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Character strengths, their valuing and their association with well-being in middle and older age

(An exploratory research study)

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Abstract

Positive psychology provides a framework for studying the determinants of successful aging. This study investigated how character strengths in middle and older age may relate to subjective and physical wellbeing. Additionally, subjective importance of different character strengths in both age groups was investigated. Two hundred seventeen persons (50% female) aged 46–94 participated. Results revealed that gratitude and appreciation of beauty were given significantly more value in older age than in middle age. Hope and zest belong to the five strengths with the highest positive correlation with cognitive and affective aspects of subjective wellbeing in both age groups, whereas hope belongs to the five strengths with the highest positive correlation with physical wellbeing over the age ranges. However, some differences in strengths and their relation to subjective and physical wellbeing were uncovered. As predicted, positive associations between spirituality and life satisfaction were found in older, but not in middle age. Practical implications for practitioners are outlined, as regards the consideration of strengths in successful aging as well as the application of strength-based interventions for promoting subjective and physical wellbeing in middle and older age.

Key words: character strengths, subjective wellbeing, physical wellbeing, middle and old age, spirituality, successful aging

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1. Introduction

Positive psychology deals with the conditions and processes that ensure human prosperity and optimal functioning (Gable & Haidt, 2005). Positive psychology focuses on three topics: a) positive subjective experiences such as positive emotions and wellbeing, b) positive individual traits such as character strengths; and c) positive institutions (e.g., families or work places) (Peterson, 2006; Seligman & Csikszentmihalyi, 2000). A core proposition regarding the interplay between the three topics is that positive institutions enable the development and display of positive traits such as character strengths, which in turn foster positive experiences (Peterson, 2006) and lead people to positive behaviours (Peterson & Park, 2006). There has been an obvious dearth of research aimed at understanding what helps people flourish and live engaging, meaningful, and happy lives. Positive-psychology research has given us a better understanding of human strengths and virtues, as opposed to psychological weaknesses and deficits (Seligman & Csikszentmihalyi, 2000).

Previous positive psychology research has investigated the associations of positive experiences (e.g. subjective well-being) and positive characteristics (character strengths) in different cultures and ages. Age-specific as well as cross-generational associations were found (e.g. Martínez-Martí & Ruch, 2014).

One aim of this study is to compare the association between character strengths and subjective wellbeing in middle and older age. The question is whether there are some character strengths that, correlated with subjective wellbeing, are stronger in older than in middle age – strengths such as religiosity / spirituality. A further aim is to investigate whether the importance of character strengths organized under the virtue transcendence is more appraised in old age than in middle age.

2. Theoretical background

Character strengths and virtues

Character and virtues have become important topics of research in positive psychology (Dahlsgaard, Peterson, & Seligman, 2005). Character strengths are defined as positively valued trait-like individual differences with demonstrable generality across different situations and stability across time (Peterson & Seligman, 2004). As individual differences, strengths are neither simply present or absent; rather they exist in degrees (Park & Peterson, 2009). Character strengths manifest as individual thoughts, feelings, and behaviours. They are recognised and desired across cultures (Peterson & Seligman, 2004). Peterson and Seligman

derived their classification from an extensive review of literature in different areas (e.g., philosophy, psychology, popular culture, or religion). Character strengths are composed of six universal virtues and can be seen as the underlying processes and mechanisms that are needed to exert or display a virtue (Ruch, Proyer, & Weber, 2010). Those six virtues of wisdom, courage, temperance, justice, transcendence and humanity have been valued not only by moral philosophers and religious thinkers (Martínez-Martí & Ruch, 2014), but they emerge as almost universally accepted components of what might broadly be considered good character (Peterson & Seligman 2004). For an example, the virtue of transcendence includes strengths that forge connections to the larger universe and provide meaning (Ruch, Martínez-Martí, Proyer, & Harzer, 2014). Virtues are developed over time and formed through habitual displaying of associated character strengths and regular repetition of the right actions (Graafland 2010; Sadler-Smith 2012). This assignment was based on theoretical considerations and provides ground for further developments, such as intervention programs or behaviours that aim at successful aging (Ruch et al., 2010).

In sum, character strengths are distinguishable processes or mechanisms for displaying any of the virtues. As such, character strengths present themselves as observable analytical variables—actual behavioural dispositions—that can be assessed according to traditional empirical methods (e.g., the use of behavioural observation scales).

The role of character strengths in optimal functioning

The display of character strengths in different contexts and the role of character strengths in facilitating optimal functioning has begun to be investigated in particular domains. For example, research has targeted the impact of character strengths on work-related behaviour and satisfaction (Gander, Proyer, Ruch, & Wyss, 2013; Harzer & Ruch, 2014), and in education and school settings (Park & Peterson, 2008; Wagner & Ruch, 2015). Character strengths are associated with a successful working life and stable interpersonal relationships (e.g., Harzer & Ruch, 2015; Peterson & Park, 2006), and also with a higher degree of wellbeing (e.g., Martínez-Martí & Ruch, 2014).

In particular, the subjective wellbeing of the population is emerging as a key societal aspiration (Steptoe, Deaton, & Stone, 2015). *Subjective wellbeing* can be defined as positive evaluation of one's life associated with good feelings (Pinquart & Sörensen, 2000). It is determined by emotional and cognitive components such as frequent positive affect, infrequent negative affect, and high life satisfaction (Diener, Suh, & Smith, 1999; Diener, Lucas, & Oishi, 2005). However, subjective wellbeing is not a stable characteristic. Affective

as well as cognitive processes are based on daily experiences and circumstances (e.g., Diener et al., 1999).

