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RUNNING HEAD: PERSONALITY AND SOCIAL ATTITUDES

Personality and Social Attitudes:  
Evidence for Positive-Approach Motivation

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Abstract

Extensive research has linked general personality factors to social attitudes, but there has been comparatively little work on the roles played by specific approach-avoidance personality factors, especially positive-approach ones. Here we relate such factors to the two main clusters of social attitudes (Right-Wing Authoritarianism, RWA; and Social Dominance Orientation, SDO), and related cognitive constructs (Need for Cognition and Need for Closure). Results revealed: (a) positive-approach motivation is consistently related to both RWA and SDO, with little contribution from negative-avoidance motivation; and (b) negative-avoidance motivation played a part in Need for Cognition (negatively related) and Need for Closure (positively related). These data challenge previous theorizing concerning the role of fear/anxiety in social attitude formation and prejudice more generally. We conclude that, to a larger extent than previously thought, approach-related personality factors underpin the positive reinforcement of social attitudes and prejudice. Our results may help to account for the failure of programmes designed to reduce prejudice which have been based on the reduction of negative emotion and motivation.

## Introduction

The possibility that basic approach and avoidance motivational systems underlie social attitudes, and prejudice more generally, has received scant attention in the research literature. Building upon Hans Eysenck's pioneering work, started during the 1940s (e.g., Eysenck, 1944), there has long been an interest in the structural overlap of social attitudes and personality, and this work has now been extended to the five-factor model (FFM). However, the significant advances made in our understanding of the major systems of approach and avoidance motivation (Corr, DeYoung, & McNaughton, 2013) have, so far, not been applied. The aim of this paper is to fill this theoretical and empirical lacuna.

## Early Work

The earliest psychological literature on social attitudes and prejudice (i.e., negative evaluations of others based on group membership) generally sought explanations through the construct of the 'prejudiced personality' (e.g., Adorno, Frenkel-Brunswik, Levinson, & Sanford, 1950; Reichard, 1948). Allport (1954) articulated the mainstream view by claiming that the cognitive processes of prejudiced people differed from those of the non-prejudiced. Adorno et al. (1950) contended that prejudice was a general personality factor, which included traits such as cognitive rigidity and adherence to traditional values. Although influential, their F-scale (Sanford, Adorno, Frenkel-Brunswik, & Levinson, 1950) fell out of favour as questions were raised regarding its explanatory power and theoretical heft. In time, the notion of a 'prejudiced personality' gave way to social-cognitive perspectives; for example, Social Identity Theory (Tajfel & Turner, 1986) and Relative Deprivation Theory (e.g., Guimond & Dambrun, 2002). While these perspectives have much to commend them, typically they fail to account for the

existence of significant individual differences in levels and expressions of social attitudes and prejudice.

### Structure of Social Attitudes

Recent years have witnessed something of a consensus concerning the structure of social attitudes. Duckitt and Sibley (2010) reviewed the literature and presented a dual-process motivational model which distinguishes between two major factors: Right-Wing Authoritarianism (RWA) and Social Dominance Orientation (SDO) – for reasons detailed in their paper, these are best viewed as social *attitudes* rather than personality factors *per se*.

Right-Wing Authoritarianism (RWA; Altemeyer, 1988, 1998) was intended as a refinement of Adorno et al.'s (1950) F-scale. It includes three of the original nine subscales: conventionalism, authoritarian submission, and authoritarian aggression. People high in RWA favour traditional roles and values, and are submissive to authority figures seen as 'legitimate'. They perceive the world as dangerous and fear-inducing (Altemeyer, 1988), have conservative economic philosophies, and generally support conservative religious institutions (Altemeyer, 1998). RWA is characterised by security, conformity and tradition, as compared with openness, stimulation and self-direction. Importantly, such people have increased prejudice toward ethnic minorities, including African-Americans (Whitley, 1999), homosexuals (Goodman & Moradi, 2008), and people from different religious backgrounds (Baum, 2009). Altemeyer (1998, p. 52) writes that these authoritarian submissives are "equal opportunity bigots".

