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Character Strengths and Psychological Wellbeing among Students of Teacher Education

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Abstract

The relation between character strengths and psychological well-being can have an important effect on students' academic performance. We examined relationships between character strengths and psychological well-being as assessed by the Values in Action Inventory of Strengths and Brief Symptom Inventory. A sample of 98 teacher education students participated. The participants showed high scores in character strength scales. The five character strengths with the highest scores were kindness, fairness, teamwork, love, and honesty. The participants scored higher in character strengths that focused on other people than in the strengths that focused on the self, and higher on the so-called "strengths of the heart" than on "strengths of the head". In our study, the character strengths most closely associated with well-being were love, humour, fairness, honesty, curiosity, and self-regulation. In conclusion, the character strengths are positively related to university students' psychological well-being.

Keywords: Character strengths, psychological well-being, university students, teacher education.

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Fortalezas de Carácter y Bienestar Psicológico en Estudiantes de Educación

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Resumen

La relación entre fortalezas de carácter y bienestar psicológico puede tener una importante repercusión en el rendimiento académico de los estudiantes. Hemos examinado las relaciones entre las fortalezas de carácter evaluadas mediante el Values in Action Inventory of Strengths y el bienestar psicológico mediante el Brief Symptom Inventory. La muestra estuvo compuesta por 98 estudiantes de formación de maestros. Los participantes mostraron altas puntuaciones en las fortalezas de carácter. Las cinco fortalezas de carácter más altas fueron bondad, justicia, trabajo en equipo, amor y honestidad. Los estudiantes obtuvieron puntuaciones más elevadas en fortalezas de carácter orientadas a los demás más que orientadas en sí mismo, y más orientadas al corazón (emoción) que a la mente. En nuestro estudio, las fortalezas de carácter más estrechamente relacionadas con el bienestar fueron el amor, el humor, la igualdad, la honestidad, la curiosidad y el autocontrol. En conclusión, las fortalezas de carácter se relacionan positivamente con el bienestar psicológico de los estudiantes.

Palabras clave: fortalezas de carácter, bienestar psicológico, estudiantes universitarios, formación de magisterio.

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The purpose of this study was to examine character strengths in relation to psychological well-being among students of teacher education. The study of psychological well-being has been extensively evaluated (Diener & Seligman, 2002; Cassullo & Castro, 2000). Psychological well-being has been related with positive and negative affect and life satisfaction (Stok, Okun, & Benin, 1986); it has been studied through anxiety, depressed mood and negative affectivity, observing that the expression of negative feelings or the presence of negative emotional states were associated with lower psychological well-being (Plancherel & Bolognini, 1995). The presence of lower levels of aanxiety has been related positively with approach coping (Griffith, Dubow, & Ippolito, 2000), and character strengths (Peterson & Seligman, 2004). Negative affect and depression usually related more to strengths weakening (Huta & Hawley, 2010).

The study of character strengths is conducted within the branch of psychology known as positive psychology and although until relatively recently positive psychology lacked "a cumulative empirical body of research" (Seligman & Csikszentmihalyi, 2000; Shimai, Otake, Park, Peterson, & Segliman, 2006), there is now a growing body of conceptual and empirical work dedicated to the subject. This has allowed researchers to reach a more precise definition of the outline of human well-being (Vázquez, Hervás, Rahona, & Gómez, 2009) and to focus more fully on protective factors than on risk factors when identifying the human strengths, virtues and positive emotions that explain personal well-being. In this regard, the study of character strengths shows that positive emotions broaden [people's] repertoires of desired actions (Fredrickson, Cohn, Coffey, Pek, & Finkel, 2008) and that positive emotions like joy or contentment facilitate the exploration of new life circumstances and interaction with others, favouring the growth of intellectual, emotional and social resources (Fredrickson, 2001).

One of the main aims of positive psychology is to help individuals cultivate and maintain a sense of personal well-being (Peterson & Seligman, 2004) and its central tenet is that character strengths contribute to individual well-being and happiness. One of the tools researchers used to measure these strengths is the self-report questionnaire the Values in Action Inventory of

Strengths (VIA-IS), which asks participants to consider the degree to which a series of statements describes what they are like. By identifying their strengths and virtues, the VIA-IS can help university students make the most of their stronger character traits (Peterson & Seligman, 2004).