Empirical evidence shows that the endorsement of character strengths is significantly related to a higher degree of wellbeing. However, not all character strengths seem to influence subjective wellbeing just equally strong. Particularly hope, zest, curiosity, gratitude and love seem to be most related to general subjective wellbeing (Park, Peterson, & Seligman, 2004). These findings have been replicated even when character strengths were rated by peers (Buschor, Proyer, & Ruch, 2013). Ruch, Huber, Beermann and Proyer (2007) found that hope, zest, love, curiosity, and perseverance were the five strengths with the highest positive correlations with life satisfaction in a Swiss sample, whereas the lowest (and usually not significant) correlations were found for strengths such as modesty, prudence, fairness, and religiosity/spirituality (e.g., Ruch et al., 2010). Littman-Ovadia and Lavy (2012) found that the five strengths most highly correlating positively with positive affect were zest, curiosity, love of learning, hope and perspective, while the lowest correlations were observed for religiosity/spirituality (non-significant), forgiveness, prudence, modesty, and appreciation of beauty and excellence. The highest negative correlations with negative affect in the study of Littmann-Ovadia and Lavy (2012) were found for hope, curiosity, zest, love and self-regulation, while the lowest negative correlations were observed for appreciation of beauty and excellence, modesty, creativity, bravery, and prudence (all not significant).

Besides subjective wellbeing, physical wellbeing (health) is of great interest to researchers. Especially as life expectancy increases, the issue of maintaining wellbeing and health at an advanced age is growing in importance. Subjective wellbeing and health are closely related, and the link could become increasingly important in older age, if only because the prevalence of chronic illness increases with advancing age (Steptoe et al, 2015).

Seligman (2008) suggested that the idea of positive psychology be perpetuated further in the physical realm when he proposed the idea of “positive health”. Positive physical health may be represented via three factors, (a) subjective appraisals, (b) biological measures, and (c) individual functionality. Research in this realm may help to better understand the interaction between positive mental health and positive physical health, and how these factors influence quality of life, longevity, health costs, and a variety of other measures (Kerns, 2015).

Proyer, Gander, Wellenzohn, and Ruch (2013a) investigated positive health and set out to study the relationship between character strengths, health-oriented behaviours, physical fitness, and subjective health status in 44 adults between the ages of 18 and 75. The results

demonstrated significant correlations between certain strengths and measures of health behaviour, subjective health, and self-rated fitness. For example, zest, hope, persistence, self-regulation and humour showed the strongest correspondence with self-rated health. Self-regulation, curiosity, zest, leadership, and hope were positively correlated with overall fitness. The strongest correlations between specific strengths and health behaviour were found in self-regulation, zest, kindness, honesty, love, and social intelligence. Zest, curiosity, hope, and humour were most strongly related to an active way of life (an aspect of health behaviour). These findings relate to the strengths that were most closely related to life satisfaction (the cognitive aspect of subjective wellbeing) in the study by Park and colleagues (2004). It would therefore be useful to investigate the role of character strengths in the context of successful aging, especially with relation to older age, when the link between subjective and physical wellbeing becomes increasingly important.

Wellbeing and successful aging

Whereas for a long time successful aging was defined as physiological health without disability or illness (Depp, Glatt & Jeste, 2007), today most researchers would agree that successful aging is a multidimensional construct, and psychological indicators such as subjective wellbeing should be integrated into the model (Young, Frick & Phelan, 2009). Rowe and Kahn (1997) have pointed out that there are important modifying effects opposing the age-related losses, such as personal habits. Straub (2007) states that psychological strengths lead to increased psychological and physiological thriving. In essence, it is the person's ability to maximize his or her potential and live a life of meaning and contentment, in old age as well as in youth. Young et al. (2009) postulate that successful aging can be achieved as long as compensations are made for physiological deficits and limitations. This may be accomplished through greater emphasis on psychological and social domains through mechanisms that involve coping, adaptations, resilience, and spirituality (Young et al., 2009).

Previous researchers have highlighted the idea that those who age successfully are often likely to find existential meaning in the experience of aging and death through inner strengths such as life purpose and spirituality (Tomer, Eliason, & Wong, 2008; Van Ranst & Marcoen, 2000). According to Erikson's theory of psychological growth, the goal of old age is to acknowledge the inalterability of the past (Erikson, Erikson, & Kivnick, 1986) and to accept the totality of one's life. People achieve integrity if they embrace the lives they have lived, including their accomplishments and shortcomings. Wise elders are able to confirm the importance of a continued engagement with life without denying the realities of old age,

including physical deterioration and the approach of death (Ardelt, 2011). Elders who have discovered meaning and purpose in their life tend to be less afraid of death and more willing to let go (Ardelt & Koenig, 2007).

Based on the empirical results mentioned above, one can assume that the virtue of transcendence and the corresponding character strengths (spirituality, humour, hope, gratitude and appreciation of beauty) can be used to generate existential meaning and forge connections to the larger universe in the confrontation of senescence and death, helping aging adults to achieve a sense of both meaning and completion in relationship to self, others, and the transcendent realm (see Staton, Shuy, & Byock, 2001).

However, there are still few studies published on the special role of those character strengths and the virtue of transcendence in successful aging. Particularly in later age, the relationship between character strengths and wellbeing is largely unexplored (cf. Ruch, et al., 2010). Ruch and colleagues (2010) have demonstrated the important role of humour in life satisfaction in older age. In the study of Ramírez, Ortego, Chamorro, and Colmenero (2014), a gratitude intervention in a sample of 56 participants from 60 to 93 years decreased depressive symptoms and increased access to positive memories. Some studies suggest that hope and a stronger belief in the afterlife are associated with less fear of death in old age (Harding, Flannelly, Weaver, & Costa, 2005; Krause, Pargament, Ironson, 2016). The results of the study by Krause (2006) revealed that the effects of stress (e.g., living in a deteriorated neighborhood) on health are reduced for older people who feel more grateful to God. Results of different studies point out that older people, who positively cope with their increasing restrictions and the confrontation with their forthcoming death, also show higher spirituality (Tomer et al., 2008; Van Ransst & Marcoen, 2000). The research of Ardelt, Landes, Gerlach, and Fox (2013) and other studies have shown that spirituality have a positive effect on subjective well-being in old age and that internal strengths were more important than external circumstances in successful aging.