The second major factor of social attitudes, Social Dominance Orientation (SDO; Sidanius, 1993), refers to a general attitudinal orientation to intergroup relations, reflecting preference for equal vs. hierarchical structures. SDO was conceptualised as an individual difference variable reflecting the desire to have one's in-group be superior and to dominate over

out-groups. SDO is characterised by self-enhancement (achievement, power and hedonism) as compared with self-transcendence. It results in stereotyping, endorsing traditional societal roles, and a general belief that successful people (or groups) deserve their success (Pratto, Sidanius, Stallworth, & Malle, 1994). SDO is positively correlated with Machiavellianism and generally selfish motivations, and negatively correlated with measures of sympathy or empathy (Altemeyer, 1998).

Compared to RWA, people high in SDO are less likely to be motivated by fear, religiosity, or a belief in a dangerous world (Altemeyer, 1998), but are more likely to support social stratification and oppose attempts to reduce societal inequalities (Altemeyer, 2004). The 20-item SDO scale (Pratto et al., 1994) has been shown to predict prejudice towards people and groups who advocate equality, including ethnic minorities, homosexuals (Whitley & Lee, 2000), and women (Whitley, 1999).

Correlations between RDA and SDO are generally weak in North American samples (e.g., Whitley, 1999) but are larger in European ones (e.g., Ekehammar, Akrami, Gylje, & Zakrisson, 2004). Although there are similarities between SDO and RWA, even beyond their general usefulness in predicting prejudice, they are considered conceptually distinct.

#### *Cognitive Constructs related to RWA and SDO*

Cognitive biases in social attitudes are often assumed. Two measures are useful for exploring these possible relations. First, Need for Cognition refers to individual differences in the desire for thinking or engaging in cognitively demanding activities (Cacioppo & Petty, 1982). Previous work has found it has small-to-moderate negative correlations with RWA and SDO (Cornelius & Van Heil, 2006). Roets and Van Heil (2006) found, while Need for Cognition has some association with prejudicial attitudes, its effect was mediated through RWA scores.

Secondly, Need for Cognitive Closure is related to an individual's desire for clear cognitive closure, as opposed to ambiguity tolerance (Kruglanski, Webster, & Klem, 1993). This desire to eliminate ambiguity may lead to an over-reliance on heuristics or stereotypes, which may act as a precursor to prejudice. Roets and Van Hiel (2011) found .57 and .25 correlations between Need for Closure and RWA and SDO, respectively.

### Personality and Social Attitudes

A meta-analysis by Sibley and Duckitt (2008) found that RWA was moderately predicted by low Openness ( $r = -.36$ ) and weakly by high Conscientiousness ( $r = .15$ ); and SDO was moderately predicted by low Agreeableness ( $r = -.29$ ), and weakly by low Openness ( $r = -.16$ ). Increased levels of Agreeableness and Openness had moderate associations with decreased prejudice ( $r_s = -.22$  &  $-.30$ , respectively).

These associations with FFM personality factors are valuable but they do not address the possible contribution from basic approach and avoidance personality factors. Assuming that social attitudes and prejudice are 'motivated', we might usefully explore the role of these more basic personality factors. For example, they could be avoidance-motivated, by either fear or anxiety, elicited by thoughts of the out-group, or approach-motivated by perceived competition with the out-group. The former hypothesis is wide-spread in the prejudice literature (Allport, 1954). But, there is reason to suppose that the positive-approach factors are related to social attitudes and prejudice. Harmon-Jones (2003) demonstrated that psychometric measures of the Behavioural Approach System (BAS), but not the Behavioural Inhibition System (BIS), are related to anger and physical hostility; therefore, in situations where social attitudes and prejudice are driven by hostility we might expect the involvement of BAS-related negative



emotions. Indeed, studies measuring intergroup emotions generally find that anger is the most important motivating factor behind prejudice and offensive action tendencies (e.g., Seger, Smith, Kinias, & Mackie, 2009; Smith, Seger, & Mackie, 2007), above and beyond feelings of anxiety. We, therefore, expect that BAS-related processes will relate to authoritarian submission and dominance. Whether these putative BAS effects are restricted to anger/aggression or reflect a more appetitive motivation is a major focus of this paper.

