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Taxonomy and structure of Persian personality-descriptive trait terms

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We described the development of a taxonomy of Persian personality-descriptive terms in two studies. In Study 1, judges scanned Persian dictionaries and several Persian novels for person-descriptive terms. The resulting set of person-descriptive terms was classified into different categories of description, including the category of dispositional trait-descriptive adjectives. Of the 544 most familiar traits, 126 traits were selected to collect self-ratings. In Study 2, self-ratings were provided by 2400 students. Ratings were factor analysed (Principal Components Analysis) followed by Varimax rotation. Factor structures with two to six factors were discussed. The two-factor structure and the three-factor structure confirm the Big Two and the Big Three, respectively. Of the structures with five and six factors, the five-factor structure appears to be the more appropriate choice, with the factors labelled Morality, Positive versus Negative Emotionality, Achievement, Thoughtfulness and Affection. Gender differences were measured on both the five-factor structure and the six-factor structure. The discussion section emphasised both cross-cultural commonalities and cultural deviations in reference to the Big Five.

Keywords: trait taxonomy; personality structure; cross-cultural; gender differences.

The psycho-lexical approach to personality has stimulated a vast number of publications (see, e.g. Ashton et al., 2004; De Raad, 2000; Saucier, Hampson, & Goldberg, 2000). The approach follows the rationale that “All significant individual differences are embodied in language” (De Raad, 2000, p. 16). Goldberg (1981, p. 141–142) referred to this rationale as the lexical hypothesis. Linguistic expressions, such as *egoistical*, *aggressive* or *shy*, that have proven their use often by many years of testing for their capacity to represent facts of experience and to communicate on those facts, make a good chance to end up in the lexical storehouse of a language. The more often one observes a trait or disposition in peoples behaviours, the bigger the chance that such a trait gets a name and becomes a communication vehicle.

Especially since Norman (1963) and Goldberg (1981) emphasised the importance of the Big Five model, with the dimensions Extraversion, Agreeableness, Conscientiousness, Emotional Stability and Intellect, most of the trait-taxonomic studies in Western or Western-European languages have supported the Big Five model. More

recently, the approach sometimes also led to the six-factor (HEXACO) model (Ashton et al., 2004), with an additional dimension called Honesty–Humility. Taxonomic studies in the vast area of Asia and the middle East are relatively scarce (e.g. Turkish, Korean, Chinese, Tagalog and Hindi). Yet, that area captures about one third of the languages in the world and almost two third of the world population. Trait taxonomies in Turkish and Korean, for example, appear to be similar to the Big Five configuration, but Chinese (Zhou, Saucier, Gao, & Liu, 2009), Tagalog (Church, Katigbak, & Reyes, 1998) and Hindi (Singh, Misra, & De Raad, 2013) diverge. Recently, De Raad et al. (2010) concluded on the basis of comparisons of 14 available taxonomies that replicability of factors across the pertaining languages may be possible for three factors, not for five or six (cf. De Raad et al., 2014). Given the history of the psycho-lexical studies, it is of great importance to pursue taxonomic work in a variety of languages in non-Western countries. We study the Persian structure of traits following the psycho-lexical approach to personality.

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Persian: An Indo-European language

Persian is the official language in Iran, Afghanistan and Tajikistan, belonging to the Iranian branch of the Indo-European family of languages (Crystal, 1989, p. 298). The proto-Indo-European language has diversified into some 10 branches, including the Iranian branch, but also, for example, a Germanic, an Italic, a Balto-Slavic and an Hellenic branch. Although Persian has the same typescript as Arabic and the languages are geographically close, Arabic belongs to a branch of the Afro-Asiatic language family.

One may wonder to what extent Indo-European languages of today, as distant as, for example, Persian and Dutch, may be expected to have commonalities at the level of personality vocabularies. Traits tell how individuals deal with everyday issues, and they reflect what is important in such dealings according to the values in the pertaining societies. One may find that certain daily transactions among people have more bearing in one culture than in the other. Such possible differences are of crucial importance in the assessment of the distinctive importance of trait vocabularies of particular countries. Iran, for example, is considered a collectivistic society, in which one might expect traits that allow the expression of communal values to be of greater moment than traits that convey individualistic values (cf. Ghorbani, Bing, Watson, Davison, & LeBreton, 2003).

The general aim of this article is to describe the taxonomy of the Persian personality lexicon. This is done in two studies, the first consisting of the construction of a master list of Persian trait terms, and the second consisting of the structuring of that trait list on the basis of ratings.