In sum, character strengths associated with the virtue of transcendence may be important to consider in successful aging. However, the question whether the relationship between character strengths, subjective and physical wellbeing is different for individuals at different stages of life remains largely unexplored. So far, primarily the connection between spirituality and wellbeing has been examined only among the younger and older groups.

Spirituality and wellbeing in middle and older age

In younger adults, the character strength of spirituality / religiosity seems neither to be related to the cognitive component of subjective wellbeing, life satisfaction (cf., Ruch et al., 2010), nor to the affective component, positive affect (Azañedo, Fernández-Abascal, & Barraca 2014). However, in older life, the question about the meaning of life can move into the foreground (cf. Ardel et al., 2013). Spirituality can provide a positive perspective for older adults (Ai, Wink, & Ardel, 2010). Different empirical results appear to confirm the correlation between spirituality and life satisfaction in old age (e.g., Tomer et al., 2008; Van Ransst & Marcoen, 2000). One theoretical explanation for the age differences in the associations between spirituality/religiosity and wellbeing could be Erikson's theory of psychosocial development (Erikson, 1982). Based on his account of the eight stages of psychosocial development it can be proposed that character strengths may help individuals to adapt successfully to different stages of life, and their relative importance might be reflected in their relationship with wellbeing (Martínez-Marti & Ruch, 2014).

Two of Erikson's stages correspond to the age of the selected sample of this study; adulthood and old age. The stage of adulthood is characterized by the psychosocial crisis between generativity and stagnation. According to Erikson (1982), the spirit of adulthood is the maintenance of the world, i.e., the commitment to take care of persons, products, and ideas one has learned to take care of. In old age, the psychosocial crisis is characterized by the antithesis between a sense of integrity, i.e., coherence and wholeness, and a sense of despair. Integrity seems to convey wisdom, defined by Erikson as a type of informed and detached concern with life itself in the face of death itself. Wise elders are able to confirm the importance of a continued engagement with life without ignoring or denying the realities of old age, including physical deterioration and the approach of death (Ardelt, 2011). To do this, wise individuals must look at phenomena and events from many different perspectives and engage in self-reflection to transcend their subjectivity and projections (Ardelt et al., 2013).

Purposes and hypotheses

Although there is sufficient evidence to develop certain hypotheses for the current investigation, other aspects remain preliminary in nature. The valuing of character strengths in middle and older age is still lacking. According to Erikson's theory of psychosocial development, one can assume that not only the expression, but also the valuing of character strengths could be different at different stages of development. Of special interest for this study was the valuing of the character strengths related to the virtue of transcendence.

Purpose 1: *Explore the valuing of the character strengths related to the virtue of transcendence in middle (46–65 years) and older age (66–94 years)*

The following hypothesis can be derived from this purpose:

H1: The valuing of the strengths associated with transcendence (appreciation of beauty, gratitude, hope, humour, spirituality) is higher in the older age group than in the middle age group.

Additionally, the relationship between character strengths and subjective wellbeing (i.e., life satisfaction, positive affect, negative affect) and physical wellbeing (self-rated health) in middle and older age was examined.

Purpose 2: *Investigate the association of character strengths and subjective / physical wellbeing in middle (46–65 years) and older age (66–94 years)*

The following three hypotheses can be derived from this objective:

H2: Considering study results from Martínez-Martí and Ruch (2014), and Park et al. (2004), we expect that hope, zest and gratitude will belong to the five strengths with the highest positive correlations with subjective wellbeing in both age groups.

H3: According to different empirical findings (e.g., Ardel et al., 2013; Azañedo et al., 2014; Ruch et al., 2010), the association between spirituality / religiosity and the cognitive component of subjective wellbeing (i.e., life satisfaction) will be higher in older age than in middle age.

H4: Considering study results from Proyer et al. (2013a), we expect that hope, zest and self-regulation belong to the five strengths with the highest positive correlation with physical wellbeing in both age groups.

An additional exploratory purpose was addressed, for which there is no empirical evidence yet for higher age (> 65 years old).

Purpose 3: *Investigate (further) potential differences in the relationship between strengths and wellbeing in middle and older age groups by comparing the correlations between strengths and wellbeing indicators across age groups.*

This examination is of interest because differences in the relationship between strengths and wellbeing across an individual life span can have important implications for strength-based intervention in middle and old age. According to Erikson's theory (Erikson, 1982), functions typical to each life stage do not disappear, but change their values in the next stage. In old age there might be more functions to fulfil and more character strengths may be helpful for this task (Martínez-Martí & Ruch, 2014). Also, Ardel et al. (2013) have pointed out that internal strengths have higher correlations with wellbeing than objective circumstances in old age. It appears therefore that strengths might yield higher positive correlations with wellbeing in older than in middle age.

3. Methods

Participants

Participations were recruited via mass email or invitation letter to a random sample of participants of a longer NCCR LIVES study NCCR-LIVES (*Swiss National Centre of Competence in Research LIVES—Overcoming vulnerability: Life course perspectives*, individual project 212). Additional participants were recruited via senior groups. Approximately 350 invitations were sent to potential participants. The survey was taken by 217 respondents, resulting in a response rate of 62% from those who opened the invitation.

The sample used in the present project consists of 217 German speaking adults in Switzerland aged 46 to 94 years (mean age = 69.60 years, $SD = 11.82$), of whom 50% were women. Most participants were married or in a relationship ($n = 105$), 6 were single, 5 were separated, 46 were divorced, and 55 reported they were widowed. Two subgroups were created: The first group ($n = 76$, $M_{\text{age}} = 56.52$, $SD = 5.97$) consisted of participants with ages ranging from 46 to 65 and the second group ($n = 141$, $M_{\text{age}} = 76.66$, $SD = 7.30$) consisted of participants with ages ranging from 66 to 94.

