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ORIGINAL ARTICLE

The relations between conscientiousness and mental health in a North-European and a West-Asian culture

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Abstract

Background: The relationship between conscientiousness, mental health and mental illness has been an issue for the last two decades.

Aims: By using a dual model of mental health, the present study examined a non-linear relationship between conscientiousness and healthy or non-healthy symptoms in two different cultures.

Method: Participants in this study were 296 Iranian and 310 Swedish university students (18–24 years of age). We used two different conscientiousness scales; the 12-item conscientiousness subscale of the NEO/FFI as an imported (etic) scale, and a 10-item Iranian conscientiousness scale as an indigenous (emic) and culture-dependent scale.

Results: In both conscientiousness scales, multivariate analysis of variance showed that conscientiousness differentiated among four mental health groups (languishing, troubled, symptomatic and flourishing), although languishing and troubled individuals were less conscientious than flourishing and symptomatic individuals. Furthermore, the non-healthy symptomatic individuals were more conscientiousness than flourishing individuals. The results showed no significant differences between the two cultures in terms of the four mental health categories.

Conclusions: It was concluded that the relationship between conscientiousness and mental health/mental illness is more a non-linear relationship than a linear one.

Keywords

Conscientiousness, mental health, mental illness, flourishing, languishing, troubled, symptomatic

History

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Introduction

The psychological literature has shown an increasing awareness of the importance of personality for mental health. The ability to realize one's goals and one's potential, to cope with stress, to be productive, to feel good and to be happy, to have a satisfactory life and to contribute to the community, is related to one's personality or character traits (DeNeve & Cooper, 1998). Personality traits may, for example, affect emotional responses to stressful events (Ajdukovic et al., 2013). Campbell-Sills et al. (2006) have shown associations between personality factors and resilience to trauma in younger people (cf. Park et al., 2016). Carver & Connor-Smith (2010) have provided a review of the relations between personality and both mental and physical health. In a meta-analysis, Hakulinen et al. (2015) have shown that personality traits are associated with the development of depressive symptoms. Notwithstanding the great amount of literature on the relation between personality and mental health, their precise relations are not so clear. Those relations depend, among other things, on the conceptualizations of personality

and of mental health (Greenspoon & Saklofske, 2001). In recent mental health research, personality has most frequently been assessed with a Big Five instrument (Costa & McCrae, 1992). In the present study, we focus on the role of the Big Five factor conscientiousness, a factor defined as the tendency to bring order in life, to be organized, to be goal-oriented, and to follow norms of impulse control. The factor has been shown to play an important role in various aspects of life, in work-related contexts, in social contexts, and also in contexts of health (Roberts et al., 2014). A complicating but intriguing factor is that different cultures, especially differing along the dimension individualism-collectivism, tend to conceive of conscientiousness in a different way (Chen et al., 2014).

The more general question in this study aims to take this latter cultural distinction into account, while asking for the relationship between the personality factor conscientiousness on the one hand, and mental health on the other hand.

Mental health

With respect to the definition of mental health it is important to take into account the more recent conceptual developments such as described in Greenspoon & Saklofske (2001) and

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Keyes (2007). The classical and dominant conceptualization of mental health has been influenced strongly by a medical or biological point of view on healthy and non-healthy individuals. This point of view has been conveyed in the *pathogenic* approach, in which health is considered as the absence of disease, thus the absence of mental illness would imply the presence of mental health. In this tradition, mental health diagnosis generally uses a negative psychopathology indicator and takes the DSM as a standard for psychological diagnosis (Wang et al. 2011). However, mental health is not simply the absence of mental illness, a view referred to by Keyes (2007) as the *salutogenic* approach; it is considered as a state of well-being, with which its scope has broadened to include indices of happiness, self-fulfillment, life satisfaction and growth, a view that is animated by the emerging field of positive psychology (Snyder et al., 2011).

