Traits and values as predictors of the frequency of everyday behavior: Comparison between models and levels

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Abstract

The aims of this study were to compare (a) personality traits vs personal values, (b) Five-Factor Model (FFM) vs HEXACO model of personality traits, and (c) broad vs narrow personality constructs in terms of their relationship with the frequency of everyday behaviors. These relationships were analyzed at three organizational levels of self-reported behavior: (a) single behavioral acts, (b) behavioral components (empirically derived categories of similar behaviors), and (c) two higher-order factors. The study was conducted on a Polish sample ($N = 532$, age range 16–72). We found that (a) even the frequencies of single behavioral acts were related to various personality constructs instead of one narrow trait or value, (b) personality traits and personal values were comparable as predictors of a wide range of everyday behaviors, (c) HEXACO correlated with the frequency of behaviors slightly higher than FFM, and (d) narrow and broad personality constructs did not differ substantially as predictors of everyday behavior at the levels of acts and components, but at the level of higher-order behavioral factors, broad personality measures were better predictors than narrow ones.

Keywords Personality traits · HEXACO · FFM · Personal values · Frequency of behavior

Introduction

Psychology is described as “the science of behavior” (Bergner 2011) and personality psychology, as a subdiscipline, seems to be especially interested in studies on behavior (Furr 2009). The link between personality and behavior is emphasized in some of the most typical definitions of the former. For instance, according to Allport (1961), personality determines characteristic behavior (p. 28) and according to Mischel (1968), personality is a “hypothetical construction from or about behavior” (p. 4). Hence, if a construct is not effective in explaining a certain sort of behavior, it is unlikely to be interesting or important in personality psychology. Similarly,

behavioral correlates are crucial for assessing measures of personality variables.

One of the most common ways of thinking about personality is in terms of dispositions, like personality traits or personal values. There are two models of personality traits and one model of values that are deemed to be a universal description of traits and values, respectively. Regarding traits, the models are: Five Factor Model (FFM; McCrae and Costa Jr 2003) and HEXACO (Ashton and Lee 2001); while regarding values, it is the circular model of values proposed by Schwartz (1992; Schwartz et al. 2012). Both traits and values are considered and can be measured at various levels of hierarchy, from more narrowly defined to rather broad categories.

There are many studies focused on relationships between values or traits and specific behaviors that propose some mechanisms for the relationship (Parks-Leduc et al. 2015; Roccas and Sagiv 2010). However, none of them compare values and traits in terms of their relationship with a wide range of behaviors, not a priori selected as possible to be explained by a specific model. In our study, we fulfill this gap and focus on the comparison of the relationship between values and personality traits, operationalized in different models, to the frequency of behavior. Thus, our study does not focus on the specific mechanisms that explain behaviors

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by traits or values. Rather, it provides a comparison of the explanatory power of various models (of values and traits) in explaining behavior.

Below, we first summarize different approaches to analyzing personality traits and personal values relationship to behavior (Section “[Personality Traits and Personal Values as Predictors of Behavior](#)”), then we describe the benefits of analyzing relations between personality constructs and the frequency of different behaviors aggregated over time and situations (Section “[Benefits of Aggregation of Behaviors Over Time and Situations](#)”) and compare various types of behavioral criteria used in such research (Section “[Types of Behavioral Criteria](#)”). After that we discuss a measurement issue related to questionnaire studies, that is a similarity between behaviorally based trait ratings and ratings of behavior itself (Section “[Difficulties in Differentiating Between Self-Report Measures of Personality and Behavior](#)”). Because we analyze the relationship between personality and behavior at various levels of organization of both, we also include descriptions of hierarchical structures of personality traits, personal values, and self-reported everyday behaviors (Sections “[Hierarchical Structure of Traits and Values](#) and [Hierarchical Structure of Self-Reported Behaviors](#)”).

Personality Traits and Personal Values as Predictors of Behavior

Personality traits and values are considered psychological constructs that were developed in order to explain behavior (e.g., Bilsky and Schwartz 1994). One can distinguish two different approaches to differentiating between personality traits and personal values as predictors of behavior that are based on different interpretations of these constructs. The first one treats traits and values as variables of different nature. Values are considered to be motivational constructs and are defined as decontextualized life goals that guide perception, judgment, and behavior (e.g., Schwartz 1992). As related to motivation, they may or may not be expressed in behavior (Cieciuch 2017; Roccas et al. 2002). On the contrary, personality traits are defined as descriptions of relatively stable patterns of behavior, thoughts, and emotions (e.g., McCrae and Costa Jr 2003). As a consequence, behavior is rather directly and automatically attributed to traits (as they are just descriptors of behavior) and traits are often measured through their behavioral expressions (Parks and Guay 2009).

In the second approach, both traits and values are considered related to motivation. Parks and Guay (2009) argue that values are related to goal content (decision to pursue a given goal), whereas traits are related to goal striving (the amount of effort and persistence that goes into goal pursuit). This approach was deeply developed by DeYoung (2015) in his Cybernetic Big Five Theory, in which he explains how each of the Big Five personality traits is related to goal pursuit.

From this point of view, one can argue that values and traits refer to different aspects of goals: values to the *content* of goals, while personality traits to the *way* of pursuing goals. In individual behavioral acts, however, these aspects are mixed, so both personality traits and values should be useful in explaining behavior. The question arises, however, which constructs does it better in relation to the frequency of various everyday behaviors.

Benefits of Aggregation of Behaviors Over Time and Situations

The person-situation debate lasted for decades, seeking a response to the question of whether behavior is situationally specific or general (Epstein and O’Brien 1985). The debate led to the conclusion that behavior can vary as a function of situational changes, but individual dispositions also matter (Funder 2006, 2009). Researchers have a range of possibilities to study personality-behavior relations, dealing with the dependence between behavior and situation. One of them is the aggregation of behaviors over occasions and situations (Funder 2009; Kenrick and Funder 1988).

In his prominent book, “Personality and Assessment,” Mischel (1968) demonstrated that behavior is highly situationally specific and correlates with self-reports of personality no greater than .30. However, he did not take into account the fact that personality dispositions are supposed to determine patterns of behaviors over time rather than through single, contextualized behavioral acts. Epstein and O’Brien (1985) suggested that aggregating observations over occasions and situations can reveal broad and stable response dispositions. This was confirmed by Digman (1990), who showed that aggregating both dependent and independent variables increases the correlation between personality and behavioral criteria.

Aggregation of behaviors over time and situations can be easily done in self-report. A questionnaire enables measuring the frequency of a variety of behaviors performed over an extended time frame in natural settings. Questionnaires measuring the frequency of behaviors have been used in previous studies on personality-behavior relationships and they included various types of behaviors.

Types of Behavioral Criteria

Behavioral Expressions of Predefined Constructs

A popular way of studying relations between personality and behavior is via linking a given construct with behavioral acts considered to be expressions of this construct. This approach was introduced by Buss and Craik (1983) who proposed measuring personality traits by asking about the frequency of performing acts from dispositional categories. For instance, someone can be called arrogant if she or he manifests more

arrogant acts than other people over a delimited period of observation. This approach has been adapted to research on personal values—sets of behaviors expressing particular values have been used as criteria for them (e.g., “Watch thrillers” as an expression of Stimulation; Bardi and Schwartz 2003; Schwartz et al. 2017). A limitation of this approach is that a pool of behaviors explained by personality traits or values is restricted by the range of meaning of these constructs.

Behaviors of Some Personal or Social Importance

According to Paunonen (2003), a good personality measure should predict behaviors of some social and cultural significance, and many of them are not simply parallel indicators of a theoretical construct. They are rather complex and dependent on various personality variables instead of on only one. As examples of these complex behaviors, Paunonen lists alcohol consumption, dating behavior, or participation in sports. Sets of behaviors not a priori related to a specific trait were used as criteria for personality inventories by Grucza and Goldberg (2007). They compared 11 inventories as predictors of two sets of relatively undesirable behaviors (Drug use and Undependability), two of relatively desirable behaviors (Friendliness and Creativity), and two of relatively neutral types of behaviors (Communication and Erudition). Among personality inventories, there were measures of FFM (NEO-PI-R, IPIP-AB5C, and Big-5 Markers) and HEXACO (HEXACO-PI). They discovered small differences in mean validity coefficients (cross-validated multiple correlations for predicting act clusters from personality inventories) between inventories based on different models and also between different levels of measurement (basic, middle-level, and lower-level traits). For instance, the coefficients received for measures of FFM and HEXACO did not differ meaningfully and the narrow traits were comparable as predictors of behavioral criteria to basic traits distinguished in FFM and HEXACO.

A Broad Range of Activities

The third possibility is to study personality traits and values relations to a wide variety of domains of everyday functioning. A large pool of activities was used in a study conducted by Hirsh et al. (2009) to find out how personality metatraits are related to engagement and restraint of behavior. In the current study, we followed this approach and focused on the comparison between models in the strength of their relations to the frequency of everyday behaviors.

Difficulties in Differentiating Between Self-Report Measures of Personality and Behavior

In order to study the personality–behavior relation, one has to measure personality (traits or values) and behavior

independently. In the literature there are many instruments that are, however, not free of limitations. One of the main problems is that it is sometimes difficult to differentiate between the measure of personality and the measure of behavior. This is because in many popular approaches researchers tend to find expressions of traits in behavior. For instance, when researchers observe a person’s behavior in an arranged situation, they typically assess the level of the person’s characteristics and states expressed in that behavior. It can be seen in items from the Riverside Behavioral Q-sort, for example “Shows high enthusiasm and a high energy level” or “Expresses insecurity” (Funder et al. 2000). Items like these do not describe specific, observable behaviors. We would say that they are behavioral measures of traits or states, rather than measures of behavior per se.