The distribution of the financial situation of participants was as follows: 14.3% ($n = 31$) reported, that they had more than enough money, 80.6% ($n = 175$) reported that they had enough money and 5.1% ($n = 11$) reported that they had too little money to cover their needs. No significant differences in the distribution of the financial situation of the two age groups were found (Mann-Whitney $U = 5658.0$, $p = 0.32$). Involvement in religious / spiritual activities: 20.7% ($n = 45$) never attend church or religious meetings, 15.2% ($n = 33$) attend

once a year or less, 35.9% ($n = 78$) attend a few times a year, 9.7% ($n = 21$) attend a few times a month, 15.2% ($n = 33$) attend once a week, and 3.2% ($n = 7$) more than once a week. Non-organizational (private) religious / spiritual activities (prayer, meditation) were carried out rarely or never by 40.6% ($n = 88$), a few times a month by 14.3% ($n = 31$), once a week by 6.9% ($n = 15$), two or more times a week by 9.2% ($n = 20$), daily by 19.8% ($n = 43$), and more than once a day by 9.2% ($n = 20$). There were no significant differences in frequency of organizational religious activity ($U = 6181.0$, $p = 0.06$) and non-organizational religious activity ($U = 5912.0$, $p = 0.19$).

Procedure

After gaining approval from the institutional ethics board, the participants were recruited via email or invitation letter (see Appendix B). No follow-up email or letter was distributed as a reminder for participants. All participants were informed of the general nature of the study, reminded that their participation was completely voluntary, and assured that their responses would remain completely confidential. No monetary incentive was offered. Participants were given the researcher's contact information for follow-up questions and/or comments. Through the survey, participants completed different questionnaires and demographic information as described in the next chapter (see Appendix A for the whole survey).

Instruments

Subjective and physical wellbeing

Subjective wellbeing is measured using the German version of the *Satisfaction with Life Scale* (SWLS; Diener, Emmons, Larsen, & Griffin 1985) and the *Positive and Negative Affect Schedule* (PANAS; Watson, Clark, & Tellegen, 1988). The SWLS is a 5-item questionnaire for the subjective assessment of global life satisfaction (e.g., "I am satisfied with my life"), utilising a 7-point answer format (from 1 = strongly disagree to 7 = strongly agree.). The German version was used by Ruch et al. (2010) and developed in a standardized translation-back-translation procedure, and has shown good psychometric properties. Cronbach alpha in the present study was 0.87.

The PANAS is a 20-item self-report measure of positive (PA) and negative affect (NA). The German version was validated by Krohne, Egloff, Kohlmann and Tausch (1996), and has shown good psychometric properties and strong reported validity with measures such as general distress and dysfunction, depression, and state anxiety. NA and PA reflect

dispositional dimensions, with high-NA epitomized by subjective distress and unpleasurable engagement, and low NA by the absence of these feelings. By contrast, PA represents the extent to which an individual experiences pleasurable engagement with the environment. Cronbach alpha in the present study was .89 for PA ($M = 33.31$, $SD = 6.89$) and $\alpha = .86$ for NA ($M = 17.03$, $SD = 6.00$).

Physical wellbeing (self-rated health): Respondents were asked to rate their actual health status on a Likert scale (1 = very bad to 5 = very good). Self-rated health is a widely used measure, and is an umbrella indicator capturing the main components of health (physical, mental, and functional) (Perruccio, Katz, & Losina 2012; Perrig-Chiello, Hutchison, & Morselli, 2014).

Character strengths and their valuing:

The expression of the 24 character strengths is measured by the *Character Strengths Rating Form* (CSRF; Ruch et al., 2014). The CSRF is a 24-item rating form of character strengths, based on the classification proposed by Peterson and Seligman (2004). It uses a 9-point Likert scale (from 1= totally inaccurate to 9 = completely accurate). Each item is a description of one strength and measures the endorsement of that specific strength. As showed by Ruch and colleagues (2014), the CSRF has shown good convergence with the Values in Action Inventory of Strengths (VIA-IS, Peterson & Seligman, 2004), in terms of descriptive statistics, relationships with socio-demographic variables and life satisfaction, and factor structure.

The valuing of the character strengths is assessed with the question: *To what extent do you find it important to have the following strengths?* Every character strength is evaluated with a 5-point Likert scale (from 1 = very unimportant to 5 = very important). The order of the character strengths is identical with the order in the CSRF.

Sociodemographic variables:

Different sociodemographic variables we included: gender (male–female), age, marital status and the organizational and non-organizational religious activity (two items from the Duke University Religion Index, DUREL, Koenig & Buessing, 2010). Additionally, satisfaction with one's financial situation (having more than enough money to meet one's needs (reference category), having enough money to meet one's needs, not having enough money to meet one's needs), was investigated. As mentioned by Pinquart and Sörensen

(2000), it is not income per se, but the extent to which financial needs are met that influences subjective wellbeing in later life.

4. Results

The inspection of normality (by inspecting Gaussian distribution plot and calculating skew and kurtosis values for all measures) showed that some variables (character strengths, valuing of character strengths) were slightly negatively skewed and their means were above the scale mean. Some degree of negative skew for character strengths had been previously reported (Lineley et al., 2007; Brdar & Kashdan, 2010). Because of the large sample size and the approximately similar skewedness in same direction, parametric statistic tests (*t*-Tests) were used for the following analysis (see Wilcox, 1990, for robustness of *t*-Test under those conditions).

Descriptive results

A series of *t*-tests were carried out to explore differences in character strengths and wellbeing among different age groups (see table 1). Age groups differed significantly in prudence $t(207) = -2.36, p = .019$, and in self-regulation $t(207) = -3.70, p < .001$. The 66–94 age group scored higher in both mentioned strengths. Regarding indicators of subjective wellbeing (life satisfaction, PA, NA), age groups did not differ significantly. Physical wellbeing was significantly lower in the 66–94 age group than in the 46–65 age group, $t(211) = 2.29, p = .023$.

