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RESEARCH PAPER

Is Good Character All that Counts? A Comparison Between the Predictive Role of Specific Strengths and a General Factor of "Good Character" Using a Bifactor Model

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Abstract
Character strengths have been found to consistently predict many positive psychological outcomes, such as well-being, life satisfaction, and mental health, but research on the topic is still at its infancy and some methodological limitations must be overcome to better understand what character strengths are and what is their role. One main issue concerns the structure of character strengths and virtues, which may undermine the credibility and replicability of previous findings. Using two different samples (with 13,439 and 944 participants), we confirm that character strengths can be well described by a bifactor model reflecting the simultaneous existence of a general factor of 'good character' and the 24 specific character strengths. We found that the general factor consistently predicts participants' life satisfaction, mental health, and distress symptoms. In addition, we show that the specific character strengths (with the few exceptions represented by gratitude, hope, and zest) do not predict life satisfaction and mental health above and beyond the general factor. These results highlight the need to better understand what this general factor really represents to finally capture the mechanisms linking character strengths between each other and with external outcomes. Implications for the measurement and interpretation of character strengths and for strength-based interventions are discussed.

Keywords Character strengths · Bifactor · Life satisfaction · Mental health · Positive psychology

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1 Introduction

Since the seminal work by Peterson and Seligman (2004) introducing the concept of character strengths, these have received increasing attention from psychological researchers and clinicians because their importance for individuals' well-being, growth, and self-actualization appears to be compelling. Research on character strengths, however, is still in its infancy, and there remains much to be done to overcome the limitations encountered so far and reach a broader consensus on their validity and meaning. For instance, character strengths were initially described as 24 strengths theoretically grouped into six core virtues, or "an abstract ideal encompassing a number of other, more specific virtues [strengths] that reliably converge to the recognizable higher-order category" (Peterson & Seligman, 2004, p. 35). Whether the theoretical connection between character strengths and virtues is best understood as a claim about factor structure (Feraco et al., 2022) or a classification scheme (Ruch & Proyer, 2015), different studies adopted a factorial approach but tended to find new and not-replicated factorial structures (see Feraco et al., 2022 for a review). In addition, the diversity of methodological approaches applied to study the structure and external validity of character strengths may make it more difficult to precisely comprehend what character strengths are (both theoretically and statistically) and what they do (what outcomes they relate to and what role they perform). Even if considering completely different approaches (e.g., testing how prototypical a strength is of a certain virtue; Ruch & Proyer, 2015) may be a solution to this issue, we could also theoretically think of character strengths in terms of a bifactor model (Ng et al., 2017), or in other words, to picture them as composed of a general factor – emerging from the positive correlation between strengths and capturing what we may refer to as "good character"– and the 24 specific character strengths. This approach, which excludes virtues from the measurement, also align with authors that suggest that virtues cannot be measured with the VIA questionnaires (Miller, 2019) for several different reasons, including the fact that a formative model (where strengths are the underlying cause of the virtues) could describe the link between strengths and virtues better than a reflective latent one. Importantly, this approach provides an opportunity to test whether it is the common factor that predicts external outcomes or whether the specific strengths also make unique contributions. Indeed, this common factor may have an important predictive role, possibly overshadowing that of specific character strengths. If that is the case, we would argue that the general factor is what counts and character strengths should be modeled and approached accordingly. Nonetheless, this would require further analysis of the general factor's theoretical meaning because model fit does not always equate to the existence of a psychological construct (Fried, 2020a).

1.1 Character Strengths: A Field Ripe with Potential

Character strengths are 24 positive morally-valued personality traits classified by Peterson and Seligman (2004) as constitutive of good character, or in other words, the psychological ingredients describing what is best in human beings. Examples include being curious and novelty-seeking, persevering despite obstacles, being kind and generous, appreciating and noticing expressions of beauty and excellence, being able to guide others, or self-regulating one's impulses and emotions. Character strengths can be seen as a subset of personality fac-

ets that specifically help define what a "good" person looks like, therefore possibly accounting for the moral implications of more general personality traits.

Since their theorization, character strengths' associations with several desirable outcomes have been studied (see Niemiec, 2013; Stahlmann & Ruch, 2020), ranging from positive functioning at work (Dubreuil et al., 2014; Harzer & Ruch, 2012, 2013), to flourishing interpersonal relationships (Goodman et al., 2018; Lavy et al., 2014), academic learning and satisfaction (Lounsbury et al., 2009), and personal growth (Casali et al., 2022; Lavy & Littman-Ovadia, 2017; Peterson et al., 2008). Particular focus has been devoted to subjective well-being, and especially life satisfaction (Bruna et al., 2019) – which has been used as the gold standard for external validity in almost every validation study of character strengths measures (e.g., VIA-IS measures) – and there is a growing interest in their protective role against depressive symptoms and mental health issues (e.g., Casali et al., 2021; Gander & Wagner, 2020; Petkari & Ortiz-Tallo, 2018; Tehranchi et al., 2018) and in their relationship with more comprehensive conceptualizations of well-being (e.g., PERMA, Wagner et al., 2020). Since this is a first attempt to compare the predictive validity of the general factor, we started by focusing on life satisfaction. In general, this growing literature concurs that character strengths are relevant malleable features that can be trained in order to increase well-being while also helping individuals manage adversity (Niemiec, 2020; Schutte & Malouff, 2019).

However, despite their strong theoretical basis, practical importance (Prasath et al., 2021; Ruch et al., 2020; Schutte & Malouff, 2019), and consistent findings regarding the role of character strengths for well-being, mental health, and personal growth, the model of character strengths is not without flaws and the theoretical connections linking character strengths and virtues are vague and open to different interpretations that may lead scholars to approach strengths and virtues differently (Miller, 2019). Indeed, most criticisms concern the measurement of character strengths and their factorial structure (see Feraco et al., 2022 for a brief review), the uncertainty of which undermines the theoretical assumptions at the core of the character strengths classification.

1.2 The Structure of Character Strengths and the General Factor of Character

Although the 24 character strengths were originally mapped to six virtues, studies on their factorial structure generally aggregated them into three, four, or five factors depending on the data at hand (Brdar & Kashdan, 2010; Casali et al., 2021; McGrath, 2015), with only a few studies adopting a confirmatory approach and even fewer confirming a structure based on the six original virtues (Feraco et al., 2022; McGrath, 2014; Ng et al., 2017). For this reason, studies involving the VIA-IS often start with a new exploratory analysis to reduce the 24 strengths into a smaller number of factors. This follows a strand of research reporting a low dimensionality of behavior, as evidenced in personality domain (the 'p factor'; Musek, 2007), in cognitive domains (the 'g' factor; Floyd et al., 2009), and also across them (Cona et al., 2019; Granziol & Cona, 2023), whereby individual differences in behavioural, psychological and cognitive traits were found to be effectively described by a low number dimensions.

