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Distal and Proximal Predictors of Food Personality:

An Exploratory Study on Food Neophilia

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Highlights (for review)

- Research on psychological antecedents of food personality dimensions is limited
- We explore distal and proximal predictors of one dimension – food neophilia
- Promotion focus and materialism are proximal predictors of food neophilia
- Extraversion, openness, need for cognition/touch are distal predictors
- Indirect effects of four distal predictors through proximal predictors are examined

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ABSTRACT

'Food-related personality traits', or simply 'food personality', is emerging as a new stream of research that investigates individual differences in terms of food preferences. There have already been some attempts within the literature to conceptualize the multidimensional construct of food personality, and some outcomes of food personality have also been studied. However, we have limited knowledge of the psychological antecedents of food personality. In this short communication, using survey data from 1006 Turkish consumers, we conduct an exploratory study of the distal and proximal predictors (i.e. psychological traits and other individual differences stemming from traits) of one dimension of food personality, namely food neophilia. Our findings suggest that promotion focus and materialism are proximal predictors of food neophilia, and openness to experience, extraversion, need for cognition and need for touch are distal predictors that have indirect effects on food neophilia through promotion focus and materialism.

1. Introduction

Food preferences have always been a topic of interest for scholars examining individual differences (e.g., Lumley, Stevenson, Oaten, Mahmut & Yeomans, 2016; Walker, Christopher, Wieth & Buchanan, 2015). In recent years, there have been some efforts to consolidate research in this area. For instance, the concept of 'food-related personality traits'– or briefly 'food personality' – is emerging as a new multi-dimensional construct that seeks to explain individual differences among consumers regarding their food preferences (Kim, Suh & Eves, 2010). We currently have a basic understanding of food personality and its outcomes. At this emerging stage, food personality consists of food neophilia, food neophobia and food indulgence dimensions, and is known to affect behavioral outcomes such as satisfaction (Jang & Kim, 2015; Ji, Wong, Eves & Scarles, 2016; Kim et al., 2010). Defined as the attraction towards new food items, food neophilia is the active variety-seeking component of food personality and is a key component for understanding individuals' food-related tendencies (Jang & Kim, 2015; Ji et al., 2016). Currently, our understanding of its psychological origins is limited.

In this short communication, using survey data from 1006 Turkish respondents, we provide preliminary insights into the distal and proximal psychological antecedents (i.e. psychological traits and other individual differences stemming from traits) of food neophilia. The one contribution has at least two benefits for this emerging literature. First, an understanding of the psychological origins of food personality dimensions (e.g., food neophilia) is necessary to further clarify what food personality is (e.g., its definition), how it should be conceptualized (e.g., how many dimensions it should eventually consist of) and what its boundaries are (e.g., how stable it is over one's lifetime). In other words, to understand how the stream of literature on food personality could be developed, it is beneficial to examine the psychological antecedents of food personality. Second, an understanding of the psychological antecedents – especially distal predictors (traits) – is also important from a methodological perspective, as they also constitute the control variables which

will be needed in future empirical research to eliminate alternative explanations (e.g., potential issues of endogeneity – Antonakis, Day & Schyns, 2012).

2. Theory and Hypotheses

2.1. Distal and Proximal Predictors of Food Neophilia

Antonakis and colleagues (2012) differentiate between distal and proximal predictors of behavioral outcomes. 'Distal predictors' or 'traits' are stable psychological or physiological variables. They are conceptually distant from the outcome variable, and have various indirect effects through proximal predictors. 'Proximal predictors' are such variables as attitudes, values and orientations. They have closer conceptual links to the behavioral outcome than distal predictors, and they stem, to some extent, from distal predictors. That is, proximal predictors partially or fully mediate the effects of distal predictors on the outcome variable.

2.1.1. Proximal Predictors

One can engage in novelty either because of intrinsic motivation (e.g., curiosity, the excitement of exploring, doing something different and meaningful) or extrinsic motivation (e.g., making above-average gains, surpassing one's peers, increasing one's status). In line with this, regarding proximal predictors, we chose one variable associated with intrinsic motivation to neophilia (promotion focus) and another associated with extrinsic motivation (materialism).

