choices [7]. Those living in wealthier socioeconomic areas with higher household incomes
8 and more food choices and who are married or have more social support consume more fruit
9 and vegetables, whereas those who are from low-income households or who watch more
10 television consume fewer fruits and vegetables [7, 8]. Knowledge about food may play a role
11 [9]. It has been suggested that factual knowledge about foods such as which are healthy, or
12 low-fat or high-fibre is not enough to ensure their consumption, but that “how-to” or
13 procedural knowledge about where to get them, how to choose them and how to cook them
14 may be more important [10]. Underlying these factors, models of biological predispositions
15 of eating behaviors have shown that genetically heritable factors influence taste and satiety
16 [11]. It has also been shown that personality, which is thought to be largely inherited [12],
17 may be associated with food preferences and that certain personality types may be more
18 prone to choose healthier food alternatives. [13]. Such associations have been found to occur
19 early in life in children aged 6-12, although mediated by relationships with parents [14], and
20 as might be expected if personality predispositions are inherited. A large meta-analysis with
21 78,931 men and women completed in 2012, found an inverse dose-response relationship
22 between levels of Conscientiousness and obesity, such that those with higher levels of
23 Conscientiousness had lower risk of being obese [15]. This finding suggests a probable link
24 between personality and dietary intake (and other healthy lifestyle attributes including
25 physical activity) over time such that those who are more conscientious may be more likely

1 to consume a healthy diet and maintain a healthy weight, and provides further impetus to the
2 need for a better understanding of this relationship.

3 In this narrative review we will address the question – are personality characteristics
4 associated with healthy dietary choices, such as the consumption of more fruit and
5 vegetables, or compliance to dietary recommendations? Firstly, we will review personality,
6 what it is and how it is measured. Secondly, we will assess the effect of personality
7 dimensions on food choice from evidence presented in cross-sectional studies. Thirdly, we
8 will examine the evidence from cross-sectional and longitudinal studies for associations
9 between personality and compliance and whether these may have a bearing on adherence to
10 dietary recommendations, and finally we explore the probable genetically-based
11 multifactorial pathway for the association between personality and dietary intake.

12 *Method of article selection*

13 Articles were searched for this narrative review in the following EBSCOhost databases:
14 Academic Search Complete, Ageline, CINAHL, Global Health, Health Source:
15 Nursing/Academic Edition, Medline, PsychARTICLES, psychEXTRA, Psychology and
16 Behavioural Sciences Collection, psychINFO, SocINDEX with full text and SPORTDiscus
17 with full text. For the first section on personality and dietary intake the following search
18 terms were used: Big Five, Big 5, five factor model, FFM, Openness, Conscientiousness,
19 Extraversion, Neuroticism, diet*, dietary intake, food intake, fruit*, vegetable*, and for the
20 second section on personality and compliance the key words: compliance, adherence, health
21 and health* behaviour were added. For inclusion articles had to be original research and be
22 published in peer-reviewed journals in English, and, as a primary endpoint in the first section,
23 had to investigate the association between the Big Five personality dimensions and dietary
24 intake but excluding eating disorders, **other personality disorders or psychopathologies,**

1 and in the second section, between the Big Five personality dimensions and health-related
2 compliance behaviour. The search was conducted first in May 2012 and was repeated in
3 January 2013 and again in May 2013. **There was no specific time constraint on when**
4 **articles were published, however most work in this area has been done since the year**
5 **2000**

6 Personality is the unique constellation of behavioral traits in every individual [16].
7 These are the distinguishable and enduring ways in which one individual varies from another,
8 and which are consistent in different situations [16]. For example, someone described as
9 being conscientious and reliable would be expected to exhibit this characteristic in all
10 situations, in school, at work, in the family and when socialising, and across time. One of the
11 best-known measures of personality is the five-factor model, or the Big Five dimensions of
12 Neuroticism, Extraversion, Openness to experience, Conscientiousness and Agreeableness
13 [17]. While there are thousands of words in the English language that describe personality,
14 prominent personality theorists have elicited structure in these using factor analysis to reduce
15 them to five groups of behavioral traits or facets called the Big Five personality dimensions
16 [18].

17 Among the more popular personality measurement scales have been Goldberg's 100-
18 item inventory that includes twenty traits for each of the five dimensions [19], and Costa and
19 McCrae's 240-item NEO personality inventory – revised (NEO-PI-R) that includes eight
20 items in each of six trait scales within the Big Five domains [20]. Some of the trait
21 characteristics of high and low scorers on each of these dimensions are shown in Table 1.

