

Analysis of the internal structure of the Character Strengths Scale

Análise da estrutura interna da Escala de Forças de Caráter

Análisis de la estructura interna de la Escala de Fuerzas de Carácter

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Abstract: Character strengths can contribute to the minimization of anxiety and depression symptoms and potentiate the development of psychological and subjective well-being. There is still no consensus as to the factorial structure of the character strengths. The present study aimed to empirically replicate the theoretical classification of the character strengths through exploratory factorial analyses. A total of 1500 undergraduate students, aged between 16 and 64 years old ($M= 23.25$; $SD= 7.96$), responded to the Character Strengths Scale. The most appropriate factorial solution was that of six factors, with total explained variance of 44% and reliabilities between .88 and .93. The results are discussed in the light of the literature.

Keywords: psychological evaluation, psychometrics, emotions, life satisfaction, psychological tests

Resumo: As forças de caráter podem contribuir com a minimização de sintomas de ansiedade e depressão, uma vez que potencializam o desenvolvimento do bem-estar psicológico e subjetivo. Ainda não há consenso quanto à estrutura fatorial das forças de caráter e, em razão disso, o presente estudo teve por objetivo replicar empiricamente a classificação teórica das forças de caráter por meio de análises fatoriais exploratórias. Foram participantes 1500 estudantes universitários, com faixa etária entre 16 e 64 anos ($M= 2,25$; $DP= 7,96$), que responderam à Escala de Forças de Caráter. A solução fatorial mais adequada foi a de seis fatores, com variância explicada total de 44% e confiabilidades entre .88 e .93. Os resultados encontrados são discutidos à luz da literatura.

Palavras-chave: avaliação psicológica, psicometria, emoções, satisfação com a vida, testes psicológicos

Resumen: Las fuerzas de carácter pueden contribuir a la minimización de los síntomas de ansiedad y depresión ya que potencian el desarrollo del bienestar psicológico subjetivo. Aún no hay consenso en cuanto a la estructura factorial de las fuerzas de carácter y, en razón de ello, el presente estudio tuvo el objetivo replicar empíricamente la clasificación teórica de las fuerzas de carácter por medio de análisis factoriales exploratorios. Los participantes fueron 1500 estudiantes universitarios, con edades entre 16 y 64 años ($M= 23.25$; $DE= 7.96$), que respondieron a la Escala de Fuerzas de Carácter. La solución factorial más adecuada fue la de seis factores, con varianza explicada total de 44% y confiabilidades entre .88 y .93. Los resultados encontrados se discuten a la luz de la literatura.

Palabras clave: evaluación psicológica, psicometria, emociones, satisfacción con la vida, pruebas psicológicas

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Introduction

The study of character strengths is characterized as an alternative to traditional treatments in psychology that emphasized the psychopathological aspects and the maladjusted characteristics of individuals (Peterson & Seligman, 2004; Seligman, 2009). Character strengths are defined as positive characteristics related to human behaviors, thoughts, and feelings that contribute to the development of goodwill and a better life (Park & Peterson, 2006; Peterson & Seligman, 2004). A greater frequency of strengths enables the experience of more positive emotions, better relationships, and greater engagement in activities such as work, studies, among others (Littman-Ovadia, Lavy, & Boiman-Meshita, 2017; Seligman, 2009).

The importance of strengths lies in the fact that they serve as a protective factor against mental illness, allowing people to develop more healthily (Litman-Ovadia & Steger, 2010), minimizing symptoms of anxiety and depression (Rouse et al., 2015), and increasing psychological and subjective well-being (Linley et al., 2010; Oliveira et al., 2016), as well as emotional self-regulation (Noronha & Batista, 2020). More recently, Noronha and Campos (2018) identified that strengths can be predicted by personality characteristics, such as extraversion and socialization. Furthermore, in relation to parenting styles, understood as a behavioral pattern of relationships between parents and children, character strengths showed greater associations with responsiveness than with demandingness (Noronha & Batista, 2017). In turn, Martínez-Martí and Ruch (2016) found predictive values of strengths in relation to resilience, optimism, life satisfaction, self-esteem, social support, positive affect, and self-efficacy.