The same problem applies to items from questionnaire measures. Many items from popular personality inventories have behavioral content (John et al. 2008). This is true especially for scales measuring Extraversion and Conscientiousness—they are dominated by behavioral items (Wilt and Revelle 2015). Some examples are “Cheer people up” (Friendliness facet from IPIP-NEO; Goldberg 1999) or “Get chores done right away” (Self-Discipline facet from IPIP-NEO; Goldberg 1999). Items like these measure specific, usually observable behaviors that are considered to be manifestations of traits. There is nothing surprising in the fact that items like these occur in personality inventories, as personality describes patterns in behavior, affect, and cognition. All of these aspects are represented in items measuring personality traits. However, it becomes an issue when a researcher wants to use a behavioral questionnaire as a criterion for such a measure. In a case like this, a possible scenario is that both measures have similar content.

To avoid such a situation, a researcher should carefully choose instruments for measuring personality and especially behavior. In a typical personality inventory, respondents describe themselves in terms of tendencies to some behaviors. This is expressed by the statement and by the response scale. When the aim is to measure behavior, the question is whether respondents really act in a certain way. Then a good behavioral item should describe a specific act (easy to differentiate from other behaviors) and ask about the frequency of performing it in a defined period of time, instead of the tendency to perform it. It can be assessed by self-report or the other-report method. Of course, this does not eliminate the problem, and behaviorally based trait ratings might still be more highly correlated with ratings of the behavior itself than not-behaviorally based trait ratings. However, behaviorally based trait rating and rating of behavior are conceptually distinguishable phenomena (Furr 2009), and the measurement instruments do differ (Likert scale for the personality measure and a frequency scale for behavioral measures), although both of them are self-report.

In the current study we used the standard personality questionnaires to measure traits and values and the set of items describing specific behaviors with a frequency scale. All these measures give a possibility to distinguish different levels of organization of the constructs.

Hierarchical Structure of Traits and Values

Hierarchical Structure of Personality Traits

In the structure of personality traits, one can differentiate several levels of broad and narrow constructs. Basic traits mark the middle level of the hierarchy. According to the most popular model of personality traits (the Big Five or the Five-Factor Model—FFM), there are five basic traits: Neuroticism (vs. Emotional Stability), Extraversion, Openness to Experience (or Intellect), Agreeableness, and Conscientiousness (Goldberg 1990; McCrae and Costa Jr 2003). Recently, however, the six-factor model has been supported as a viable alternative to the Big Five (Ashton and Lee 2007). The basic traits from the six-factor model (HEXACO) are: Honesty-Humility (H), Emotionality (E), Extraversion (X), Agreeableness (A), Conscientiousness (C), and Openness to Experience (O).

More specific traits are called facets. For example, in the FFM, each of the basic traits has six facets, which gives 30 personality facets in total (Costa Jr and McCrae 1995). Also, basic traits from HEXACO model can be divided into four facets each, resulting in 24 facets in total (Ashton and Lee 2007). The Honesty-Humility facets are the following: Sincerity, Fairness, Greed-Avoidance, and Modesty; the facets of Emotionality are: Fearfulness, Anxiety, Dependence, and Sentimentality; the facets of Extraversion are: Expressiveness, Social Boldness, Sociability, and Liveliness; the facets of Agreeableness are: Forgiveness, Gentleness, Flexibility, and Patience; the facets of Conscientiousness are: Organization, Diligence, Perfectionism, and Prudence; and the facets of Openness to Experience are: Aesthetic Appreciation, Inquisitiveness, Creativity, and Unconventionality.

Further theoretical and empirical analyses suggested that the two-level structure of personality traits is not sufficient and some levels can be introduced both above and below the basic traits. DeYoung et al. (2007) found that all facets of each basic trait can be grouped into two factors: facets of Neuroticism into Volatility and Withdrawal, facets of Extraversion into Enthusiasm and Assertiveness, facets of Openness/Intellect into Openness and Intellect, facets of Agreeableness into Compassion and Politeness, and facets of Conscientiousness into Industriousness and Orderliness. Their findings introduced another level of personality trait organization, located between basic traits and their facets, which is 10 aspects. Both aspects and facets can be called narrow traits because both are located below basic personality dimensions.

Analyses of correlations among five basic traits resulted in introducing higher-order personality traits, also known as metatraits. One of them represents the shared variance of Emotional Stability, Agreeableness, and Conscientiousness, and is called Alpha or Stability. The other one represents the shared variance of Extraversion and Openness/Intellect and is called Beta or Plasticity (Cieciuch and Strus 2017; DeYoung et al. 2002; Digman 1997). Also, studies conducted with the psycholexical approach provided evidence to support the claim about the existence of two broad, interpretable traits (known as the Big Two). These are called Social Self-Regulation and Dynamism and they exhibit a considerable similarity to the meaning of Alpha and Beta, respectively (Saucier et al. 2014; Strus and Cieciuch 2017a). Finally, although no findings indicate the presence of aspects within the HEXACO model (i.e., intermediate traits located between the basic six traits and their facets), indeed there is some evidence that Social Self-Regulation and Dynamism are the metatraits of HEXACO basic traits (Strus and Cieciuch 2017b; cf. Ashton et al. 2015; Saucier and Srivastava 2015; Saucier et al. 2014).

Many studies on the personality-behavior relationship involve personality measures at the level of basic traits (e.g., Fleenon and Gallagher 2009; Sherman et al. 2015; Thalmayer et al. 2011; Timmermans et al. 2010). There have been few studies comparing basic traits with lower-level measures of personality (Gruca and Goldberg 2007; Paunonen 2003; Paunonen and Ashton 2001; Paunonen et al. 2003) and few studies on the relations between metatraits and behavior (DeYoung et al. 2008; Hirsh et al. 2009). There has been no study comparing measures of personality at all levels: from facets to metatraits as predictors of behavior. Our study fills this gap. We analyze four levels of the trait hierarchy: metatraits (FFM and HEXACO), basic traits (FFM and HEXACO), aspects (FFM), and facets (HEXACO).

Hierarchical Structure of Personal Values

Also, personal values are allocated in a hierarchical structure in Schwartz et al.'s (2012) refined theory. There are 19 basic values and four higher-order ones. The basic values are the following: Self-Direction-Thought, Self-Direction-Action, Stimulation, Hedonism, Achievement, Power-Dominance, Power-Resources, Face, Security-Personal, Security-Societal, Conformity-Rules, Conformity-Interpersonal, Tradition, Humility, Benevolence-Dependability, Benevolence-Caring, Universalism-Concern, Universalism-Nature, and Universalism-Tolerance. The four higher-order values are organized along two bipolar dimensions: Openness to Change vs. Conservation and Self-Transcendence vs. Self-Enhancement. The relationship between values and behavior has been studied separately on higher-order values (e.g., Daniel et al. 2015; Seppälä et al. 2012), on the pool of 10 basic values distinguished by Schwartz (1992) in the previous

version of the theory (e.g., Bardi and Schwartz 2003; Lönnqvist et al. 2013) and on the pool of 19 values from the refined theory (Schwartz and Butenko 2014; Schwartz et al. 2017). There have been no studies comparing values from different levels as predictors of a range of everyday behaviors. In this study we included two levels of the hierarchy of values: 19 values and four higher-order ones.

Hierarchical Structure of Self-Reported Behaviors

Skimina et al. (2017) suggested that behavior, similarly to personality traits and personal values, can also be considered in terms of hierarchical structure if measured by self-reports of the frequency of various behaviors. Skimina et al. conducted a series of exploratory analyses on the pool of items selected from the Oregon Avocational Interest Scales (ORAIS; Goldberg 2010). This pool consists of items referring to activities related to various domains of life (e.g., family life, physical activity, hobby), not a priori related to any personality variable. Skimina et al. found that separate behavioral acts from the selected pool can be grouped into components that, subsequently, constitute two higher-order factors (Active Leisure and Home Activities). Based on the results of a series of parallel analyses and principal component analyses, Skimina et al. proposed a three-level organization of self-reported behaviors. The lowest level is marked by single behavioral acts, which are grouped into broader categories (components) in Level 2. These broader categories might be further grouped into two higher-order factors (Level 3). For instance, such behavioral acts as reading a book and visiting a library (Level 1) might be grouped into a component named Reading (Level 2); cleaning a house and cooking a meal (Level 1) might be grouped into a component named Housekeeping (Level 2); blessing a meal and reading the Bible (Level 1) might be grouped into a component named Religious Practices (Level 2). All these components—Reading, Housekeeping, and Religious Practices—might be grouped into a higher-order factor named Home Activities.

A hypothetical comparison of these three hierarchies (personality traits, personal values, and behavior) is presented in Table 1.

Objectives of the Current Study

Our aim was to compare the strength of the relationship between personality and behavior from a broad structural perspective. First, we sought for relations between personality and the frequency of a wide range of behaviors related to different areas of everyday life (e.g., family life, social life, drinking alcohol, physical activity, leisure activities). We wanted to examine whether theoretical constructs (personality traits and values) are useful to explain individual differences in the frequency of behaviors that are not simply parallel indicators of them. We expected that it would be difficult to

indicate single personality correlates that are the most relevant for such behaviors because each behavior would correlate with several traits and values comparably.

Second, in our analyses we included both descriptive and motivational personality variables, that is traits and values, respectively. Recently, there has been a call for comparing these two as predictors of behavior (Pozzebon and Ashton 2009; Roccas et al. 2002; Schwartz et al. 2017). We expected similar strength of correlations between the frequency of everyday behavior and personality traits and between the frequency of everyday behavior and personal values.

Third, we compared measures of personality and behaviors from different levels to analyze the relationship among hierarchies of personality traits, personal values, and behavior. We expected that higher-order personality constructs are correlated more highly with the more general indicators of behavior (i.e., categories or behavioral factors), while more specific personality constructs are more strongly correlated with behavioral acts. This expectation is based on the assumption that the similarity of the predictor and the criterion in the range of generality to specificity—which relates to the position in the hierarchy—results in the higher correlation between the former and the latter (Funder 2009).

Fourth, we compared FFM and HEXACO model of personality traits. It has been proven that HEXACO contains variance not shared with the FFM (Ashton and Lee 2018; Lee and Ashton 2013) which gives it an advantage over the FFM in prediction of various outcomes. Based on these findings, we expected that HEXACO should correlate with the frequency of everyday behavior higher than the FFM.