As Hamrick, Evans and Schuh observe, "the college experience is widely regarded as offering many opportunities for students to develop" (Hamrick, Evans, & Schuh, 2002) in psychologically beneficial ways in terms of their values, skills, attitudes, knowledge, beliefs, identity and character traits. Pascarella and Terenzini (1991) found that students with greater interest in cultural and artistic activities were psychologically more mature, had a more positive self-image and experienced greater well-being. However, study environments can often be stressful (Zajacova, Lynch, & Espenshade, 2005) and involve a process of separation from the family, a heavy course load, the need to adapt to unusual circumstances or begin to work in a professional environment (Beck, Taylor, & Robbins, 2003; Carr, Colthurst, Coyle, & Elliot, 2012). It is therefore important for students to know their character strengths and understand that by developing these they will be able to think more positively about the stress they experience, reinforce their commitment to learning and, one day, apply this knowledge in the practice of their profession as teachers (Korthagen, 2004).

The character strengths and personal satisfaction of university students has long been viewed as a key outcome of higher education (Lounsbury, Saudargas, Gibson, & Leong, 2005). Student satisfaction is related to "a variety of other variables in which educators place great value" (Benjamin & Hollings, 1997), such as university services, quality of teaching, living arrangements, involvement in campus activities, course load, and goals and motivation. Students who use their strengths more report "higher levels of […] psychological well-being" (Linley, Nielsen, Gillet, & Biswas-Diener, 2010). In particular, the character strengths that individuals focus on other people or that are associated with their emotions are the strengths that most directly support personal well-being (Hutcherson, Seppala, & Gross, 2008; Park & Peterson, 2008a) and the development of "strong ties to friends and family" has been seen as a necessary condition for well-being (Diener & Seligman, 2002). The strengths love, curiosity, and gratitude have also been observed as "consistently and robustly associated with life satisfaction" and with positive mood (Park, Peterson, & Seligman, 2004). Finally, the most

motivated and dedicated students also score the highest in perseverance, zest and humour (Peterson, Park, & Sweeney, 2008). On the other hand, among the character strengths that least relates to life satisfaction researchers have observed modesty, creativity, appreciation of beauty, judgment, and love for learning (Park *et al*., 2004).

Universities are ideal settings for studying character strengths because these strengths are clearly involved in students' personal well-being, act as buffers and play an important role in motivating study. The subject of the present study was the relationship between psychological well-being and character strengths among students of teacher education. For example, wisdom virtue has been related with creativity, motivation, knowledge, and subjective well-being (Csikszentmihalyi, 1990; Avey *et al*., 2012). Among high school students, strengths oriented towards others (e.g., forgiveness, prudence) predicted fewer depression symptoms, while the strengths of Transcendence (e.g., gratitude) predicted greater life satisfaction (Gillham *et al*., 2011). In light of the literature reviewed above, we examined relationships between character strengths as assessed by the VIA-IS and BSI (Brief Symptom Inventory). We had three objectives: to describe students' character strengths, examine the relation between these strengths and BSI scales (somatization, obsession-compulsion, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, psychoticism, and Global Severity Index), and analyze the strengths which explained psychological well-being among the students.

Methods

Participants

Undergraduate students of teacher education (N = 98) at Barcelona (Spain) completed the survey during class time as part of psychological research that was administered. All the participants were first- or second-year students. The data were collected in the autumn and spring semesters of 2011 and 2012 respectively. Females represented 98% of the total sample. They were aged between 19 to 42 years (M = 23.5; SD = 4.0). In terms of family socio-economic status (FSS) (based on Hollingshead, 1975), 8 students (9.3%)

were low FSS, 16 (18.6%) were medium-low FSS, 20 (23.3%) were medium FSS, 26 (30.2%) were medium-high FSS and 16 (18.6%) were high FSS.