Promotion focus is a trait-like psychological orientation associated with pleasure-seeking and a focus on positive outcomes (Higgins, 1997; Tuncdogan, van den Bosch & Volberda, 2015). It is known to be an antecedent of risk-taking and preference for novelty, and has effects on eating behaviors (ibid.). Promotion focus increases the internal motivation to seek pleasure and increases the perceived value and worth of pleasure-seeking behaviors, such as engaging in new experiences. More specifically, individuals with high levels of promotion focus experience 'regulatory fit' when engaging in tasks associated with advancement, exploration and novelty (Vaughn, Baumann &

Klemann, 2008). This feeling of fit causes the individual to perceive the task as inherently meaningful. Hence, promotion-focused individuals are found to engage more in new and innovative behaviors (ibid.). For these reasons, we expect promotion focus to be positively related to food neophilia.

Materialism is about worldly experiences and "happiness-seeking through consumption" (Chiagouris & Mitchell, 1997), so we expect materialists to be more interested in the prospect of discovering a new worldly pleasure. Moreover, food neophilia can serve the status-seeking needs of a materialistic individual. The experience of having tried a new and exotic food can be thought of a souvenir, especially if the individual has a photograph which captures that moment (e.g., Belk, 1985). By engaging in a relatively exclusive experience that few others have shared, materialists can form a memory they can use to demonstrate or increase their (actual or perceived) social status. Hence, we expect materialism to be positively related to the attraction to new foods.

Hypothesis 1: (a) Promotion focus and (b) materialism are positively related to food neophilia.

2.1.2. Distal Predictors (Traits)

While there are numerous psychological traits in the literature, prior research specifically highlights two classes of traits for explaining behavioral outcomes: personality-related and intelligence-related (e.g., Van Iddekinge, Ferris & Heffner, 2009).

Of personality traits, we selected two (openness to experience and extraversion) that are shown to have strong positive relationships to promotion focus (Tuncdogan et al., 2015) and to be conceptually linked with neophilia. Thus, we expect openness to experience and extraversion to have indirect effects on food neophilia through promotion focus. Extraversion may also have a positive association with materialism, as it increases status-seeking, which is an aspect of materialism (Belk, 1985). Extraverts are more likely to compare themselves with others (Gilbert & Allan, 1994), and this may also increase their desire for material possessions.

We selected need for cognition as an intelligence-related variable, recognizing also its relationship with neophilia. Need for cognition is known to increase curiosity, which is associated with promotion focus (van Vianen, Klehe, Koen & Dries, 2012) and neophilia. Thus, we hypothesize that need for cognition is likely to have a positive effect on food neophilia through promotion focus. Furthermore, prior research demonstrates a negative relationship between need for cognition and dark-triad personality traits (e.g., Machiavellianism), which are strongly related to materialism (Lee et al., 2013). In other words, we expect that while need for cognition may indirectly increase food neophilia through its positive effect on promotion focus, it may also decrease food neophilia through its negative effect on materialism.

Finally, we also selected another trait, need for touch (preference for haptic/kinesthetic, as opposed to only visual or verbal, information acquisition – Peck & Childers, 2003), because food neophilia is a distinct kind of neophilia, involving touch (via hand and/or mouth) and an indulgence with the physical world. For the latter reason, need for touch also has a conceptual link to materialism. Indeed, prior studies demonstrate strong positive associations between need for touch and materialism (e.g., Lee, Chang & Cheng, 2014). We expect this positive relationship between need for touch and materialism to result in a positive indirect effect on food neophilia.

Hypothesis 2: Through their effects on proximal variables of promotion focus and/or materialism, the distal variables (a) openness to experience, (b) extraversion, (c) need for cognition and (d) need for touch have indirect effects on food neophilia.

3. Methodology

Research assistants were recruited to collect survey data from 1006 Turkish consumers both on the streets and around a university in Balıkesir. No compensation was offered for participation. List-wise deletion of incomplete responses left us with 918 usable responses. In the questionnaire, we used four-item scales based on prior research, to measure promotion focus (Haws, Dholakia & Bearden, 2010), need for cognition (Wood & Swait, 2002), need for touch (Peck & Childers, 2003),

materialism (Moschis & Churchill, 1978). Food neophilia was measured by the items "At dinner parties, I will try new foods", "I like foods from different cultures", "I am constantly sampling new and different foods" and "I like to try new ethnic restaurants" based on prior research (Jang & Kim, 2015; Kim et al., 2010). Likewise, TIPI sub-scales (Gosling, Rentfrow & Swann, 2003) were used to measure openness to experience and extraversion. Age, gender, education, income and employment status were included as control variables. Back-translation was used to ensure proper translation.