The pathogenic and the salutogenic approach have indeed long been expressed in a single-factor model hypothesizing that measures of mental health and of mental illness are at opposite ends of a single continuum. The criticisms on this view have led to the formulation of a two-factor or dual-factor model in which mental illness and mental health form distinct dimensions, with one dimension distinguishing between low psychopathology and high psychopathology (the mental illness dimension), and the other dimension distinguishing between low social well-being and high social well-being (the mental health dimension) (Greenspoon & Saklofske, 2001; Keyes, 2007; Suldo & Shaffer, 2008). Figure 1 provides a version of this dual-factor model. The two dimensions produce a classification with four types, the upper-left quadrant containing the flourishing type (complete mental health), and then, counterclockwise, the languishing or vulnerable type (incomplete mental health), the troubled type (complete mental illness), and the symptomatic type or “symptomatic but content” type (incomplete mental illness). In this dual factor model mental illness finds itself

distinguished from two forms of mental health (flourishing and languishing), thus differentiating between groups “that would not have been differentiated using traditional measures of mental health” (Lyons et al., 2012, p. 185).

Empirical support for the dual-factor model was provided by, e.g., Wilkinson & Walford (1998), Greenspoon & Saklofske (2001) and by Suldo & Shaffer (2008). The implication is that the study of the mental (health) state is indeed well served by distinct assessments of both mental health and of mental illness.

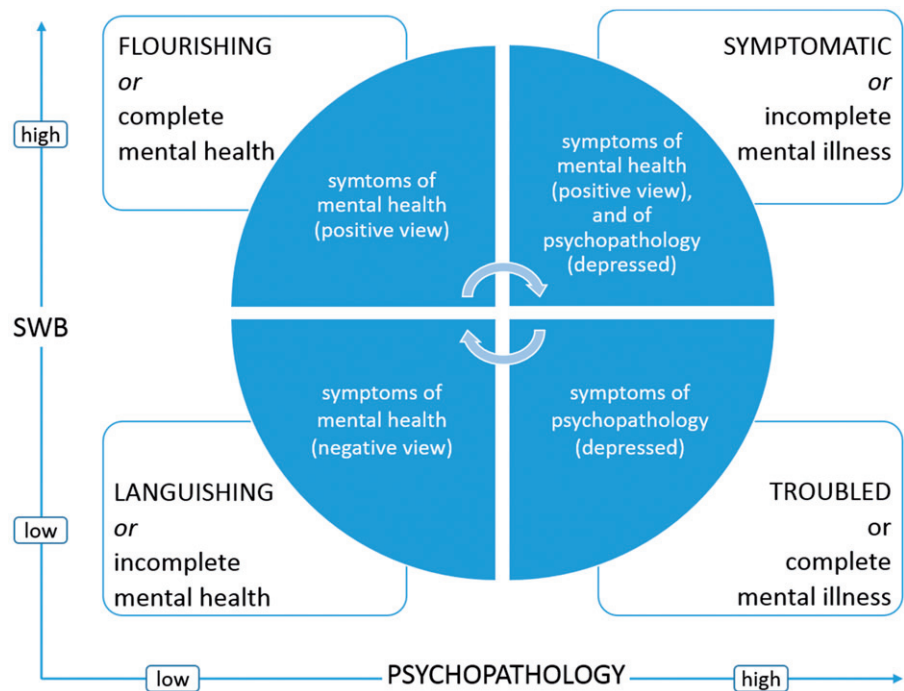
Our general research question can now be further specified by saying that we are interested in the relation between conscientiousness and measures of both mental health and of mental illness, thus explicitly including the dual-factor model with its classification into four types.

The Big Five and mental health

There is support for the relationship between the Big Five factors extraversion and neuroticism (in a negative direction) and subjective well-being (SWB) in general (DeNeve & Cooper, 1998; Steel et al., 2008). Moreover, there are specific relationships between Big Five factors and certain facets of well-being, such as between extraversion and happiness (cf., Steel et al., 2008) and job-satisfaction (Zhai et al., 2013), but also between Neuroticism and life satisfaction (in a negative direction), happiness, and negative affect (Steel et al., 2008). Agreeableness was found to be related to SWB in general, and specifically to positive affect, job satisfaction, and life satisfaction (Zhai et al., 2013). Of the Big Five factors, openness to experience least predicted SWB.