22 **Insert Table 1. Personality traits associated with the five-factor model**

23 There are gender differences in personality. Whereas women tend to score higher in
24 Conscientiousness, Neuroticism and Agreeableness, men score higher in Extraversion and

1 Openness to Experience [21]. These gender differences may prove important when
2 investigating the influence of the Big Five personality factors in adherence to dietary
3 recommendations and suggest evaluating men and women separately, or at least controlling
4 for gender in the analyses.

5 The Big Five personality model is commonly used in dietary analyses and is the basis
6 of this review, ensuring comparability in personality measures across the studies examined.
7 There are older personality inventories still in use, such as Eysenck's EPQ and Cattell's
8 16PF, but it has been estimated that by the mid-2000s about eight out of nine publications
9 measuring personality traits used Big Five personality inventories [22].

10 **Personality and dietary intake**

11 In the following sections evidence is reviewed from cross-sectional studies on the
12 relationship between personality and dietary intake. It should be noted that we could not find
13 randomised controlled trials examining the Big Five personality dimensions in association
14 with dietary intake or other health-related regimes. The majority of the evidence relates to
15 adults and since studies in children and adolescents have shown that personality may play a
16 lesser role compared to other factors such as parental influences [14, 23], this review focuses
17 on adult studies. The evidence from nine cross-sectional studies examining the relationship
18 between the Big Five personality dimensions and dietary intake are summarized in Table 2.
19 Overall, Openness and Conscientiousness are associated with healthy dietary practices across
20 a range of populations.

21 ***The association between dietary intake and Openness***

22 This section focuses on evidence presented in Table 2 relating to Openness and
23 dietary intake. In a study of 1,691 adult Estonians, those who scored higher on Openness
24 were found to be more likely to consume a "Health-Aware" diet that included fresh fruit and

1 vegetables, cereals, dairy and fish, and less likely to consume a “Traditional” diet of meat,
2 potatoes and bread [24]. In a similar study of 1, 091 elderly Scottish people, those who scored
3 higher in Openness were more likely to have a Mediterranean-style diet with a higher intake
4 of vegetables, fish, poultry, pasta, rice and water, tomato-based sauces, oil, vinegar and beans
5 [25]. They were less likely to have a “Convenience” diet of tinned vegetables, meat pies,
6 sausage rolls, and mashed potatoes or “Sweet Foods” including puddings, cakes, biscuits and
7 chocolate [25]. The authors of these two studies, Mottus et al., hypothesised that the
8 consumption of foods in the Mediterranean and Health-Aware diets and the avoidance of
9 foods in the Convenience and Sweet Foods diets by people higher in Openness might result
10 from them being more intellectually open and curious, and more adaptable to novel foods
11 [25].

12 A similar observation was made by Brummett et al. [26] in their investigation of 850
13 middle-aged married couples in the U.S. These investigators used the US Department of
14 Agriculture Healthy Eating Index to derive a measure of dietary quality which included
15 serves per day of fruit, vegetables, nuts, soy protein and red wine, the ratio of polyunsaturated
16 fat to saturated fat and the intake of fibre, cholesterol, calcium and sodium [26]. They found a
17 positive association between Openness and healthier eating but conjectured that it may not
18 have been a result of a desire for healthier foods, but rather a consequence of interest in the
19 experience of trying new things [26]. This does not explain, however, why Openness to new
20 experiences and intellectual curiosity should be especially associated with healthy food
21 choices, and why it does not apply to other new and novel foods, such as, for example, the
22 latest fast foods or the dishes, healthy and unhealthy, demonstrated on TV cooking shows.

23 In their study of a community sample of 750 adults to assess a wide range of possible
24 influences on dietary intake including personality, demographic variables, the presence of
25 psychopathology, other health-related practices and vocational interests, Goldberg and

1 Stycker also found that Openness was the most consistent predictor of healthy dietary habits
2 [13]. However, they argued that the link between Openness and dietary practices needed to
3 be understood in the historical and cultural context of the study, and that the relationship
4 between particular types of food and Openness may not be the same across different cultures
5 [13]. Mottus et al., on the other hand, argued that since they found similar healthy dietary
6 patterns in Scotland and Estonia, it seems to be possible to identify personality types
7 associated with similar dietary patterns across different cultures [24]. Each of the countries in
8 which these associations have been studied, which include Estonia, Scotland, Japan and the
9 US, has its own unique food culture and it is possible to imagine that factors such as price,
10 availability and local marketing of foods might be different in these countries, and that these
11 differences might impact the relationship between personality and dietary intake. This
12 suggests the need for local studies to inform any dietary interventions based on personality.