This, however, makes the results of one study often not comparable to those obtained in previous or successive research because no one has ever found the same underlying factorial structure. Importantly, when the virtues vary in number and composition, their meaning, and

often even the names, vary too (Peterson & Seligman, 2004). So, why should virtues that are always different predict, for example, life satisfaction consistently? One of the most plausible explanations for this failure to consistently replicate the factorial structure of character strengths is that there might be a common cause that explains why almost all the character strengths are positively correlated with each other (see also Table 1 for an example), in line with the idea of low dimensionality of the behaviour, and the emergence of different factors is caused by small variations in the correlation matrix could. This transversal positive correlation, which is usually referred to as "positive manifold", has been taken as evidence in favor of a general factor for character (Casali et al., 2022; Cheng et al., 2018; Ng et al., 2017) that could aptly describe the structure of character strengths, allowing us to understand what character strengths really represent once and for all. Importantly, a general factor of character strengths frees us from considering virtues, whose structure is often difficult to replicate and that could be too abstract to measure. The measure of and reflection about virtues could thus remain theoretical or follow different approaches (Miller, 2019; Ruch & Proyer, 2015). On the other hand, under a reflective model, it is easier to depict a general factor of good character that might influence the way people generally use their strengths and thus explain their positive correlation.

1.2.1 The General Factor of Character Strengths

The idea of a general factor of character strengths is not new. In 2015, McGrath already suggested that a large portion of variance in character strengths can be explained by a first unrotated factor of "good character", but it is in 2017 that Ng and collaborators directly tested the viability of a general factor of character on an extremely large sample of participants (N=447,573). The authors reduced the original 240 items of VIA-IS scale to 107 items to achieve unidimensionality of each character strength subscale, and found out that a bifactor model described the data better than alternative models, where items belonging to a given character strength were allowed to cross-load onto other strengths theorized into the same virtue. Although the authors achieved this result after a modification of the full scale, shorter versions of the VIA-IS supported the unidimensionality of each character strength subscale (Feraco et al., 2022). Also, successive studies confirmed that a bifactor model well-describes the data collected with short instruments in different populations (Cheng et al., 2022), strengthening the assumption that the bifactor model is a valid model for character strengths and that it applies to different cultural contexts and measures.

Until now, however, character strengths researchers have not considered the predictive role of a general factor of character strengths, thus failing to distinguish the variance explained by the specific strengths (e.g., curiosity) and that explained by an overarching factor (i.e., the "good character"). For this reason, it is impossible to conclude whether specific strengths have incremental predictive validity above a general factor; an issue of primary importance, as it may lead to distinct assessment measures, diagnostic methods, or psychological interventions.

To further advance our understanding of what character strengths are, how they are structured, and why they are important these issues should be resolved.

1.3 Bifactor Models: Taking on Hierarchical Constructs

To tackle these questions, it is of primary importance to study the incremental predictive validity of general and specific scores. The bifactor model is a perfect fit for this aim (Chen et al., 2012; Gignac, 2007; Morin et al., 2020; Murray & Johnson, 2013; Reise, 2012; Zhang et al., 2021). Indeed, researchers have recently begun to recognize the opportunities of a bifactor approach, and the bifactor model has been increasingly applied to different fields of research in psychology in which constructs have hierarchical structures and facets are strongly correlated with each other (Zhang et al., 2021). The bifactor model defines the general factor and specific factors as independent of each other, offering great practical advantages compared to other approaches, like hierarchical models. In a bifactor model, the general factor captures all the variance the tasks/items have in common, whereas the specific facets capture what is unique to each facet after accounting for the variance explained by the general factor. In this way, the bifactor model can rigorously distinguish between the variance in the observed scores explained by the general factor and that explained by the specific factors and then use the latent variables specified in the model to predict outcome variables. Unsurprisingly, when this approach is adopted, the specific factors do not always provide results in line with expectations. It has been even the case that relationships between specific factors and outcomes variables are reversed compared to previous results (e.g., McAbee et al., 2014). This indicates that the positive role of some specific factors is fully explained by what they have in common with all the other facets, whereas their own specific contribution might be negligible or even negative.

Considering these points, we believe the field of character strengths could gain much from a similar approach, particularly in light of the fact that a bifactor model can well describe the structure of character strengths (Cheng et al., 2022; Ng et al., 2017) but has not been applied yet in this field to predict any outcome, probably due to its recent emergence. Although the advantages of the bifactor model are clear and a theoretical rationale behind it has been proposed, our study can only be a step forward toward the comprehension of what a general factor of character could theoretically mean and represent.

1.4 Rationale and Hypotheses

The positive correlation among character strengths may resemble the positive manifold of intelligence (the positive correlation linking all intelligence tasks) and, as already noted and tested (Cheng et al., 2022; Ng et al., 2017), a general factor of character strengths exists and can be aptly described by a bifactor model. However, both factorial and external validity must be achieved to confirm the presence and utility of a general factor.

The aim of this study is thus twofold:

- First of all, we aim to replicate the results by Ng and colleagues (2017) by studying whether a bifactor model fits the data well in two different samples and in two non-modified short versions of the VIA-IS: the VIA-IS-P and the VIA-IS-120, as already found in a Chinese sample (Cheng et al., 2022). This hypothesis is linked to a new conceptual approach to character strengths that considers them to be explained by a common factor rather than by multiple abstract virtues. This underlying common factor would both characterize each strength as well as be able to describe what we call "good

character". In this case, specific strengths would precisely indicate to what extent people are creative, curious, or perseverant, for example, after the variance explained by the general factor is partialled out.

- Subsequently, our main aim is to explore the predictive role of the general factor as well as each of the 24 specific character strengths after accounting for the general factor itself. To this aim, we will inspect the model's validity in predicting life satisfaction (i.e., the main external validity variable in character strengths studies) in a large sample of individuals as well as distress symptoms and general mental health in a second smaller sample, which might be more representative of research usually conducted in the field. This could strengthen the importance of the general factor by adding external validity to its theoretical and factorial validity.

The study was not preregistered, but we decided to replicate the findings on different datasets to ensure their robustness.

2 Materials and methods

2.1 Participants

All participants completed the VIA-IS measurements[1] online. All participants signed the informed consent statement on the VIA Institute on Character website (Sample 1) or on Qualtrics (Sample 2). The study was approved by the local university ethics committee. For Sample 1, all the data, including those from adolescents, were collected and anonymized following the privacy policy of the VIA Institute.

2.1.1 Sample 1

Data from 14,364 international participants were collected and provided by the VIA Institute on Character (see procedures section). These participants completed the VIA-IS-P and the Satisfaction With Life Scale (SWLS) directly on the Institute's website in English. Data for 925 participants were withdrawn because they did not complete the SWLS. Our final sample thus encompassed 13,439 participants who fully answered both questionnaires. Demographic information was voluntarily reported in the VIA Institute's standard format. Age was reported in age brackets: 436 (3%) reported being between 13 and 17 years old, 2643 (19%) between 18 and 24, 2051 (15%) between 25 and 34, 1860 (14%) between 35 and 44, 1484 (11%) between 45 and 54, 660 (5%) between 55 and 64, 173 (1%) between 65 and 74, and 26 (0.2%) older than 75. A total of 4027 (30%) did not report their age bracket. Gender was not available.

[1] Although the VIA-IS-P integrates new conceptualizations for some of the strengths (namely spirituality, self-regulation, love of learning, leadership, honesty, and humor), correlations between these strengths measured with the VIA-IS-120 are extremely high (ranging from 0.87 to 0.95, according to McGrath's Technical Report), which would speak to a good comparability of the two versions.