STUDY 1: THE CONSTRUCTION OF A MASTER LIST OF PERSONALITY-RELEVANT TERMS IN PERSIAN

Most psycho-lexical studies have used the dictionary as the tangible repository of the lexicon of a language. Some have used the interview format to arrive at a comprehensive trait list (e.g. Nel et al., 2012), and still others have used novels to complete the personality lexicon extracted from the dictionary (e.g. Singh et al., 2013). The problem with contemporary Persian dictionaries is that they form less a sediment of the communications on social realities than dictionaries in many other languages appear to do. Many personality terms in Persian writings have little or no use in ordinary conversations and many terms used in ordinary conversations are not found in writings and in the standard language of a dictionary. Many of the interesting and influential trait adjectives in ordinary conversations have a metonymic or metaphoric form that do not find their way to dictionaries. In Persian, there is a better chance to arrive at a full catalogue of ordinary language expressions if different dictionaries

are used and if good use is made of different kinds of lexical documentation, especially novels. For this reason, we used more than one dictionary, and especially also novels, in order to enhance the chances to catch as many relevant trait descriptors as possible.

Method

Procedure, participants and results

Table 1 lists the materials that were used as resources for the construction of a Persian personality lexicon. This list was put together by a team of four post graduate students of Persian literature under the supervision of M. Fotoohi (co-author of this article); this team also selected 20 novels from a set of 100, the criterion being the 20 most famous novels. The procedure to select adjectives relevant for the description of personality took place in five stages.

First stage. All adjectives possibly relevant for the description of personality were listed, and this list was subsequently reduced by removing repeated words and those that had turned obscure.

The members of the Fotoohi team independently scanned the different materials listed in Table 1; together they identified a total 11,530 adjectives that had some relevance for the description of personality. The results, in the form of a distribution of these descriptors over the materials of origin, are given in Table 1. During this beginning, no attention was paid to repeated occurrences of expressions. Representatives from the linguistic team in cooperation with the first author of this article, removed not only those repeated descriptors, but also descriptors that were clearly considered outdated and out of general usage. Decisions were made after discussion in the team. The team reached agreement over the removal of 5030 adjectives, yielding a list of 6500 distinct personality-relevant descriptors for further usage.

The next three stages involved a reduction of the list of 6500 terms to a list of 544 most familiar trait-descriptive adjectives and a categorisation of these 544 adjectives. This categorisation was done much according to the same lines as in Allport and Odbert (1936). The details and results of these remaining three stages are summarised in Table 2.

Second stage. The list of 6500 adjectives was given to three members of the faculty of Persian literature and language “literary stylists” with the request to identify synonyms and antonyms, and to retain the more common terms. Using a full agreement rule, this step resulted in a reduction with 900 terms, yielding a list of 5600 trait-relevant adjectives.

TABLE 1
Resources

Sources	Translation	Date of publication	Personality-relevant adjectives	Authors
Farhang-e-Farsi-e-Emruz	A contemporary Persian dictionary	1994	851	N. Hekmi
Farhang-e-Zaban-e-Farsi	Persian language dictionary	1993	2950	H. H. Alashti
Farhang-e-Loghat-e-Amianeh	Colloquial words dictionary	1996	472	M. Servat and R. Anzabinejad
Farhang-e-Amianeh	Colloquial dictionary	1997	808	A. Najafi
Ketab-Koucheh	The book of the street	1970–1990	1586	A. Shamlu
Farhang-e-Kenayat va Estelahat-e-Emruzi	Today's idioms dictionary	1990–1999	673	M. Parchmi
Farhang va Estelahat-e-Daneshamuzi	Student Persian dictionary of words and idioms	1994	830	M. Fotoohi
20 famous novels ^a		1920–1990	3360	
Total			11,530	

^aHasan Mirabedini (1996).**TABLE 2**

Reductions and categorisations of the 6500 list of trait-relevant words

Stage	Judges	Result
First	Fotoohi team ($N = 5$)	6500
Second	Literary stylists ($N = 3$)	5600
Third	Psychologists ($N = 3$)	1360
Fourth	PhD students ($N = 6$)	
Step 1		1240 (<i>familiar to self</i>)
Step 2		544 (<i>familiar to others</i>)
Step 3		207 (<i>stable traits</i>)
Fifth	Psychologists ($N = 2$)	126 (<i>final set</i>)

Third stage. The 5600 terms were given to three members of the faculty of psychology with the instruction to identify those adjectives that had personality-descriptive relevance in a broad sense. More specifically, they were asked if they might use these words in a personality questionnaire. Only those terms were retained on which full agreement was found by the three faculty members, resulting in a drastic reduction to a list of 1360 trait-relevant terms.