Peterson and Seligman (2004) organized the Values in Action (VIA) classification of Character of Strengths, which includes 24 independent strengths arranged into six virtues, as shown in Table 1. The VIA was developed from extensive research in various cultures, considering legislative, philosophical, and religious texts (Dahlsgaard, Peterson, & Seligman, 2005), which gave rise to the VIA-Inventory Strengths instrument, assuming that the six-dimensional structure was stable over time and across cultures (Brazeau, Teatero, Rawana, Brownlee, & Blanchette, 2012; Peterson & Seligman, 2004).

Table 1.

Virtues and arrangements of character strengths

Virtues (N. of grouped strengths)	Strengths of each virtue
Wisdom and knowledge (5)	Creativity, curiosity, open-mindedness, love of learning and perspective
Courage (4)	Bravery, persistence, honesty and zest
Humanity (3)	Love, kindness and social intelligence
Justice (3)	Teamwork, fairness and leadership
Temperance (4)	Forgiveness, humility, prudence and self-regulation
Transcendence (5)	Appreciation of Beauty, gratitude, hope, humor and spirituality

Unlike Peterson and Seligman (2004), some authors believe that the strengths have some degree of interdependence between them (Allan, 2014; Fowers, 2008; Schwartz & Sharpe, 2006). In this regard, it should be noted that the structure with six virtues and 24 strengths proposed by Peterson and Seligman (2004) was not replicated empirically (Litman-Ovadia & Lavy, 2012; McGrath, 2014; Neto, Neto, & Furnham, 2014; Ng, Cao, Marsh, Tay, & Seligman, 2016; Noronha, Dellazana-Zanon, & Zanon, 2015; Solano & Cosentino, 2018). Table 2 shows some factor structures identified in empirical studies. The cultural concerns of each country and the contexts of application are variables considered to justify possible differences in the structures identified for the character strengths (Ciarrochi, Atkins, Hayes, Sahdra, & Parker, 2016); therefore further research on the construct is needed.

In the study developed by Solano and Cosentino (2018), the authors investigated the psychometric properties of an abbreviated strengths scale (abbreviated IVyF) and identified a three-factor structure for the 24 strengths. The factors were called interpersonal strengths, intelligence/personal motivation strengths, and restraint strengths. In turn, McGrath (2014) analyzed a cross-cultural sample, from 16 countries, in order to identify the measurement invariance of different translations of the VIA. The author found a structure of five factors for the VIA, which were named according to the strengths they grouped as: interpersonal, emotional, theological, intellectual, and self-regulation.

The five-factor structure was also observed in the adaptation of the VIA to Hebrew, conducted by Litman-Ovadia and Lavy (2012). Although Neto et al. (2014) found the four-factor factorial solution as the most suitable for the VIA, the nomenclatures are similar to those found by McGrath (2014) and Litman-Ovadia and Lavy (2012), and the strengths were grouped as interpersonal, leadership, temperance, and intellectual strengths. Furthermore, Ng et al. (2016) identified a 2-factor structure for the VIA, in which the general factor was called dispositional positivity, while the specific factors were wisdom, courage, temperance, justice, humanity, and transcendence.

In the Brazilian context, Noronha and Barbosa (2016) developed the Character Strengths Scale (CSS) based on the theoretical assumptions of Peterson and Seligman (2004), but the instrument is not an adaptation of the VIA. In the CSS validation study, Noronha et al. (2015) found a one-dimensional structure that explained 32% of the variance; however they emphasize that the divergences regarding the theoretical model of character strengths should not be an obstacle for researchers to investigate the construct in different samples and with different statistical analyses. Therefore, the objective of the present study was to investigate the factorial structure of the Character Strengths Scale (CSS; Noronha & Barbosa, 2016), using exploratory factorial analyses, since the internal structure of the CSS was not investigated in previous studies.