### *Approach-Avoidance Personality Theories*

The nature of approach-avoidance personality factors, including their relation to the FFM, has been described elsewhere (Corr, DeYoung, & McNaughton, 2013). The model applied here is reinforcement sensitivity theory (RST; Corr, 2008), which posits two systems of defence (*fight-flight-freeze system*, FFFS; and *behavioural inhibition system*, BIS) and one of approach (*behavioural approach system*, BAS). The FFFS is responsible for mediating reactions to *all* aversive stimuli and is related to the emotion of fear (arising through the motivation for avoidance and escape). The BIS is responsible for the detection and resolution of goal conflict in general (e.g., between BAS-approach and FFFS-avoidance) and is related to the emotion of anxiety, which is distinct from fear. The BAS is responsible for mediating reactions to all appetitive stimuli and is related to the emotions of hope and anticipatory pleasure. These systems are often measured by the Carver and White (1994) BIS/BAS scales, but with the development of RST (Gray, 1987) has come the need for more refined scales of the type developed by Corr & Cooper (2013), which contains separate measures of FFFS and BIS, and the BAS (conceptualised in multidimensional terms).

## Aims

The study had several aims. First, to examine the relations between different measures of social attitudes and related cognitive measures; and, secondly, to relate these different measures to general factors of personality as well as more specific approach-avoidance ones. It was expected that we would broadly replicate previous research relating the FFM to RWA and SDO. More importantly, we hypothesized that positive-approach personality factors would significantly correlate with RWA and SDO. If supported, this latter finding would be novel and of theoretical significance, and possibly also of practical utility in designing effective prejudice reduction programmes.

## Method

### Participants

One hundred and ten native English speakers (69 female, age = 22.59, SD = 6.84; 40 male, age = 23.65, SD = 6.07, one not specified) completed the survey at an English university. Participants were recruited through postings on an online participant pool and message board. They earned £15 for their participation. Eighty-seven participants (79.1%) identified as themselves as 'White British', and seven participants (6.3%) as 'Indian'; sixteen (14.5%) identified with other ethnic groups.

### Materials and procedure

Participants completed a battery of paper and pencil questionnaires in one setting, tested in individual cubicles. They were instructed to take as long as needed to complete the questionnaires.

*Personality Measures*

The Reinforcement Sensitivity Theory Personality Questionnaire (RST-PQ; Corr & Cooper, 2013) was used to assess components of approach-avoidance motivation. The RST-PQ consists of 80 items, providing scales for FFFS and BIS, and four BAS facets: Reward Interest, Goal-Drive Persistence, Reward Reactivity, and Impulsivity. Two additional scales are included: Panic and Fight. The Carver and White (1994) BIS/BAS questionnaire was also included to measure approach and avoidance motivations more generally. This questionnaire has one general BIS subscale and three approach subscales: Drive, Fun-Seeking, and Reward Responsiveness. General personality factors were measured with the Five-Factor Model Questionnaire (DeYoung, Quilty, & Peterson, 2007).

*Social Attitude Measures*

The two major dimensions of social attitudes were measured by the Right Wing Authoritarianism (RWA; Altemeyer, 2006) and the Social Dominance Orientation (SDO; Sidanius & Pratto, 1999) scales. Higher scores on each measure are associated with increased feelings of authoritarianism. In addition, cognitive measures of social attitudes were also included: The Revised Need for Closure Scale (Roets & Van Hiel, 2007; higher numbers indicate increased dislike of ambiguity) and the Need for Cognition Scale (Cacioppo & Petty, 1982; higher numbers indicate a preference for or enjoyment of thinking). A Social Desirability Scale (Crowe & Marlowe, 1960) was included to control for possible response distortion in the above measures; higher numbers indicate an increased likelihood of socially desirable responses. Previous research indicates that these measures have reasonable test-retest reliability and high internal validity; Cronbach's alphas for each measure in the current study are in Table 1.

## Analytic Plan

Correlations were obtained between the social attitude and cognitive measures in order to replicate previous research and they served as a basis for our later tests. Hierarchical stepwise analyses were conducted, predicting RWA and SDO from scales taken from two questionnaires: the Corr and Cooper (2013) RST-PQ and the Carver and White (1994) BIS/BAS Scales. As previous research suggests that fear/anxiety is related to these variables, FFFS and BIS measures were entered at the first block, followed by the approach measures, in order to clarify the additional contributions of BAS scales to the model.

## Results

Descriptive statistics for all variables are shown in Table 1. Intercorrelations of the social attitude and cognitive measures are shown in Table 2. Correlations of personality with the social attitude and cognitive measures are shown in Table 3.