We conducted several checks to ensure the reliability and validity of the scales. Reliability-wise, the scales had sufficient α scores (food neophilia = .79; materialism = .70; promotion focus = .79; need for cognition = .73; need for touch = .93) [1]. In terms of validity, we first conducted PCA with Varimax rotation[2]. Each scale emerged as a distinct construct, each item loading at least .6 on its corresponding dimension and less than .4 on others. We then tested a confirmatory factor analysis model with five factors, which showed a very good fit to the data (χ^2 = 470.79; d.f. = 160; RMSEA = .05; CFI = .95; TLI = .94; SRMR = .05), and a better fit than models with fewer variables (Table 1).

4. Results

The correlations among the constructs corresponded quite closely to those observed in prior research and to our predictions, suggesting that the dataset is typical. Most importantly, there was a positive and significant correlation between food neophilia and most antecedent variables (all except need for cognition).

We tested the multiple mediation model using the bootstrapping procedure explained by Hayes (2013), a contemporary technique that has become increasingly popular (e.g., Kelly & Dupasquier, 2016). In line with our expectations, the bootstrapped regression analyses suggested

[1] Following prior research, TIPI dimensions (Gosling et al., 2003) were excluded from reliability/CFA/EFA analyses, as "TIPI was designed using criteria that almost guarantee it will perform poorly in terms of alpha and Confirmatory Factor Analysis (CFA) or Exploratory Factor Analysis (EFA) indices" (See Gosling, 2018)

[2] PCA results and the correlation matrix are included in the supplementary material.

that the direct effects of promotion focus (*b* = .26; SE = .04; p < .001) and materialism (*b* = .11; SE = .04; p < .01) on food neophilia were positive and significant, *supporting hypothesis 1a and 1b.* Likewise, three of the distal variables had positive indirect effects on food neophilia through promotion focus and/or materialism, and one had a marginally significant effect, *supporting hypotheses 2a, 2b and 2c* and *partially supporting hypothesis 2d*.

The specific results of tests for the indirect effects are as follows (Table 2). As expected, openness to experience had a positive effect on food neophilia through promotion focus (Z = 3.93; p < .001). Extraversion had a positive effect on food neophilia through promotion focus (Z = 4.55; p < .001). There also was a trend towards a positive effect through materialism (Z = 1.42; p = .16), and future research may find that certain moderator variables can make it significant. Need for cognition had a negative effect through materialism (Z = -2.74; p < .01), but the positive effect through promotion focus did not emerge as significant (Z = .31; p = .76). Finally, need for touch had a marginally significant positive effect on food neophilia through materialism (Z = 1.92; p = .06).

5. Discussion and Conclusion

In this short communication, we have highlighted promotion focus and materialism as two proximal antecedents of food neophilia and have examined the indirect effects of four distal predictors through these variables. Our findings have at least three implications. First, this study provides preliminary evidence for the antecedents of food neophilia, which is necessary to explain why consumers actively pursue new food items. Second, understanding the antecedents is necessary to assess the stability of food neophilia/personality over time. Finally, we gained better comprehension of which control variables should be used in future research.

This exploratory study also has limitations, which suggest areas for future research. First, there are many other potential antecedents, including psychological, physiological, endocrinological, neurological, genetic and epigenetic traits and individual differences, which may predict food neophilia and other aspects of food personality. Second, an investigation into the

factors that negatively influence food neophilia would also be valuable. Third, we focused on one dimension of food personality, but there are other dimensions to explore, such as food neophobia and food indulgence. Plus, there is significant room for the conceptual extension of this emerging construct. Fourth, the TIPI scale is known to have certain limitations. Fifth, the sampling/recruitment methods employed in this study may limit the generalizability of our findings. Finally, we have not examined possible moderating variables or the effects of external elements on proximal predictors, which are needed to understand temporary changes in food preferences.