Additional analyses were carried out to check the association of different demographic variables (gender marital status, satisfaction with financial situation) and subjective/physical wellbeing. Results are not reported in full detail here. Interestingly, neither significant associations between gender and wellbeing indicators nor significant associations between marital status and the dependent variables were found in this sample. Concerning satisfaction with one's financial situation, only 5.1% stated that they did not have enough money to meet their needs. Because of the small group size, the groups having enough and not enough money were summarized and compared with the group whose members stated that they had more than enough money. No significant differences in life satisfaction, PA, NA, and health were found between the two groups. Additionally, persons reporting frequent religious activity did not differ in subjective and physical wellbeing from persons reporting infrequent religious activity. However, private religious activity correlated with the character strength of spirituality/religiosity (age 46–65: $r = .63$; age 66–94: $r = .59$; both $p < .001$) and the

valuing of this character strength ($r = .64$ and $r = .71$, both $p < .001$) in both age groups showed an association between religious practice, spirituality/religiosity, and the valuing of this strength.

The intercorrelations among the 24 strengths ranged between $r = -0.06$ (prudence and honesty, n.s.) and 0.66 (curiosity and love of learning, $p < .001$; median = 0.22) in the 46-65 years old group. In the 66-94 years old group, the intercorrelations ranged between $r = 0.02$ (forgiveness and creativity, n.s.) and 0.70 (curiosity and love of learning, $p < .001$; median = 0.26).

Valuing of the character strengths

As an exploratory investigation, one purpose of the study was to determine whether any difference exists between the valuing of different character strengths across the two age groups, especially focusing on character strengths according to the virtue of transcendence (appreciation of beauty, gratitude, hope, humour, spirituality). Table 2 shows the means, the standard deviations and the rank orders of the valuing of the 24 character strengths in the total sample and across age categories. Curiosity was valued higher in the 46-65 age group than in the 66-94 age group ($t(210) = 2.35$, $p = .020$), whereas the importance of leadership ($t(209) = -2.35$, $p = .020$), prudence ($t(210) = -3.16$, $p = .002$), appreciation of beauty ($t(211) = -2.88$, $p = .004$), and gratitude ($t(205) = -2.16$, $p = .032$) were rated higher in the 66-94 age group than in the 46-65 age group. Concerning the first three positions of the rank order of valuing, honesty had the highest priority, followed by fairness in both age groups. In the 46-65 age group open-mindedness ranked third, whereas in the 66-94 age group, gratitude ranked third.

Based on the results, *hypothesis 1*, that the valuing of the transcendence strengths (appreciation beauty, gratitude, hope, humour, spirituality) is higher in the older age group than in the middle age group, has been partly confirmed. Only gratitude and appreciation of beauty were significantly higher appraised in the 66-94 age group. The valuing of hope, humour and spirituality did not significantly differ between age groups.

Correlations between strengths and wellbeing

The correlations between character strengths and different indicators of wellbeing in the total sample are presented in table 3. This table also shows the ranking order of these correlations for each indicator of subjective and physical wellbeing. For the whole sample, hope, zest, self-regulation, love, and humor were the five strengths showing the highest positive correlations with life satisfaction. Hope, zest, love of learning, bravery, and leadership were most strongly associated with PA, whereas zest, hope, perseverance,

prudence, and self-regulation showed the strongest negative relationship with NA. Finally, hope, zest, self-regulation, perseverance, and love of learning showed the highest positive correlations with physical wellbeing.

In a next step, the variations of the correlations across age groups were examined (see table 4 for participants with ages between 46 and 65, table 5 for participants with ages between 66 and 94). For the middle-aged group (46–65 years), hope, self-regulation, zest, humor, and love showed the highest positive correlations with life satisfaction. In the older aged group (66–94), the five strengths with the highest positive correlation with life satisfaction were hope, zest, honesty, spirituality, and love. Regarding the correlation with PA, hope, zest, self-regulation, love of learning, and bravery were the five strengths with the highest associations in the middle-aged group, whereas zest, hope, love of learning, bravery, and open-mindedness were most strongly correlated in the older group. Zest, hope, humour, perseverance and self-regulation showed the highest negative association with NA in the middle-aged group; hope, zest, perseverance, prudence and self-regulation in the older group. Finally, the five strengths most strongly correlated to physical wellbeing were hope, self-regulation, love of learning, humour and perseverance in the middle-aged group; hope, zest, creativity, love of learning and curiosity in the older group.

Hypothesis 2, that hope, zest and gratitude belong to the five strengths with the highest positive correlation with subjective wellbeing in both age groups, we were able to confirm for hope and zest, but not for gratitude. Therefore, hypothesis 2 is only partially confirmed.

Hypothesis 3, that spirituality more strongly associated with subjective wellbeing in older age than in middle age, was confirmed by the effect size and the significance of the results. The association between spirituality/religiosity and life satisfaction in the 46–65 age group was $r = -0.02$, $p = 0.849$ (n.s.), whereas the correlation between spirituality/religiosity and life satisfaction was 0.26 , $p = 0.002$ in the 66–94 age group. Therefore, in this study spirituality/religiosity explains 7% of the variance of the life satisfaction in old age.

Hypothesis 4, that hope, zest and self-regulation belong to the five strengths with the highest positive correlation with physical wellbeing, was confirmed for hope and self-regulation in the middle-aged group, but only for hope in the older age group. Regarding the whole sample (without consideration of the age groups, see table 3), hypothesis 4 can be fully confirmed.

Although no hypothesis was formulated for the **third purpose** of the study, differences between the two age groups concerning the relationship between all strengths and wellbeing were further examined. To compare the rank order of the relationships between character strengths and either life satisfaction, positive affect, negative affect, and subjective health, a series of Spearman correlations were calculated. In life satisfaction, when comparing the rank order of the 46–65 years and the 66–94 age group, the Spearman correlation was 0.51 ($p = .01$). In PA, when comparing both age groups, the Spearman correlation was 0.50 ($p = .01$). In NA, when comparing both age groups, the Spearman correlation was 0.39 ($p = .06$). And finally, the Spearman correlation when comparing both age groups for physical wellbeing was 0.35 ($p = .09$).

Additionally, in order to test whether the sizes of the correlations were statistically different between the two age groups, a series of Z tests was conducted (see table 6). The correlation between social intelligence and PA was significantly larger in the 66–94 age group ($Z = -2.44$, $p = 0.007$) than in the 46–65 age group. The remaining comparisons were not significantly different at $p < 0.01$.