Fourth stage. The 1360 trait-relevant adjectives were given to six doctorate students of psychology from different geographical areas, with different socioeconomic backgrounds and with different accents of Farsi (Persian) within Iran. They were given extensive instructions defining personality descriptors to be used in three steps. In the *first* step they were asked if they themselves were familiar with these adjectives. Familiarity could be expressed on a 3-point scale running from 1 (*most familiar*) to 3 (*completely unknown*). The combined ratings of the six judges enabled a reduction from 1360 to a set of 1240 trait adjectives. In the *second* step they were asked to indicate to what extent the ordinary speaker of Persian would

be familiar with these adjectives, using the same scale as in the first step. These ratings led to a strong reduction from 1240 to the 544 most familiar trait-descriptive adjectives. For both these steps, the combined ratings thus could run from 6 to 18. The cut-off criterion was set at 12 or higher, which scores were seen as predominantly indicating non-familiarity. This led to a particularly drastic reduction in the second step. During the *third* step of this fourth stage, the judges were asked to assign these 544 adjectives into six categories, namely (a) stable traits, (b) states and moods, (c) activities, (d) social roles, (e) relations and effects and (f) abilities and talents (cf. Angleitner, Ostendorf, & John, 1990). The words were allowed to be assigned to more than one category, inducing possible overlap. The assignment-decisions were based on a majority vote of at least four of six.

Of the 544 most familiar traits, the judges considered 207 to be useful for the description of stable traits, 72 useful for states and moods, 117 for activities, 62 for social roles, 181 for relations and 54 for abilities and aptitudes. These add up to a total of 693 due to the possibility of assignment to more than one category.

Fifth stage. This stage was used for a final scrutiny of the remaining 207 dispositional trait adjectives. This procedure was conducted by two Persian psychologists involved in the research. The main task for this final stage was to arrive at a neutral set of terms that are primarily descriptive in nature. Of still quite a few terms in this 207 list, Iranians were estimated to be sensitive of using them for a self-rating, words that had strong negative value or that could be seen as breaching social norms or values. We aimed to remove most of such terms to end up with a succinct and efficient set of terms that would not disrupt an objective-descriptive mindset in the rater. The decisions on removal of words were made on the basis of

full agreement between the two psychologists. Examples of terms that were removed at this stage are *superstitious*, *obsequious*, *rude* and *inferior*. During this final stage the number of terms was reduced to 126, which formed the basis for the final inventory for Study 2.

Discussion

The origin of the trait words selected in this study deviated from the majority of psycho-lexical studies, in that a variety of dictionaries was used and that, in addition, quite a number of novels was used to arrive at a full trait vocabulary. In terms of final number of distinct descriptors (6500), the list is quite respectable, and there appears to be little reason to believe that with such a list important areas of trait semantics would be missing. It is possible that the use of novels, and also that of a certain emphasis on colloquial word use and of idiom, has led to a relatively larger reflection of words with a stronger pragmatic connotation (metaphors and nouns), which may be less useful for a valid description of someone's personality traits. However, the different stages of reduction have ascertained that ambiguity and unfamiliarity has been drastically reduced or even almost removed.

The positive side of using different resources is that it enhances the assessment of generalisability of the trait vocabulary. Trait structures indeed should not be dependent on the use of a single dictionary as a resource; the lexicon of a language is not only found in the dictionary, but also in other lexical resources.

We used only the more typical trait terms, namely those from the Stable Trait category. This agrees with the majority of lexical studies elsewhere. Some studies have indeed included ability (and or aptitude) descriptive adjectives (e.g. Angleitner et al., 1990), but in this study such adjectives were only included when they were also considered as stable traits. The number of traits finally selected for the collection of ratings (126 trait terms) is relatively small. There was a particularly striking strong reduction during the second step at the fourth stage. The difference with the first step at that same stage may well be related to the fact that the educated judge, being relatively familiar with trait adjectives (first step), may estimate that ordinary language users are less familiar with such rather abstract terms. Another relatively strong reduction took place at the fifth and last stage, which was related to concern of the two judges not to have terms included that might be descriptive but at the same time might cause resistance in the rater. Generally, during the reduction phases, much care was taken to ensure that the final list covers the truly descriptive part of the trait lexicon, with little or no repetition, and with little or no typical evaluative terms.