Materials
The questionnaires employed in this study were the following:

   Values in Action Inventory of Strengths (VIA-IS, Peterson and Seligman, 2004). The VIA-IS is a 240-item measure of character strengths, with each of 24 character strengths assessed by 10 items. The inventory is typically administered online, with an administration time of around 30-40 min. Students were instructed to answer each item in relation to '*whether the statement describes what you are like'*, and responses are fully anchored on a five Likert scale (1 = *very much unlike me;* 5 = *very much like me)*. It includes six virtues: wisdom, courage, humanity, justice, temperance and transcendence. The *wisdom* virtue contains five character strengths [Creativity (thinking of novel and productive ways to do things), Curiosity (taking an interest in all of ongoing experience), Perspective (understanding world, wise counsel to others), Judgment (weighing all evidence fairly), and Love of Learning (mastering new skills and knowledge)]. The *courage* virtue contains four character strengths [Perseverance (completing tasks one starts), Bravery (not shrinking from threat or difficulty), Honesty (presenting oneself in a genuine way), and Zest (approaching life with excitement and energy)]. The *humanity* virtue contains three character strengths [Social intelligence (understanding social world), Kindness (helping and taking care of others), and Love (valuing close relations with others)]. The *justice* virtue contains three character strengths [Leadership (organizing group activity), Fairness (treating everyone fairly and justly), and Teamwork (being a good team member)]. The *temperance* virtue contains four character strengths [Forgiveness (forgiving those who have done wrong), Self-regulation (regulating feelings and actions), Prudence (being careful about one's choices), and Humility (not overvaluing self)]. The *transcendence* virtue contains five character strengths [Spirituality (beliefs about purpose and meaning), Appreciation of beauty (awareness of excellence), Hope (expecting the best in the future and working to achieve it), Gratitude (thankfulness for good things), and Humor (seeing light side of life, linking to laugh)]. Scores for each of the 24 strengths have a potential range of 10

through 50, with higher scores indicating a greater endorsement of the strength. All subscales have been found to have acceptable internal consistency reliability (all $\alpha > .70$; Peterson, Park, & Seligman, 2006). In the present research, Cronbach's alpha coefficients for VIA-IS were as follows: Wisdom ($\alpha = .79$), Courage ($\alpha = .87$), Humanity ($\alpha = .47$), Justice ($\alpha = .86$), Temperance ($\alpha = .60$), and Transcendence ($\alpha = .82$).

Brief Symptom Inventory (BSI, Derogatis and Spencer, 1982). The Spanish adaptation (Ruipérez, Ibáñez, Lorente, Moro, & Ortet, 2001) of Brief Symptom Inventory (BSI) was employed. The BSI is a 53-item self-report inventory designed to reflect the psychological symptom patterns of psychiatric and general community groups. The participants responded to the questionnaire using a five-point Likert scale from zero (*not at all*) to four (*extremely*). It includes nine symptom dimensions (somatization, obsession-compulsion, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation and psychoticism), as well as a scale the Global Severity Index (GSI). Somatization dimension reflects distress arising from perceptions of bodily dysfunction. Obsessive-Compulsive dimension includes thoughts and actions the subject experienced as irresistible, irrational and involuntary. Interpersonal Sensitivity dimension focuses on feelings of personal inadequacy and inferiority, particularly in comparison with other. Depression dimension includes characteristic clinical symptoms as dysphoria, loss of energy and hopelessness. General signs such as nervousness and tension are included in Anxiety dimension, as are panic attacks and feelings of terror. Hostility dimension includes thoughts, feelings, or actions that are characteristic of the negative affect state of anger. Phobic Anxiety is defined as a persistent fear response –to a specific person place, object, or situation- that is irrational and disproportionate to the stimulus and leads to avoidance or escape behaviour. Paranoid Ideation dimension represents paranoid behaviour fundamentally as a disordered mode of thinking. Psychoticism scale was developed to represent the construct as a continuous dimension of human experience and Global Severity Index measure the overall level of psychological distress. The BSI has shown good construct validity and good test-retest reliability for the nine symptom dimensions, ranging from .68 for the Somatization scale to .91 for

the Phobic Anxiety scale (Derogatis, 1993). It is widely used in clinical and educational research (Khalil, Moser, Lennie, & Frazier, 2011).

Socioeconomic variables. By recording the level of education and current occupation of each student's parents it was possible to determine the family's socio-economic status by using Hollingshead's (1975) two-factor index of social position. The combination of parents' education and profession enables the family's social position to be classified across five social levels: high (range 55 to 66), medium-high (40 to 54), medium (30 to 39), medium-low (20 to 29) and low (8 to 19).