Table 2
Factorial structures and character strengths combinations in previous studies

Authors	Instrument (Country)	Nomenclatures (N. of grouped strengths)	Factor strength
Littman-Ovadia and Lavy (2012)	VIA-IS (Israel)	Restraint strengths (7)	Persistence, honesty, bravery, perspective, open-mindedness, self-regulation and prudence
		Intellectual strengths (4)	Love of learning, zest, creativity and curiosity
		Emotional strengths (5)	Love, social intelligence, kindness, leadership and humor
		Interpersonal strengths (4)	Forgiveness, teamwork, humility and fairness
		Theological strengths (4)	Spirituality, gratitude, appreciation of Beauty and hope
McGrath (2014)	VIA-IS (United States)	Restraint strengths (5)	Prudence, persistence, self-regulation, open-mindedness and honesty
		Intellectual strengths (3)	Love of learning, appreciation of beauty and curiosity
		Emotional strengths (5)	Social intelligence, humor, bravery, creativity and perspective
		Interpersonal strengths (6)	Fairness, kindness, teamwork, humility, leadership and forgiveness
		Theological strengths (5)	Zest, hope, gratitude, spirituality, and love
Neto, Neto and Furnham (2014)	Self-Rated Character Strengths – SRCS (Portugal)	Interpersonal strengths (8)	Kindness, love, zest, teamwork, honesty, gratitude, fairness and humor
		Leadership strengths (7)	Leadership, persistence, bravery, perspective, creativity, social intelligence, and spirituality
		Temperance strengths (6)	Self-regulation, prudence, appreciation of beauty, humility, hope and forgiveness
		Intellectual strengths (3)	Curiosity, love of learning and open-mindedness
Solano and Cosentino (2018)	IVyF abbreviated – IvyFabre (Argentina)	Interpersonal strengths (10)	Forgiveness, kindness, love, humor, hope, fairness, honesty, teamwork, spirituality, and gratitude
		Intellectual strengths and of personal empathy (8)	Curiosity, creativity, perspective, leadership, bravura, zest, social intelligence, and persistence
		Restraint strengths (6)	Appreciation of Beauty, love of learning, prudence, open-mindedness, humility, and self-regulation
Ng, Cao, Marsh, Tay, and Seligman (2016)	VIA-IS (United States)	General factor	Creativity, curiosity, open-mindedness, love of learning, and perspective
		Wisdom and knowledge (5)	Bravery, persistence, honesty, and zest
		Courage (4)	Love, kindness, and social intelligence
		Humanity (3)	Teamwork, fairness, and leadership
		Justice (3)	Forgiveness, humility, prudence, and self-regulation
		Temperance (4)	Appreciation of beauty, gratitude, hope, humor, and spirituality
Transcendence (5)			

Method

Participants

Participants included a total of 1500 individuals, aged between 16 and 64 years ($M = 23.25$; $SD = 7.961$), being 98.7% ($n = 1481$) women. They were university students from private institutions of higher education, two in the state of São Paulo and one in the state of Minas Gerais.

Instrument

Character Strengths Scale (CSS; Noronha & Barbosa, 2016). It was based on the Values in Action (VIA) Classification of Strengths (Peterson & Seligman, 2004). Three items were designed for each of the 24 character strengths, except for Appreciation of Beauty, which was left with two items, totaling 71 items. They are organized on a 4-point Likert scale, ranging from 0 (not at all like me) to 4 (very much like me) and have a one-dimensional structure ($\alpha = .93$; Noronha et al., 2015). Examples of items: 'I don't hold a grudge if someone mistreats me' and 'I think a lot before making a decision'.

Procedures

After data collection was authorized, the project was sent to the Research Ethics Committee of xx, and was approved under number (CAAE: xxx). The instrument was administered in the educational institutions, collectively, after the signing of the Free and Informed Consent Form (FCF), for adults, and the Free and Informed Permission for those who were minors, when authorized by parents, after signing the FCF. On average, 30 minutes were enough to complete the instrument.