STUDY 2: STRUCTURING THE PERSIAN TRAIT VOCABULARY

Method

Participants

A total of 2400 student (1200 females, 1200 males) were randomly selected from high schools in Tehran city to participate in this study. Their age varied from 14 to 21 years. Filled-out forms of 1053 females (mean age: 16.3; $SD = 1.3$) and 1226 males (mean age: 16.6; $SD = 1.3$) were useful for analyses.

Measures and procedure

The 126 adjectives were randomised and administered with a 5-point rating scale, running from 1 (*total disagreement*) to 5 (*total agreement*). For each descriptor, the participants were asked to use the following sentence in their self-rating: "I see myself as a [trait term] person." They were asked to describe themselves as accurately as possible.

Results

The ratings were first standardised per person (ipsatized), after which principle components was applied followed by Varimax rotation. For a discussion on ipsatization, see for example De Raad and Barelds (2008). The first 10 eigenvalues were 10.03, 5.00, 3.99, 2.86, 2.39, 2.27, 2.06, 2.01, 1.97 and 1.70. The pattern of eigenvalues suggests three to six factors. For further decisions about the number of factors we focused on interpretability of factors.

As an aid to the interpretability of factors, we provided a full hierarchy of factors, with solutions with one up to six factors. Such a hierarchy explains which factors are stable across levels of extraction and which factors split from one level to the other. The emergence of factors in the hierarchy is given in Figure 1, in which also the correlations between factors of adjacent levels are given.

Leaving the first un-rotated factor (1/1) aside, factor 2/1 mainly reflects Agreeableness, with typical traits such as *kind*, *good-humoured*, *humanitarian* versus *irascible*, *aggressive* and *autocratic*, together with aspects of Neuroticism (*nervous*, *jealous*). Factor 2/2 is more about Success and Motivation (*successful*, *active*, *energetic*, *happy*, *lively*, *efficient*, *motivated* and *intelligent*). The meaning of factor 2/1 changes somewhat with three (3/1), four (4/1) and five (5/1) factors, but the central meaning may well be expressed by the label Morality. At the six-factor level, 5/1 splits into factor 6/2 where it reflects Concern for Others, a narrow version of Agreeableness, with traits such as *humanitarian*, *benevolent*, *compassionate* and *forgiving*, and a factor 6/3 expressing Conscientiousness (*studious*, *successful* and *motivated*).

Figure 1. Hierarchical emergence of factors at subsequent levels of extraction: ipsatized data.

Factor 2/2 is similar to factor 3/3, but some typical extraversion traits, such as *happy*, *lively* and *energetic* moved to factor 3/2 where it forms a Positive Emotionality versus Negative Emotionality factor (*lively, optimistic and good-humoured* vs. *depressed, nervous and doubtful*). This latter factor (3/2) remains the same through the next levels with 4/2, 5/2 and 6/1. Factor 3/3, which has narrowed from factor 2/2 (Success and Motivation) to an Achievement factor, remains virtually the same at the four-factor (4/3), five-factor (5/3) and six-factor (6/3) levels, yet loses “intellect” traits at the five-factor level to form an intellect-related Thoughtfulness factor (5/4) with traits as *rational, thoughtful, idealistic and cultured*. This latter factor also appears as factor 6.5. Factor 6/6 (Energy) is a facet of Big Five Extraversion with traits such as active, *energetic* and *lively* versus *shy* and *withdrawn*.

Factor 4/4 describes Affection (*sentimental, humanitarian, affectionate and romantic*), which meaning remains the same in the factors 5/5 and 6/4. The factor reflects Big Five Agreeableness features combined with Big Five Emotional Stability characteristics. The factors at the six-factor level generally tended to become rather narrow in meaning. The additional Energy factor (6/6) did not add much in terms of semantics as covered by Positive versus Negative Emotionality (6/1). A separate

HEXACO Honesty–Humility factor did not pop up in this solution. Yet, its characteristic distinction is identifiable in the factors 2/1 through 5/1, with the traits *truthful* versus *greedy*.

The two factors 2/1 and 3/2 correspond quite well to the two concepts *Communion* and *Agency*, respectively, the distinction made by Bakan (1966). That distinction was confirmed in studies by Digman (1997), Saucier, Georgiades, Tsaousis, and Goldberg (2005; using the terms Morality and Dynamism), De Young (2006; using the terms Stability and Plasticity), and De Raad and Barelds (2008; using Virtue and Dynamism).

The three-factor solution is of interest to other findings in the literature too. De Raad et al. (2014), for example, gave evidence of a three-factor structure across a wide range of languages, with the factors called Dynamism, Affiliation and Order, with trait terms typical for Extraversion, Agreeableness and Conscientiousness, respectively (cf. also Peabody & De Raad, 2002; Saucier et al., 2000). Factor 3/1 is easily identified as being related with Big Five Agreeableness, factor 3/2 with Big Five Extraversion and factor 3/3 with Big Five Conscientiousness.