Design and procedure
The participants completed the screening instrument during their regular class periods, with their teachers' permission. They also received information about the screening procedures and the study itself. They were also told that their participation was completely voluntary and they could choose not to participate or not to answer any specific questions that made them uncomfortable and they all gave written informed consent. Anonymity and confidentiality were guaranteed by using identification codes for all the data obtained and three quarters of the students contacted (72.8%) agreed to take part. Those who declined to participate did not differ in age, socioeconomic status, or grade level from those who participated, but the rate of voluntary participation was higher amongst women than amongst men. The study was conducted in line with the guidelines of the Belmont Report (1978) and the Code of good research practice (University of Barcelona, 2010).

Data analysis
In the case of quantitative variables, the participants' characteristics were described using means and standard deviations. Bivariate correlations were calculated between BSI scales (Brief Symptom Inventory) and strengths of character (using the symptom dimensions somatization, obsession-compulsion, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, psychoticism and the distress index the Global Severity Index). Linear regression analyses were used to predict the relationship between presence of character strengths and BSI scales. The

Statistical Package for Social Sciences (SPSS) version 16.0 was used for data processing. In all cases, statistical significance was set at p <.05.

Results

Character Strength Scales in Students of Teacher Education
The first objective was to describe students' character strengths.
Character strength scores ranging from spirituality (M = 2.79) to kindness (M = 4.44). The six character strengths with the highest scores were kindness (M = 4.44), fairness (M = 4.23), teamwork (M = 4.23), love (M = 4.08), honesty (M = 4.03), and leadership (M = 4.03). And the six character strengths with the lower scores were spirituality (M = 2.79), self-regulation (M = 3.46), perspective (M = 3.62), creativity (M = 3.63), bravery (M = 3.76) and prudence (M = 3.76). The participants scored higher in character strengths that focused on other people (e.g., kindness [M = 4.44], fairness [M = 4.23], teamwork [M = 4.23]), strengths included within the virtues of humanity and justice, that in the strengths that focused on the self (e.g., creativity [M = 3.63], bravery [M = 3.76], prudence [M = 3.76]), see Table 1 and Table 2.

Correlations between BSI Scales (Brief Symptom Inventory) and Character Strengths
The second objective was to examine the relationship between BSI scale (somatization, obsession-compulsion, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, psychoticism, and Global Severity Index) and character strengths among students of teacher education. Eight scales of BSI correlated with character strengths. Examined within the categories of BSI, the following correlations were observed. The obsession-compulsive scale was correlated negatively with five strengths: perseverance (r = -.195, p = .036), bravery (r = -.224, p = .019), honesty (r = -.314, p = .002), social intelligence (r = -.188, p = .042), and hope (r = -.252, p = .010).
    The interpersonal sensitivity scale was correlated negatively with social intelligence (r = -.233, p = .015). The depression scale was correlated negatively with honesty (r = -.198, r = .034) and humility (r = -2.67, p =

.007). The anxiety scale was correlated positively with leadership (r = .194, p = .037), teamwork (r = .197, p = .035), gratitude (r = .227, p = .018). The hostility scale was correlated negatively with fairness (r = -.300, p = .003) and humility (r = -.193, p = .038). The anxiety phobic scale was correlated negatively with curiosity (r = -.285, p = .004), judgment (r = -.222, p = .020), perseverance (r = -.236, p = .014), and hope (r = -.181, p = .047). The paranoid ideation scale was correlated negatively with eight character strengths: curiosity (r = -.234, p = .015), perseverance (r = -.194, p = .037), honesty (r = -.181, p = .048), zest (r = -2.68, p = .006), social intelligence (r = -.330, p = .001), fairness (r = -.205, p = .029), appreciation of beauty (r = -.181, p = .047), and hope (r = -.207, p = .028). The Global Severity Index was correlated negatively with curiosity (r = -.218, p = .022), perseverance (r = -.180, p = .049), social intelligence (r = -.228, p = .018), and humility (r = -.186, p = .044). However, no statistically significant correlations were found between the somatization and psychoticism with character strengths; see Table 1 and Table 2.

Table 1.
Correlations between Brief Symptom Inventory (BSI) and character strengths of Wisdom, Courage,and Humanity virtues (VIA-IS).