Method

Participants

The study was conducted on a Polish sample ($N = 532$, 45% male) recruited by trained research assistants, which were psychology students participating in the study in exchange for course credits. Each student administered the questionnaires to approximately 6–10 persons chosen from their distant relatives, friends, and acquaintances. Participant ages ranged from 16 to 72, with a mean of 29.55 ($SD = 12.82$). Fifty-two percent of the sample finished high school and 33% of the sample had a university degree. Participation in the study was voluntary.

Inventories

Measurement of Traits

As a measure of the FFM we used the Big Five Aspect Scales (BFAS; DeYoung et al. 2007), measuring the five basic traits and

Table 1 A comparison of the hypothetical hierarchies of personality traits, personal values, and self-reported behavior

Level of organization	Personality traits		Personal values ^c	Self-reported behavior ^d
	FFM ^a	HEXACO ^b		
Higher-order factors	Two metatraits	Two metatraits	Four values	Two factors
Basic level	Five factors	Six factors	19 values	Components of behavioral acts
Narrow constructs	10 aspects ^c 30 facets (not included in this study)	24 facets		Single behavioral acts

^a Metatraits (Digman 1997; DeYoung et al. 2002); Five factors (McCrae and Costa Jr 2003); 10 aspects (DeYoung et al. 2007). ^b Metatraits (Saucier et al. 2014; Strus and Cieciuch 2017a); Six factors and 24 facets (Ashton and Lee 2001). ^c Four and 19 values (Schwartz et al. 2012). In the hierarchy of values we distinguish two levels. We situate higher-order values at the level of personality metatraits and 19 values between basic and narrow traits. ^d Two factors (Skimina et al. 2017). ^e Aspects are situated between basic traits and facets; in the current study we distinguish only one level below basic traits that include both aspects and facets

their 10 aspects. BFAS contains 100 items (10 per aspect) derived from the International Personality Item Pool (IPIP; Goldberg 1999; Goldberg et al. 2006). Participants indicate their answers on a 5-point Likert scale (from 1 – *very inaccurately describes me* to 5 – *very accurately describes me*). In the current study, Cronbach's alpha coefficients ranged from .76 (Politeness) to .89 (Compassion) with a mean of .83 for the aspect scales, and from .84 (Openness/Intellect) to .91 (Neuroticism) with a mean of .87 for the five basic traits. Additionally, we used BFAS for measuring two metatraits: Alpha (the mean of Neuroticism [reversed coded], Agreeableness, and Conscientiousness items) and Beta (the mean of Extraversion and Openness/Intellect items). Cronbach's alpha coefficients for Alpha and Beta were .90 and .88, respectively. Descriptive statistics and Cronbach's alphas for all scales can be found in the online supplement Table 1.

For measuring six basic traits and their 24 facets we used the International Personality Item Pool HEXACO Inventory (IPIP-HEXACO; Ashton et al. 2007). The instrument consists of 240 items derived from IPIP (Goldberg 1999) and each facet is assessed by 10 items. Answers are given on a 5-point Likert scale (from 1 – *very inaccurately describes me* to 5 – *very accurately describes me*). Cronbach's alpha coefficients in the current study ranged from .71 (Flexibility) to .90 (Patience) with a mean of .81 for the facet scales, and from .88 (Openness to Experience) to .94 (Extraversion) with a mean of .92 for the six basic traits. Additionally, on the basis of Strus and Cieciuch's (2017b) research, we used the mean of Honesty-Humility, Agreeableness, and Conscientiousness items as a measure of the Alpha/Social Self-Regulation metatrait. The mean of Emotionality (reversed coded), Extraversion, and Openness to Experience items was used as an indicator of the Beta/Dynamism metatrait. Cronbach's alpha coefficients for Alpha and Beta were .94 and .93, respectively. Descriptive statistics and Cronbach's alphas for all scales can be found in the online supplement Table 2.

Measurement of Values

We used the Portrait Values Questionnaire – Revised (PVQ-R; Schwartz et al. 2012) for measuring 19 values from the revised version of Schwartz's theory and four higher-order factors (see Table 1). The questionnaire consists of 57 items. A respondent assesses how similar the person described in items is to themselves on a 6-point scale (from 1 – *not like me* to 6 – *very much like me*). Cronbach's alpha coefficients for the 19 scales in the current study ranged from .51 (Security-Personal) to .86 (Universalism-Nature) with a mean of .74 and for higher-order factors from .83 (Openness to Change) to .89 (Self-Transcendence) with a mean of .87. Descriptive statistics and Cronbach's alphas for all scales can be found in the online supplement Table 3.

Measurement of the Frequency of Behaviors

For measuring the frequency of behaviors, we used a pool of items from the Oregon Avocational Interest Scales (ORAIS; Goldberg 2010). Each item describes a behavioral act that can be performed on a daily basis. Participants were asked to assess how frequently they performed each behavior, using the following scale: 1 – *never in my life*, 2 – *not in the past year*, 3 – *one or two times in the past year*, 4 – *three to ten times in the past year*, 5 – *more than ten times in the past year*.

The original pool of 209 items were reduced and organized into a three-level hierarchical structure by Skimina et al. (2017; see section “[Hierarchical Structure of Self-Reported Behaviors](#)”). Through confirmatory factor analysis (CFA), we verified the unidimensionality of 17 components found by Skimina et al. in the structure of behavioral acts. The results suggested dividing three components into two narrower (in the 17-component solution Fashion was mixed with Watching TV, Reading with Music, and Gardening with Vehicles; in the 20-component solution each of them is a separate component) and removing four items. After introducing

these modifications, we received a pool of 131 items measuring single behavioral acts that can be grouped into 20 components. On the higher level, these components constitute two broad categories of behaviors. We calculated component scores as means of scores on items constituting them and the two higher-order factors as means of components that constitute them. Table 2 presents 20 components and their affiliation to two higher-order factors. Cronbach's alpha coefficients for the 20 components in the current study ranged from .54 (Understanding) to .89 (Using the Internet) with a mean of .76. Cronbach's alpha for the first higher-order factor (Active Leisure) was .93 and for the second factor (Home Activities) .89. The list of behavioral items is available from the first author upon request. Descriptive statistics and Cronbach's alphas for all scales can be found in the online supplement (Table 4).

Procedure

The study was conducted in three sessions approximately two weeks apart. Participants completed IPIP-HEXACO in the first session (240 items), ORAIS in the second session (209 items), and BFAS followed by PVQ-R in the third session (172 items in total, including 15-item BFI-S not relevant to this study), in that fixed order. This way, the risk of bias imposed by burden was reduced. The measure of the frequency of behavior was completed at a different time than measures of personality. This way, we avoided the bias imposed by common method variance. The time gaps between completing behavior measure and measures of different personality constructs (IPIP-HEXACO vs. the set of BFAS and PVQ-R) were approximately the same for each participant. The gap between IPIP-HEXACO and the set of BFAS and PVQ-R should not affect the results because both traits and values are dispositions that are relatively stable in time and the measure of the frequency of behavior was retrospective, involving a period of one year.

Analyses

We correlated measures of personality at different levels of hierarchy with measures of the frequency of behavior at different levels of hierarchy using Pearson's r test. For instance, in the case of BFAS we correlated each of the five basic traits separately with each of 131 behavioral items, then with each of the 20 components of behavioral acts, and then with the two higher-order behavioral factors. At each level of the organization of behavior, we calculated the mean of all correlation coefficients between personality and the frequency of behavior measures. Next, we repeated the procedure for the 10 aspects and two metatraits measured by BFAS. This procedure was applied for the three levels of personality traits (facets, basic traits, and metatraits) measured by IPIP-HEXACO, and for values (19 narrow and four higher-order values) measured by PVQ-R. In this way, for each measure of personality at a

given level (e.g., the facets of HEXACO or the higher-order factors of values), we received three indicators: the mean correlation with behavioral items, the mean correlation with behavioral components, and the mean correlation with higher-order behavioral factors. Table 3 in the Results section presents the summary of indicators calculated for each measure of personality. Because the indicators were not row correlation coefficients but their means, we used Cohen's d test to compare them. The results of Cohen's d test are also presented in Table 3.

We also provided a set of the 10 highest personality correlates for behavior at each level: the two higher-order factors, the 20 components, and 20 items (to choose representative items for each component, we conducted exploratory factor analysis for each scale separately and chose the item with the highest eigenvalue). The 10 highest correlates were chosen from all measures of traits and values used in our analyses, namely from personality and value scores at all levels of their hierarchy. Thus, we can look closer at the relationship between personality and the frequency of behavior by comparing the frequencies on the lists of the highest correlates of measures from different inventories and various personality constructs taken from different hierarchy levels. The entire set is presented in Appendices 1–3, and Table 4 in the Results section shows the summary of it. For each inventory and for each level of personality structure, we counted the number of appearances among the highest correlates of behavior and calculated the ratio of the number of appearances to the chance of appearance (by chance we mean the number of personality measures from a given category, e.g., for BFAS it was 17 [the sum of 10 aspects, five basic traits, and two metatraits measured by BFAS]).

Additionally, we conducted OLS regression analysis to compare personality constructs as predictors of the frequency of everyday behaviors. DVs were behavioral higher-order factors and components. First, we used as IVs sets of personality traits and values at different levels of their hierarchies. For each behavioral criterion we tested eight models in which IVs were: a) 24 HEXACO facets, b) 10 BFAS aspects, c) 19 values, d) six HEXACO traits, e) five BFAS traits, f) two HEXACO metatraits, g) two BFAS metatraits, and h) four higher-order values. In the Supplement (Tables 5 and 6) we report adjusted R^2 and number of predictors included in each model. Because the comparison of models including different numbers of predictors would advantage those with a larger number, for each personality measure we calculated a ratio of average R^2 per one predictor included in a model.

Second, we conducted OLS regression models in which behavioral higher-order factors and components were predicted by HEXACO traits and PVQ values introduced to a model in separate blocks. We aimed to compare values and traits as predictors of the frequency of everyday behaviors. We selected HEXACO model for this comparison because a) it

correlated higher with behavioral criteria than traits measured by BFAS, b) the number of HEXACO scales is more similar to the number of PVQ scales, and c) the two models have been compared before as predictors of the frequency of behaviors (Pozzebon and Ashton 2009). The summary of the results of these analyses is presented in the Supplement (Table 7).