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Table1

Table 1
Comparative CFA
Results

	χ^2	d.f.	RMSEA[a]	TLI[b]	CFI[c]	SRMR[d]	AIC[e]	BIC[f]
Recommended values:			$\leq .08$	$\geq .90$	$\geq .90$	$\leq .08$	*The model with the lowest AIC / BIC value has the best fit*	
1. Five-factor model	470.79	160	.05	.95	.94	.05	63575.50	63810.59
2. Four-factor model (Two proximal variables also combined together)	1329.53	164	.09	.78	.81	.10	64426.23	64642.52
3. Three-factor model (Distal variables combined together and proximal variables combined together)	2059.50	167	.12	.66	.70	.13	65150.20	65352.39
4. Two-factor model (All antecedents variables combined together)	2667.21	169	15.78	.55	.60	.14	65753.91	65946.69
5. One-factor model (All variables combined together)	3574.52	170	21.03	.39	.45	.16	66659.22	66847.30

Note: [a] RMSEA = Root Mean Squared Error of Approximation [b] TLI = Tucker-Lewis Index, [c] CFI = Comparative Fit Index
[d] SRMR = Standardized Root Mean Residual, [e] AIC = Akaike, [f] BIC = Bayesian

Table2

Table 2

Hayes Multiple Mediation Tests with Bootstrapping

	Effect	Boot SE	Boot LLCI	Boot ULCI	Z
Openness to Experience	.04/.00[a]	.01/.00	.02/-.00	.06/.01	3.93***/.89
Extroversion	.04/.01	.01/.00	.03/-.00	.07/.02	4.55***/1.42
Need for Cognition	.00/-.02	.01/.01	-.02/-.04	.02/-.01	.31/-2.74***
Need for Touch	.00/.01	.01/.00	-.01/.00	.02/.02	.41/1.92*

N = 918, based on 5000 bootstrap samples. * p < .10; ** p < .05; *** p < .01

[a] Indirect effects through: Promotion focus (left) / Materialism (right)

Supplementary Table 1 (Correlation Matrix)
Click here to download Supplementary Material: SupplementaryTable1.xls

Supplementary Table 1
Correlation Matrix

	1	2	3	4	5	6
1. Food Neophilia						
2. Promotion Focus	.27***					
3. Materialism	.09***	-.02				
4. Extraversion	.11***	.27***	.02			
5. Openness to Experience	.18***	.23***	-.00	.26***		
6. Need for Cognition	.03	.09***	-.19***	.14***	.23***	
7. Need for Touch	.15***	.02	.08**	-.03	.02	-.03

Notes: N = 918; * p < .10; ** p < .05; *** p < .01

Supplementary Table 2 (PCA results)
Click here to download Supplementary Material: SupplementaryTable2.xlsx

Supplementary Table 2

Items and principal components analysis of the scales

	1	2	3	4	5
Food Neophilia					
At dinner parties, I will try new foods.	**.722**	.158	.048	-.011	.031
I like foods from different cultures.	**.821**	.099	-.016	.046	.036
I am constantly sampling new and different foods.	**.768**	.023	.055	-.042	.071
I like to try new ethnic restaurants.	**.793**	.103	.034	.064	.085
Promotion Focus					
I feel like I have made progress toward being successful in my	.069	**.711**	-.050	.099	.017
When I see an opportunity for something I like, I get excited right away.	.057	**.786**	-.045	.018	-.020
I frequently imagine how I will achieve my hopes and aspirations.	.094	**.801**	-.023	.023	-.002
I see myself as someone who is primarily striving to reach my "ideal self" - to fulfill my hopes, wishes, and aspirations.	.167	**.721**	.050	.018	.029
Materialism					
It is really true that money can buy happiness.	-.011	.044	**.791**	-.047	-.006
My dream in life is to be able to own expensive things.	.063	-.149	**.804**	-.061	.044
I buy somethings that I secretly hope will impress other people.	.074	-.205	**.673**	-.103	.114
Money is the most important thing to consider in choosing a job.	.006	.307	**.605**	-.097	-.017
Need for Cognition					
I would rather do something that requires little thought than something that is sure to challenge my thinking abilities.	.063	-.030	-.066	**.791**	.036
I try to anticipate and avoid situations where there is a likely chance I'll have to think in depth about someting.	.045	-.076	-.019	**.790**	.013
I only think as hard as I have to.	-.017	.109	-.098	**.758**	-.009
The idea of relying on thought to get my way to the top does not appeal to me.	-.038	.149	-.097	**.648**	-.078
Need for Touch					
Walking through scales, I can't help touching all kinds of	.049	.043	.024	-.018	**.885**
When browsing in stores, it is important for me to handle all kinds of products.	.091	.022	.045	-.031	**.908**
I like to touch products even if I have no intention of buying	.054	-.027	.054	.002	**.917**
When browsing in stores, I like to touch lots of products.	.057	-.016	.021	.002	**.931**

Notes: PCA with Varimax rotation; KMO = .793; Bartlett $\chi 2 = 6358.86$, $p < .001$
Five components with Eigenvalue > 1

TIPI items (not included in the PCA)

Extraversion

I see myself as: Extraverted, enthusiastic.