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Tables 1, 2 & 3 about here

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In terms of Right-Wing Authorization (RWA) and Social Dominance (SDO), the two were positively correlated, but whereas RWA was positively correlated with Need for Closure and negatively correlated with Need for Cognition, SDO did not correlate with either measure. Need for Cognition and Need for Closure displayed a moderately negative relationship. Social Desirability was unrelated to either RWA or SDO, indicating that this form of response distortion was not found in this study. Correlations between age and social attitude and cognitive

measures were non-significant ( $p < .05$ ). Women ( $M = 4.12$ ,  $SD = .429$ ) were more agreeable than men ( $M = 3.82$ ,  $SD = .388$ ;  $t(107) = 3.63$ ,  $p < .001$ ), but there were no other gender differences.

In regard to the Five-Factor Model, RWA and SDO showed a different pattern of correlations. High SDO scorers were extraverted and disagreeable; high RWA scorers were also closed-minded and conscientious. On this pattern of correlations, RWA was similar to SDO but with the addition of a lack of open mindedness and a higher degree of conscientiousness. Need for Cognition was related only to higher openness; whereas Need for Closure was related to higher conscientiousness and neuroticism.

In terms of the approach-avoidance personality measures, an intriguing pattern of correlations was found. Recall that we generally expected approach-related measures to predict the social attitude measures. SDO was positively correlated with the RST-PQ measures of BAS Drive, Reward Interest, and Fight; and it was not significantly correlated with any of the avoidance measures, of RST-PQ BIS, and FFFS, which paralleled the lack of association with FFFM Neuroticism. RWA showed a similar set of relations, but there was a weak positive association with FFFS, but not the BIS. It was evident that RWA was most strongly related to all of the BAS scales, pointing to its positive-approach motivational basis.

Need for Cognition was negatively correlated with FFFS but only one BIS measure, whereas Need for Closure was positively correlated with both negative measures, as well as panic. Social Desirability had no consistent effect on RST-PQ BAS measures, but was negatively correlated with BIS measures.

To understand further the effects of approach and avoidance motivation on RWA and SDO, a series of hierarchical stepwise regressions were conducted. Using RWA as the dependent variable, the two defensive measures of the Corr and Cooper (2013) RST-PQ (FFFS and BIS) were entered in the first block. The four BAS subscales (Reward Reactivity, Reward Interest, Goal-Drive Persistence, and Impulsivity) were entered in the second block. Only FFFS was significant in the first block,  $\beta = .195$ ,  $t = 2.06$ ,  $p = .042$ ; and only Goal-Drive Persistence was significant in the second block,  $\beta = .337$ ,  $t = 3.75$ ,  $p < .001$  (FFFS fell to marginal non-significance,  $t = 1.89$ ,  $p = .061$ ). The model improved with the addition of the second block,  $\Delta R^2 = .113$ ,  $F(1, 106) = 14.06$ ,  $p < .001$ , total  $R^2 = .151$ . The same analysis was repeated with SDO as the dependent variable. Neither of the RST-PQ defensive scales were significant ( $ps > .20$ ); and only Reward Interest reached significance in the second block,  $\beta = .191$ ,  $t = 1.99$ ,  $p = .05$ ,  $R^2 = .037$ .

The Carver and White subscales were then used to predict RWA. The general BIS subscale was entered in the first block, the three BAS subscales (Drive, Fun-Seeking, and Reward Responsiveness) were entered in the second block. The BIS scale failed to reach significance. In the second block, only BAS Drive was significant,  $\beta = .356$ ,  $t = 3.88$ ,  $p < .001$ ,  $R^2 = .127$ . Repeating this analysis for SDO, the BIS scale again failed to reach significance. In the second block, BAS Drive was a significant predictor of SDO,  $\beta = .436$ ,  $t = 4.424$ ,  $p < .001$ , Reward Responsiveness also reached significance,  $\beta = -.225$ ,  $t = 2.29$ ,  $p = .024$ ,  $R^2 = .150$ .

## Discussion

Our aim was to examine the associations between the main dimensions of social attitudes (RWA and SDO), and related cognitive constructs (need for cognition and need for closure),

with general factors of personality (FFM) and specific approach-avoidance personality factors. The results were straightforward and open to an interpretation that throws new light upon the dispositional motivational bases of social attitudes.