Results

Overview

Table 3 shows the summary of the correlation analysis between the measures of personality constructs and the measures of the frequency of behavior. The upper part of Table 3 contains means and standard deviations of correlation coefficients between the frequency of behavior and personality measures (traits and values) calculated at each level of their hierarchies. The last three columns present Cohen's d calculated for differences between the pairs of means (e.g., Column b-a contains d coefficients for differences between mean correlation with components and mean correlation with items for each personality measure). The lower part of Table 3, with different headings, presents Cohen's d coefficients calculated for the differences between mean correlations with behavioral criteria at three levels of their hierarchy received for personality criteria from various levels (*Personality levels comparison*) for FFM vs HEXACO (*Models of personality traits comparison*), and for traits vs. values (*Traits-values comparison*). Levels of personality organization were compared separately for IPIP-HEXACO, BFAS, and PVQ-R. For instance, in Columns d-e, mean correlations of the basic and narrow traits with behavioral criteria were compared. Models of personality traits were compared at three levels of trait hierarchy: (d) narrow traits, (e) basic traits, and (f)

metatraits. The last six rows of Table 3 present the comparison between traits and values, separately for PVQ-R vs BFAS and PVQ-R vs IPIP-HEXACO at three levels of hierarchy: (d) narrow, (e) basic, and (f) higher-order constructs.

Table 4 presents the summary of the set of 10 highest personality correlates for behavioral criteria at each level of hierarchy. The content of Tables 3 and 4 enables a comparison of the strength of relationship between personality and the frequency of behavior at different levels of their hierarchies, as well as the comparison in terms of the relationship with behavioral criteria of values and traits, and between the FFM and HEXACO model of personality traits.

Hypothesis Verification

Behavioral Criteria Correlate with Multiple Measures of Personality

The criteria we used were self-reported frequencies of behavioral acts and based on them the components and factors, not a priori related to a certain personality trait or value; so, we expected that each of them should correlate with several different personality dispositions (traits and values). This hypothesis was supported at each level in the hierarchical structure of behavior, including single behavioral acts. Let's consider just one example. For instance, item "Drank in a bar or night club" correlated with Beta (metatrait, HEXACO, $r = .32$), Hedonism (value, PVQ, $r = .31$), Fearfulness (facet, HEXACO, $r = -.29$), Openness to Change (higher-order value, PVQ, $r = .28$), Honesty-Humility (basic trait, HEXACO, $r = -.27$), Unconventionality (facet, HEXACO, $r = .27$), Stimulation (value, PVQ, $r = .26$), Modesty (facet, HEXACO, $r = -.26$), Social Boldness (facet, HEXACO, $r = .25$), and Conservation (higher-order value, PVQ, $r = -.25$). Among the highest correlates of this item, there were

Table 2 The content of the two higher-order factors of behavior

Factor 1 Active leisure		Factor 2 Home activities	
Component (No)	Example item	Component (No)	Example item
Using the internet (1)	Made an entry on a personal web-page.	Housekeeping (8)	Cleaned the house.
Physical activity (2)	Participated in an exercise program.	Gardening (12)	Gardened.
Traveling (9)	Took travel photographs.	Understanding (20)	Watched an educational channel on TV.
Drinking and partying (5)	Drank in a bar or night club.	Religious practices (11)	Read a book about religion or spirituality.
Game-playing (15)	Played cards.	Child-related (10)	Read the comics to a child.
Music (7)	Purchased a musical album.	Reading (6)	Read a book.
Internet dating (19)	Used an online dating web-side.	Fashion (3)	Read a fashion-related magazine.
Collecting (14)	Read a book about the things that I collect.	Watching TV (4)	Watched a television reality show.
Creativity (18)	Produced a work of art.	Pets (16)	Cared for a pet animal.
Lotteries (17)	Purchased a scratch ticket.		
Vehicles (13)	Ate or drank while driving.		

Table 3 The summary of correlations between personality and behavior at different levels of the hierarchical structure

Personality measure	Behavioral criteria						Cohen's <i>d</i>		
	(a) 131 Items		(b) 20 Components		(c) 2 Factors		b-a	c-b	c-a
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
(d) Narrow defined constructs									
IPIP-HEXACO (24 facets)	.10	.07	.12	.09	.16	.10	0.25	0.42	0.70
BFAS (10 aspects)	.09	.08	.11	.08	.15	.08	0.25	0.50	0.75
PVQ-R (19 values)	.09	.06	.11	.08	.16	.08	0.28	0.63	0.90
(e) Basic traits									
IPIP-HEXACO (6 traits)	.11	.08	.14	.10	.20	.10	0.33	0.60	0.99
BFAS (5 traits)	.10	.07	.12	.09	.17	.06	0.25	0.65	1.07
(f) Higher-order factors									
IPIP-HEXACO (2 metatraits)	.13	.09	.15	.12	.23	.16	0.19	0.57	0.77
BFAS (2 metatraits)	.10	.07	.13	.09	.17	.06	0.37	0.52	1.07
PVQ-R (4 values)	.11	.08	.14	.10	.21	.11	0.33	0.67	1.04
	Cohen's <i>d</i>								
	131 Items		20 Components		2 factors				
	Personality levels comparison								
	d-e	e-f	d-f	d-e	e-f	d-f	d-e	e-f	d-f
IPIP-HEXACO	−0.13	−0.23	−0.37	−0.21	−0.09	−0.28	−0.40	−0.22	−0.52
BFAS	−0.13	0.00	−0.13	−0.12	−0.11	−0.23	−0.28	0.00	−0.28
PVQ-R			−0.28			−0.33			−0.52
	Models of personality traits comparison								
(d) IPIP-HEXACO-BFAS	0.13		0.12		0.11				
(e) IPIP-HEXACO-BFAS	0.13		0.21		0.36				
(f) IPIP-HEXACO-BFAS	0.37		0.19		0.50				
	Traits-values comparison								
(d) IPIP-HEXACO-PVQ	0.15		0.12		0.00				
(d) BFAS-PVQ	0.00		0.00		−0.13				
(e) IPIP-HEXACO-PVQ ^a	0.28		0.33		0.44				
(e) BFAS-PVQ ^a	0.15		0.12		0.14				
(f) IPIP-HEXACO-PVQ	0.23		0.09		0.15				
(f) BFAS-PVQ	−0.13		−0.11		−0.45				

M – average correlation. *SD* – standard deviation of correlation coefficients. ^a At the level of basic constructs we compared five and six traits with 19 values.

facets of three different personality traits and two higher-order values. Other examples can be found in the appendices.

Personality Traits and Personal Values as Predictors of Self-Reported Frequency of Behavior

As can be seen in Table 3, the average correlations between personality traits and the frequency of behavior are similar to the average correlations between personal values and behavior at each level of hierarchy. Correlations with values are a little higher than correlations with the measure of the FFM and a little lower than correlations with the six-factor model of personality traits. However, according to Cohen's *d* test, all these effects should be considered small ($d < 0.5$).

Lists of the highest correlates of behavioral criteria at different levels of hierarchy are presented in the appendices. Some of them are dominated by measures of traits, especially components like Music (9 traits/10 highest correlates), Child-Related (10/10), Vehicles (10/10), Reading (9/10), Gardening (8/10), Lotteries (9/10), and Creativity (9/10), while in other components values appeared very frequently among their highest correlates. There were Drinking and Partying (6 values/10 highest correlates), Religious Practices (7/10), and Understanding (6/10).

Based on the results presented in Appendix 3, one can conclude that personality traits dominate among the correlates of the first higher-order behavioral factor (Active Leisure) and personal values dominate among the correlates of the second factor (Home Activities). The first factor consists of activities associated with satisfying personal

needs (e.g., Physical Activity, Traveling, Creativity). The activities of the second factor have more in common with functioning in society and sociocultural norms (e.g., Housekeeping, Religious Practices).

Additional analyses, OLS regressions presented in the Supplement, showed that both HEXACO traits and basic values contribute to each other in prediction of the frequency of everyday behaviors. When HEXACO basic traits or HEXACO facets were used as predictors in Blok 1, the explained variance significantly increased after adding 19 values in Blok 2. Similarly, when 19 values were used as predictors in Blok 1, the explained variance significantly increased after adding HEXACO basic traits or (especially) HEXACO facets in Blok 2.

The Comparison of Relations Between Traits, Values, and Behavior at Different Levels of Hierarchical Structure

We expected that more general measures of the frequency of behavior would be more highly correlated with more general personality constructs, while narrow behavioral measures would correlate more strongly with narrower personality constructs. This hypothesis was partially supported, because—as one can see in Table 3—correlations between personality and the frequency of behavior rose along with the level of behavior structure at each level of the hierarchies of traits and values. In some contradiction to our expectation, the results indicated that more general personality constructs (i.e., basic traits and metatraits) are more highly related with behaviors at all levels of their hierarchy (items, components, and higher-order factors). However, only at the level of the higher-order behavioral factors the differences were moderate ($d > 0.5$), suggesting that the advantage of broader personality constructs over narrower ones in prediction of broad categories of behavior is substantial. It is not substantial at the levels of behavioral items and components. This pattern was consistent for HEXACO and PVQ-R, but did not replicated for BFAS; metatraits based on BFAS scores were not better predictors of higher-order factors of behavior than basic traits and were only slightly better than aspects. The results of OLS regressions presented in the Supplement (Tables 5 and 6) lead to a similar conclusion. Comparison of the ratio of average R^2 per one significant predictor in a model indicates that HEXACO metatraits are better predictors of behavioral higher-order factors and components than HEXACO basic traits and facets. Also, four higher-order values explain more variance of behavioral higher-order values than 19 basic ones (when analyzing R^2 per one predictor). There is no formal way to assess whether the differences are significant; however, at least we can say that broad personality constructs are not

worse than narrow ones in terms of prediction of self-reported frequency of everyday behavior.