13

14 **Insert Table 2. Cross-sectional studies examining the relationship between personality and**
15 **dietary intake**

16 ***The association between dietary intake and Conscientiousness***

17 Overall, the evidence presented in Table 2 suggests there is a small positive
18 association between Conscientiousness and healthy eating habits. Unlike the rationale
19 proposed for the association of Openness to healthy eating being the result of a willingness to
20 try new and novel foods [24], it has been suggested that individuals higher in
21 Conscientiousness are likely to make healthy choices as part of an overall tendency to adopt a
22 healthy lifestyle, such as exercising regularly, avoiding risky behaviors and eating fruit and
23 vegetables [27]. Kikuchi et al. found such a relationship in Japan in two studies among
24 college students [28, 29]. They investigated the Big Five personality dimensions in relation
25 to health consciousness and healthy habits such as not smoking, limiting alcohol

1 consumption, eating regularly and getting enough sleep, and receptivity to dietary advice[28,
2 29]. Participants who were high scorers on Conscientiousness had regular eating times,
3 avoided salty foods, and were more receptive to advice to eat more yellow and green
4 vegetables. In a similar study, Raynor & Levine conducted an Internet survey among 583
5 college students and found that higher Conscientiousness was positively associated with a
6 number of health promoting behaviors including consuming more fruit and vegetables [27].
7 The association between Conscientiousness and dietary intake may be mediated by other
8 aspects of behaviour [30, 31]. In a study among 405 Dutch adults aged from 26 to 87 years,
9 while there was an association between Conscientiousness and fruit consumption, after
10 including attitude, subjective norm and perceived behavioural control (from the theory of
11 planned behaviour) in the statistical model, the association became non-significant,
12 suggesting that the effect of Conscientiousness on fruit consumption was mediated by aspects
13 of this behavioural model [30]. This was further elucidated in a cross-sectional analysis of
14 443 college students to determine the relationship between personality, action planning and
15 fruit consumption [31]. In this study, those higher in Conscientiousness consumed more fruit
16 and this was mediated by a greater propensity for self-regulatory action planning [31]. The
17 ways in which personality may be related to behaviour are considered later in this review.

18 Based on the findings of the nine cross-sectional studies shown in Table 2, there is
19 consistent evidence for a modest association between personality and dietary intake, with
20 both Openness and Conscientiousness being linked with healthy eating patterns. The
21 significant correlation coefficients in these studies were small, varying from $r = 0.09$ to $r =$
22 0.27 [32].

23 **Personality and compliance**

24 In addition to cross-sectional evidence that personality may predict dietary intake, it is
25 important to establish if personality is also associated with long-term eating habits and the

1 ability to comply with healthy eating guidelines. No evidence was found for Neuroticism,
2 Extraversion, Openness or Agreeableness having a positive association with compliance in
3 the health domain. However, Conscientiousness has been associated with compliance
4 behaviors in a diverse range of fields of enquiry and study designs. Seven studies identified
5 for this review are listed in Table 3. They show that Conscientiousness influenced social and
6 civic activities such as helping in emergencies [33] and consenting to jury service [34], and a
7 range of health promoting behaviors including wearing seat belts, avoiding smoking and
8 binge drinking, engaging in alcohol-related harm reduction [27] and adhering to medication
9 regimens [35-38].

10 In the study that showed an association between Conscientiousness and consenting to
11 jury duty, there was an interaction between Conscientiousness and political engagement, such
12 that those who scored higher on Conscientiousness and were politically engaged were more
13 likely to comply with jury summons [34]. This suggests that while Conscientiousness may
14 predict a predisposition for compliance behaviour, a sense of purpose is also required, and in
15 the dietary domain, perhaps an appreciation of positive health benefits from a recommended
16 diet may provide such a sense of purpose. The cross-sectional survey among college students
17 found that Conscientiousness was associated with health promoting behaviors such as seat
18 belt use and alcohol-related harm reduction, and was inversely associated with risky
19 behaviors such as smoking, drinking alcohol and binge drinking [27]. For those higher in
20 Conscientiousness, risk aversion may, therefore, also be an important motivator for healthy
21 dietary compliance. In two of the four clinical studies showing Conscientiousness to be
22 associated with better medication compliance, the outcome measure was, in one case, a
23 laboratory test [35, 36] and, in the other, an electronic event measuring device [37], which
24 eliminated the risk of self-reporting biases. While none of these studies investigated
25 Conscientiousness in relation to compliance to dietary recommendations they show those

1 higher in Conscientiousness to be purposeful, risk averse and health aware: all characteristics
2 that would be consistent with such compliance.