A four-factor structure of traits has not gained much interest in the literature. An exception is Szirmák and De Raad (1994) who gave support for a solution with four

TABLE 3
Partial correlations between Persian factor structures and Big Five markers, ipsatized data

		<i>Big Five marker-scales</i>				
		<i>E</i>	<i>A</i>	<i>C</i>	<i>S</i>	<i>I</i>
Three factors						
3/1	Morality	−38	54	31	37	−12
3/2	Positive versus Negative Emotionality ^a	60	23	−44	46	01
3/3	Achievement	07	−62	52	54	41
Four factors						
4/1	Morality	−44	50	40	49	−24
4/2	Positive versus Negative Emotionality	58	32	−44	49	−11
4/3	Achievement	15	−54	41	38	53
4/4	Affection	−06	37	−19	−32	06
Five factors						
5/1	Morality	−36	39	53	33	−36
5/2	Positive versus Negative Emotionality	52	48	−51	55	−08
5/3	Achievement	42	−55	44	07	14
5/4	Thoughtfulness	−28	−02	−10	42	58
5/5	Affection	−02	34	−17	−40	00
Six factors						
6/1	Positive versus Negative Emotionality	25	51	−40	52	02
6/2	Concern for Others	−09	41	12	06	−25
6/3	Achievement	−06	−30	63	27	02
6/4	Affection	−04	15	−13	−46	10
6/5	Thoughtfulness	−22	−15	−14	35	64
6/6	Energy	64	−42	−16	−08	−02

^aNegative Emotionality correlates negatively with S.

factors for Hungarian, which were quite similar to the Big Five minus Intellect (for a further discussion, see De Raad & Szirmák, 1994). The present Persian four-factor solution might be seen as a rotational variant of the Big Five minus Intellect.

Big Five marker-scales

No separate instruments, such as a Big Five instrument, were used in this study for cross-validation of the findings. In order to make some evaluation possible of the Persian structure we constructed a substitute of such an external system in the form of markers of the Big Five. We selected items from the list of 126 trait adjectives as markers. Six-factor markers were not considered, because only a very small set of markers of an eventual sixth factor in the form of HEXACO Honesty–Humility could be identified. Those selected items are listed in the Appendix. For Extraversion we identified 15 items (α coefficient: .69), for Agreeableness 15 (α coefficient: .69), for Conscientiousness 15 (α coefficient: .68), for Emotional Stability 11 (α coefficient: .71) and for Intellect 15 items (α coefficient: .75). The marker scales intercorrelated .37 on average (from .01 to .60). Emotional Stability correlated lowest with all other factors; the highest correlation was between Conscientiousness and Intellect.

We related the Persian factors with the Big Five marker-scales. We focused on factor solutions with three-, four-, five- and six-factor solutions. Because of the inter-correlations among the Big Five marker-scales, partial correlations were calculated between the factors

and the marker scales. These partial correlations are given in Table 3. The factors are labelled on the basis of the highest loading trait terms, corresponding to the discussion on the hierarchy of factors. Of the three-factor solution, Morality has its highest correlation indeed with the Agreeableness marker scale A, Positive versus Negative Emotionality correlates highest with E and S, and Achievement appears to relate to S, C, I and negatively to A. There are no anomalies here. Of the four-factor solution, the correlations are quite similar to those of the three-factor solution for Morality and Positive versus Negative Emotionality and Achievement, which latter factor obtained more emphasis on Intellect. Affection correlated somewhat with A and S (negatively), which could be expected. Of the five-factor solution, the Achievement factor is characterised less by S and more by E, Affection correlates moderately with S, and Thoughtfulness appears to relate best to Intellect. With the six-factor solution, the situation becomes most articulate when related to the Big Five. The factors 6/2 to 6/6 have their highest correlations with their corresponding Big Five scales, A, C, S, I and E, respectively. Positive versus Negative Emotionality lost its strong connection to E.

Robustness of factors

In order to assess the robustness of the different solutions, we split the data set into two subsets in two ways. The first was a random split and the second a split according to gender. We calculated congruencies between the corresponding factors from the subsets. Those

TABLE 4
Congruencies after random split of the data set

No. of factors	Congruence coefficients					
Three factors	98	97	96			
Four factors	97	97	95	93		
Five factors	96	95	93	87	78	
Six factors	95	95	88	86	82	74

congruencies were calculated after rotation of factors from one subset of data to the factors of the other subset, and vice versa. Subsequently, the congruencies for the corresponding factors were averaged.