I see myself as: Reserved, quiet.

Openness to Experience

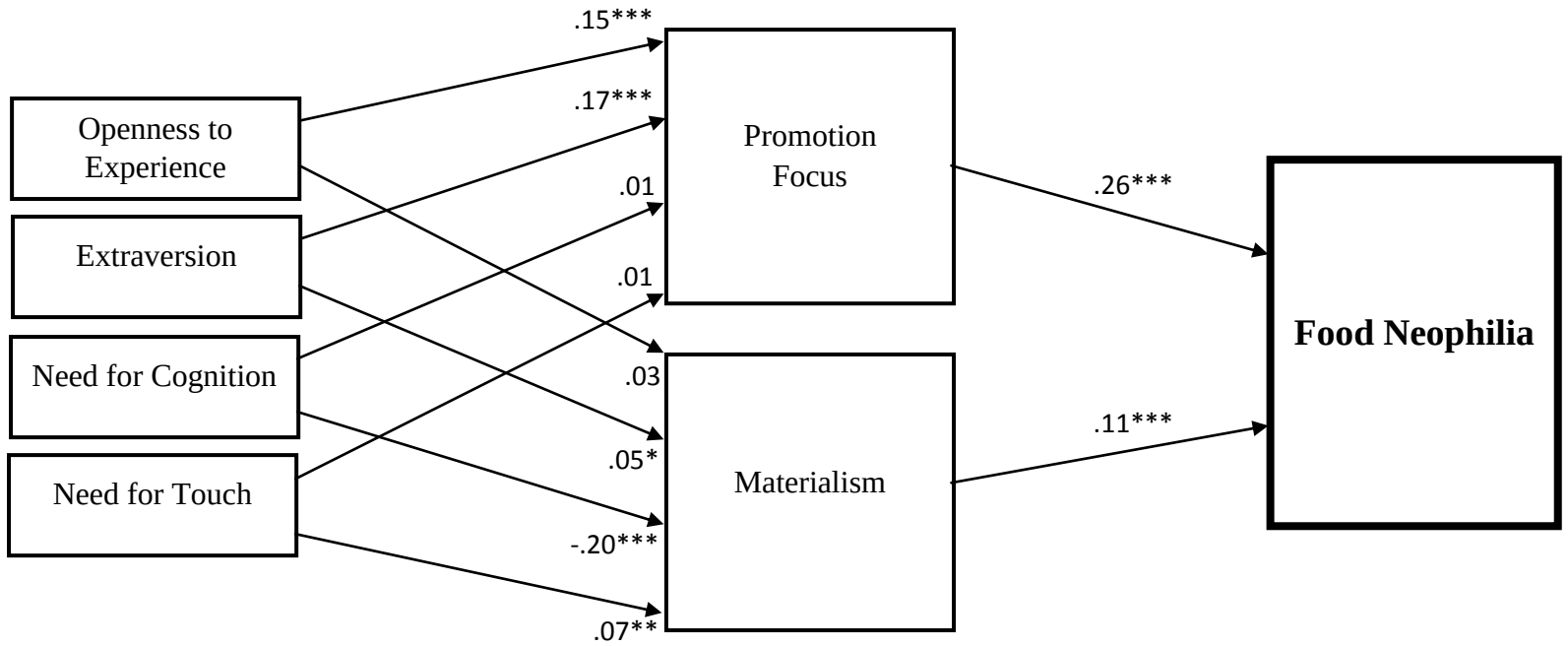
I see myself as: Open to new experiences, complex.

I see myself as: Conventional, uncreative.