3 **Insert Table 3. Studies examining the relationship between Conscientiousness and compliance**

4 **How personality may influence dietary intake**

5 Taken together the studies included in Tables 2 and 3 suggest that higher Openness
6 and Conscientiousness predict healthier dietary intake and that higher Conscientiousness
7 predicts compliance to desirable social and health behaviors. However, no longitudinal
8 evidence was found of associations between personality and dietary intake or adherence to
9 dietary guidelines over time.

10 How personality is associated with dietary intake may be further elucidated by
11 considering the theory of personality proposed by McCrae and Costa [39] in the context of
12 behavioral models of food intake found in the nutrition literature. These behavioral models
13 show that food choices are influenced by external factors such as the food environment and
14 interpersonal relationships, which interact with internal factors including biological
15 predispositions, conditioning and intrapersonal factors such as values, perceptions and
16 motivations [6]. McCrae and Costa describe three core components of personality: basic
17 tendencies, characteristic adaptations and expressed personality [39]. Basic tendencies of
18 Neuroticism, Extraversion, Openness, Agreeableness and Conscientiousness, are described as
19 having a biological origin and being genetically heritable. These basic tendencies interact
20 with external influences to form characteristic adaptations that include habits, attitudes, skills,
21 roles and relationships, and self-concept and self-schemas, and these interactions give rise to
22 specific behavioral styles expressed as personality [39]. Characteristic adaptations can and do
23 vary widely in different families, cultures and circumstances but, according to the theory, the
24 basic personality tendencies remain constant [39].

1 How this personality theory may potentially fit into the dietary behavioral model is
2 illustrated in Figure 1. It shows how these many factors that play a role in dietary intake may
3 be related. While it does not show the relative importance of each factor, it does suggest the
4 complexity of the relationships, the possible central role of basic personality tendencies and
5 the many factors that may impact the intra-individual characteristic adaptations, expressed
6 personality and behaviour, including dietary intake. Investigating these relationships and
7 how they are expressed in practice may have an important bearing on how personality is
8 viewed and whether or not basic personality characteristics can be considered as part of
9 dietary interventions.

10 **Insert Figure 1. Influences on dietary intake**

11 The finding that Openness or Conscientiousness, or any other personality dimension
12 is a consistent predictor of healthy food choices or compliance to dietary recommendations
13 could have important clinical implications. Given that basic personality characteristics may
14 be viewed as difficult to change [39] it may be possible to provide a framework for dietary
15 recommendations based on personality type so that, for example, people who score more
16 highly on Openness may be encouraged to follow dietary guidelines because of the novelty
17 and newness of the diet and those who score more highly on Conscientiousness for its long-
18 term health benefits.

19 ***Limitations and other considerations***

20 External validity may have been an issue in some of the studies reviewed in Table 2. Among
21 the samples were college students [27-31], patients drawn from general practice and hospital
22 visits [24], and people in a general population who were paid to participate [13], all of which
23 may have influenced the study participants' attitudes to eating, mediating the association
24 between personality and diet. For example, students' eating habits may have been more

1 influenced by economic resources when compared to the general population, which may have
2 influenced their attitudes towards food and their dietary intake independent of personality.

3 All the studies that showed significant diet-personality relationships utilised food frequency
4 questionnaires. Therefore more valid dietary assessment methods such as 24 hour records
5 should be used in future studies.

6 The personality measurements in the studies reviewed were all based on self-reports, and it
7 has long been known that these may be culture-specific: a phenomenon known as the
8 *reference group effect* [40]. Whether this is an issue in cross-cultural self-reports of
9 Conscientiousness has been investigated in a study that included 21 countries, selected for
10 their geographical and cultural diversity [41]. After controlling for the possible effect of the
11 reference group effect, the investigators concluded that culture-specific effects did not
12 influence mean self-rated Conscientiousness scores [41].