Brief Symptom Inventory (BSI)	Character strengths (VIA-IS)											
	Wisdom virtue					Courage virtue				Humanity virtue		
	Cr	Cu	P	Jud	LL	Pers	Br	Ho	Ze	So	Ki	Lov
Somatization	.036	-.083	.082	-.014	.064	-.013	-.005	-.069	-.134	.101	.15	.025
Obsessive	.019	-.127	-.052	-.029	-.031	-.195*	-.224*	-.314*	-.136	-.188*	-.032	.052
Inter. Sensit.	-.05	-.16	-.028	-.131	-.061	-.17	-.102	-.12	-.169	-.233*	.044	.057
Depression	-.043	-.085	-.089	-.083	-.072	-.046	-.115	-.198*	-.129	.135	.049	.091
Anxiety	.073	.076	.12	.105	.151	.022	.128	.117	.112	.123	.13	.007
Hostility	.019	-.127	-.146	-.11	-.129	-.151	-.159	-.177	-.133	-.157	-.173	-.047
Anx. Phobic	-.016	-.285*	-.103	-.222*	-.109	-.236*	-.065	-.071	-.163	-.095	-.098	.056
Paranoid	.051	-.234*	-.077	-.157	-.007	-.194*	-.171	-.181*	-.268*	-.330*	-.091	.174
Psychoticism	.089	-.118	-.047	-.102	-.07	-.143	-.071	-.151	-.044	-.144	-.004	.029
GSI	-.028	-.218*	-.087	-.163	-.057	-.180*	-.073	-.161	-.169	-.228*	.007	.058
M	3.63	4.01	3.62	3.80	3.90	4.01	3.76	4.03	3.99	4.22	4.44	4.08
(SD)	(.5)	(.2)	(.4)	(.4)	(.5)	(.6)	(.5)	(.3)	(.4)	(.3)	(.2)	(.5)

Abbreviations: Cr, creativity; Cu, curiosity; P, perspective; J, judgment; LL, love of learning; Pers, perseverance; Br, bravery; Ho, honesty; Ze, zest; So, social intelligence; Ki, kindness; Lov, love; GSI, Global Severity Index; M, Media; SD, Standard Deviation.
* p<.05; ** p<.01

Table 2.

Correlations between Brief Symptom Inventory (BSI) and character strengths of Justice, Temperance and Transcendence virtues (VIA-IS)

Brief Symptom Inventory (BSI)	Character strengths (VIA-IS)											
	Justice virtue			Temperance virtue				Transcendence virtue				
	Lea	Fa	Te	Fo	Se	Pr	Hu	Sp	Ab	Ho	Gr	Hum
Somatization	.029	-.059	-.02	-.029	.07	.011	-.112	.063	-.095	-.073	.158	-.029
Obsessive	-.114	.007	-.081	-.073	-.096	-.051	-.022	-.019	-.168	-.252*	-.037	-.131
Inter. Sensit.	-.022	-.091	-.166	-.008	.042	.071	-.17	-.086	-.107	-.147	-.006	-.078
Depression	-.006	-.093	-.045	-.07	-.108	-.086	-.267*	.028	-.174	-.155	.084	-.14
Anxiety	.194*	.093	.197*	.032	.074	.172	-.001	.132	.046	.083	.227*	.003
Hostility	-.171	-.300*	-.171	-.167	-.15	-.02	-.193*	-.047	-.133	-.067	.019	-.171
Anx. Phobic	-.115	-.132	-.082	-.152	.035	-.021	-.138	-.047	-.152	-.181*	-.108	-.094
Paranoid	-.113	-.205*	-.121	-.07	-.067	-.069	-.102	-.163	-.181*	-.207*	.114	-.16
Psychoticism	-.069	-.116	-.123	-.014	-.042	.017	-.105	.13	.06	-.12	-.035	-.025
GSI	-.019	-.09	-.134	-.076	.06	.055	-.186*	-.041	-.143	-.135	.079	-.132
M	4.03	4.22	4.23	3.85	3.46	3.76	3.79	2.79	3.78	3.89	3.88	3.97
(SD)	(.4)	(.4)	(.3)	(.5)	(.5)	(.4)	(.5)	(.6)	(.5)	(.5)	(.4)	(.4)

Abbreviations: Lea, leadership; Fa, fairness; Te, teamwork; Fo, forgiveness, Se, self-regulation; Pr, prudence; Hu, humility; Sp, spirituality; Ab, appreciation of beauty; Ho, hope; Gr, gratitude; Hum, humour; GSI, Global Severity Index; M, Media; SD, Standard Deviation.