Data analysis

The FACTOR software – version 10.5.03 (Lorenzo-Seva & Ferrando, 2006), was used to perform the analyses, for polychoric items, ranging from 0 to 4. The Kaiser-Meyer-Olkin (KMO) and the Bartlett's coefficient were considered to identify whether the data matrix was factorable. Parallel analysis (Timmerman & Lorenzo-Seva, 2011), Velicer's MAP (Minimum Average Partial) (1976), and the Hull's method (Lorenzo-Seva, Timmerman, & Kiers, 2011) were used for factor retention. The observed fit indices were the Goodness of Fit Index (GFI) and the Root Mean Square of Residuals (RMSR), in addition to Pearson's correlation between the factors. Then, exploratory factor analyses (EFA) were conducted using ULS (Unweighted Least Squares) and Promin rotation, to achieve factor simplicity. A minimum value of .30 was established for factor loadings. Items of the same strength with values above .30 in more than one factor were grouped according to the number of items in the factor, the theoretical relevance, and the factor loading value.

Results

Endorsements to items ranged from 1.77 (item 26 - I don't hold a grudge if someone mistreats me) to 3.44 (item 50 – I think it's important to help others). Standard deviations ranged from .76 (item 50) to 1.39, for the item “I am patient” (item 12). The possibility of factoring the data matrix was confirmed by KMO, whose coefficient was .93, considered very good. The Bartlett's sphericity test was estimated at 44058.6 (df = 2485; $p < 0.001$).

The EFA with ULS extraction method and Promin rotation, chosen as not to delimit, a priori, the interaction between the factors, revealed an initial factor solution of 15 factors with eigenvalues >1.0 which, together, explained 57% of the variance. However, the parallel-based analysis recommended the retention of 10 factors, which did not seem theoretically appropriate given the arrangements of the items. In view of the objective of the study, a structure of 6 factors was requested given the theoretical classification of Peterson and Seligman (2004), with the exclusion of 8 items that did not reach the minimum factor loading of .30 (3, 26, 31, 36, 39, 55, 57, 59). The explained variance was 44.23%, being factor 1 responsible for 22.48%; factor two, 5.40%; factor three, 5.05%, factor four, 4.42%; factor five, 3.84%, and factor six, for 3.04%.

As for the fit indices, the RMSR, a descriptive measure of the mean magnitude of the residual correlations, was .05, therefore acceptable for the 6-factor model. In turn, the GFI was of .97, considered an excellent fit. Precision was estimated using the alpha coefficient, based on polychoric correlations being .89 for factor 1 (12 items); 0.88 for factor 2 (12 items); 0.93 for factor 3 (12 items); 0.91 for factor 4 (14 items); 0.83 for factor 5 (7 items), and 0.88 for factor 6 (6 items). Factor 1 included strengths that refer to relationships with others and was called “interpersonal”. Factor 2 was called “courage”, since it gathered coping strengths. Factor 3 grouped transcendence strengths and was named “theological”. Factor 4 was named “humanity” because it grouped strengths that indicate egalitarian and kind relationships. Factor 5 was called “self-regulation,” once it gathered self-control strengths. Finally, factor 6 was named ‘intellectual’ for gathering learning strengths. Finally, regarding the correlations between the factors, Table 3 presents the information. The correlations and all other parameters are derived from the polychoric correlations matrix, but that are, in the final solution, bivariate correlations between the factors.

Table 3.

Pearson correlation coefficients between CSS – FACTOR

Factors	Interpersonal	Courage	Theological	Humanity	Self-regulation
Courage	.28				
Theological	.47	.32			
Humanity	.43	.44	.47		
Self-regulation	.14	.14	.22	.23	
Intellectual	.22	.36	.34	.24	-.01

The moderate coefficients were found between factors 3 and 1; 4 and 1; 4 and 2; and 4 and 3. Table 4 informs the factor structure and the respective loadings.

Table 4.