5. Discussion

This study confirms the evidence of relationship between character strengths, subjective and physical wellbeing in a sample of German-speaking adults of middle and old age living in Switzerland. Additionally, the results outlined similarities and differences in strengths and their valuing in different age groups (i.e., 46–65 years vs. 66–94 years).

The **first purpose** of the study was the investigation of valuing differences of character strengths related to the virtue transcendence in middle and old age. This purpose was highly explorative, because of the lack of studies on this topic. Results revealed that gratitude and appreciation of beauty were significantly higher appraised in the 66 - 94 age group. However, the valuing of hope, humour and spirituality did not significantly differ in both age groups. The subjective importance of gratitude and appreciation of beauty would be in accordance to the important remark of Erikson (1982), that in the last state of life integrity can be achieved, when the whole life is embraced, including accomplishments and shortcomings. To see the beauty in the own life and to be grateful could be important to discover meaning and purpose in the lived life. Different research studies (e.g., Hedberg, Gustafson, & Brulin, 2010; Garner, Bhatia, Dean, & Byars, 2007) have shown that a sense of meaning is strongly and positively related to subjective wellbeing and negatively related to

psychopathology and depressive symptoms among older adults. Gratitude and the appreciation of beauty could also be an important adaptation mechanism in old age, to compensate physiological limitation and to achieve a sense of wellbeing, high self-assessed quality of life and a sense of personal fulfilment even in the context of illness and disability (Young et al., 2009). Additionally, to respect the importance of gratitude and the appreciation of beauty could also motivate older persons to sustain engagement in social and productive activities, which are - according to Rowe and Kahn (1997) - important keys to successful aging.

However, the valuing of hope, humour, and spirituality did not differ in both age groups. Hope is not only important in the context of the decline of physiological body functioning and cognitive performance and the confrontation with the question about afterlife, but also in very different life stages and situations. Different studies have shown that hope is an important predictor of wellbeing during childhood and youth as well (e.g., Park & Peterson, 2006; Shogren, Lopez, Wehmeyer, Little, & Pressgrove, 2006). This indicates that even children experience the sense that hope makes many life situations more tolerable. This experience could contribute to appreciating this strength. Similar interpretation could be made for humour and spirituality. Humour might be a buffer for preventing stressors from reducing one's life quality (Ruch et al., 2010) across all age groups. Additionally, it could be possible that different aspects of hope, humour, and spirituality/religiosity were appraised differently in middle and older age. These changes might be related to different roles that people have to fulfil at certain stages of their lives. The social aspect of spirituality/religiosity could be of greater importance for older people, who lost partners, friends and significant others. Research of Lim and Putnam (2010) suggest that religious people in old age are more satisfied with their lives because they regularly attend religious services and build social networks in their congregations.

However, the interpretations of those exploratory results are highly speculative. Further research is needed to investigate the role of valuing of certain character strengths over the life span and the association with personal attitudes, convictions and behaviours. The valuing of character strengths could also be a motivator in positive intervention programs (e.g., gratitude interventions, e.g., Ramírez et al., 2014) to not drop out early and to practice the exercises regularly. Additionally, it would be interesting to investigate how the valuing of different character strengths is associated with different life experiences, such as critical life events, and how the valuing of character strengths affects child-raising and education. It is clear that there are various opportunities for research on the valuing of character strengths.

The **second purpose** of the study was to investigate the association of character strengths and subjective / physical wellbeing in both age groups. Hypothesis 2, that hope, zest and gratitude belong to the highest positive correlations with subjective wellbeing in both age groups, was confirmed for hope and zest, but not for gratitude. The findings are partially in line with the results of other studies for the association between strengths and life satisfaction (Buschor et al., 2013; Park et al., 2004; Ruch et al., 2010, 2013), PA and NA (e.g., Littman-Ovadia & Lavy). However, slight differences between study results in different samples, countries, and age groups are common (cf., Martínez-Martí & Ruch, 2014). Additionally, most of the mentioned studies used the VIA-IS (Peterson & Seligman, 2004) and not the CSRF (Ruch et al., 2014) for character strength rating. The VIA-IS is a more detailed instrument, which represents different facets of strengths. However, Ruch et al. (2014) showed, that the CSRF has a good convergence with the VIA-IS and can be used as a valid measure of character strengths and useful in studies, where only short instrument can be used.

Nevertheless, the finding that hope and zest belong to the three highest positive correlations with cognitive and affective aspects of subjective wellbeing in both age groups is of high interest. Strengths are malleable and can be fostered by systematic interventions (e.g., Gander et al., 2013; Proyer et al., 2013a) and this leads to an increase in life satisfaction and decrease in depression (e.g., Quinlan, Swain, & Vella-Brodrick, 2012). Proyer, Ruch, and Buschor (2013b) have shown that hope and zest are causally related to an increase in wellbeing through interventions.

Hypothesis 3, that spirituality is higher associated to subjective wellbeing in older age than in middle age, was confirmed. In line with the study results of Ruch et al. (2010) and Azañedo and colleagues (2014), the character strength spirituality/religiosity was not significantly related to subjective wellbeing in middle age. However, in the 66–94 years old group, spirituality/religiosity correlates positively with life satisfaction, explaining at least 7% of the variance. This result confirms the findings of Tomer et al. (2008) and Van Ransst and Marcon (2000). Ardelt et al. (2013) also showed that older adult's spirituality is related to life satisfaction four years later. These findings support the proposition that older adults' wellbeing can be maintained through psychological adaptation involving spirituality, notwithstanding health declines typically associated with old age (Young et al., 2009). Spirituality often provides a sense of meaning for older individuals (Ai et al., 2010). As a consequence, the psychological impact of negative objective circumstances can be lessened, death fear can be decreased and life satisfaction can be maintained (Ardelt et al., 2013).