There are also strong links between Big Five factors and psychopathology. Anxiety disorders and depression, for example, are predicted by high Neuroticism, and substance abuse disorders are predicted by low conscientiousness (Trull & Sher, 1994; Trull & Durrett, 2005).

Figure 1. Two-dimensional model of mental health and mental illness.



Conscientiousness was found to be related to SWB (DeNeve & Cooper, 1998), and, for example, to life satisfaction (Zhai et al., 2013). Despite the fact that Conscientiousness has been identified as a potentially important health-related trait factor, the scope and importance of the relationship between conscientiousness and health has not been fully explored. For more profitable outcomes in relation to health, Bogg & Roberts (2013) suggested to make use of faceted measures of conscientiousness instead of unitary measures.

The Big Five factors can be provided with a faceted description for each of the factors (see, e.g., Costa & McCrae, 1992; Peabody & De Raad, 2002). In a number of studies, Roberts and his colleagues have tried to establish the lower order structure of conscientiousness (Roberts et al., 2005; Roberts et al., 2014). Roberts et al. (2005) found different facets of conscientiousness to relate differently to external criteria at the level of individuals. Bogg & Roberts (2013) argued that different facets of conscientiousness may be predictive of different health-related behaviors. For the identification of those facets in relation to specific contexts, such as that of mental health, it could be advantageous not to restrict too much to the specific definition of the Big Five factor conscientiousness, especially when that definition is based on Western (European–American) ideas and findings. It is important to throw a wide net in order to catch as many features and facets as possible from a broad array of cultural contexts.

Cross-cultural aspects, conscientiousness, morality and mental health

We study the relations between conscientiousness and mental health in an individualistic North-European culture, namely Sweden, and a collectivistic West-Asian culture, namely Iran. In individualistic cultures personality is typically seen as formed by internal attributes, which prepares an organized set of affects, cognitions, and behaviors and in which the person is considered responsible for his/her behavior. In collectivist cultures personality is mostly shaped by others, by family and friends, and by powerful others, and their personal interests are subservient to the interest of their families (Leu et al., 2011; Miyamoto et al., 2010; Uchida & Kitayama, 2009). Moreover, culture, again especially along the individualism–collectivism dimension, is also said to influence conceptions of mental health and of mental illness (Chandra et al., 2016).

A difference between these two different cultural orientations, relevant in the present context, is that individualistic societies are generally less religious than collectivistic societies. Kormi-Nouri et al. (2013) provided support for the finding that different cultures can influence in different ways the emotional components of subjective well-being. According to Diener et al. (2011; cf Lun & Bond, 2013), religion and spirituality are positively related to subjective well-being, but that relation is conditional on the cultural context.

With respect to certain personality traits, there is a related cross-cultural difference. Especially morally loaded traits that are blends of Conscientiousness and Agreeableness

(e.g., trustful, tolerant, principled, virtuous, reliable, responsible) may blossom more in non-western cultures. Church & Katigbak (1989), for example, distinguished a factor in a non-western culture (Philippines), describing proper or ethical behavior. Morally loaded clusters, such as negative valence and religiousness have been found to be clear trait clusters besides the Big Five (Paunonen & Jackson, 2000). The conscientiousness-related factor in a five-factor solution of the Persian trait taxonomy (Farahani et al., 2016) is called Morality (with such terms as *religious*, *dutiful* and *truthful*). Saroglou (2010) argued religiousness to be partly a cultural adaptation of agreeableness and conscientiousness.