Factor Loadings (>0.30) and Communalities (h^2) values of the Character Strengths Scale (Loading Matrix) – FACTOR

Items	F1	F2	F3	F4	F5	F6	h^2
1	.56	.28	.02	-.22	.15	-.12	-.12
2	.15	-.01	-.13	.41	.26	.04	.04
4	.37	.57^a	.01	-.18	-.03	-.25	-.25
5	-.16	.06	-.06	.27	.19	.59	.59
6	.10	.51	-.09	-.07	.16	.07	.07
7	-.15	.46	.05	.15	-.01	.02	.02
8	-.04	.33	.57^a	-.12	.13	-.03	-.03
9	-.04	.71	.01	-.05	.13	-.05	-.05
10	.10	.07	-.15	.47	.07	-.01	-.01
11	.01	-.05	-.01	.36^a	.27	-.13	-.13
12	-.24	.22	-.01	-.05	.71	-.06	-.06
13	.14	-.06	.46	-.23	.34^b	.32	.32
14	.43^b	-.12	.17	-.33	.44	.33	.33
15	.06	-.01	.71	-.05	.06	.10	.10
16	.15	-.07	.59	-.13	.11	.03	.03
17	-.09	.01	-.02	.23	.07	.49	.49
18	.20	.05	.22	-.26	.35^b	.38	.38
19	.23	.52	.10	-.10	-.13	.11	.11
20	.44	.05	.23	.08	-.10	-.17	-.17
21	.30	-.10	-.01	.40^a	.25	-.04	-.04
22	.07	-.14	.50	.31	-.01	-.10	-.10
23	.02	-.19	.09	.30	-.08	.66	.66
24	-.01	-.11	.72	.09	.11	.03	.03
25	-.03	-.15	.11	.28	.01	.69	.69
27	.05	.07	.69	-.04	.03	.01	.01
28	-.11	.12	.80	-.05	-.04	-.27	-.27
29	-.33	.31	.15	.32^b	-.01	-.05	-.05
30	-.02	.45	.09	-.05	.10	.21	.21
32	.22	-.03	.02	.02	.60	-.12	-.12
33	.33^a	.09	-.06	.46	-.07	-.09	-.09
34	.42	.18	.05	.07	.07	.06	.06
35	.24	.43	-.03	.09	.01	-.04	-.04
37	.49	-.16	.27	.19	-.05	-.25	-.25
38	-.26	.42	-.12	-.21	.61^{a,b}	.06	.06
40	-.08	.23	.37	.17	-.12	.29	.29
41	.46	-.11	.15	.15	-.25	-.07	-.07
42	.84	-.02	-.12	-.16	.03	.08	.08
43	.44	.11	-.01	.03	-.05	.11	.11
44	-.04	-.04	.77	.18	.02	-.17	-.17
45	-.10	.05	.19	.31	-.02	.54	.54
46	.17	-.20	-.02	.66	.05	-.14	-.14
47	-.15	.16	.18	.45	-.09	.22	.22
48	.22	.43	-.09	-.03	-.02	.20	.20
49	.03	.18	.65	-.08	.07	.01	.01
50	.09	.04	.17	.51	.10	-.06	-.06
51	-.13	.01	.82	.11	-.08	-.27	-.27
52	.03	.10	.36	.25	-.20	.27	.27
53	.14	-.04	.65	-.13	.21	.13	.13
54	-.09	.03	.16	.33	.44^{a,b}	-.19	-.19
56	-.04	-.12	-.03	.71	.04	-.17	-.17
58	-.11	.12	.09	.53	-.05	-.12	-.12
60	-.08	.36	.11	.36^b	-.06	-.23	-.23
61	-.03	.44	.24	.15	-.04	-.01	-.01
62	.23	.62	.04	-.09	-.11	.01	.01
63	.42	.47^a	-.14	.06	.06	-.09	-.09
64	.78	.17	-.10	-.18	.04	.02	.02
65	.01	.36	-.07	.37	-.07	-.08	-.08
66	.06	-.01	-.01	.55	.23	-.19	-.19
67	.06	-.03	-.13	.62	.18	-.02	-.02
68	.23	.23	-.14	.58	-.05	-.19	-.19
69	.03	.07	-.23	.33	-.05	.62	.62
70	.39	.02	.22	-.13	.19	-.08	-.08
71	.42	.08	-.24	.09	.01	.22	.22

Note. The numbers in bold indicate the factors in which the items were grouped; F1 – Interpersonal Strengths; F2 – Courage Strengths; F3 – Theological Strengths; F4 – Humanity Strengths; F5 – Self-regulation Strengths; F6 – Intellectual Strengths; h^2 – Communality; a – Item selected by the value of the factor load; b – Item selected by the theoretical aspect.