The current findings support the value of attending to older adults' spirituality in the provision of health care services. Previous studies indicate that health practitioners may under-utilise spiritual beliefs as a resource to maintain life satisfaction for older patients and their families (Silvestri, Knittig, Zoller, & Nietert 2003). Even though religious or spiritual support services may not influence clinical outcomes (Cowlshaw, Niele, Teshuva, Browning, & Kendig, 2013), current results suggest that spiritual support services may be justified in terms of beneficial impacts on older adults' positive psychological outcomes.

Hypothesis 4, that hope, zest and self-regulation belong to the five strengths with the highest positive correlation with physical wellbeing, was confirmed for the whole sample (without consideration of age groups), confirming the results of Proyer et al. (2013a). However, there are some age differences to consider. As shown by Proyer et al. (2013a), health behaviour mediates the effect of strength factors on subjective health and physical fitness. In older age, physical fitness and health status tend to decrease and health behaviours (e.g., the active way of life) can be restricted. Therefore, it is not surprising that in older age other character strengths may play an important role in the association with physical wellbeing than in middle age. The five strengths most strongly correlated to physical wellbeing were hope, self-regulation, love of learning, humour and perseverance in the middle-aged group, whereas hope, zest, creativity, love of learning and curiosity were the strengths with the highest association to physical wellbeing in the older age group. Love of learning, curiosity and creativity could be important strengths in old age, to compensate for physical restrictions and to develop and train alternative movement patterns during physical restriction (e.g., learning to walk again after operation at the locomotor system, dealing with walking-helps and personalized technologies, but also disengagement from unattainable goals etc.). If older individuals learn to adjust their strategies to the controllability of specific health problems, they could prevent subsequent psychological and physical health declines (Barlow, Wrosch, Heckhausen, & Schulz, 2016). Positive interventions concerning creativity, love of learning and curiosity might help adjusting health behaviour strategies in old age and therefore improving physical health and successful aging. However, these preliminary assumptions have to be investigated by future research.

The **third** and last **purpose** of the study was to investigate further potential differences of the relationship between strengths and wellbeing in middle and old age. Confirming the results of Martínez-Martí and Ruch (2014), in general, the association between strengths and subjective wellbeing seem to slightly increase with age. As Isaacowitz, Vaillant, and Seligman (2003) suggested, older adults, who are freed from family and professional

constraints, might have more opportunities to apply strengths and therefore benefit more from them. Additionally, consistent with Erikson's theory of psychosocial development, it could be possible that in older age, more functions are to be met, and more strengths might be helpful in fulfilling these different functions (Martínez-Martí & Ruch, 2014). When comparing the size of the correlations between each strength and each component of wellbeing across the two age groups, only one difference was statistically significant (after adjustment for multiple comparisons). The correlation between social intelligence and PA was significantly larger in the 66–94 age group than in the 46–65 age group. Socially intelligent people are aware of the motives and feelings of other people and of themselves, know what to do to fit into different social situations, and know what makes other people tick (see Harzer, 2016).

One possible explanation for the fact that social intelligence in older age may be of higher importance for positive feelings could be found in the context of the process of deterioration of physical strength and memory capacity. Due to these restrictions, a lot of situations are unfamiliar and self-efficacy in everyday life can be a major challenge. In such situations, social intelligence promotes the search for social contacts. Individuals in old age who are outgoing and enjoy social contacts may receive recognition in those interactions for sharing life experiences and personal insights on historical events, or they might be admired for reaching this exceptional age, which could strengthen their feeling of competency and efficacy. This, in turn, may increase the positive affect through emotional and motivational factors linked to self-efficacy (Jopp & Rott, 2006). The results could also be in line with the socioemotional selectivity theory (Carstensen & Charles, 1998), which proposes that as people age, they invest more time in relationships that have meaning for them rather than in those that do not. This would appear to indicate that older people may have fewer relationships, but the ones they have will be strong, supportive, and emotionally satisfying (Cohen & Koenig, 2003).

In sum, results are mixed regarding future research questions. Research into subjective and physical wellbeing in older age is at an early stage (Steptoe et al., 2015). The findings of this study, comparing character strengths, their valuing and subjective and physical wellbeing in middle and old age, highlight specific associations, some intuitive and others not. However, because of the lack of empirical data on this topic, especially in old age, interpretations are highly speculative. Additionally, different limitations should be taken into account when considering the implications of this study, all of which present opportunities for future investigation. First, causality cannot be determined with data collected at a single point in time. Second, the cross-sectional nature of the data makes it impossible to differentiate age

from cohort effects. The role of character strengths regarding subjective wellbeing may be studied within the scope of longitudinal studies to get in-depth insights on causal and/or reciprocal effects. Third, because data are self-reported, common method variance may have an inflated correlation (cf. Doty & Glick, 1998). However, correlation patterns between character strengths and wellbeing varied across the different indicators of wellbeing. It can therefore be concluded that the results were not overly affected by this bias. Self-ratings have been the chosen source of data in the present study, because the experiences related to wellbeing have been considered the most valid judgments for such variables. Nevertheless, studies are needed that utilize multiple data sources to eliminate the effects associated with common method variance.

Furthermore, the educational level of the participants was not taken into account in this study. Educational success can contribute to a positive life review in middle and old age. On the other hand, higher levels of education may increase the awareness of options. In the absence of economic means, however, it may not be sufficient to enable older persons to take advantage of these options and benefit from them in terms of enhanced wellbeing (Pinquart & Sörensen, 2000). In further studies, other important possible predictors of subjective wellbeing (perceived social support, self-efficacy), should be considered. The quality of contact with friends and family members seem to be important correlates of subjective wellbeing, especially in old age (see Pinquart & Sörensen, 2000, for a review). Self-efficacy seems also to play an important role in the wellbeing of the elderly (e.g., Jopp & Rott, 2006). Critical life events could also be taken into account in further longitudinal studies investigating the association between strengths and wellbeing. For instance, in a longitudinal study the character strengths of spirituality, hope, and love were elevated among U.S. respondents in the six months after the 9/11 attacks (Peterson & Seligman, 2003). Individuals who experienced a variety of adverse life events reported higher levels of spirituality, gratitude, kindness, hope and bravery (Peterson, Park, Pole, D'Andrea, & Seligman, 2008).