In particular conscientiousness and agreeableness factors are understood to accommodate trait-related features of ethics and the implied culturally defined normative system. Interestingly, Wood et al. (2007) not only found these factors to be positively related to normality evaluations, but also found normality evaluations, in turn, to be positively related to well-being (high on life satisfaction and self-esteem, and low on depression). The implied description is easily associated with the flourishing type in Figure 1.

Summary and research questions

- (1) Conscientiousness, as an important factor for mental health/mental illness, is studied in relation to two dimensions, namely well-being and pathology. Taking the dual-factor model of mental health into account, a question is whether conscientiousness is differentially related to the two underlying dimensions of that model. We expected higher conscientiousness related to well-being and lower conscientiousness be rather related to pathology.
- (2) The dual model is depicted in the form of a two by two table leading to the distinction of four groups: High well-being/low pathology (flourishing), high well-being/high pathology (symptomatic), low-well-being/low pathology (languishing), and low well-being/high pathology (troubled). More specifically then, the question is whether the four groups differ in terms of conscientiousness. We particularly expected higher levels of conscientiousness in the flourishing group than in the languishing group.
- (3) The four mental health groups are investigated in an individualistic, north-European country (Sweden) and a collectivistic, west-Asian country (Iran). A question here is whether the two countries differ in terms of conscientiousness and in terms of the four groups. We would expect somewhat higher levels of conscientiousness in Iran than in Sweden.
- (4) We use two different versions of conscientiousness: one imported from the USA and the other developed in Iran. A question is whether the two countries differ in terms of the different measures of conscientiousness. Since the Iranian measure has a stronger moral and religious content, and since the Swedes, compared to the Iranians, are less religious (Diener et al., 2011), we expected the Iranians to score higher on the Iranian conscientious measure than the Swedes.

Method

Participants

A total group of 606 participants took part in this study, with 296 Iranian university students (200 females, 96 males), and 310 Swedish university students (227 females, 83 males). The average age of the Iranian students was 20.78 (ranging from 18 to 30 years; $SD = 1.70$), and of the Swedish students it was 23.83 (ranging from 18 to 49; $SD = 4.71$). There was no significant age difference between males and females in the total sample (males = 22.74, $SD = 3.63$; females = 22.23, $SD = 4.01$). The students were selected from different areas of the humanities (psychology, education, social work, counseling and management) at Örebro University and Stockholm University in Sweden, and at Kharazmi University in Iran. They completed a unified questionnaire, including the GHQ12, the 8-item FS, the 12-item conscientiousness subscale of the NEO/FFI, and the 10-item Iranian conscientiousness scale (IR-CS).

Measures

Personality scales

We used two measures of Conscientiousness, a subscale of the NEO-FFI (Costa & McCrae, 1992) and a subscale of an Iranian Big Five traits measure (Farahani & Farzad, 2008).

Conscientiousness subscale of the NEO-FFI (NEO-CS). The 12-item subscale was from the 60-item NEO-FFI. The Iranian version of this subscale was adopted from Garousi Farshi et al. (2001). The Swedish version was adopted from Bergeman et al. (1993). Items had to be rated on a 5-point scale ranging from 1 (completely disagree) to 5 (completely agree). The internal consistency of the subscale of the Iranian version was in the range of 0.68–0.86 (Garousi Farshi et al., 2001) and of the Swedish version it was 0.69 (Bergeman et al., 1993).

Iranian conscientiousness scale (IR-CS). Conscientiousness was also assessed with a subscale of the Iranian version of Big Five traits, which is a Persian traits scale developed on the basis of a lexical trait study in the Persian language. This IR-CS consisted of 10 traits, to be rated on a 5-point scale ranging from 1 (does not apply to me at all) to 5 (applies to me perfectly). The internal consistency of the scale was 0.72 (Farahani & Farzad, 2008). This scale was translated into Swedish by the first two authors.