For the random split, congruencies were thus calculated for solutions with three, four, five and six factors. The average congruencies after the random split are given in Table 4. The congruencies generally decrease with extracting more factors, and appear to indicate similarity for four factors, when taking a criterion of 0.85 (cf. Lorenzo-Seva & Ten Berge, 2006). With more factors, congruencies tend cross-critical values, and with six factors, the congruence is clearly too low to conclude to a robust solution.

For the split according to gender, we calculated the congruencies for solutions with five and six factors only, because those solutions appear to form a crucial test. With five factors, the congruencies were on average 0.92, 0.90, 0.88, 0.86 and 0.74. With six factors, the average congruencies were 0.93, 0.92, 0.89, 0.88, 0.83 and 0.76. The congruencies across gender thus also get critical with more than four factors.

Because of the more general interest in details of structures with a maximum of nuance, we give a selection of the highest loading terms for both the five-factor solution (Table 5) and the six-factor solution (Table 6). The two tables contain a maximum of 10 highest loading traits ($\geq |0.30|$) for each of the factors.

Gender differences on the Persian factors

Especially because of the large number of participants, with equal numbers of males and females, it is of interest to check gender differences. Table 7 gives the results for the five-factor structure (panel a) and for the six-factor structure (panel b). For both sets of factors, the strongest differences were found for Affection and for Thoughtfulness, with females scoring higher than males. The difference for Positive versus Negative Emotionality in panel a did not repeat in panel b. On Concern for Others (panel b), again females scored higher than males.

Discussion

While a relatively small number of trait descriptors were used to collect ratings, the number of participants is large

TABLE 5
Five-factor structure for Persian; ipsatized data

Morality	Religious (دارین), ordered (منظم), content (قانع), dutiful (شأنس وظیفه), economical (صادق), truthful (صاف)
	<i>versus</i> indolent ^a (راحت طلب), demanding (پرتوقع), ambitious (جاه طلب), greedy (پول دوست)
Positive versus Negative Emotionality	Happy (شاد), good-humoured (خوش اخلاق), lively (سرزنده), complaisant (خوشرو), optimistic (امیدوار)
	<i>versus</i> nervous (عصبی), irascible (تندخو), furious (خشمگین), distressed (پریشان), depressed (افسرده)
Achievement	Active (فعال), high-energetic (پرانرژی), willing (باراده), studious (کوشا), hyperactive (بی قرار)
	<i>versus</i> lazy (تنبل), easygoing (آسان گیر), shy (خجالتی), withdrawn (گیر کوشه), flustered (دستپاچه)
Thoughtfulness	Rational (منطقی), thoughtful (متفکر), idealistic (آرمانگرا), liberal (از اداندیش), realistic (واقع گرا), intellectual (گشاده فکر), broad-minded (روشنفکر), competent (باکفایت)
	<i>versus</i> narrow-minded (ظاہر بین), hasty (عجول)
Affection	Sentimental (احساساتی), touchy (دل نازک), affectionate (با عاطفه), sensitive (حساس), solicitous (دلرجم), humanitarian (روایی), romantic (انسان دوست), compassionate (مهربان)
	<i>versus</i> autocratic (خودرای), egocentric (خودپسند)

^aThe term "indolent" loading negatively on Factor 1 may look somewhat at odds with the "striving" character of the other terms loading negatively on this factor. This is best understood as a cultural difference. In the Iranian culture the term "indolent" is used to describe a person who is active but wants to gain more by doing less; someone who is looking for shortcuts rather than trying hard for an outcome.

and this sustains the substantial nature of the data. The two-, three- and four-factor solution were stable across subsets in terms of congruencies, and were relatively well interpretable, and could be linked to the two-factor model, the three-factor model and the Big-Five-minus-Intellect, respectively.

The five-factor solution is somewhat reminiscent of the Big Five factors, yet the Big Five markers were not able to identify them in a one-to-one correspondence. The congruencies based on a random split indicate a clear weakness beyond the fourth factor. Big Five Extraversion is reflected in factor 5/2, Big Five Agreeableness in factor 5/1, Big Five Conscientiousness in factor 5/3 and Big