RWA and SDO were largely unrelated to neuroticism, fear and anxiety, but were consistently related to extraversion and positive-approach measures. Whereas both RWA and SDO were related to low agreeableness, RWA was also associated with low open-mindedness and high conscientiousness. These results suggest that RWA and SDO as major social attitudes are related to a more predatory form of approach than a defensive form of avoidance. These results suggest a more nuanced picture of the relationship between personality and social attitudes than that suggested in the literature. In particular, social attitudes seem not to be related to negative emotions and motivations, but rather to positive-approach ones. Both have an aggressive fight component and, in addition, to be generally disagreeable, RWA is distinguished by being associated with low openness and high conscientiousness. This information is new and potentially of some importance to our understanding of the motivations underneath social attitudes. For example, the difficulty of reducing these negative social attitudes may be due, in large measure, to the appetitive drive and pleasure derived from them – they are highly positively reinforcing.

In contrast to these RWA/SDO findings, the cognitive constructs showed a different pattern of correlations. Need for Cognition was associated with negatively with BIS, FFFS, and positively with openness to experience (reflecting a more liberal vs. conservative way of thinking); and correlations with positive-approach measures were largely absent. Showing an opposite pattern of associations, Need for Closure was associated positively with BIS, FFFS, neuroticism and conscientiousness, and also positively with many of the positive-approach

measures. Whereas Need for Cognition seemed to relate to low negative emotions and openness, Need for Closure was related to high negative emotions but also to high positive emotions, suggesting general neuroticism.

These data provide evidence for the general claim that positive-approach motivation underlies the individual differences in the major forms of social attitude (Seger & Corr, 2012). Although there was a weak correlation between FFFS (fear) and RWA, there is little evidence to support the claim that measures of the FFFS, BIS, or general neuroticism, are related to authoritarian submission or social dominance. The primacy of approach, but not avoidance, motivation is in disagreement with previous research and conceptualizations that suggest authoritarian submission is motivated primarily by fear and anxiety. Such work has often only examined avoidance-related motivation (Altemeyer, 2004), leading to a skewed perspective. Furthermore, anxiety and approach motivation are not mutually exclusive and either can arise depending on the situational context. When people report intergroup anxiety in experimental studies, it is often because they expect that the interaction would make them feel hostile (Plant & Devine, 2003). Therefore, it would be incorrect to assume from previous research that anxiety or inhibitory motivations are the basic personality factors that underlie social attitudes. The general finding that approach motivation is more important in prejudice than previously thought is consistent with recent calls for a conceptualisation of social attitudes and prejudice (Dixon et al., 2012)<sup>i</sup>.

Future research is needed to examine real-world and behavioural consequences of approach-avoidance motivational processes as it relates to social attitudes, related cognitive factors, and full-blown prejudice. If positive-approach motivation underlies SDO and RWA, then



it should also motivate political action, support for inequality, and hostile intergroup behaviours. This is a fertile field for further research, and one infused with practical implications.

### Limitations

Although our sample was adequate to test the research hypotheses, the age range was restricted and most of our participants were university students. Although it might be assumed that there would be a restriction of range in RWA and SDO, mean scores were broadly comparable to previous research with University students (Altemeyer, 2004), with reasonably high standard deviations. Therefore, we measured enough variance to allow for covariance with personality measures. Further research on social attitudes, and especially measures of prejudice which may be prone to more social desirability effects, would benefit from the use of a larger and more representative sample (in terms of age, socioeconomic status, etc). We see our data as only a preliminary start to such a more comprehensive investigation of the relationships between personality and social attitudes (and specific objects of prejudice).

### Conclusions

Our results suggest that social attitudes, and by extension prejudice, are multidimensional constructs that are related in systematic ways to approach and avoidance personality factors. In particular, our results indicate that positive-approach motivation may play a much more important role in predicting social attitudes and prejudice than previously thought, and certainly no less than traditional views that focus on negative-avoidance motivation.