13 Another aspect of the studies reviewed is that the participants were volunteers. It has been
14 shown that volunteer participants in research studies have higher levels of Conscientiousness
15 and Agreeableness than non-responders (whose scores are taken from sibling's rating) [42].
16 Lönnqvist et al. have hypothesised that, for those higher in Conscientiousness, participating
17 in research might fulfil a sense of duty and that, combined with higher levels of
18 Agreeableness and a higher need for social approval, these individuals may be more likely to
19 respond to questionnaires in socially desirable directions [42], perhaps, as examples,
20 overstating their own personality scores or the consumption of healthier foods such as fruit
21 and vegetables. It is acknowledged that this was not a systematic review with the associated
22 rigour of analysis and article selection, and that no conclusions were possible about the
23 significance of findings across the entire spectrum of relevant published articles.

24 **Conclusion**

1 Personality has been shown to be a central determinant of behaviour and there is a
2 substantial body of evidence linking personality to dietary intake. In this review, a consistent
3 association has been found between Openness and the intake of fruits and vegetables, and
4 between Conscientiousness and healthier eating habits, and compliance to prosocial
5 behaviors such as attending jury duty, wearing seat belts, avoiding alcohol-related harm,
6 binge drinking and smoking, and adherence to medication regimes. No longitudinal evidence
7 has been found investigating personality and compliance to dietary recommendations.
8 However, the role of Conscientiousness in other compliance behaviors and its association
9 with lower risk of obesity seems to provide the basis for hypothesising that it might also play
10 an important role in adoption of dietary recommendations. At least two questions emerge
11 from this review. Does Conscientiousness predict compliance to dietary recommendations,
12 and can dietary interventions be made specific to particular personality types? To answer
13 these questions will require well-controlled long-term intervention studies in which
14 personality and food consumption is measured over time in response to recommendations to
15 make dietary changes. If these questions can be affirmatively answered there may well be a
16 case for considering the role of personality in clinical regimens for obesity control and in
17 planning dietary interventions.

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Table 1.1 **Personality traits associated with the five-factor model** ¹

Factors	Personality traits of high scorers	Personality traits of low scorers
Neuroticism	Highly strung, anxious and irritable, envious, moody and emotional.	Relaxed and imperturbable, unemotional and undemanding.
Extraversion	Talkative, assertive and energetic, bold, daring and unrestrained.	Bashful, withdrawn and untalkative, reserved and unadventurous.
Conscientiousness	Practical, thorough and neat, efficient, systematic and careful.	Disorganised, careless and sloppy, inconsistent and undependable.
Agreeableness	Kind, sympathetic and trustful, cooperative and considerate.	Cold, demanding and harsh, unsympathetic, selfish and rude.
Openness	Imaginative, artistic and intellectual, philosophical, complex and bright.	Simple, shallow and uncreative, unimaginative and unsophisticated.

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¹ Adapted from Goldberg [19]

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Table 2 Cross-sectional studies examining the relationship between personality dimensions and dietary intake

Study	Participants	Response rate	Personality dimension	Dietary preferences/outcomes	Strength of association
Mottus et al. (2012) [24]	976 female, 715 males, age 18-89 years, randomly selected from general practice and hospital populations in Estonia	NA	Openness	Health-Aware dietary pattern ¹	0.17 ^{b***}
			Conscientiousness		0.11 ^{b***}
			Extraversion		0.16 ^{b***}
			Neuroticism	Traditional dietary pattern ¹	0.09 ^{b**}
			Openness (negative association)		-0.14 ^{b***}
Mottus et al. (2011)[25]	543 females, 548 males, tested at age 70 years from the 1936 Lothian Birth Cohort in Scotland	29.5%	Openness	Mediterranean-style dietary pattern ¹	0.21 ^{b***}
			Extraversion		0.10 ^{b**}
			Neuroticism (negative association)		-0.07 ^{b*}
			Openness	Health-Aware dietary pattern ¹	0.05 ^b
			Conscientiousness		0.07 ^{b*}
			Agreeableness		0.11 ^{b***}
			Neuroticism	Convenience dietary pattern ¹	0.08 ^{b*}
Openness (negative association)		-0.09 ^{b**}			
Brummett et al. (2008)[26]	850 adult couples in the US	NA	Openness	Healthy dietary practices ¹	0.27 ^{d****}
Goldberg and Strycker, (2002)[13]	470 females, 380 males, age 22-90 years in the US	NA	Openness	General healthy diet	0.18 ^{b**}
			Conscientiousness		0.15 ^{b**}
Kikuchi & Watanabe (2000) [29]	470 college students ^a in Japan	NA	Conscientiousness	Receptive to advice to eat yellow and green vegetables	M, OR = 4.88 (95% CI 1.28-18.57) F, OR = 2.69 (95% CI 1.39- 5.21)