The content of Appendix 1 shows that personality metatraits can correlate higher than facets or aspects even with the frequency of behavioral acts. For instance, the highest correlate of the item “Made an entry on a personal web-page” is Beta/Dynamism measured by IPIP-HEXACO. Similarly, higher-order values can correlated higher than basic values with the frequency of some acts. For example, the item “Took travel photographs” correlated highest with Openness to Change.

The Comparison of Models of Personality Traits

As we expected, the six-factor model of personality traits correlated higher with behavioral criteria than the FFM (see Table 3). In most cases, the differences between mean correlations of HEXACO vs FFM measures with behavioral criteria were small, but at the level of higher-order factors of behavior, the differences between HEXACO and BFAS were moderate, according to Cohen’s d test. This indicates that broad measures of HEXACO are better predictors of higher-order factors of behavior than broad measures of FFM. Also, measures of HEXACO appeared more often than measures of the FFM among the highest correlates of the measures of the frequency of behavior (see Table 4).

Summary of Findings

The obtained results can be summarized as follow:

- 1) Self-reported frequency of everyday behaviors is related to various personality constructs. Even frequency of single behavioral acts correlates with different traits and values at a similar level, instead of reflecting only one personality disposition.
- 2) Narrow and broad personality constructs do not differ substantially as predictors of everyday behavior at the levels of acts and components, but at the level of higher-order behavioral factors, broad personality measures are better predictors than narrow ones (this is true in case of HEXACO metatraits and higher-order values measured by PVQ-R).
- 3) Personality traits and personal values are comparable as predictors of a wide range of everyday behaviors and significantly contribute to each other.
- 4) HEXACO model of personality traits might be a better predictor of everyday behavior than FFM, but the difference is only small at the levels of behavioral acts and components and moderate at the level of higher-order behavioral factors.

Table 4 The summary of the set of 10 highest personality correlates of behavioral criteria

Category	Chance	Items		Components		2 Factors	
		Number	Ratio	Number	Ratio	Number	Ratio
Inventory							
IPIP-HEXACO	32	103	3.22	103	3.22	10	0.31
BFAS	17	45	2.65	40	2.35	1	0.06
PVQ-R	23	52	2.26	57	2.48	9	0.39
Levels in the hierarchical structure							
Facets	24	67	2.79	70	2.92	6	0.25
Aspects	10	22	2.20	19	1.90	1	0.10
Basic traits	11	39	3.55	33	3.00	3	0.27
Metatraits	4	20	5.00	21	5.25	1	0.25
19 values	19	41	2.16	45	2.37	6	0.32
4 values	4	11	2.75	12	3.00	3	0.75

Chance – the number of measures from a given category. Number – the number of appearances on the lists of 10 highest correlates. Ratio – Number/Chance

Discussion

In the current study, we compared the relationship between the self-reported frequency of behavior and personality operationalized in different models at different levels of their structure. We used items from ORAIS representing a broad range of everyday behaviors related to various domains of life as a measure of the frequency of behaviors. As we expected, it turned out that the frequencies of many behavioral acts measured by the items were related to various traits and values at various levels of their hierarchical structure.

This finding is consistent with results from Paunonen et al.'s (2003) study showing that complex human behaviors depend on multiple traits. Similarly to Paunonen et al., we suggest that many personality measures—both broad and narrow—are needed to accurately predict everyday behaviors of social and cultural significance.

Some previous studies supported the hypothesis that specific behavioral criteria correlated more highly with personality facets than with basic traits (e.g., O'Connor and Paunonen 2007; Paunonen and Ashton 2001). Based on these results, we expected higher correlations with the frequency of behavioral acts in narrow personality constructs than in broader ones. Analyzing the 10 highest correlates for each behavioral criterion, we found that even acts sometimes had higher correlations with basic traits, metatraits, or higher-order values than with aspects, facets, or 19 values.

Ashton et al. (2014) highlighted that narrow personality traits did not necessarily outpredict basic traits with regard to any particular criterion. They suggested that narrow traits might be better predictors than broader personality constructs when there is some strong conceptual link between a given facet and a criterion variable. In this study we used a pool of

items measuring the frequency of everyday behaviors not a priori linked to any personality trait or value. The results indicate that some of them might be better predicted by broad personality constructs than by narrow ones. For instance, reading a book and purchasing a musical album correlated more highly with a basic trait (Openness) than with any facet.

Also, the comparison of average correlations between personality constructs and the frequency of behaviors indicated that broad personality measures are comparable as predictors of behavior to narrow personality variables. Similar results were obtained by Grucza and Goldberg (2007), who did not find meaningful differences between broad and narrow personality traits in their relationships with the frequency of aggregated behaviors.

What is worth noting is that the highest level of personality hierarchy included in Grucza and Goldberg's (2007) study was the level of basic traits. In our study, we also included personality metatraits, and it turned out that even constructs as broad as metatraits were sometimes more highly correlated with specific behavioral criteria than narrow personality variables. For instance, behaviors such as drinking in a bar or night club might be explained by the combination of narrow personality traits and personal values (e.g., Hedonism, Stimulation, Social Boldness etc.; see Section “[Behavioral Criteria Correlate with Multiple Measures of Personality](#)”), but it turned out that the highest correlate of the frequency of this act was the Beta/Plasticity (or Dynamism) metatrait. We interpret this finding as an evidence that broad personality constructs (metatraits and higher-order values), which express or at least describe the shared variance of narrower personality constructs, on one hand, and some fundamental dimensions or forces of personality, on the other (cf. DeYoung 2006; DeYoung et al. 2002; Digman 1997; Saucier et al. 2014;

Strus and Cieciuch 2017c), may be useful in explaining specific behaviors and not only general tendencies of engagement and restraint of behavior (Hirsh et al. 2009)."

Our expectation that broad personality construct would be better predictors of broad categories of behavior than narrow personality variables was confirmed in case of HEXACO metatraits (vs facets) and higher-order values (vs 19 values). The differences between mean correlations with higher-order behavioral factors were moderate according to Cohen's *d* coefficients. However, the broad personality scales were statistically more likely to correlate higher with criteria because they encompassed more items. For this reason, this finding should be interpreted with caution.

It is also worth noting that all the mean correlations presented in Table 3 are small. They ranged from .09 at the level of behavioral items to .23 at the level of higher-order behavioral factors. The rather small size of correlations is the effect of averaging correlation coefficients between each personality variable and each behavioral criterion. The chances of receiving a higher size of mean correlations was especially small at the level of behavioral acts, and narrow personality constructs, where specific traits or values were correlated with all behavioral acts and only between some of them were conceptual links. Higher average correlations for broader behavioral criteria is an effect of aggregation (Digman 1990). For this reason, we based our interpretation not only on data presented in Table 3, but also on sets of 10 highest correlates for behavioral criteria (the summary of which is presented in Table 4).

When analyzing the content of tables in appendices, presenting the 10 highest correlates for 20 selected behavioral items, 20 components, and two higher-order factors, one can see that the correlation coefficients are comparable to the ones typically obtained in similar studies. Correlation coefficients between personality scales and behavioral outcomes seldom exceed .30 (Ashton et al. 2014; O'Connor and Paunonen 2007; Paunonen et al. 2003). In this study, the highest correlation coefficient between the personality variable and behavioral item was .38 (between Openness measured by IPIP-HEXACO and item "Read a book"), which should be considered relatively large, taking into account the fact that the behavioral criterion was only single-item rating. When the behavioral criteria were aggregated into components, the correlation coefficients increased. Some of them were even higher than .50 (the highest correlation was .54 between Openness measured by IPIP-HEXACO and Reading). Further aggregation of the behavioral criteria did not result in further increase of correlations—the highest correlation coefficient for higher-order behavioral factor was .45 between Active Leisure (Factor 1) and Beta/Dynamism metatrait measured by IPIP-HEXACO.

Among all personality inventories used in this study, the highest correlations with the frequency of behavior were

achieved by the HEXACO model and values at all levels of measurement, but especially at the level of higher-order behavioral factors. This was consistent with our expectations based on previous studies showing an advantage of HEXACO over FFM (Ashton and Lee 2018; Lee and Ashton 2013). The majority of differences between mean correlations were small, according to Cohen's *d* test, but the results presented in Table 4 and in Appendix 3 provide additional support for our hypothesis: Almost every variable correlating the highest with higher-order behavioral factors was measured by IPIP-HEXACO or PVQ-R. This result suggests an advantage of the six-factor model of personality traits over the FFM in terms of relationship with the self-reported frequency of a wide pool of behaviors.

Based on the results of this study one can make an attempt to interpret the two higher-order factors found in the structure of behavior based on their correlations with personality measures. We expected that grouping behaviors into broad categories could be driven by personality tendencies. Because there were two higher-order factors of behavioral acts, we expected that they should correlate with the two personality metatraits, as well as with the higher-order values.

We found that the first behavioral factor (Active Leisure) is related to the Beta personality metatrait and to values from the half of the motivational value circle expressing a personal focus (Openness to Change and Self-Enhancement values). It is worth paying attention to the two highest correlates of the first behavioral factor. The first one is the Beta metatrait measured by IPIP-HEXACO and the second is Fearfulness. This result shows that for performing behaviors grouped in this factor, a lack of fearfulness is very important, besides Openness to Experience and Extraversion.

The second behavioral factor (Home Activities) is related to values from the other half of the motivational value continuum—expressing social focus (Self-Transcendence and Conservation values). These values correlate with the Alpha metatrait (Vecchione et al. 2011), so traits constituting this metatrait were expected to show up on the list of the highest correlates of the second behavioral factor. Nevertheless, other traits took their places, namely Emotionality and its facet Sentimentality, as well as Aesthetic Appreciation. However, this finding is consistent with the results of Hirsh et al. (2009), which found Stability related with the restraint of a variety of behaviors associated with disruptive impulses (e.g., drug use, reactive aggression—behaviors that have a poor representation in the ORAIS item pool), rather than with engagement in a variety of culturally positively valued behaviors. Moreover, our finding should not be surprising if looking closer at the content of the second behavioral factor. Sentimentality and Emotionality may correlate with this factor highly because of including the Child-Related and Fashion components. The correlation with Aesthetic Appreciation is probably caused by including the Reading component. Correlations

between these traits and components are presented in the [Appendix 2](#).