2.1.2 Sample 2

A second sample of 944 Italian participants (700 females; mean age = 37.24; SD = 14.50) was collected online using Qualtrics. These participants answered the Italian version of the VIA-IS-120 as well as measures of distress (DASS-21) and general mental health (GHQ-12). Participants in the second sample were contacted by email, social media or personal contact and completed the questionnaires on a voluntary basis. Sample 2 was used to confirm the results of the analyses run on the first sample and extend them to a more economical sample size and to other validity constructs, namely mental health and distress symptoms.

The data that support the findings of this study are available from the corresponding author only after receiving the permission of the VIA Institute on Character. Data could not be made directly available because of the privacy policies of the VIA Institute on Character.

2.2 Materials

2.2.1 Materials for Study 1

The *Values in Action Inventory of Strengths-P* (VIA-IS-P; McGrath, 2019) is a short form of the original VIA-IS (Peterson & Seligman, 2004). It is a 96-item questionnaire for measuring character strengths (see the VIA Institute https://www.viacharacter.org/ for a complete description). Each strength is measured with four items scored on a 5-point Likert scale (1 = "Very much unlike me" to 5 = "Very much like me"). For instance, curiosity and hope are measured with items such as "I am always curious about the world" and "I can always find the positive in what seems negative to others", respectively. The original measure showed high internal consistency for every strength (Cronbach's alpha range: 0.65–0.87, McGrath, 2019). Item scores were used in the bifactor model. Sum scores at the character strength-level were used to calculate strengths' scores for correlations (see Table 1).

The *Satisfaction With Life Scale* (SWLS, Diener et al., 1985) measures overall life satisfaction with 5 items (e.g., "The condition of my life are excellent") on a 7-point Likert scale (1 = "Completely disagree" to 7 = "Completely agree"). Average scores were calculated. The scale showed good internal consistency ($\alpha = 0.87$, Diener et al., 1985).

2.2.2 Materials for Study 2

The *Values in Action Inventory of Strengths-120* (VIA-IS-120; Littman-Ovadia, 2015; Peterson & Seligman, 2004; Italian version by Feraco et al., 2022). This is a longer instrument compared to the VIA-IS-P, consisting of 120 items equally distributed among the 24 character strengths. The original measure showed high internal consistency for every strength (Cronbach's alpha range: 0.67–0.90, Peterson & Seligman, 2004). In the Italian version, however, "love of learning" did not satisfy basic psychometric properties (i.e., the factor was not unidimensional and fit indices not acceptable) and thus will not be considered in this study. Item scores were used in the bifactor model.

The *Depression, Anxiety, and Stress Scales-21* (DASS-21, Lovibond & Lovibond, 1995; Italian validation by Bottesi et al., 2015) measures depression symptoms, anxiety in terms of somatic symptoms and fear responses, and stress in terms of tension, impatience, and irritability. Respondents indicate how often they felt in such a way in the previous week on

a 4-point Likert scale (0 = "Never happened" to 3 = "It happened almost every day"). A total general distress score was calculated (Cronbach's alpha = 0.90; Bottesi et al., 2015).

The *General Health Questionnaire-12* (GHQ-12, Goldberg, 1978; validated in Italian by Giorgi et al., 2014) measures general psychological health using 12 items. Respondents indicate how often they felt as described during the previous two weeks on a 4-point Likert scale (0 = "More than usual" to 4 = "Much less than usual"). A total score was calculated (Cronbach's alpha = 0.85; Giorgi et al., 2014).

2.3 Procedure

Two convenience samples were considered in this study. Data for Sample 1 were collected online through the VIA Institute of Character platform, where users who filled out a free English version of the VIA-IS-P were asked to voluntarily participate in our research by additionally completing the SWLS and then provide standard demographic information. For Sample 2, Italian participants were contacted by the researchers through personal contacts and social media. Those who agreed to participate voluntarily filled out the VIA-IS-120, GHQ-12, and DASS-21 via Qualtrics. No remuneration was given to the participants.

3 Statistical Procedure

To study the effect of the specific character strengths and the general character factor, a bifactor modelling approach was adopted because it allows for testing facets (specific character strengths) independently of both the general factor and the other facets. Indeed, the bifactor model first extracts the variance explained by the general factor (i.e., what is common between all items) and then, from the remaining variance, that of each facet (each specific strength), and posits all factors to be orthogonal. The latent factors obtained can subsequently serve as direct predictors of outcome variables, allowing us to compare the role of specific and general factors (Zhang et al., 2021). Despite these practical advantages, some critiques have been raised against the bifactor model. For example, in some cases, bifactor models produce anomalous results and unproper solutions, such as vanishing factors or negative variance estimates (Eid et al., 2017, 2018; Gignac, 2016; Zhang et al., 2021). To mitigate these possible negative effects, we examined a large sample size and replicated the findings in different samples and subsamples. In addition, we compare the bifactor model with alternative models, namely a hierarchical six-virtues model and the three-virtues model by McGrath (2015).

The analyses followed three steps that were replicated for both samples.

In Step 1, we first descriptively calculated the Pearson's correlations between each observed character strength and life satisfaction and between the latent variables obtained from the bifactor model (see Table 1).

In Step 2, a bifactor model of character strengths was specified and fit to the data to confirm this measurement model's goodness of fit in describing character data (see measurement model section). This was done by calculating the fit indices for the model, the Cronbach's alphas of the facets and of the general factor, and inspecting the loadings. In the bifactor model, all item scores were defined as simultaneously loading onto the general factor of character (which, depending on the sample, predicted all 96 or 116 items of the VIA-

IS measures) and onto their corresponding specific character strength (four or five items per strength, depending on the VIA-IS measure). All factors obtained were constrained to be orthogonal in accordance with the definition of the bifactor model. Given that Likert scale responses represent ordinal, not continuous, data, item scores were always treated as ordinal variables (Shi et al., 2020) to obtain more reliable estimates (Flora & Curran, 2004; Pastore & Lombardi, 2014). For this same reason, diagonally-weighted least squares (DWLS) was selected as the estimator over maximum likelihood (ML). Reliability coefficients (Cronbach's alphas) of each factor were calculated within the latent models. Finally, fit indices of the bifactor model were compared to those obtained with a classical hierarchical model in which the 24 character strengths are grouped in six second-order factors intended to represent virtues and with the three-factor model proposed by McGrath in which the 24 character strengths are grouped in three second-order factors (2015).

In Step 3, the bifactor model was fit but, in addition to Step 2, the outcome variables were added (see bifactor prediction section). In this case, the outcome variables (satisfaction with life in Sample 1 and distress symptoms and general mental health in Sample 2) were directly regressed on the latent factors of the 24 specific character strengths (23 in Sample 2, as love of learning was not included in the model due to unidimensionality issues; see Feraco et al., 2022) and the general latent factor. This allowed us to estimate the predictive validity of both the general and the specific factors of character strengths. Again, fit indices were evaluated to ensure that model fit remained stable and the model continued to fit the data well when adding the outcome variables to the covariance matrix.

Multiple fit indices were considered to test model fit: the comparative fit index (CFI), Tucker Lewis index (TLI), standardized root mean squared residual (SRMR), and root mean squared error of approximation (RMSEA). The RMSEA was included even though recent simulation studies suggest that the SRMR provides more reliable results compared to the RMSEA when the sample is large, the number of parameters is high, and ordinal data are considered (Maydeu-Olivares et al., 2018; Shi et al., 2020). No absolute standards for assessing a model's fit exist, but based on previous results on the VIA-IS structure (see Feraco et al., 2022 for a review), we decided to adopt a non-stringent cut-off rule. In particular, we considered models with CFI and TLI values of 0.90 or more, RMSEA values of 0.08 or less, and SRMR values of 0.09 or less as adequate (Bentler & Bonett, 1980; Schermelleh-engel et al., 2003).