Study	Participants	Response rate	Personality dimension	Dietary preferences/outcome	Strength of association
Kikuchi et al. (1999) [28]	942 college students ^a in Japan	75.1%	Conscientiousness	Avoiding salty foods	M, OR = 2.09 (95% CI 1.11- 3.91) F, OR = 1.87 (95% CI 1.11- 3.16)
			Conscientiousness	Health consciousness	M, OR = 11.46 (95% CI 1.54-85.10) F, OR = 2.88 (95% CI 1.17 – 7.11)
Raynor & Levine (2009) [27]	583 college students ^a in the US	30%	Openness	Increased consumption of fruit and vegetables	0.14 ^{c**}
			Conscientiousness		0.16 ^{c**}
De Bruijn (2009) [30]	405 adults aged 26-87 years	N/A	Conscientiousness	Increased consumption of fruit (mediated by components of the theory of planned behaviour)	Stepwise: attitude 0.20 ^{e**} : Subjective norm 0.18 ^{e**} : PCB 0.20 ^{e**} Fruit consumption: 0.36 ^f
De Bruijn (2013) [31]	443 college students, mean age 21.45 years	80%	Conscientiousness	Consumed more fruit (mediated by action planning)	Stepwise: action planning 0.15 ^{e**} : fruit consumption 0.30 ^{e***}

^a age not reported

^b partial correlation controlling for gender, age and education level

^c partial correlation controlling for age, athletic status and “Greek” status (college clubs)

^d zero order correlation

^e standardised regression coefficients

^f amount of explained variance

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$

**** minimum r value for significance set at $r > 0.20$

¹ Described in section “The association between personality and dietary intake”

OR, odds ratio

M = males

F = females

Table 3. Studies examining the relationship between Conscientiousness and compliance

Study	Type of study	Participants	Compliance outcome		Strength of association
Vartanian et al. (2012) [33]	Laboratory experiment	34 female college undergraduates	Offering help in an emergency		1.65 ^{a*}
Bloeser, McCurley & Mondak (2012) [34]	Cross-sectional survey	1,977 adults (population survey but selection method not clarified)	Attending for jury duty: interaction effect of Conscientiousness and political engagement		2.94 ^{b**}
Raynor & Levine (2009) [27]	Cross-sectional Internet survey	583 volunteer college students, 74% female	Wearing seat belt		0.22 ^{c**}
			Alcohol-related harm reduction		0.19 ^{c**}
			Avoiding smoking		-0.15 ^{c**}
			Avoiding binge drinking		-0.18 ^{c**}
Christensen & Smith (1995) [35]	Cross-sectional survey	72 dialysis patients from a clinical population, 54% male	Haemodialysis medication adherence: reduced serum phosphorus		-0.24 ^{c*}
O'Cleirigh et al. (2007) [36]	1-year cohort study	119 sero-positive HIV patients from a clinical population, 67% male	Antiretroviral medication adherence	CD4 count ¹	0.15 ^{c*}
				Viral load ²	-0.15 ^c
Stilley et al. (2004) [37]	6-month cohort study	158 adult volunteers with high cholesterol recruited through the media, 54% male	Anti-cholesterol medication adherence (electronic cap monitoring)		0.24 ^{c**}
Quine et al. 2011 [38]	8-week cohort study	1,070 adults from three regional GP groups, 58% female	Antihypertensive medication adherence (self-reported)	Baseline	0.18 ^{d***}
				Week 8	0.11 ^{d*}

^a Unstandardised regression weight; ^b binomial logistic regression coefficients; ^c Standardised β ; ^d zero order correlation; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; ^{1,2} CD4 immune cell count and viral load are both measures of the effectiveness of anti-retroviral medication

1 Figure 1 **Influences on dietary intake**, adapted from Contento⁶ and McCrae and Costa.³⁹ This
2 illustration shows how genetically inherited basic personality traits interact with environmental
3 and interpersonal factors to develop intra-individual characteristic adaptations, which combine
4 with conditioned responses to produce expressed personality and behavior, resulting in dietary
5 intake.