In 15 items, loadings were observed on two factors and the decision was to respect retention of the factor that had higher loading, after theoretical analysis of relevance.

Discussions

The present manuscript intended to investigate the factor structure of the Strengths Scale (Noronha & Barbosa, 2016). The suggestion of the factor retention methods, with ten or 15 factors for the CSS, was not identified in previous studies on character strengths (Litman-Ovadia & Lavy, 2012; McGrath, 2014; Neto, Neto, & Furnham, 2014; Ng, Cao, Marsh, Tay, & Seligman, 2016; Noronha, Dellazana-Zanon, & Zanon, 2015; Solano & Cosentino, 2018). Thus, we considered the classification proposed by Peterson and Seligman (2004), the Values in Action (VIA) Classification of Strengths, prepared by the authors based on extensive literature review, and the result of five years of research, conducted by a team of approximately 40 researchers, as reported by Waters and White (2015). The VIA organizes 24 character strengths, defined as positive, relatively stable psychological characteristics, translated into an analogy as psychological ingredients that lead people to seek the good for themselves, for others, and for society (Park & Peterson, 2006, 2009; Peterson & Seligman, 2004). The instrument used in this study (CSS) was built based on the VIA (Noronha & Barbosa, 2016) and had its internal structure initially studied by Noronha et al. (2015). The investigation, with second order analyses, resulted in a better fit for the one-factor solution, not confirming the theoretical structure of Peterson and Seligman (2004), with six virtues and 24 strengths.

Previously, validity studies were conducted based on the relationship with other variables, such as personality and parental styles (Noronha & Batista, 2017; Noronha & Campos, 2018). The personality traits Extraversion and Socialization were the ones that most predicted character strengths (Noronha & Campos, 2018). In relation to parenting styles, the strengths presented higher magnitudes of correlation with responsiveness, which in turn translates affection, involves sensitivity, acceptance, and commitment (Noronha & Batista, 2017).

As for the findings of the present study, the final version consisted of 63 items. Factor 1 included the items of the strengths Humor, Love, Social Intelligence, Honesty, and Appreciation of Beauty. Factor 2 included Perspective, Openness, Leadership, Teamwork, Prudence, Bravery and Creativity. The strengths Spirituality, Gratitude, Persistence, and Optimism were organized in factor 3. Factor 4 included Impartiality, Kindness, and Humility. Factor 5 included Zest, Self-regulation and Forgiveness, and, finally, factor 6, included Love for Learning and Curiosity. To facilitate the visualization of the results, Table 5 shows the strengths by factor.

Table 5.
Character strengths distributed by factor

Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
Interpersonal Strengths	Courage Strengths	Theological Strengths	Humanity Strengths	Self-regulation Strengths	Intellectual Strengths
Humor	Perspective	Spirituality	Fairness	Zest	Love of learning
Love	Openness	Gratitude	Kindness	Self-regulation	Curiosity
Social Intelligence	Leadership	Persistence	Humility		
Honesty	Teamwork	Optimism		Forgiveness	
	Prudence				
Appreciation of Beauty	Bravery				
	Creativity				

Ng et al. (2016) tried to replicate the theoretical structure of the VIA, using a large database with more than 400 thousand participants who responded electronically to the instrument. However, although they have reasonably arrived at a similar structure, it should be noted that more than half of the 240 items were excluded, with the instrument remaining with 107. In addition, a general factor was found, in which 30 items loaded more heavily on it than on the specific factor.