The content of the two higher-order behavioral factors is not homogeneous because behaviors included in the inventory used in this study were very diversified. This fact, together with poor representation of maladaptive and/or antisocial behaviors in the ORAIS item pool, may be the reason why these two factors are not exact reflections of the two personality metatraits. The other possible reason is that the two behavioral factors we obtained do not reflect Alpha and Beta precisely, but they could be a rotation variants of Alpha and Beta that can be interpreted within the Circumplex of Personality Metatraits model (Strus and Cieciuch 2017c; Strus et al. 2014).

However, the patterns of correlations obtained in our study between personality constructs and two broad behavioral factors suggest that on a high level of hierarchy, behaviors may be grouped into two broad categories, which are not unambiguously saturated by evaluation and which are driven by different personality dispositions. The first category is related mainly with disposition belonging to the trait layer of personality, while the second is connected with constructs essentially from the characteristic adaptations layer of personality (McAdams and Pals 2006). Nevertheless, our results suggest that combining traits and personal values gives a greater range of interpretation for explaining behavior.

We concluded that the accuracy of predicting complex everyday behaviors by personality might be increased when (a) behavioral criteria are aggregated across occasions and situations, (b) both personality traits and personal values are used as predictors, and (c) predictors represent various levels of their hierarchy. All these suggestions can be included in one model. An attempt was made by Bogg et al. (2008) who investigated hierarchical relations among traits and values in the prediction of health-related outcomes.

However, this study was not free of limitations. All measures used in this study were based on self-reports. Self-report is still a popular way of measuring personality and when used as a method for measuring behavior enables capturing many different behavioral acts at the same time. However, retrospective self-report is criticized because of its limitations related to recall bias and striving for social approval (Baumeister et al. 2007). In further studies on comparison between personality traits and values in terms of their relations with behavior, other measurement methods should be used to examine whether our findings are not method-specific.

Another limitation is that this study is based on correlational analyses only. In the future research more advanced statistical approaches should be implemented, for instance quantile regression. Van Zyl and de Bruin (2018) have recently shown that OLS regression can

underestimate the relationship between personality and behaviors and quantile regression overcomes this limitation. In this study, the correlational analysis was relevant because of the large number of both dependent and independent variables.

We compared correlations between the frequency of behavior and personality scales differing in the number of items, which could affect the results. Scales measuring 19 basic values were very short (three items long) in comparison to scales measuring HEXACO traits (10–40 items long). For this reason, their Cronbach's alphas were lower. We did not correct the correlation coefficients for alphas in order to not advantage shorter scales over longer scales. However, the lack of correction for attenuation might be considered as a limitation of the study.

It is worth noticing that the pool of behaviors we used was quite comprehensive, but it was not a universal pool of everyday behaviors. Because it was taken from a questionnaire measuring avocational interests, there were no items measuring work-, school-, or maintenance-related behaviors. Behaviors from these groups should be included in further studies.

One possible way to overcome this limitation together with the limitation of retrospective self-report may be the use of the experience sampling method (ESM) for measuring current behavior and states of personality. ESM reduces recall bias, enables measuring behavior via open-ended question (which gives no limitation of the range of behavioral acts measured), and also gives a new perspective on studying the relation between personality constructs and behavior because it examines the situation as it occurs. ESM is commonly used for studying states of personality traits (Fleeson and Gallagher 2009), and recently, it was also applied for studying states of personal values (Skimina et al. 2018). Another promising possibility is implementation of electronically activated recorder (EAR; Mehl 2017).

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Compliance with Ethical Standards

Declaration of Conflicting Interests On behalf of all authors, the corresponding author states that there is no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

Appendix 1

Table 5 The highest correlates of the 20 selected behavioral items

Inventory	Level	Full name	<i>r</i>
Item 75: “Made an entry on a personal web-page” (Component 1)			
IPIP-HEXACO	Metatraits	Beta	.35
IPIP-HEXACO	Facets	Creativity	.33
IPIP-HEXACO	Basic traits	Openness	.31
BFAS	Metatraits	Beta	.30
PVQ-R	Four values	Openness to change	.29
IPIP-HEXACO	Basic traits	Extraversion	.28
PVQ-R	19 values	Stimulation	.28
BFAS	Aspects	Intellect	.28
IPIP-HEXACO	Facets	Unconventionality	.28
BFAS	Basic traits	Extraversion	.27
Item 196: “Participated in an exercise program” (Component 2)			
IPIP-HEXACO	Facets	Fearfulness	−.37
IPIP-HEXACO	Metatraits	Beta	.32
IPIP-HEXACO	Basic traits	Emotionality	−.30
IPIP-HEXACO	Facets	Unconventionality	.25
PVQ-R	19 values	Security-personal	−.24
IPIP-HEXACO	Facets	Liveliness	.24
IPIP-HEXACO	Facets	Modesty	−.24
PVQ-R	19 values	Stimulation	.23
BFAS	Aspects	Enthusiasm	.23
PVQ-R	19 values	Conformity-interpersonal	−.21
Item 94: “Read a fashion-related magazine” (Component 3)			
IPIP-HEXACO	Facets	Sentimentality	.37
IPIP-HEXACO	Basic traits	Emotionality	.32
BFAS	Aspects	Compassion	.23
IPIP-HEXACO	Facets	Dependence	.23
PVQ-R	Four values	Self-Transcendence	.22
PVQ-R	19 values	Security-personal	.21
PVQ-R	19 values	Benevolence-caring	.21
BFAS	Aspects	Enthusiasm	.20
IPIP-HEXACO	Facets	Sociability	.20
IPIP-HEXACO	Facets	Fearfulness	.20
Item 155: “Watched a television reality show” (Component 4)			
PVQ-R	19 values	Hedonism	.23
PVQ-R	19 values	Power-resources	.20
PVQ-R	Four values	Self-enhancement	.17
PVQ-R	19 values	Achievement	.16
IPIP-HEXACO	Facets	Inquisitiveness	−.15
IPIP-HEXACO	Basic traits	Openness	−.15
IPIP-HEXACO	Facets	Greed-Avoidance	−.14
PVQ-R	19 values	Stimulation	.13
IPIP-HEXACO	Facets	Aesthetic appreciation	−.13
BFAS	Aspects	Openness	−.13
Item 92: “Drank in a bar or night club” (Component 5)			
IPIP-HEXACO	Metatraits	Beta	.32

Table 5 (continued)

Inventory	Level	Full name	<i>r</i>
PVQ-R	19 values	Hedonism	.31
IPIP-HEXACO	Facets	Fearfulness	−.29
PVQ-R	Four values	Openness to change	.28
IPIP-HEXACO	Basic traits	Honesty-humility	−.27
IPIP-HEXACO	Facets	Unconventionality	.27
PVQ-R	19 values	Stimulation	.26
IPIP-HEXACO	Facets	Modesty	−.26
IPIP-HEXACO	Facets	Social boldness	.25
PVQ-R	Four values	Conservation	−.25
Item 113: “Read a book” (Component 6)			
IPIP-HEXACO	Basic traits	Openness	.38
IPIP-HEXACO	Facets	Inquisitiveness	.34
BFAS	Basic traits	Openness	.34
IPIP-HEXACO	Facets	Aesthetic appreciation	.33
BFAS	Aspects	Intellect	.29
BFAS	Metatraits	Beta	.28
PVQ-R	19 values	Self-direction-thought	.27
BFAS	Aspects	Openness	.25
IPIP-HEXACO	Facets	Creativity	.23
IPIP-HEXACO	Facets	Unconventionality	.22
Item 130: “Purchased a musical album” (Component 7)			
IPIP-HEXACO	Basic traits	Openness	.36
IPIP-HEXACO	Facets	Aesthetic appreciation	.30
IPIP-HEXACO	Facets	Creativity	.26
IPIP-HEXACO	Facets	Inquisitiveness	.25
IPIP-HEXACO	Facets	Unconventionality	.24
IPIP-HEXACO	Metatraits	Beta	.24
BFAS	Basic traits	Openness	.21
PVQ-R	19 values	Self-direction-thought	.19
BFAS	Metatraits	Beta	.19
IPIP-HEXACO	Facets	Modesty	−.18
Item 70: “Cleaned the house” (Component 8)			
IPIP-HEXACO	Facets	Sentimentality	.31
BFAS	Aspects	Orderliness	.30
PVQ-R	Four values	Self-transcendence	.29
IPIP-HEXACO	Facets	Organization	.28
PVQ-R	19 values	Benevolence-caring	.26
BFAS	Aspects	Compassion	.25
IPIP-HEXACO	Basic traits	Emotionality	.25
BFAS	Basic traits	Conscientiousness	.24
PVQ-R	19 values	Benevolence-dependability	.24
PVQ-R	19 values	Universalism-tolerance	.24
Item 73: “Took travel photographs” (Component 9)			
PVQ-R	Four values	Openness to change	.26
IPIP-HEXACO	Basic traits	Openness	.24
PVQ-R	19 values	Self-direction-thought	.24
BFAS	Metatraits	Beta	.21
PVQ-R	19 values	Stimulation	.21
IPIP-HEXACO	Metatraits	Beta	.21

Table 5 (continued)