All analyses run on Sample 1 were also run after splitting the sample in two (6720 and 6719 participants per subsample). These results, however, were almost identical to those obtained with the entire sample; therefore, we decided to only report the results obtained using the total sample and to comment on subsample results only briefly. Complete subsample results are available in the supplementary materials.

Given the large sample considered, p values would not be informative, as they are significant even for negligible effects in such cases. We thus focused on the magnitude of the effects and considered all standardized beta coefficients lower than 0.10 as negligible.

All analyses were run using the R (R Core Team, 2020) package lavaan (Rosseel, 2012). R code is available at https://doi.org/10.6084/m9.figshare.19772995. Part of the code (i.e., VIA-IS scorings) is blinded due to privacy policies of the VIA Institute, but can be easily obtained contacting the VIA Institute.

4 Results

4.1 Correlational Analysis

Bivariate correlations between each character strength and life satisfaction were calculated (see Table 1). The results show that all character strengths except humility ($r = .08$) have a positive correlation with life satisfaction. Three of these correlations were higher than 0.30 (gratitude, hope, and zest), nine were between 0.20 and 0.30, and eleven were between 0.10 and 0.20. These results refer to character strengths' sum scores and not to the specific character strengths scores obtained in the following analyses.

4.2 Measurement Model

The bifactor model of character strengths (see Fig. 1), including the general factor and the 24 specific factors of character strengths measured by the VIA-IS-P, showed acceptable fit indices, as calculated on the entire Sample 1 and its two subsamples (see Table 2 for the complete set of fit indices). In particular, the CFI (0.91), TLI (0.91), and SRMR (0.08) fell within the cut-off values, while the RMSEA value was slightly higher than expected (0.09). The model explained 55% of the variance in each item on average. Of this variance, 38% could be attributed to the general factor and 62% to the specific factors, highlighting that both are important in explaining item scores. The model loadings were generally acceptable (all loadings are reported in Table S1 and Table S2 in the supplementary materials), with a mean value of 0.45 (SD = 0.09) for the general factor (range: [0.17; 0.67]) and a mean value of 0.56 (SD = 0.16) for the specific factors (range: [0.12; 0.86]). Only nine items had loadings lower than 0.30 on one of the corresponding factors. Only two items had a difference in loading higher than 0.05 when comparing the results obtained in the first and second subsamples. All reliability coefficients were acceptable: Cronbach's alpha ranged between 0.72 and 0.90 for the specific strengths and was equal to 0.96 for the general factor (see Table 1 and Table S3 in the supplementary materials). These results confirmed that the bifactor model represents character strengths well and could be used in the successive predictive analysis.

Additionally, a hierarchical model with the items loading onto their corresponding specific character strength factor and the latent character strengths factors loading onto their corresponding virtue (Peterson & Seligman, 2004) was fit to the data. This model, however, yielded unacceptable fit indices (CFI = 0.48; TLI = 0.47; SRMR = 0.19; RMSEA = 0.20). A second hierarchical model was then fit, specifying the virtues as correlated with each other. In this second case, fit indices increased and resembled those of the bifactor model (CFI = 0.91; TLI = 0.91; SRMR = 0.08; RMSEA = 0.08). However, the median correlation between virtues was 0.80 (i.e., eight out of 15 correlations were higher than 0.80), with a maximum of 0.95. These very high values make it difficult to conceptually and statistically separate them and regress them on external outcomes without multicollinearity issues. Moreover, in our opinion, such high correlations point again to the existence of a general factor of character strengths. For these reasons and due to the practical advantages of the bifactor model, we elected to use the bifactor compared to the hierarchical model in further analyses.

Table 1 Observed (below the diagonal) and latent (above the diagonal) correlations between character strengths and life satisfaction (Sample 1). Latent scores were calculated only after the general factor variance was partialled out

	1.	2.	3.	4.	5.	6.	7.	8.	9.	1.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.
1.Appreciation	-	0.00	0.05	0.19	−0.07	−0.05	0.08	−0.15	−0.09	−0.05	−0.13	0.00	−0.19	0.10	0.13	−0.01	−0.26	−0.03	−0.11	−0.22	0.07	0.07	−0.09	0.00	−0.09
2. Bravery	0.26	-	0.27	0.04	−0.15	−0.19	−0.17	−0.03	−0.11	0.09	−0.02	−0.03	0.24	0.02	−0.04	−0.19	−0.02	0.03	−0.20	−0.10	−0.03	−0.08	−0.10	−0.05	−0.19
3.Creativity	0.31	0.49	-	0.30	−0.17	−0.16	−0.17	−0.14	−0.1	0.14	−0.05	−0.15	0.14	0.17	−0.13	−0.17	−0.12	0.11	−0.15	−0.15	−0.06	−0.07	−0.17	−0.03	−0.21
4.Curiosity	0.43	0.39	0.57	-	−0.13	−0.13	−0.04	−0.18	−0.04	0.07	−0.12	−0.08	−0.01	0.32	−0.02	−0.17	−0.23	−0.02	−0.22	−0.20	−0.09	−0.10	−0.06	0.08	−0.05
5.Fairness	0.19	0.16	0.16	0.19	-	0.39	−0.05	0.10	−0.07	−0.07	0.10	0.11	−0.14	−0.05	−0.07	0.21	−0.04	−0.08	0.11	−0.04	−0.03	−0.10	0.07	−0.21	−0.06
6.Forgiveness	0.20	0.12	0.14	0.19	0.57	-	0.04	−0.04	0.02	−0.10	0.00	0.05	−0.18	−0.08	−0.03	0.16	−0.09	−0.16	−0.02	−0.07	−0.06	0.04	0.11	−0.04	0.02
7. Gratitude	0.41	0.25	0.25	0.37	0.30	0.38	-	−0.05	0.24	−0.06	−0.13	−0.10	−0.10	−0.08	0.09	−0.04	−0.14	−0.07	−0.07	−0.09	−0.10	0.14	−0.07	0.14	0.61
8.Honesty	0.18	0.32	0.21	0.20	0.37	0.28	0.35	-	−0.06	−0.06	0.14	0.09	−0.06	−0.09	−0.06	0.12	0.26	0.01	0.19	0.19	−0.10	−0.10	−0.03	−0.18	0.05
9.Hope	0.32	0.33	0.35	0.44	0.31	0.38	0.64	0.38	-	−0.01	−0.04	−0.20	−0.09	−0.07	−0.09	−0.07	−0.02	−0.07	−0.05	−0.04	−0.15	−0.07	−0.08	0.14	0.60
10. Humor	0.15	0.30	0.33	0.31	0.15	0.13	0.22	0.17	0.31	-	−0.01	0.07	0.08	−0.09	0.02	−0.13	−0.18	0.03	−0.17	−0.19	0.16	−0.16	0.00	−0.04	−0.07
11. Judgment	0.13	0.23	0.23	0.20	0.32	0.22	0.20	0.37	0.31	0.19	-	−0.07	−0.05	0.05	−0.20	0.13	0.20	0.07	0.52	0.21	−0.18	−0.12	−0.03	−0.22	−0.11
12. Kindness	0.28	0.30	0.24	0.28	0.36	0.32	0.33	0.37	0.30	0.30	0.22	-	−0.03	−0.07	0.13	0.06	−0.11	−0.10	−0.08	−0.17	0.19	−0.07	0.17	−0.17	−0.21
13. Leadership	0.18	0.51	0.44	0.35	0.23	0.18	0.30	0.29	0.39	0.30	0.26	0.36	-	0.00	−0.05	−0.24	0.01	0.21	−0.14	−0.03	0.05	−0.14	0.03	−0.05	−0.01
14. Love of learning	0.35	0.33	0.43	0.53	0.25	0.22	0.32	0.27	0.38	0.14	0.32	0.28	0.37	-	−0.08	−0.04	−0.08	0.08	−0.02	−0.10	−0.16	−0.10	−0.13	−0.08	−0.10