It should be noted that the Swedish version of the IR-CS and the NEO-CS were first administered in a pilot study including 48 students in a Swedish Psychology course at Örebro University and 42 students in an Iranian psychology course at Kharazmi University. The reliability of the scale (Cronbach Alfa) for Swedish students was 0.76 and for Iranian students it was 0.88; the correlation between the two versions of the conscientiousness scale in this pilot study was 0.68 ($p < 0.0001$).

Mental health

We aimed at measuring the two dimensions of mental health, pathology and well-being. The combination of those measures

also allowed a grouping into the four types as depicted in Figure 1.

The 12-item general health questionnaire (GHQ-12). The GHQ-12 (Goldberg & Williams, 1988) is a screening instrument to detect psychiatric disorders in community settings and in non-clinical settings. It contains 12 items that measure short-term change in mental health and in levels of psychological functioning. The items had to be rated on a 4-point scale, running from 0 to 3. These “health” scores were recoded into the “pathology” direction. The GHQ-12 has been validated for the Iranian population by Montazari et al. (2008) and for the Swedish population by Sconfienza (1998). The results for the Iranian and Swedish population showed that the GHQ-12 is a useful screening instrument for mental health. In the Iranian population, reliability analysis showed satisfactory result (Cronbach’s alpha coefficient = 0.87) (Montazari et al., 2008).

Flourishing scale. The flourishing scale (FS) (Diener et al., 2010) consists of eight items describing the importance of human functioning ranging from positive relationship, to feelings of competence, to having meaning and purpose in life. The Swedish version of the FS was adapted from the Kormi-Nouri et al. (2013) study. The Iranian FS was translated into Persian in a translation-back-translation procedure by the first two authors of this paper. The Persian and Swedish versions of the FS were first administered in a pilot study including 43 Iranian Psychology undergraduate students at Kharazmi University and 39 students in a Swedish Psychology course at Örebro University. The FS-items had to be rated on a 7-point scale, running from 1 (strongly disagree) to 7 (strongly agree). The reliability of the scale (Cronbach Alfa) in that pilot study for Iranian and Swedish students was 0.84 and 0.73, respectively (Kormi-Nouri et al., 2013).

Formation of the four groups of mental health. Based on both the FS and the GHQ12 the four groups were formed. This was done by using the 40/20/40 percentile split rule. The 20% who scored moderately on both scales were excluded. The flourishing individuals received high scores on FS and low scores on GHQ12. The languishing individuals received low scores on both FS and GHQ12. The troubled individuals received high scores on GHQ12 and low scores on FS. The symptomatic individuals received high scores on both FS and GHQ12.

The design for this study is largely determined by the formation of the four groups of mental health, and by making distinctions between the two countries involved. The analyses are straightforward by using correlational analyses and analysis of variance.

Results

The descriptive data for mental health indicators and conscientiousness in Iranian and Swedish students are presented in Table 1. There were no significant differences between the Iranian and Swedish student samples on NEO-CS ($t = 1.328$; $p = 0.107$) and on FS ($t = -1.592$; $p = 0.112$), but

Table 1. Statistics for the four scales, and their correlations in Iran ($N=296$) and Sweden ($N=310$).

	Mean	SD	Alpha	IR-CS	NEO-CS	FS
Iran						
IR-CS	38.40	5.13	0.79			
NEO-CS	45.41	6.12	0.81	0.55		
FS	46.14	6.06	0.85	0.47	0.55	
GHQ12*	16.75	4.09	0.82	-0.07	0.03	-0.11
Sweden						
IR-CS	35.66	4.81	0.66			
NEO-CS	44.71	6.80	0.84	0.56		
FS	46.93	6.07	0.87	0.53	0.55	
GHQ12*	20.46	2.83	0.85	-0.13	-0.23	-0.15

Since GHQ12 scores were recoded into their opposites, the scale expresses ‘‘pathology’’.

Table 2. Numbers of participants in mental health groups in Iran and Sweden.