Inventory	Level	Full name	<i>r</i>
IPIP-HEXACO	Facets	Creativity	.20
IPIP-HEXACO	Facets	Aesthetic appreciation	.20
BFAS	Basic traits	Openness	.20
IPIP-HEXACO	Facets	Liveliness	.19
Item 175: “Read the comics to a child” (Component 10)			
IPIP-HEXACO	Facets	Sentimentality	.27
IPIP-HEXACO	Metatraits	Alpha	.22
BFAS	Basic traits	Conscientiousness	.20
BFAS	Basic traits	Agreeableness	.19
BFAS	Metatraits	Alpha	.19
IPIP-HEXACO	Basic traits	Conscientiousness	.18
IPIP-HEXACO	Facets	Organization	.18
BFAS	Aspects	Orderliness	.18
IPIP-HEXACO	Facets	Diligence	.18
IPIP-HEXACO	Basic traits	Emotionality	.17
Item 193: “Read a book about religion or spirituality” (Component 11)			
PVQ-R	19 values	Tradition	.33
IPIP-HEXACO	Facets	Aesthetic appreciation	.31
IPIP-HEXACO	Facets	Forgiveness	.25
PVQ-R	Four values	Conservation	.25
BFAS	Aspects	Openness	.25
IPIP-HEXACO	Basic traits	Openness	.23
PVQ-R	19 values	Power-resources	-.22
IPIP-HEXACO	Facets	Inquisitiveness	.21
IPIP-HEXACO	Facets	Fairness	.21
BFAS	Basic traits	Openness	.21
Item 42: “Gardened” (Component 12)			
PVQ-R	19 values	Universalism-nature	.24
IPIP-HEXACO	Facets	Unconventionality	-.22
IPIP-HEXACO	Facets	Modesty	.21
IPIP-HEXACO	Metatraits	Alpha	.20
IPIP-HEXACO	Basic traits	Honesty-humility	.20
BFAS	Aspects	Orderliness	.19
IPIP-HEXACO	Facets	Expressiveness	-.18
IPIP-HEXACO	Facets	Organization	.17
PVQ-R	Four values	Conservation	.16
IPIP-HEXACO	Basic traits	Openness	.16
Item 204: “Ate or drank while driving” (Component 13)			
BFAS	Aspects	Openness	-.24
IPIP-HEXACO	Basic traits	Emotionality	-.20
IPIP-HEXACO	Basic traits	Openness	-.18
IPIP-HEXACO	Facets	Dependence	-.16
IPIP-HEXACO	Facets	Anxiety	-.16
BFAS	Basic traits	Neuroticism	-.16
IPIP-HEXACO	Facets	Sentimentality	-.15
IPIP-HEXACO	Facets	Aesthetic appreciation	-.15
IPIP-HEXACO	Facets	Fearfulness	-.15
BFAS	Aspects	Withdrawal	-.14
Item 136: “Read a book about the things that I collect” (Component 14)			

Table 5 (continued)

Inventory	Level	Full name	<i>r</i>
BFAS	Basic traits	Agreeableness	-.12
BFAS	Aspects	Politeness	-.11
BFAS	Aspects	Compassion	-.11
IPIP-HEXACO	Basic traits	Openness	.10
PVQ-R	19 values	Power-dominance	.10
PVQ-R	19 values	Stimulation	.10
PVQ-R	Four values	Openness to change	.10
IPIP-HEXACO	Facets	Perfectionism	.09
IPIP-HEXACO	Facets	Patience	.09
PVQ-R	19 values	Self-direction-thought	.09
Item 86: “Played cards” (Component 15)			
IPIP-HEXACO	Facets	Organization	-.23
BFAS	Aspects	Orderliness	-.22
IPIP-HEXACO	Basic traits	Conscientiousness	-.22
IPIP-HEXACO	Facets	Fearfulness	-.21
BFAS	Basic traits	Conscientiousness	-.21
IPIP-HEXACO	Metatraits	Beta	.20
PVQ-R	19 values	Conformity-rules	-.20
PVQ-R	19 values	Universalism-nature	-.20
IPIP-HEXACO	Metatraits	Alpha	-.20
IPIP-HEXACO	Basic traits	Emotionality	-.20
Item 84: “Cared for a pet animal” (Component 16)			
IPIP-HEXACO	Facets	Prudence	-.09
IPIP-HEXACO	Facets	Sentimentality	.07
IPIP-HEXACO	Facets	Expressiveness	.07
PVQ-R	19 values	Power-resources	.06
PVQ-R	19 values	Tradition	-.06
PVQ-R	19 values	Stimulation	.06
BFAS	Aspects	Withdrawal	.06
PVQ-R	19 values	Humility	-.06
BFAS	Basic traits	Conscientiousness	-.06
BFAS	Aspects	Industriousness	-.05
Item 102: “Purchased a scratch ticket” (Component 17)			
BFAS	Aspects	Openness	-.13
BFAS	Metatraits	Beta	-.10
BFAS	Basic traits	Openness	-.09
IPIP-HEXACO	Facets	Aesthetic appreciation	-.09
IPIP-HEXACO	Facets	Expressiveness	-.08
BFAS	Basic traits	Extraversion	-.08
IPIP-HEXACO	Basic traits	Openness	-.08
PVQ-R	19 values	Power-resources	.07
IPIP-HEXACO	Basic traits	Extraversion	-.07
BFAS	Aspects	Enthusiasm	-.07
Item 50: “Produced a work of art” (Component 18)			
BFAS	Aspects	Openness	.32
BFAS	Basic traits	Openness	.30
IPIP-HEXACO	Basic traits	Openness	.29
IPIP-HEXACO	Facets	Aesthetic appreciation	.25
IPIP-HEXACO	Facets	Creativity	.24

Table 5 (continued)

Inventory	Level	Full name	<i>r</i>
BFAS	Metatraits	Beta	.23
IPIP-HEXACO	Facets	Unconventionality	.23
PVQ-R	19 values	Self-direction-thought	.19
IPIP-HEXACO	Facets	Modesty	-.18
IPIP-HEXACO	Metatraits	Beta	.16
Item 172: “Used an online dating web-side” (Component 19)			
IPIP-HEXACO	Facets	Prudence	-.20
IPIP-HEXACO	Facets	Fairness	-.18
PVQ-R	19 values	Security-societal	-.17
IPIP-HEXACO	Basic traits	Honesty-humility	-.17
IPIP-HEXACO	Metatraits	Alpha	-.17
PVQ-R	19 values	Benevolence-caring	-.16
BFAS	Metatraits	Alpha	-.15
IPIP-HEXACO	Facets	Expressiveness	.15
IPIP-HEXACO	Facets	Unconventionality	.15
IPIP-HEXACO	Facets	Greed-avoidance	-.14
Item 30: “Watched an educational channel on TV” (Component 20)			
PVQ-R	19 values	Conformity-rules	.17
PVQ-R	Four values	Conservation	.17
PVQ-R	19 values	Universalism-nature	.16
PVQ-R	19 values	Tradition	.16
IPIP-HEXACO	Metatraits	Alpha	.14
PVQ-R	19 values	Security-societal	.14
IPIP-HEXACO	Facets	Gentleness	.13
PVQ-R	19 values	Self-transcendence	.13
PVQ-R	19 values	Self-direction-thought	.13
IPIP-HEXACO	Facets	Inquisitiveness	.12

Appendix 2**Table 6** The highest correlates of the 20 behavioral components

Inventory	Level	Full name	<i>r</i>
Component 1: Using the internet			
IPIP-HEXACO	Metatraits	Beta	.45
IPIP-HEXACO	Facets	Unconventionality	.42
IPIP-HEXACO	Facets	Creativity	.41
IPIP-HEXACO	Basic traits	Openness	.41
PVQ-R	Four values	Openness to change	.38
IPIP-HEXACO	Facets	Fearfulness	-.36
PVQ-R	19 values	Stimulation	.34
PVQ-R	19 values	Hedonism	.34
BFAS	Metatraits	Beta	.34
BFAS	Aspects	Intellect	.33
Component 2: Physical activity			
IPIP-HEXACO	Facets	Fearfulness	-.43
IPIP-HEXACO	Metatraits	Beta	.40
PVQ-R	19 values	Stimulation	.34
IPIP-HEXACO	Basic traits	Emotionality	-.33
IPIP-HEXACO	Facets	Liveliness	.32
PVQ-R	19 values	Security-personal	-.30
IPIP-HEXACO	Facets	Social boldness	.29
IPIP-HEXACO	Basic traits	Extraversion	.29
PVQ-R	Four values	Openness to change	.28
IPIP-HEXACO	Facets	Modesty	-.28
Component 3: Fashion			
IPIP-HEXACO	Facets	Sentimentality	.32
IPIP-HEXACO	Basic traits	Emotionality	.31
IPIP-HEXACO	Facets	Dependence	.29
BFAS	Aspects	Enthusiasm	.24
PVQ-R	19 values	Hedonism	.24
PVQ-R	Four values	Openness to change	.24
PVQ-R	19 values	Stimulation	.23
PVQ-R	19 values	Face	.22
IPIP-HEXACO	Facets	Expressiveness	.22
BFAS	Aspects	Volatility	.22
Component 4: Watching TV			
PVQ-R	19 values	Hedonism	.18
PVQ-R	19 values	Power-Resources	.17
IPIP-HEXACO	Basic traits	Openness	-.17
PVQ-R	19 values	Security-Personal	.14
IPIP-HEXACO	Facets	Aesthetic appreciation	-.14
IPIP-HEXACO	Facets	Unconventionality	-.13
IPIP-HEXACO	Facets	Inquisitiveness	-.13
PVQ-R	19 values	Achievement	.13
BFAS	Basic traits	Openness	-.13
BFAS	Aspects	Openness	-.11
Component 5: Drinking & partying			
PVQ-R	19 values	Hedonism	.32

Table 6 (continued)