Table 1 (continued)

	1.	2.	3.	4.	5.	6.	7.	8.	9.	1.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.
15. Love	0.35	0.25	0.18	0.29	0.19	0.24	0.42	0.24	0.35	0.20	0.08	0.37	0.27	0.22	-	−0.07	−0.18	−0.06	−0.15	−0.18	0.21	0.03	0.03	−0.01	0.07
16. Humility	0.17	0.05	0.09	0.08	0.36	0.32	0.25	0.31	0.23	0.05	0.28	0.26	0.07	0.19	0.13	-	0.10	−0.04	0.25	0.11	−0.03	0.04	0.05	−0.18	−0.11
17.Perseverance	0.06	0.26	0.20	0.15	0.23	0.19	0.30	0.43	0.42	0.07	0.36	0.19	0.31	0.25	0.15	0.29	-	−0.05	0.27	0.53	−0.21	−0.07	−0.02	−0.02	0.11
18.Perspective	0.27	0.35	0.40	0.35	0.22	0.15	0.30	0.31	0.37	0.25	0.34	0.28	0.49	0.38	0.25	0.18	0.26	-	0.15	0.00	0.08	−0.07	−0.21	−0.22	−0.07
19.Prudence	0.11	0.03	0.10	0.06	0.29	0.19	0.22	0.34	0.25	0.01	0.59	0.15	0.14	0.21	0.08	0.38	0.42	0.33	-	0.39	−0.10	−0.03	−0.04	−0.22	−0.02
20. Self-regulation	0.07	0.19	0.18	0.15	0.22	0.21	0.32	0.39	0.40	0.05	0.38	0.15	0.25	0.22	0.13	0.31	0.66	0.26	0.54	-	−0.17	−0.02	−0.07	0.00	0.12
21. Social intelligence	0.36	0.33	0.31	0.34	0.31	0.27	0.37	0.26	0.39	0.37	0.18	0.49	0.44	0.26	0.45	0.21	0.16	0.43	0.15	0.18	-	−0.03	0.04	−0.14	−0.18
22. Spirituality	0.36	0.25	0.27	0.30	0.19	0.28	0.56	0.25	0.45	0.11	0.14	0.25	0.26	0.28	0.33	0.20	0.24	0.29	0.18	0.29	0.33	-	0.03	0.03	0.00
23. Teamwork	0.18	0.19	0.15	0.22	0.34	0.35	0.31	0.28	0.34	0.20	0.21	0.43	0.34	0.19	0.29	0.26	0.25	0.14	0.19	0.23	0.37	0.28	-	0.05	−0.01
24.Zest	0.34	0.39	0.41	0.53	0.19	0.28	0.56	0.26	0.61	0.34	0.13	0.33	0.44	0.35	0.39	0.09	0.34	0.27	0.06	0.33	0.41	0.42	0.39	-	0.39
25. SWLS	0.13	0.13	0.12	0.27	0.18	0.20	0.48	0.25	0.47	0.14	0.14	0.14	0.25	0.19	0.27	0.08	0.27	0.22	0.16	0.27	0.19	0.22	0.19	0.42	-

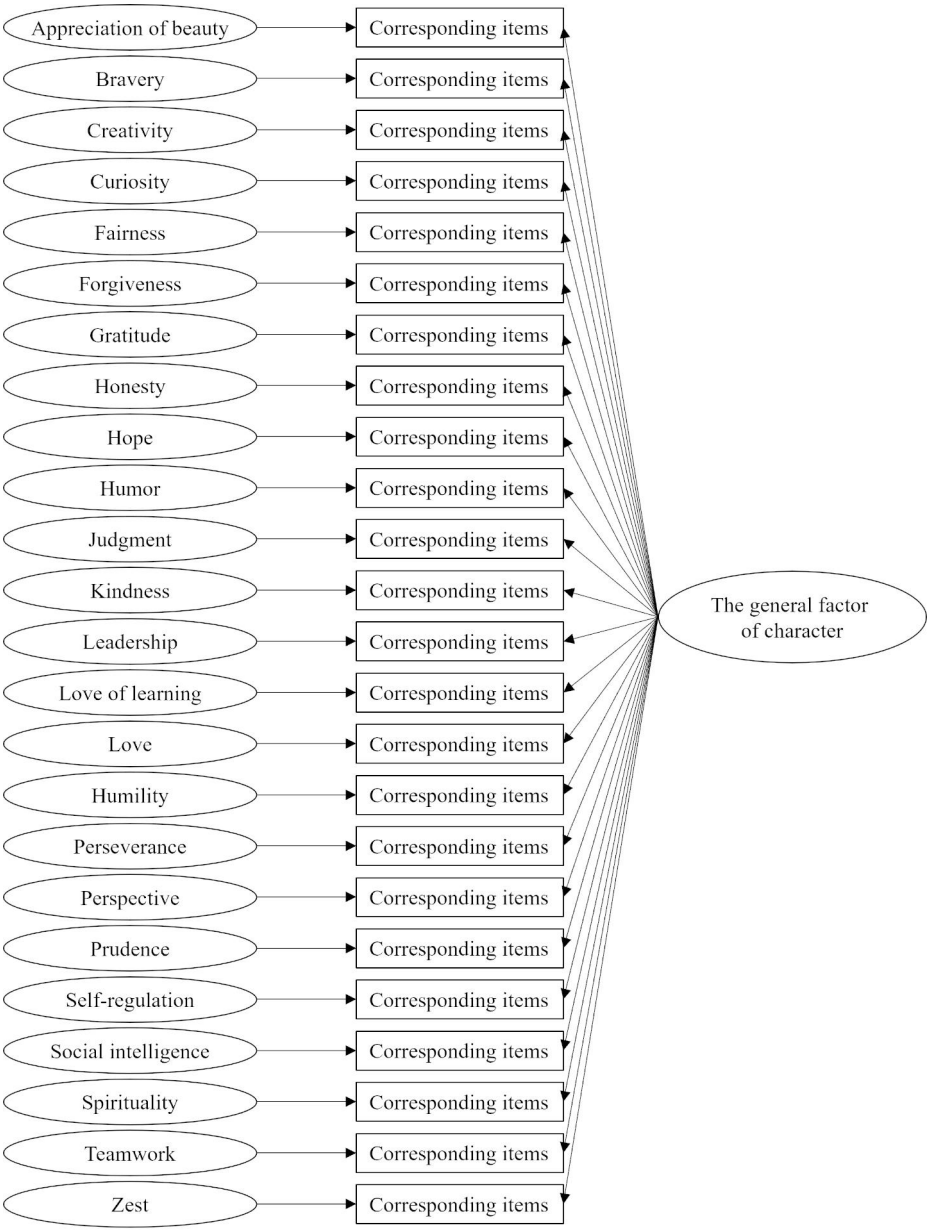

Fig. 1 The bifactor model of character strengths

Similar results were obtained from the three-factor model of character strengths (McGrath, 2015). In this case, fit indices were slightly better than those obtained with the bifactor model (CFI = 0.93; TLI = 0.93; SRMR = 0.07; RMSEA = 0.08). However, the latent correlations between virtues were again high: Caring correlated 0.78 with Inquisitiveness and 0.61 with Self-control at the latent level. The three scores also showed multicollinearity

issues when inserted into a regression model (the variance inflated factor was moderately high for Caring: VIF = 5). Again, despite the slightly better fit to the data, for theoretical, practical, and multicollinearity reasons we still preferred the bifactor model.