TABLE 6
Six-factor structure for Persian; ipsatized data

Positive versus Negative Emotionality	Happy (شاد), good-humoured (خوش اخلاق), complaisant (خوشرو), optimistic (با محبت), kind (امیدوار) <i>versus</i> nervous (عصبی), irascible (تندخو), furious (پرخاشگر), aggressive (خشمگین), distressed (پریشان)
Concern for Others	Humanitarian (انسان دوست), solicitous (دلرجم), conscientious (باوجدان), benevolent (خیر خواه), compassionate (مهربان) <i>versus</i> autocratic (خودرای), aspirant (جاه طلب), egocentric (خودپسند), greedy (قدرت طلب), authoritative (پول دوست)
Achievement	Studious (کوشا), ordered (منظم), accurate (دقیق), willing (بااراده), dutiful (فعال), active (وظیفه شناس) <i>versus</i> lazy (تنبل), easygoing (آسان گیر), talkative (خیالاتی), hallucinative (حراف), (دل نازک), dainty (احساساتی), sentimental (باعاطفه), sensitive (حساس), affectionate (روییایی), romantic <i>versus</i> content (قانع), unworried (خونسرد), brave (شجاع)
Thoughtfulness	Idealistic (ارمانگرا), thoughtful (متفکر), liberal (از اداندیش), interpretative (روشنکر), rational (منطقی), broad-minded (گشاده فکر)
Energy	High-energetic (پرانرژی), hyperactive (طبع شوخ), (بی قرار), humorous (سازنده), lively (ماجراجو), adventurous (سرزنده), emotional (هیجان طلب) <i>versus</i> shy (خجالتی), withdrawal (کوشه گیر)

Five Emotional Stability in factor 5/5. Big Five Intellect is visible in Factor 5/4, which may be surprising, considering the fact that typical ability terms were not explicitly included, as in the case of, for example, the German taxonomy (Angleitner et al., 1990). However, also in the Dutch taxonomy (cf. De Raad, 2000) ability terms were not explicitly included and yet an Intellect-related factor appeared with typical terms as *original*, *broad-minded* and *idealistic*.

In the six-factor solution, the Big Five factors E, A, C, S and I can be observed in the factors 6/6, 6/2, 6/3, 6/4 and 6/5, respectively. The correlations with the marker scales support this. Factor 6/1 still reflects the Positive versus Negative Emotionality factor, thus also representing features of Extraversion and of Emotional Stability (or

TABLE 7
Gender differences on Persian factors

	Males	Females	F	Sign.
(a) Five factors				
Morality	-0.009	0.011	0.12	0.890
Positive versus Negative Emotionality	0.075	-0.087	7.44	0.001
Achievement	-0.004	0.004	0.02	0.981
Thoughtfulness	-0.073	0.085	7.12	0.001
Affection	-0.327	0.381	162.28	0.000
(b) Six factors				
Positive versus Negative Emotionality	0.038	-0.453	2.02	0.133
Concern for Others	-0.129	0.151	22.72	0.000
Conscientiousness	0.011	-0.013	0.17	0.841
Affection	0.304	-0.354	137.96	0.000
Thoughtfulness	-0.088	0.103	10.42	0.000
Energy	0.039	-0.045	2.01	0.135

Neuroticism). The congruencies clearly do not support a six solution, neither does the solution correspond in some way to the so-called HEXACO structure.

The formation of the marker scales was restricted by the rather small set of 126 trait adjectives from which they were selected. The alpha levels were moderate and the inter-correlations between the scales were far from ideal. The role of the scales was, however, not much more than a help in the identification of the factors, namely in reducing the subjective element in the interpretation of the factors.

The average age of the participants in this study was low in comparison to the vast majority of psycho-lexical studies, in which often university students participated. A problem for participants of younger age is sometimes the form of the items, especially in the case of questionnaire items. In this study we used trait-descriptive adjectives, which are generally understood to be rather abstract. However, the selection procedure with strong emphasis on familiarity of words both to the judges and to the ordinary speaker of Persian, was expected to remove difficulties in understanding the items. Moreover, other studies (e.g. Barbaranelli, Caprara, Rabasca, & Pastorelli, 2003) have shown that the Big Five replicate remarkably well in younger age.

GENERAL DISCUSSION

What stands out as cross-cultural finding is the two-factor solution demonstrating the general dimensions of Communion and Agency, repeatedly found across the majority of psycho-lexical findings, and a three-factor solution, reminiscing the three-factor model proposed by De Raad et al. (2014), and consisting of Affiliation (related to 3/1), Order (related to 3/3) and Dynamism (related to 3/2).

Of the five-factor and six-factor Persian structures, the five-factor structure is to be preferred because of the

strong decrease of stability of the factors beyond four or five factors across subsets of data. Although these five factors do not directly correspond to the Big Five, they do all show some similarity to the Big Five factors or to their facets.