In the present study, the first factor found has the relationship with others as its central nucleus, showing lightness and achieving a joyful vision of adversity (Humor), establishing two-way relationships (Love), ease of interactions (Social Intelligence), and taking responsibility for feelings and actions (Honesty). Possibly, what distances it from this nucleus is Appreciation of Beauty; however, it adds beauty, which can be found in everyday life. Solano and Cosentino (2018) also identified that the strengths Humor, Love, and Honesty were grouped in the same factor, called interpersonal strengths.

Factor 2 deals with characteristics of coping, decision, or the pursuit of goals. There is a block referring to the relationship with others, such as providing wise advice (Perspective), teamwork (Sense of collectivity), and encouraging a group (Leadership), and another referring to a movement of the individual him/herself, such as allowing a change of mind (open-mindedness) and new and productive thinking (Creativity), reflecting on one's choices (Prudence), or not being afraid of challenges (Bravery).

The third factor was the one that best replicated the model by Peterson and Seligman (2004), for including three strengths out of the five theoretically predicted for the virtue of transcendence, which concerns connections to the universe and meaningfulness. Persistence, a strength that originally accompanies the virtue of courage, could contribute in this block with the conviction that it must be present in the face of difficulties. In this regard, there is relevance when one takes optimism as a reference, since it is shaped by goals and expectations. Similar results were found by Littman-Ovadia and Lavy (2012), except for the non-inclusion of Persistence.

Factor 4 can be called Humanity, especially due to the presence of Kindness and Humility, although only Kindness is included in the virtue suggested by the VIA (Peterson & Seligman, 2004). Allied to this is Fairness, which reveals equal treatment to everyone and the sense of equity and justice. The factor called Interpersonal by McGrath (2014) included the same three strengths of this study, adding also Forgiveness and Leadership.

The three strengths that make up Factor 5 show coherence. Forgiving others and not being revengeful (Forgiveness) and having control over one's emotions (self-regulation) compose the virtue of temperance, which values the control of excesses. In another measure, Zest refers to vital energy and has been an important marker of mental health for its negative relationships with depression (Rouse et al., 2015). Self-regulation (SR), as highlighted by Berking, Wirtz, Svaldi, and Hofmann (2014), can also be an important protective factor for depression, which was corroborated by the findings of Weiss, Gratz, and Lavender (2015), who investigated significant and low associations between SR, generalized expectation for regulation of negative mood, and difficulty in emotional regulation and non-acceptance of emotion.

Finally, the sixth factor added two strengths, Love for learning and Curiosity, which is partially in line with the findings of Neto et al. (2014), which included in the group of Intellectual Strengths, Curiosity and Love for Learning, besides Open-mindedness. Similarly, in the findings of McGrath (2014), the third strength to compose the factor was Appreciation for Beauty, not Open-mindedness.

Possibly, the differences found between the theoretical model of Peterson and Seligman (2004) and the results of the present study, are explained by the fact that there is some interdependence between the strengths (Fowers, 2008; Schatz & Sharpe, 2006). Allan (2014) mentioned the importance of investigating strengths considering some pairs (for example, honesty and kindness; love and social intelligence), since when isolated, they may be less effective than when used together. The intellectual strengths found in factor 6 are close to the proposition by Allan (2014), once Curiosity indicates interest, search for novelties, and thirst for knowledge, while Love for learning concerns more systematized knowledge, even without external incentives. In other words, having Curiosity without Love for learning can lead the individual to be only interested in something, but without seeking a deepening and, consequently, growth in certain subjects.

Conclusions

The results of this research go in the same direction of other studies, indicating that the theoretical model proposed by Peterson and Seligman (2004) has no empirical support. Although a six-factor structure was identified, character strengths were arranged differently in the factors when compared to the original theoretical proposition.

We may consider as limitations of the present study, the fact that no analyses were conducted to indicate the influence of the socio-demographic characteristics of the participants in the responses to the items, which would minimize some possible scale biases. In this sense, it is important that further studies consider analyses that investigate the differential functioning, acquiescence, social desirability, and discriminatory power of the items in order to better understand such factor arrangements.

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