4.3 Bifactor Predictions

The bifactor model of character strengths was then used to predict participants' life satisfaction. The latent score of life satisfaction (i.e., the latent variable composed of the five SWLS items) was calculated within the model. In this case, fit indices were slightly better than when life satisfaction was not included (CFI = 0.92; TLI = 0.91; SRMR = 0.08; RMSEA = 0.08), and the loadings and percentage of variance explained by the specific factors and by the general factor (62% and 38% respectively) were in line with the measurement model (see Table S1 and Table S2 in the supplementary materials for the loadings). We thus inspected the relationships between the character strengths factors (general and specific factors) and life satisfaction.

The results (see Table 3; Fig. 2) showed that the general factor had a medium positive relation with participants' life satisfaction ($\beta = 0.44$), while the specific character strengths had generally negligible associations with life satisfaction. More specifically, only specific gratitude ($\beta = 0.46$), specific hope ($\beta = 0.39$), and specific zest ($\beta = 0.28$) exhibited positive associations with life satisfaction. Other character strengths (i.e., specific bravery, specific creativity, specific kindness, specific humility, and specific social intelligence) showed negative, albeit small, associations with life satisfaction ($-0.16 < \beta < -0.10$). The other 16 character strengths showed negligible associations with life satisfaction ($\beta < |0.10|$). The results were consistent across the two subsamples (see Table 3), with the highest standardized beta difference between the first and the second subsample being 0.06 in the case of specific appreciation of beauty. This difference caused specific appreciation of beauty to have an effect that could be interpreted as negligible in the first subsample ($\beta = -0.05$) and small but negative in the second subsample ($\beta = -0.11$). No other specific strengths showed such differences in the two subsamples.

4.4 Replication

To strengthen our results and check whether they can be extended to different populations (e.g., Italian respondents; smaller samples), different character strengths measures (i.e., VIA-IS-120), and different dependent variables (i.e., general mental health and distress symptoms), we fit the bifactor model on Sample 2 and subsequently tested the associations between the specific and general components of character with the two outcome variables. The results showed again that the bifactor model had acceptable fit indices, except that the TLI index was slightly worse than expected (CFI = 0.90; TLI = 0.89; SRMR = 0.08; RMSEA = 0.08). The variance explained was in line with the results obtained with Sample 1 (i.e., 40% of the total variance explained was attributable to the general factor), and the mean of the factor loadings was 0.43 (SD = 0.14) for loadings onto the general factor and 0.50 (SD = 0.22) for loadings onto the specific strengths.

Furthermore, the results (see Table 3) of the second model including total scores on the GHQ-12 and DASS-21 are consistent with each other and with those obtained in the previous sample for life satisfaction. In particular, the general factor was positively related to

Table 2 Fit indices of the bifactor models fitted in every sample and subsample considered

Models	Sample	CFI	TLI	SRMR	RMSEA
Measurement models	Sample 1, total	0.91	0.91	0.08	0.08
	Subsample 1	0.91	0.91	0.08	0.08
	Subsample 2	0.91	0.90	0.08	0.08
	Sample 2	0.90	0.89	0.08	0.08
Predictive models	Sample 1, total	0.92	0.91	0.07	0.08
	Subsample 1	0.92	0.92	0.07	0.08
	Subsample 2	0.92	0.91	0.08	0.08
	Sample 2	0.90	0.89	0.08	0.08

Note. Sample 1, total = total sample (N = 13,439); Subsample 1 = first subsample (N = 6720); Subsample 2 = second subsample (N = 6719); Sample 2 = Italian sample (N = 940)

Table 3 Standardized beta values of the associations between the general factor, character strengths (calculated within the bifactor model) and criterion variables

	Total	S1	S2	Sample 2	
Variable	SWLS			GHQ-12	DASS-21
g	0.44	0.44	0.44	0.30	0.26
Appreciation of beauty	−0.08	−0.05	−0.11	−0.32	−0.16
Bravery	−0.14	−0.14	−0.14	−0.11	−0.10
Creativity	−0.16	−0.13	−0.18	−0.09	0.01
Curiosity	−0.02	0.00	−0.04	−0.03	0.07
Fairness	−0.04	−0.03	−0.04	−0.28	−0.26
Forgiveness	0.00	0.00	0.00	0.12	0.01
Gratitude	0.46	0.49	0.44	0.15	0.12
Honesty	0.05	0.06	0.04	−0.04	−0.10
Hope	0.39	0.40	0.38	0.38	0.26
Humor	−0.04	−0.04	−0.04	−0.07	0.04
Judgment	−0.08	−0.09	−0.07	−0.15	−0.12
Kindness	−0.15	−0.14	−0.16	−0.27	−0.21
Leadership	0.01	0.01	0.02	−0.18	−0.10
Love of learning	−0.06	−0.06	−0.06	-	-
Love	0.08	0.09	0.07	0.05	0.02
Humility	−0.10	−0.10	−0.09	−0.02	−0.04
Perseverance	0.08	0.08	0.08	0.09	−0.00
Perspective	−0.03	−0.03	−0.03	−0.14	−0.09
Prudence	−0.01	−0.03	0.00	0.02	−0.05
Self-regulation	0.09	0.09	0.09	0.12	0.09
Social intelligence	−0.12	−0.11	−0.13	−0.36	−0.22
Spirituality	−0.02	0.01	−0.04	0.02	0.06
Teamwork	−0.02	−0.04	−0.00	−0.04	−0.07
Zest	0.28	0.28	0.27	0.31	0.25

Note. Total = total sample (N = 13,439); S1 = first subsample (N = 6720); S2 = second subsample (N = 6719); g = general factor; SWLS = satisfaction with life scale; GHQ-12 = general mental health questionnaire; DASS-21 = depression anxiety and stress symptoms

DASS-21 (β = 0.30) and GHQ-12 (β = 0.26) scores. Only specific gratitude, specific hope, and specific zest showed a positive relationship with both outcomes. Specific forgiveness and specific self-regulation exhibited a small but positive relation with DASS-21 scores only. Differently from the previous findings, many specific factors showed negative association with the outcome variables, the largest being specific appreciation of beauty, specific fairness, specific kindness, and specific social intelligence (β < – 0.20). The complete set of