* p<.05; ** p<.01

Variables (Character Strengths) that Explain BSI scales (Brief Symptom Inventory) in Students of Teacher Education

The third objective was to analyze the strengths that explained psychological well-being among the students. The results of the linear regression indicated that 9.8% of the variance in obsession-compulsion (F = 9.136, p = .003) was described by honesty (Courage); 5.6% of the variance in hostility (F = 6.044, p = .016) was explained by fairness (Justice); 5.7% of the variance in phobic anxiety (F = 4.977, p = .028) was described by curiosity (Wisdom); and 10.7% of the variance in paranoid ideation (F = 6.078, p = .003) was explained by courage together with social intelligence (Courage and Humanity virtues, respectively). (See Table 3)

Table 3.
Linear regression analysis to determine the relationship between BSI scales and the independent study variables (character strengths, VIA-IS); corrected R (R², non-standardized coefficient (B), standard error, and standardized beta coefficient (β); analysis of variance and significance level.

Independent variables	Dependent variables	R^2	B	SE B	β	F	p
Constant	Obsession-compulsion	.098	3.887	.902			
Honesty (courage)			-.673	.223	-.313	9.136	.003
Constant	Hostility	.056	2.411	.697			
Fairness (justice)			-.406	.165	-.259	6.044	.016
Constant	Anxiety phobic	.057	1.555	.529			
Curiosity (wisdom)			-.295	.132	-.238	4.977	.028
Constant	Paranoid ideation		2.312	.606			
Zest (Courage)		.107	-.437	.152	-.297		
Social int. (humanity)			.049	.021	.237	6.078	.003

Dependent variables: BSI scales (obsession-compulsion, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and the Global Severity Index).
Independent variables (predictors): character strengths of VIA-IS.

Discussion

The first objective of this study was to describe students' character strengths. The participants showed high scores in character strength scales. The six character strengths with the highest scores were kindness, fairness, teamwork, love, honesty, and leadership. The participants scored higher in character strengths that focused on other people (e.g., fairness, teamwork) than in the strengths that focused on the self, and higher on the so-called "strengths of the heart" (e.g., kindness, love) than on "strengths of the head" (e.g., honesty, perseverance). Indeed, strengths focused on others have been observed to increase feelings of social connection and positivity towards others (Hutcherson *et al*., 2008), as well as positive emotions, sense of purpose, and mindfulness in general (Fredrickson *et al*., 2008). The strengths of the heart are also more clearly associated with well-being than the strengths of the head (Park & Peterson, 2008b; Park *et al*., 2004).

The second objective was to examine the relationship between BSI scales and character strengths among students of teacher education. Our results indicate that psychological well-being was related by strengths which involved maintaining good relations with others, just as paranoid ideation, obsession-compulsion and psychological distress negatively correlated with strengths focused on the self (e.g., zest, curiosity). As well, Diener and Seligman (2002) found that well-being was related to the presence of good interpersonal relations and an active involvement in the social community (Peterson, 2006). This finding confirms that the happiest people were the most gregarious and outgoing and maintained more satisfactory interpersonal relationships (Diener & Seligman, 2002).

The third objective was to analyze the strengths which explained psychological well-being among the students. In our study, the character strengths most closely associated with well-being were curiosity, honesty, zest, social intelligence and fairness. In particular, participants with high scores in curiosity revealed lower levels of phobic anxiety, paranoid symptoms and psychological distress. This finding confirms the proposal that curiosity is an important component of well-being and life satisfaction (Park *et al*., 2004) and that it is associated with the pleasure route to happiness (Peterson, Ruch, Beerman, Park, & Seligman, 2007). People with high scores in curiosity use more effective coping strategies to deal with potentially stressful situations and rely on wider social networks (Vazquez *et al*., 2009). This is in line with the findings of previous studies, in which curiosity has been associated with the meaning and engagement routes to

happiness (Peterson *et al*., 2007). Curiosity is the strength most closely related to life satisfaction and well-being at work (Park *et al*., 2004).