The Morality factor, representing, besides Big Five Agreeableness, part of Big Five Conscientiousness, describes both moral features (e.g. *religious*) and features of order as also reported by Church et al. (1998) in the Philipino trait structure (cf. Saucier & Goldberg, 1998). While many researchers in personality could agree that religiosity is an important dimension of individual differences, others may emphasise that religiosity rather belongs to domain of beliefs and social attitudes. Shared environment influences are possibly stronger for religious attitudes than for personality variables. The other four factors run from relatively broad and comprising factors, such as Positive Emotionality versus Negative Emotionality to the more narrower Affection factor.

In this study no use was made of other available Persian personality questionnaires or of imported Big Five related instruments, for the purpose of validating the findings. Further studies are needed to fill this gap. Instead of an external system, marker scales were used as a substitute. The use of marker scales in this study should be considered with some sound suspicion. The total number of items for the marker scales (71) cover a large portion of the set of 126 from which they were selected, and their reliabilities were moderate. Yet, the selection was based on external Big Five understandings that helped to gear the meanings of the observed factors in the direction of the Big Five. It should not come as a surprise, though, that the relations with the five Persian factors are not very articulate.

The typically lexical part of this research, the selection of the trait-descriptive variables (Study 1), distinguished from most other psycho-lexical studies. Although an acceptable number of trait terms with differential capacity could be selected in comparison with other languages, their precise origin is different. At the very start of this study, no useful single comprising dictionary of Persian language was available, for which reason we started collecting terms from different documents over a long period of time, including a variety of dictionaries and a set of novels. This different origin of personality descriptors may in part be responsible for results that deviate from other findings in the psycho-lexical literature.

The primary Persian pool of personality traits consisted of approximately 5600 personality terms, from which 544 were considered as popular traits. So, about 10% of the total Persian Personality pool of descriptors can be considered as potentially personality relevant. For further analyses, a well-chosen and manageable

set of 126 trait terms (just over 2%) was used to obtain ratings.

Compared to the vast majority of psycho-lexical studies, this final set of trait variables used to collect ratings is rather small. Most taxonomic studies have used two to four times this set of variables. This relatively small set might imply that not all important facets in trait semantics in the Persian language is well covered, in relation to what one might expect on other lexical studies. Apart from using novels for finding trait adjectives, the selection and reduction procedure was not principally different, and there was no preconceived plan to end up with this number of trait adjectives. Apparently, the set provides what the Persian language allows in terms of distinction through this type of characterisations. It may be added that for the purpose of developing a personality questionnaire, for example, each factor had between 10 and 20 trait variables loading at least |0.30| on the five factors, which would form a good starting-point for the development of questionnaire items.

For years now the Big Five model of personality traits has determined most of the discussion on how to develop personality inventories that include the most important personality constructs. As observed earlier, and expressed in the introduction of this article, moving away from the Western culture enhances the chances of finding results that diverge from the established Big Five hypothesis. The model tends to be shaken by inputs from languages or cultures that entertain some distance from the Western culture. The Persian data here form no exception.

Psycho-lexical results usually provide a good summary of the trait semantics in a language. Compared to other languages, such summaries often indicate some support of the semantics of the Big Five, yet, especially in non-Western languages, with stronger or lesser emphases of possible Big Five facets. The present findings for Persian form a reasonable source of material in this context. While one may find certain peculiarities in the procedure that were considered to be appropriate to adapt to the specific language, the main principles of the psycho-lexical approach have been adhered to sufficiently to make capturing of the trait domain possible. With a rather restrictive set of trait adjectives, important facets of the Big Five came about, with little or no clustering of trait semantics beyond the Big Five.

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APPENDIX

MARKERS OF THE BIG FIVE

Extraversion: Active, lively, sociable, assertive, frank, good-humoured, happy, high-energetic, hopeful, hyperactive, motivated, optimistic, positive *versus* shy and withdrawn.

Agreeableness: Adaptable, benevolent, complaisant, forgiving, humanitarian, kind, merciful, modest, trustful, truthful, upright, willing, genuine *versus* aggressive and furious.

Conscientiousness: Conscientious, economical, efficient, ordered, programming, rigorous, severe, studious,

successful, trustworthy, accurate, dutiful, exacting *versus* lazy.

Emotional Stability: Unworried *versus* depressed, distressed, emotional, moody, nervous, flustered, sensitive, sentimental, doubtful and irascible.

Intellect: Aesthetic, artful, broad-minded, competent, creative, cultured, farsighted, futuristic, independent, innovative, intelligent, interpretative, rational and realistic.