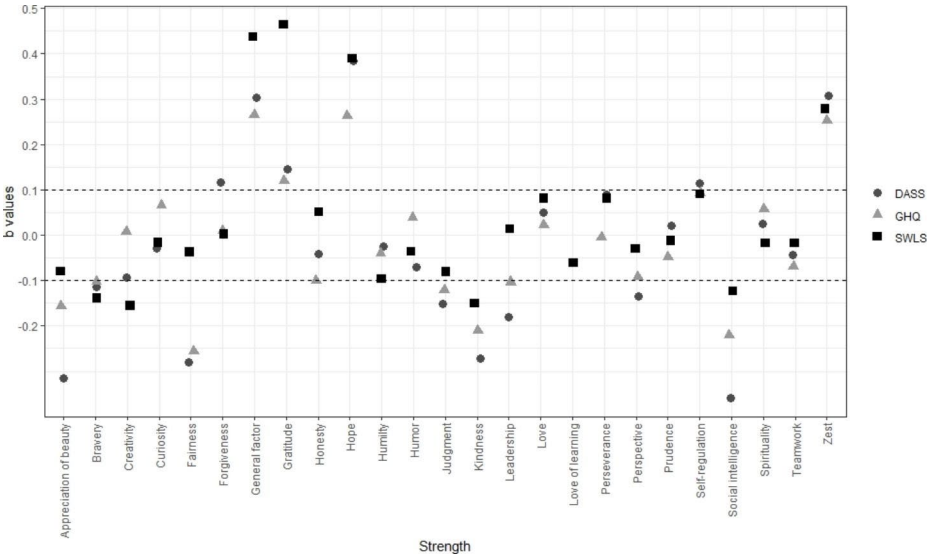

Fig. 2 Associations between specific character strengths and general factor with life satisfaction (Sample 1) general mental health (Sample 2) and absence of distress symptoms (Sample 2). Note: SWLS = satisfaction with life scale; GHQ = general mental health questionnaire; DASS depression anxiety and stress symptoms. Character strengths scores are calculated after removing all the variance explained by the general factor

results is available in Table 3 and graphically presented in Fig. 2 together with results from Sample 1.

Correlations between all variables included in Sample 2 are reported in the supplementary materials (Table S4).

5 Discussion and Conclusions

Character strengths are fundamental ingredients for individuals' well-being and growth (Bruna et al., 2019; Niemiec, 2013; Peterson & Seligman, 2004), but do creativity, curiosity, appreciation of beauty, or love all similarly favour such outcomes, and if so, why? Our results suggest that all character strengths have something in common, likely a general positivity component, that can answer these questions and help resolve the debate concerning the theoretical and factorial structure of character strengths. In fact, (i) the bifactor model we tested fit the data well –as already found by Ng and collaborators (2017)–, highlighting the simultaneous presence of a general character factor and the 24 specific strengths; (ii) this model yielded similar fit indices compared to three different competing models, with the latters that, however, also yielded very high correlations between virtues that may undermine their practical utility and ability to differentiate between virtues; (iii) the general character factor was positively related to the external outcomes considered while the specific strengths were mainly not. Said differently, the uniqueness of character strengths does not seem to count as much, at least for the outcomes we considered –although these include life satisfaction, which has been regarded as the main outcome of character strengths. Indeed,

applying a bifactor model for the first time in character strengths studies, we found that a general factor for character strengths is strongly associated with participants' life satisfaction (Sample 1) and with their mental health and distress symptoms (Sample 2). After accounting for this variance, among the 24 specific character strengths, only specific zest, specific gratitude, and specific hope consistently emerged as positively related to the outcome variables considered. These results are in line with previous literature consistently identifying these strengths as most highly related to life satisfaction (see Bruna et al., 2019) and may suggest that a general positive orientation towards life (as expressed by approaching it with enthusiasm, appreciating and valuing what one has, and trusting the future) is key to being content with one's life conditions. Furthermore, as suggested by Park et al. (2004), these three strengths represent different time orientations that may help explain life satisfaction: Gratitude is about being happily connected to one's past, zest is related to contentment in the here and now, and hope to trusting in the possibility of future satisfaction. Other specific strengths showed only marginal or negative associations with life satisfaction and mental health and/or positive associations with distress symptoms, in contrast to previous literature applying other statistical approaches. Importantly, the bifactor model fit the data well, as highlighted by acceptable fit indices, high reliability coefficients, the percentage of variance explained by each factor in the observed scores, high loadings, and direct comparison with the competing hierarchical models. This calls into question the traditional structure of character strengths as composed of strengths and virtues (with the latter seen as second-order factors): Our results suggest that their structure could be also described as composed of a general character factor and the specific character strengths, as previously highlighted by Ng and colleagues (2017).

This solution has theoretical implications but also practical advantages. These results, despite seeming to contradict most previous research on character strengths, can be easily integrated into our knowledge of strengths, or even better justify how positive interventions are carried out.

5.1 The Nature of the General Factor of Character Strengths

Theoretically, the general factor may capture part of the variance explained by the tendency of people with good character to positively answer the VIA-IS measures (i.e., social desirability), but at the same time, it may also capture a "good character" factor that drives people with higher character strengths to exhibit better emotional, behavioural, and cognitive regulatory abilities, as per the definition of character strengths (Park et al., 2004). Other explanations may consider the general factor as proactivity and self-efficacy, in line with the findings of McGrath (2015) who show that the first unrotated factor extracted from the VIA-IS scale is correlated with openness, conscientiousness, and neuroticism, but not agreeableness. Another recent effort (Furr et al., 2022) suggested the possibility of assessing global moral character with a first-person approach (i.e., through general items purely framed in terms of morality and goodness). In this view, moral character consists of both thoughts (thinking about acting in a virtuous way) and behaviors (acting morally) and is defined as an individual's general tendency to think being moral is important, to be motivated to morality, to behave in ways that are moral, and to see themselves as moral. Additionally, a general factor of character could align with the (neo)Aristotelian concept of "practical wisdom" (Miller, 2019), an intellectual meta-virtue that integrates all virtues and adjudi-

cates internal conflicts between them (e.g., clashing of honesty and compassion), leading to excellence in moral decision-making and truly moral action (Kristjánsson et al., 2021). Unfortunately, we are not able to distinguish between different explanations of the general factor, but following previous evidence and based on the discussion by Ng and collaborators (2017), who first analysed a bifactor model of character strengths, we may think of the good character factor as the disposition individuals hold that allows them to find meaning and fulfilment in what they do when applying their character strengths. A creative person, for example, could enjoy their creativity, share it with others, and use it for someone else's happiness, regardless of how creative the products of such endeavours really are. It is how they use their creativity – and not how good they are – that makes creativity part of their good character. Before reaching a conclusion, however, future studies may wish to include a measure of social desirability in order to fully capture the composition of the general factor for character strength, which our results indicate is really important for individuals' health and well-being. It will also be necessary to understand the directionality of the relationship between observed scores and the general factor. In fact, our model is statistically equivalent to other models and good fit to the data do not demonstrate that the general factor exists as we postulate (Fried, 2020a, b). For example, the latent framework we adopted assumes that it is the general factor that (partially) causes participants' responses, but this cannot be tested with cross-sectional data. Future studies should put this hypothesis at test using longitudinal or experimental data collections to corroborate the (causal) role of the general factor of character.