In our study, the participants who scored higher in honesty and zest and in strengths focused on others and on the head revealed lower levels of obsession-compulsion, depression and paranoid ideation. Park and Peterson also found that honesty was clearly related to fewer externalizing problems such as aggression (Park & Peterson, 2008a). In a crossectional study, Proctor, Maltby and Linley (2011) found that zest and hope were significant positive predictors of life satisfaction in 135 undergraduate university students. Previous research has demonstrated a robust association between the 'strengths of the heart' (hope, zest, gratitude, love and curiosity) and life satisfaction in a UK sample (Park *et al*., 2004; Peterson *et al*., 2007).

Those who scored high in social intelligence (empathy) revealed lower levels of obsession-compulsion, interpersonal sensitivity, paranoid ideation and global severity index. Social intelligence can also act as a buffer against the adverse psychological consequences of stress (Folkman & Moskowitz, 2000) and protect physical health (Pennix *et al*., 2001; Reed, Kemeny, Taylor, & Visscher, 1999). In a longitudinal study, Park and Peterson found that the most effective teachers (judged according to their students' level of learning using standardized tests) scored highest in social intelligence, zest, and humour (Park & Peterson, 2009). In the general population, Diener and Seligman found that "very happy people have the ability to move upward in mood when good situations present themselves" (Diener & Seligman, 2002).

Those who scored high in fairness (i.e., strengths focused on the self) revealed lower levels of hostility and phobic anxiety. This is in line with the findings of previous studies, in which fairness acted as a buffer against the negative effects of stress and trauma (Park & Peterson, 2009). This confirms the correlation made by other studies between moral reasoning development (fairness) and the ability to see the different sides of an argument or to solve an argument and facilitate relationships with others (Berkowitz & Gibbs, 1983).

In our study, no relation was found between somatic symptoms, psychoticism and character strengths. This may have been due to our participant profile (all were university students) and the fact that this was not a clinical sample. However, other authors have related somatic symptoms and character strengths. Emmons and McCullough, for instance, have related gratitude with increases in well-being in patients with neuromuscular illnesses (Emmons & McCullough, 2003).

Taken as a whole, our findings indicate that character strengths are positively related to university students' psychological well-being and this

confirms the proposals made in previous studies (Dahlsgaard, Peterson, & Seligman, 2005; Park, Peterson, & Seligman, 2006; Peterson *et al*., 2008). In particular, strengths that are focused on others and strengths of the heart would appear to be closely tied to psychological well-being (Diener & Seligman, 2002; Park *et al*., 2004).

The relation between character strengths and psychological well-being can have an important effect on students' academic performance (Lounsbury, Fisher, Levy, & Welsh, 2009; Shohani &Solne, 2013). The university environment offers students ample opportunity to build on their character strengths (for example, through student–teacher relationships, participation in learning communities, and developmental advising) and to obtain favourable academic results. It offers them the opportunity to feel more wholly integrated in a particular context and attain a greater sense of subjective well-being. With regard to this environment, however, one important outstanding question for research is the relationship between character strengths and university completion or dropout rates.

Important conclusions can be drawn from the present study for practitioners, university students, teachers, student advisers and related personnel. University teachers use character strengths in their teaching to help students attain the learning outcomes of higher education. A variety of activity types and interventions can help the teacher to increase positive psychology based on character strengths (Linley & Joseph, 2004; Seligman, Steen, Park, & Peterson, 2005; Seligman, Ernst, Gilhman, Reivich, &Linkins, 2009). Some relatively simple techniques can be used, such as reflection on the notions and implications of character strengths. Alternatively, questions about how we use specific character strengths in our teaching can provide advice for teachers on teacher character strengths (e.g., "How did your teacher work with students as a community of learners in which everyone was treated fairly and with respect?") or on student character strengths, (e.g., "Through what prisms should I be examining my students' learning and my own teaching?"). Furthermore, procedures can be designed to increase positive actions and experiences (McGovern, 2011).

Finally, it should be said that our findings remain somewhat limited by the fact that only one university was used in this study and by the fact that almost all the participants were women. Nevertheless, our results are consistent with those studies that have observed a clear relationship between character strengths and psychological well-being among university students. We conclude, therefore, that the university environment offers an excellent opportunity for individuals to develop their character strengths.

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