Supplementary Figure 1 (Direct effects)
Click here to download Supplementary Material: SupplementaryFigure1.docx

SUPPLEMENTARY FIGURE 1

Empirical Framework of Direct Effects



Notes: N = 918, based on 5000 bootstrap samples. * p < .10; ** p < .05; *** p < .01

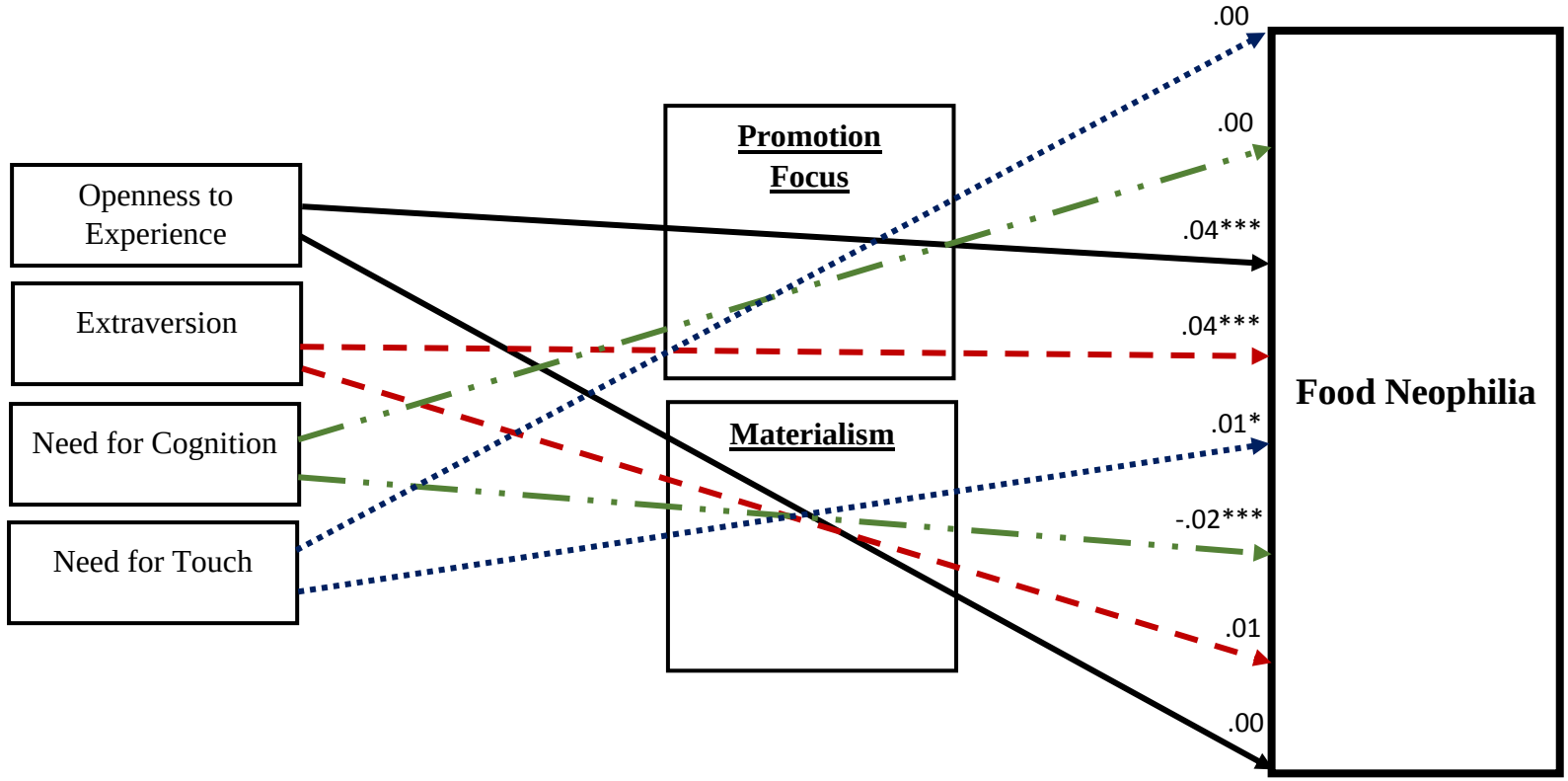
Distal variables were included as controls when investigating the direct effects of promotion focus and materialism

When all variables were added, the direct effects of need for touch (*b* = .12, p < .001) and openness to experience (*b* = .14; p < .001) on food neophilia were still significant

Supplementary Figure 2 (Indirect effects)
Click here to download Supplementary Material: SupplementaryFigure2.docx

SUPPLEMENTARY FIGURE 2

Empirical Framework of Indirect Effects



Notes: N = 918, based on 5000 bootstrap samples. * p < .10; ** p < .05; *** p < .01

Indirect effects through the two mediators are examined simultaneously