5.2 Criterion Validity and strength-based Interventions

Another interesting point of reflection that emerges from the general component is why character strengths are actually associated with life satisfaction. In fact, while the classical assumption that people endowed with higher character strengths tend to approach and perceive life in a more positive manner might hold true, it could also be the case that social desirability or other factors explain this association. In particular, given that character strengths correlate and form a general factor, people with higher character strengths might simply have a better "character" in general and are consequently more appreciated by other people or partners (Kashdan et al., 2018). This could boost their life satisfaction, as it is known that people with better social relationships experience higher life satisfaction (Diener & Seligman, 2002; Pavot & Diener, 2008). Future studies should put these or other competing hypotheses to the test to definitively explain the link between character strengths and life satisfaction.

In line with the hypothesis that a "good character" component might at least partially explain the general factor of character strengths are the results of strength-based interventions and the general approach to strength-based interventions. Indeed, character strengths interventions aim at increasing individuals' awareness and use of their strengths in daily life to benefit themselves, other people, and/or society; usually, the goal is not developing strengths per se, and it is unclear whether interventions can improve the trait levels of individual strengths (Ruch et al., 2020). Interventions are carried out in many different ways, e.g., by either generically training all 24 strengths in all participants, or by personalizing the intervention and focusing on specific sets of strengths, such as individual signature strengths (i.e., each participants' top strengths) or lower strengths (see Niemiec, 2017 for a

more detailed overview). As recently discussed by Ruch et al. (2020), there is no evidence regarding the superiority of any of these treatments. It could be argued that this means they are all equally (or at least similarly) effective because what really matters is nurturing good character as a whole rather than specific individual strengths. This could also explain why interventions are not able to (or interested in) improve specific strengths: the goal is not to be more creative or curious in terms of performance, but rather to be more creative in finding ways to appreciate life or connect with others. Nevertheless, the 24 individual strengths retain their importance in practical terms, as they represent a variety of ways in which participants can improve their well-being, providing them with guidance and specificity on how to do that; simply telling them to "Improve your character" would probably not be of much use, while saying "Be more aware and engage in any of these 24 qualities more" is probably much more concrete, applicable, and motivating. Future studies might test whether specific or general interventions affect the general factor or, contrarily, increase specific strengths.

5.3 Specific Character Strengths

At this point, what remains of specific character strengths? We cannot reach a definitive conclusion on this, and the debate might continue for a long time, similarly to what is still happening in intelligence research, where new methods, factors, and outcomes are continuously being considered, and after decades of focusing on *g*, the specific abilities have recently been given new life (Coyle, 2018; Coyle & Greiff, 2021; Feraco & Cona, 2022; Murphy, 2017). Despite this, and although zest, hope, and gratitude still play important specific roles for well-being, mental health, and reducing distress, our results are generally not very encouraging for specific character strengths. In fact, they do not seem to have any specific associations with the outcome variables (notable examples are curiosity and love, which have been identified among as "happiness strengths" by previous studies, together with hope, gratitude, and zest; e.g., Park et al., 2004), or exhibit relations in opposite directions than expected (see kindness and social intelligence). This raises at least two points of discussion: the first concerns the outcome variables used; the second, related to the first, regards the measurement of specific character strengths through the VIA-IS questionnaires.

To assess the predictive role of character, we selected life satisfaction and mental health. Even if in line with previous studies, this choice may have concealed the predictive role of most specific character strengths. In fact, even though Peterson and Seligman (2004) theorized character strengths as the building blocks of individuals' well-being, this may have referred to the general character component. For example, strengths such as creativity, curiosity, and perseverance entail facets that go beyond flourishing, well-being, or positivity and rather relate to outcomes such as learning, novelty, and reaching a goal, whatever that goal is. Thus, specific character strengths might affect these kinds of outcomes more than life satisfaction or mental health. Future studies may wish to consider, for example, academic achievement, job performance, or creative performance as outcome variables to test whether specific character strengths do indeed predict these and whether the general character factor still serves as a relevant predictor in these cases. We hypothesize that the results would be the inverse of those in the present study, with some specific strengths having an effect and the general factor not having a significant one because it should mainly concern the way people use their strengths to find positive ways to appreciate life and connect with

others rather than performing better than others in a specific task. As for the unexpected negative relationships of some strengths with mental health, this result may be due to the period in which data was collected (i.e., around one month after the beginning of COVID-19 lockdown in Italy). It may be that individuals with higher specific social intelligence, specific kindness, or specific appreciation of beauty were particularly negatively impacted by social isolation measures, thereby experiencing worse mental health symptoms.

It should be noted, however, that what we refer to as specific character strengths within a bifactor model is only the residual variance that the corresponding items have in common after removing the general factor variance. In other words, curiosity or love per se could be important for life satisfaction as they are composed both by variance pertaining to the general factor and specific variance. However, only their non-specific variance seems to explain life satisfaction.

5.4 The role of Virtues

A bifactor model of character strengths does not encompass virtues. This is a strong assumption that cannot be fully supported by our data. Indeed, fit indices of the model are just sufficiently adequate and not all character strengths are actually orthogonal (see Table 1), signaling that some strengths are more similar to each other than to other strengths. Other models of character strengths, however, do no yield fit indices that are drastically better than a bifactor model and also show, in our opinion, other disadvantages: (a) collinearity, because the second-order factors derived from these models and intended to be separate virtues are highly correlated between each other; (b) complexity, because the models also implicitly measure virtues that even Peterson and Seligman (2004) thought to possibly be too abstract to measure; and (c) the assumption that virtues cause individuals' scores in character strengths (Miller, 2019). This is disputable, and Peterson and Seligman (2004, p. 51) suggested exactly the opposite: "We can think of several ways to achieve the general virtue, and our eventual measurement goal led us to focus on these more specific routes (what we term strengths) to the High Six". In other words, an individual achieves a virtue when they use and display specific character strengths and not the other way around. A higher correlation between some character strengths might simply highlight a higher similarity between them without implying that a latent factor (virtue) explains such similarity. In our opinion, a bifactor model gives a more parsimonious vision of character strengths and does not attempt to measure virtues, whose measurement could be achieved through different methodologies and approaches (Ruch & Proyer, 2015). Contemporarily, it offers a different new way to explain strengths' correlations through a different data generating process, which is a general factor of character.

6 Conclusions

To conclude, our study is the first to apply a bifactor model to character strengths data to directly study the predictive validity of specific character strengths and their general factor. This approach yielded consistent results – replicated across samples, measures, and different outcome variables – that could strongly impact our understanding of character strengths. In fact, although further research is needed to better understand the general factor of character, we can generally argue that character strengths are composed in part of variance common

to all of them ("good character"), which is consistently effective in sustaining individuals' well-being and general mental health, and in part of specific variance pertaining to each unique character strength, which is generally not positively associated with well-being and general mental health. These results may undermine the validity of previous findings on the predictive role of specific character strengths (and their measurement), but simultaneously support the approach taken by psychologists working on strength-based interventions and unveil what really counts among character strengths: good character.

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Data Availability The data that support the findings of this study are available from the corresponding author only after receiving the permission of the VIA Institute on Character. Data could not be made directly available because of the privacy policies of the VIA Institute on Character.

Code Availability The code used for the analysis is available on Figshare: https://doi.org/10.6084/m9.figshare.19772995

Declarations

Conflict of Interest The authors have no potential conflicts of interest to report.

Ethics Approval The study includes analyses of aggregated data previously collected by the VIA Institute of Character following their privacy policies (Sample 1). The second data collection (Sample 2) was approved by the ethic committee of the University of Padova.

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