Iran		Sweden	
Flourishing 34	Symptomatic 82	Flourishing 28	Symptomatic 115
Languishing 73	Troubled 32	Languishing 78	Troubled 29

there were significant differences between the Iranian and Swedish students on IR-CS with Iranians scoring higher ($t=6.771$; $p<0.001$) and on GHQ12 ($t=-7.545$; $p<0.001$) with Swedish scoring higher. The internal consistencies of the scales (Cronbach’s alphas) were moderate (0.66) to high (0.87) for all scales in both samples. In both groups of participants, GHQ12 (pathology) correlated close to zero with FS and with the two conscientiousness measures.

The participants from both samples were assigned to the four groups of mental health (flourishing, languishing, troubled and symptomatic). This led to the exclusion of those participants who scored moderately on the two pertaining scales (FS and GHQ12). Table 2 gives the numbers of Iranian and Swedish participants in each of these four groups. As was expected, there were fewer participants in the flourishing and troubled groups than in the languishing and symptomatic groups.

Table 3 gives the conscientiousness means for the languishing, troubled, flourishing and symptomatic groups, and specifically also for the two different scales and for Iranian and Swedish students. Averaged across the two conscientiousness scales, the Iranians scored generally higher than the Swedes in all four groups, but the differences were only significant in the symptomatic and troubled groups.

The patterns of mean scores was similar in all rows, with, on average, the symptomatic and flourishing groups scoring higher on conscientiousness than the languishing and troubled groups. Analyses of variance demonstrated significant differences in conscientiousness for the four groups in both samples. In both countries the flourishing and symptomatic groups scored significantly higher on conscientiousness than the languishing and troubled groups.

In order to see in more detail what those differences in conscientiousness look like among the four mental health groups, Table 4 gives the means for the six possible group comparisons, in total, per scale, and per country. Post hoc

Table 3. Conscientiousness for the four groups, total means and per mental health group and per conscientiousness scale in the two countries.

	Languishing	Flourishing	Troubled	Symptomatic	F	Sign.
Total mean	37.32	41.99	39.60	44.09	67.678	0.001
Iran						
IR-CS	34.99	39.50	37.84	41.13	23.256	0.001
NEO-CS	40.73	46.15	44.76	49.70	36.436	0.001
Mean	37.86	42.83	41.30	45.42	42.404	0.001
Sweden						
IR-CS	32.74	36.82	34.07	37.83	23.292	0.001
NEO-CS	40.89	45.15	41.38	48.45	27.624	0.001
Mean	36.82	40.99	37.72	43.14	33.654	0.001

tests were used to determine which groups were significantly different from each other.

The column in Table 4 with total mean differences gives significant differences across the two scales and across the two countries. That general pattern of the mean differences is about the same for the NEO-CS and the IR-CS for both samples. The largest difference was found between the symptomatic and the languishing groups, followed by the difference between flourishing and languishing and between symptomatic and troubled.

Discussion

Part of the background of this study on conscientiousness in relation to mental health was formed by the two-faced view with respect to mental health: the medical view that defines mental health as the absence of mental illness, and the other seeing mental health as a particular state of well-being that is positively defined in terms of happiness, growth and fulfillment. The two views are brought together in the so-called dual-factor model comprising four quadrants representing the combinations of highs and lows on the underlying two dimensions.

The interest in conscientiousness in relation to mental health also brought complications. Those complications reside in the facets of conscientiousness that one wants to have represented in relation to cultural differences with respect to some of those facets. In the present study we had a particular interest in facets of morality, and the Iranian conscientiousness scale that we used is indeed colored by traits of morality such as *religious*, *dutiful* and *truthful*. We used two samples from rather different cultural origin, one in Sweden and one in Iran.

With the dual-factor model of mental health at hand, one of the questions in this study was whether conscientiousness relates differently to the two underlying dimensions of the model. Simple correlations tell indeed that conscientiousness correlated substantially positively to the well-being dimension of the model and close to zero or slightly negatively to the pathology dimension. The well-being dimension correlates slightly negatively to the pathology dimension.