Inventory	Level	Full name	<i>r</i>
IPIP-HEXACO	Metatraits	Beta	.30
IPIP-HEXACO	Basic traits	Honesty-humility	−.30
IPIP-HEXACO	Facets	Fearfulness	−.29
IPIP-HEXACO	Metatraits	Alpha	−.29
PVQ-R	Four values	Self-enhancement	.28
PVQ-R	19 values	Power-resources	.27
PVQ-R	Four values	Conservation	−.27
PVQ-R	Four values	Openness to change	.27
PVQ-R	19 values	Conformity-interpersonal	−.27
Component 6: Reading			
IPIP-HEXACO	Basic traits	Openness	.54
IPIP-HEXACO	Facets	Aesthetic appreciation	.48
BFAS	Basic traits	Openness	.47
IPIP-HEXACO	Facets	Inquisitiveness	.44
BFAS	Aspects	Openness	.40
PVQ-R	19 values	Self-direction-thought	.40
BFAS	Metatraits	Beta	.39
BFAS	Aspects	Intellect	.36
IPIP-HEXACO	Facets	Unconventionality	.35
IPIP-HEXACO	Facets	Creativity	.30
Component 7: Music			
IPIP-HEXACO	Basic traits	Openness	.53
IPIP-HEXACO	Facets	Aesthetic appreciation	.49
IPIP-HEXACO	Facets	Unconventionality	.39
BFAS	Basic traits	Openness	.37
BFAS	Aspects	Openness	.35
IPIP-HEXACO	Facets	Creativity	.35
IPIP-HEXACO	Facets	Inquisitiveness	.33
BFAS	Metatraits	Beta	.31
IPIP-HEXACO	Metatraits	Beta	.28
PVQ-R	19 values	Self-direction-thought	.27
Component 8: Housekeeping			
IPIP-HEXACO	Facets	Sentimentality	.46
PVQ-R	Four values	Self-transcendence	.39
PVQ-R	19 values	Universalism-nature	.37
IPIP-HEXACO	Facets	Aesthetic appreciation	.36
BFAS	Aspects	Orderliness	.35
IPIP-HEXACO	Basic traits	Emotionality	.35
IPIP-HEXACO	Facets	Organization	.34
IPIP-HEXACO	Metatraits	Alpha	.33
BFAS	Aspects	Compassion	.33
BFAS	Basic traits	Agreeableness	.32
Component 9: Traveling			
IPIP-HEXACO	Basic traits	Openness	.38
IPIP-HEXACO	Metatraits	Beta	.32
IPIP-HEXACO	Facets	Aesthetic appreciation	.32
BFAS	Basic traits	Openness	.29
PVQ-R	19 values	Self-direction-thought	.29
BFAS	Metatraits	Beta	.28

Table 6 (continued)

Inventory	Level	Full name	<i>r</i>
PVQ-R	Four values	Openness to change	.28
IPIP-HEXACO	Facets	Unconventionality	.28
IPIP-HEXACO	Facets	Creativity	.27
BFAS	Aspects	Intellect	.27
Component 10: Child-related			
IPIP-HEXACO	Facets	Sentimentality	.28
IPIP-HEXACO	Metatraits	Alpha	.24
BFAS	Basic traits	Agreeableness	.22
IPIP-HEXACO	Facets	Forgiveness	.22
BFAS	Aspects	Compassion	.20
BFAS	Metatraits	Alpha	.20
IPIP-HEXACO	Facets	Diligence	.20
IPIP-HEXACO	Facets	Flexibility	.19
IPIP-HEXACO	Basic traits	Agreeableness	.19
BFAS	Basic traits	Conscientiousness	.18
Component 11: Religious practices			
PVQ-R	19 values	Tradition	.48
PVQ-R	Four values	Conservation	.39
IPIP-HEXACO	Facets	Forgiveness	.33
IPIP-HEXACO	Facets	Fairness	.30
PVQ-R	19 values	Security-societal	.30
PVQ-R	19 values	Universalism-societal concern	.28
PVQ-R	19 values	Conformity-rules	.27
PVQ-R	19 values	Power-resources	−.26
PVQ-R	19 values	Conformity-interpersonal	.26
IPIP-HEXACO	Metatraits	Alpha	.26
Component 12: Gardening			
PVQ-R	19 values	Universalism-nature	.30
IPIP-HEXACO	Metatraits	Alpha	.29
IPIP-HEXACO	Facets	Organization	.28
IPIP-HEXACO	Facets	Unconventionality	−.26
BFAS	Aspects	Orderliness	.26
IPIP-HEXACO	Basic traits	Conscientiousness	.25
IPIP-HEXACO	Facets	Modesty	.25
IPIP-HEXACO	Facets	Diligence	.25
BFAS	Basic traits	Conscientiousness	.24
PVQ-R	Four values	Conservation	.23
Component 13: Vehicles			
IPIP-HEXACO	Basic traits	Emotionality	−.27
BFAS	Aspects	Openness	−.24
BFAS	Basic traits	Neuroticism	−.23
IPIP-HEXACO	Facets	Fearfulness	−.22
IPIP-HEXACO	Facets	Anxiety	−.21
BFAS	Aspects	Withdrawal	−.21
BFAS	Aspects	Volatility	−.20
IPIP-HEXACO	Facets	Dependence	−.20
IPIP-HEXACO	Facets	Sentimentality	−.19
IPIP-HEXACO	Facets	Aesthetic appreciation	−.19
Component 14: Collecting			

Table 6 (continued)

Inventory	Level	Full name	<i>r</i>
BFAS	Aspects	Politeness	−.16
PVQ-R	19 values	Stimulation	.15
IPIP-HEXACO	Basic traits	Openness	.14
IPIP-HEXACO	Facets	Unconventionality	.14
BFAS	Basic traits	Agreeableness	−.13
PVQ-R	Four values	Openness to change	.13
IPIP-HEXACO	Facets	Fearfulness	−.12
PVQ-R	19 values	Power-dominance	.12
IPIP-HEXACO	Facets	Creativity	.12
IPIP-HEXACO	Metatraits	Beta	.12
Component 15: Game-playing			
IPIP-HEXACO	Metatraits	Beta	.28
IPIP-HEXACO	Facets	Fearfulness	−.25
IPIP-HEXACO	Basic traits	Emotionality	−.24
PVQ-R	19 values	Security-personal	−.23
BFAS	Aspects	Orderliness	−.23
PVQ-R	19 values	Conformity-rules	−.21
IPIP-HEXACO	Facets	Sentimentality	−.20
IPIP-HEXACO	Facets	Organization	−.20
IPIP-HEXACO	Facets	Creativity	.20
IPIP-HEXACO	Facets	Modesty	−.20
Component 16: Pets			
PVQ-R	19 values	Humility	−.09
IPIP-HEXACO	Facets	Expressiveness	.09
PVQ-R	19 values	Benevolence-caring	.08
IPIP-HEXACO	Facets	Sentimentality	.08
PVQ-R	19 values	Face	.08
IPIP-HEXACO	Facets	Patience	−.08
PVQ-R	19 values	Power-resources	.08
IPIP-HEXACO	Facets	Prudence	.08
PVQ-R	19 values	Stimulation	−.08
PVQ-R	19 values	Hedonism	−.08
Component 17: Lotteries			
BFAS	Aspects	Openness	−.21
IPIP-HEXACO	Basic traits	Emotionality	−.18
IPIP-HEXACO	Facets	Aesthetic appreciation	−.17
IPIP-HEXACO	Facets	Sentimentality	−.16
BFAS	Basic traits	Openness	−.14
IPIP-HEXACO	Facets	Anxiety	−.14
IPIP-HEXACO	Facets	Fearfulness	−.14
PVQ-R	19 values	Universalism-societal concern	−.13
IPIP-HEXACO	Facets	Fairness	−.13
BFAS	Basic traits	Agreeableness	−.12
Component 18: Creativity			
IPIP-HEXACO	Basic traits	Openness	.40
BFAS	Aspects	Openness	.37
IPIP-HEXACO	Facets	Aesthetic appreciation	.36
BFAS	Basic traits	Openness	.35
BFAS	Metatraits	Beta	.31

Table 6 (continued)

Inventory	Level	Full name	<i>r</i>
IPIP-HEXACO	Facets	Creativity	.30
IPIP-HEXACO	Facets	Unconventionality	.29
PVQ-R	19 values	Self-direction-thought	.24
IPIP-HEXACO	Metatraits	Beta	.21
IPIP-HEXACO	Facet	Inquisitiveness	.20
Component 19: Internet dating			
IPIP-HEXACO	Facets	Prudence	−.29
IPIP-HEXACO	Basic traits	Honesty-humility	−.24
IPIP-HEXACO	Metatraits	Alpha	−.24
PVQ-R	19 values	Hedonism	.24
IPIP-HEXACO	Facets	Expressiveness	.24
IPIP-HEXACO	Facets	Unconventionality	.23
PVQ-R	19 values	Security-societal	−.22
BFAS	Basic traits	Conscientiousness	−.22
IPIP-HEXACO	Facets	Greed-avoidance	−.22
PVQ-R	19 values	Stimulation	.22
Component 20: Understanding			
PVQ-R	19 values	Universalism-nature	.21
PVQ-R	Four values	Conservation	.20
IPIP-HEXACO	Facets	Aesthetic appreciation	.20
PVQ-R	19 values	Conformity-rules	.20
PVQ-R	19 values	Tradition	.18
PVQ-R	19 values	Security-societal	.17
IPIP-HEXACO	Facets	Inquisitiveness	.17
BFAS	Basic traits	Openness	.16
PVQ-R	19 values	Self-direction-thought	.15
IPIP-HEXACO	Metatraits	Alpha	.15

Appendix 3

Table 7 The highest correlates of the two higher-order factors of behavioral acts

Inventory	Level	Full name	Pearson's <i>r</i>
Factor 1 (Active leisure)			
IPIP-HEXACO	Metatraits	Beta	.45
IPIP-HEXACO	Facets	Fearfulness	−.39
IPIP-HEXACO	Facets	Unconventionality	.39
PVQ-R	19 values	Stimulation	.37
IPIP-HEXACO	Basic traits	Openness	.36
IPIP-HEXACO	Facets	Creativity	.36
PVQ-R	Four values	Openness to change	.34
IPIP-HEXACO	Facets	Modesty	−.33
PVQ-R	19 values	Hedonism	.31
IPIP-HEXACO	Basic traits	Honesty-humility	−.30
Factor 2 (Home activities)			
IPIP-HEXACO	Facets	Sentimentality	.35
PVQ-R	19 values	Universalism-nature	.31
IPIP-HEXACO	Facets	Aesthetic appreciation	.30
PVQ-R	Four values	Self-Transcendence	.29
PVQ-R	Four values	Conservation	.28
IPIP-HEXACO	Basic traits	Emotionality	.26
PVQ-R	19 values	Tradition	.26
BFAS	Aspects	Compassion	.25
PVQ-R	19 values	Conformity-rules	.24
PVQ-R	19 values	Security-personal	.24

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