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Table 1

*Cronbach's Alpha Coefficients and Descriptive Statistics for Social Attitude and Personality Measures*

Questionnaire Measures	Cronbach's		Standard
	Alpha	Mean	Deviation
Right Wing Authoritarianism (RWA)	.89	60.59	22.87
Social Dominance Orientation (SDO)	.91	22.51	15.74
Need for Cognition	.85	60.43	10.77
Need for Closure	.90	150.65	22.95
Social Desirability	.78	14.93	5.20
C&W: BAS Drive	.77	10.85	2.32
C&W: BAS Reward Responsivity	.74	16.75	2.27
C&W: Fun-Seeking	.72	11.85	2.31
C&W: BIS	.75	22.01	3.45
RST-PQ: Fight	.79	2.69	.54
RST-PQ: Panic	.80	2.25	.72
RST-PQ: BIS	.92	2.57	.57
RST-PQ: FFFS	.80	2.20	.60
RST-PQ: BAS Reward Interest	.84	2.80	.63
RST-PQ: BAS Goal-Drive Persistence	.82	3.04	.57
RST-PQ: BAS Reward Reactivity	.80	3.00	.48

*(table continues)*

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RST-PQ: BAS Impulsivity	.70	2.54	.55
FFM: Extraversion	.90	3.37	.59
FFFM: Neuroticism	.89	3.03	.68
FFFM: Openness	.78	3.63	.48
FFFM: Conscientiousness	.82	3.25	.53
FFFM: Agreeableness	.78	4.00	.44

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*Note.* C&W: Carver & White (1994) BIS/BAS scales. RST-PQ: Reinforcement Sensitivity

Theory Personality Questionnaire (Corr & Cooper, 2013). FFM: Five-Factor Model

Questionnaire (DeYoung, Quilty, & Peterson, 2007). BIS = Behavioural Inhibition System;

FFFS = Fight-Flight-Freeze System; BAS = Behavioural Approach System.



Table 2

*Pearson Product-moment Correlations for Social Attitudes, Cognitive and Social Desirability*

*Measures*

Measure	1	2	3	4	5
1. Right Wing Authoritarianism	--	.49**	-.22*	.34**	0.10
2. Social Dominance Orientation		--	-.14	.19	-0.10
3. Need for Cognition			--	-.31**	.20*
4. Need for Cognitive Closure				--	-.13
5. Social Desirability					--

*Note.* \* =  $p < .05$ , \*\*  $p < .01$ , two-tailed.

Table 3

*Pearson Product-moment Correlations between Personality Measures and Social Attitudes,  
Cognitive and Social Desirability Measures*

Personality Measures	RWA	SDO	Need for Cognition	Need for Closure	Social Desirability
C&W: BAS Drive	.34**	.36**	-.058	-.010	-.11
C&W : BAS Reward Responsivity	.11	-.061	-.030	.24*	-.037
C&W: BAS Fun-Seeking	-.06	.054	.17	-.33**	.13
C&W: BIS	.05	-.090	-.23*	.51**	-.19*
RST-PQ: Fight	.30**	.24*	-.049	.067	-.18
RST-PQ: Panic	-.039	.083	-.14	.43**	-.18
RST-PQ: BIS	-.004	.080	-.12	.46**	-.20*
RST-PQ: FFFS	.20*	.003	-.39**	.35**	-.084
RST-PQ: BAS Reward Interest	.31**	.19*	.11	.008	.25**

*(table continues)*

RST-PQ: BAS Goal-Drive Persistence	.35 <sup>**</sup>	.12	.057	.23 <sup>*</sup>	.18
RST-PQ: BAS Reward Reactivity	.34 <sup>**</sup>	.17	-.17	.23 <sup>*</sup>	.067
RST-PQ: BAS Impulsivity	.22 <sup>*</sup>	.18	-.072	-.053	-.053
FFFM: Extraversion	.26 <sup>**</sup>	.22 <sup>*</sup>	.093	-.095	.14
FFFM: Neuroticism	-.015	.067	-.18	.50 <sup>**</sup>	-.32 <sup>**</sup>
FFFM: Openness	-.31 <sup>**</sup>	-.130	.48 <sup>**</sup>	-.12	-.075
FFFM: Conscientiousness	.41 <sup>**</sup>	.092	-.015	.54 <sup>**</sup>	.22 <sup>*</sup>
FFM: Agreeableness	-.32 <sup>**</sup>	-.46 <sup>**</sup>	.033	.044	.29 <sup>**</sup>

*Note.* \* =  $p < .05$ , \*\*  $p < .01$ , two-tailed. See Table 1 for labels of personality measures.

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<sup>i</sup> We did not compute interactions between BAS and BIS as it would not be appropriate at this preliminary stage. Now that we have established the associations with the BAS, future research with larger and more representative samples should inspect this possibility.