The mental health groups formed on the basis of the dual factor model differ significantly in terms of conscientiousness. In agreement with our expectation, conscientiousness was higher in the flourishing group than in the languishing group. However, the largest difference was found between the two ‘‘incomplete’’ groups, symptomatic versus languishing, with the symptomatic group receiving the highest

Table 4. Comparisons between different mental health groups for different conscientiousness scales in countries.

Comparisons	Total mean differences	NEO-CS		IR-CS	
		Mean difference (Iranian)	Mean difference (Swedish)	Mean difference (Iranian)	Mean difference (Swedish)
Flourishing–languishing	4.68*	5.42*	4.27*	4.51*	4.08*
Troubled–languishing	2.29*	4.03*	.49	2.86*	1.33
Symptomatic–languishing	6.77*	8.97*	7.56*	6.15*	5.09*
Flourishing–troubled	2.40*	1.40	3.77*	1.66	2.75*
Symptomatic–flourishing	2.09*	3.55*	3.29*	1.63	1.01
Symptomatic–troubled	4.49*	4.94*	7.07*	3.29*	3.77*

*The mean difference is significant at 0.05 level.

conscientiousness scores and the languishing group on average receiving the lowest scores.

In the present study, there was also a question whether Iranians and Swedes differ in terms of different measures of conscientiousness. Part of the make-up of conscientiousness is the morality facet, which includes religiousness or spirituality. It is this morality facet that is apparently more visible in collective cultures than in individualistic cultures. Cross-cultural Big Five research finds itself at the crossroads, with some researchers aiming at cross-cultural validation (McCrae et al., 2010), and others challenging the used methodologies (Heine et al., 2008). Regarding conscientiousness, Schmitt et al. (2007) found that people from the geographic regions of Africa and East Asia were significantly more conscientiousness than those inhabiting other world regions. In accordance with those general findings, in the present study the Iranians scored indeed higher on conscientiousness than the Swedes, but this was only true for those who belonged to the two groups high in pathology (symptomatic and troubled).

Cross-cultural comparisons, also at scale level, should be taken with considerable caution. With respect to conscientiousness, different facets may function differently across cultural borders, especially in relation to criteria (cf. Roberts et al., 2005). In the current study, for a cross-cultural comparison of mental health, we used two different conscientiousness scales, the NEO-CS as an imported (etic) scale and IR-CS which was developed in the Iranian context, and which was more colored by moral and religious items (Farahani & Farzad, 2008). The results showed that the two different measures of conscientiousness correlate substantially in the two different cultures, yet the correlation is moderate considering the fact that they both measure the same underlying construct. The difference between the two cultures was more pronounced in IR-CS than in NEO-CS, with the Iranians scoring higher than the Swedes, as expected.

Overall, the dual-factor model worked well in accommodating people on the basis of their scores on a well-being measure and on a pathology measure. The grouping provided differentiating results in terms of levels of conscientiousness. In this study, some relatively small differences were found between the two countries involved and between the two measures of conscientiousness. These differences need further attention in new research with more cultures, and possibly with explicit experimenting with conscientiousness scale contents.

The most important finding in this study is the differential relation between the personality dimension conscientiousness

and mental health in the different mental health groups. As a personality trait factor, conscientiousness is to be considered as a relatively stable characteristic that affects the way one copes with stressing situations, and that may facilitate in finding ways to enhance mental health. Besides treatment of psychopathology, it is of great importance to find ways to prevent the development of pathology through the creation of conditions that enhance resilience when confronted with life stressing events. The identification of the vulnerable group of languishing, for example, may facilitate in finding more focused means of preventing states of psychopathology. It is also an important step towards improving well-being, and learning how to lead an organized life and be goal-oriented through the development of conscientious behavioral styles forms a crucial means in this process.

The present study gives support for the relevance of the dual-factor model of mental health, and it shows the significance of a differential relation between the different types of mental health implied by that model and the personality factor of conscientiousness.

Declaration of interest

No potential conflict of interest was reported by the authors.

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