Nevertheless, this study partially supports previous findings with different samples of different countries on the relations between character strengths, subjective and physical wellbeing. It sheds light on the relative importance of some strengths over others for subjective as well as physical wellbeing over middle and older age. Particularly the relationship between strengths and physical wellbeing in a sample of elderly participants as well as the valuing of character strengths in middle and old age has hardly been investigated up to now.

Conclusions and implications

Character is associated with subjective as well as physical wellbeing and some strengths seem consistently to yield higher correlations with wellbeing than others. Aside from the relevance of the study for uncovering similarities as well as differences in character strengths, their relation to subjective and physical wellbeing, and their valuing in middle and old age, there are several implications that should be mentioned. At a practical level, the study provides further support for the call to include strengths in psychological assessments, but also in other settings such as geriatric care, nursing homes and hospitals. Empirical evidence shows that character-strength-based positive interventions enhance wellbeing in youth as well as in old age. However, the applicability of such programs (and the potential importance of varying handling by individuals during different stages of life) needs to be investigated in future studies.

6. References

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Table 1

Means and standard deviations of strengths, indicators of subjective and physical wellbeing in the total sample, and across age groups

	Total		Age 45 - 65		Age 66 - 94		Differences
	M	SD	M	SD	M	SD	p-Value
Creativity	6.61	1.58	6.85	1.56	6.49	1.59	0.11

Curiosity	7.22	1.64	7.24	1.74	7.21	1.60	0.90
Open-mindedness	7.23	1.32	7.30	1.52	7.20	1.20	0.61
Love of Learning	6.72	1.68	6.90	1.80	6.63	1.61	0.26
Perspective	6.77	1.34	6.96	1.42	6.66	1.28	0.12
Bravery	6.57	1.68	6.39	1.87	6.68	1.56	0.23
Perseverance	7.23	1.46	7.35	1.56	7.17	1.40	0.40
Honesty	7.71	1.16	7.81	1.26	7.65	1.11	0.34
Zest	6.78	1.62	6.81	1.79	6.76	1.53	0.81
Love	7.40	1.34	7.47	1.49	7.37	1.26	0.62
Kindness	7.62	1.21	7.68	1.34	7.59	1.14	0.62
Social intelligence	7.07	1.36	7.30	1.33	6.95	1.36	0.08
Teamwork	6.28	1.75	6.39	1.71	6.21	1.77	0.49
Fairness	6.93	1.46	7.01	1.49	6.89	1.45	0.56
Leadership	6.71	1.75	6.92	1.84	6.59	1.89	0.20
Forgiveness	6.91	1.49	6.85	1.67	6.94	1.39	0.73
Modesty	6.88	1.87	6.73	1.91	6.95	1.53	0.34
Prudence	6.73	1.60	6.38	1.85	6.92	1.42	0.02
Self-regulation	6.36	1.65	5.81	2.03	6.67	1.31	<.001
Appreciation of beauty	7.38	1.50	7.25	1.73	7.45	1.35	0.36
Gratitude	7.38	1.31	7.28	1.41	7.43	1.26	0.41
Hope	6.92	1.88	6.69	1.91	7.04	1.53	0.16
Humor	6.88	1.70	6.93	1.90	6.85	1.59	0.75
Spirituality	5.50	2.56	5.15	2.88	5.69	2.48	0.14
SWL	5.48	0.99	5.43	1.07	5.50	0.95	0.62
PA	33.31	6.90	34.07	7.22	32.89	6.71	0.25
NA	17.03	6.00	17.22	5.82	16.92	6.11	0.74
SRH	3.92	0.78	4.08	0.79	3.83	0.76	0.02

Note: M, mean; SD, standard deviation, SWL, satisfaction with life; PA, positive affect; NA, negative affect, SRH, self-rated health

Table 2

Means, standard deviations and rank order of the valuing of strengths in the total sample, and across age groups

	Total Sample			Age 46–65 (n = 76)			Age 66–94 (n = 141)			Differences
	M	SD	R	M	SD	R	M	SD	R	p-Value
Creativity	4.03	0.85	19	4.08	0.82	14	4.01	0.87	21	0.55
Curiosity	4.22	0.78	10	4.39	0.77	6	4.13	0.77	13	0.02

Open-mindedness	4.41	0.66	5	4.49	0.89	3	4.38	0.64	6	0.15
Love of Learning	4.15	0.80	12	4.16	0.74	12	4.14	0.83	12	0.83
Perspective	4.16	0.71	11	4.25	0.68	11	4.11	0.72	15	0.16
Bravery	3.94	0.79	21	3.88	0.82	20	3.98	0.78	22	0.39
Perseverance	4.38	0.67	6	4.36	0.73	8	4.38	0.63	5	0.80
Honesty	4.74	0.53	1	4.73	0.60	1	4.75	0.48	1	0.83
Zest	4.08	0.64	16	4.07	0.62	15	4.08	0.65	17	0.88
Love	4.34	0.69	8	4.41	0.76	5	4.30	0.66	8	0.27
Kindness	4.46	0.70	4	4.38	0.74	7	4.50	0.68	4	0.25
Social intelligence	4.37	0.69	7	4.44	0.68	4	4.33	0.69	7	0.26
Teamwork	4.08	0.73	18	4.07	0.84	16	4.09	0.67	16	0.79
Fairness	4.57	0.65	2	4.50	0.75	2	4.61	0.59	2	0.26
Leadership	3.73	0.89	23	3.54	0.92	23	3.84	0.86	23	0.02
Forgiveness	4.12	0.75	14	4.01	0.81	18	4.18	0.71	11	0.12
Modesty	4.00	0.81	20	3.87	0.89	21	4.07	0.75	18	0.09
Prudence	3.93	0.83	22	3.69	0.96	22	4.06	0.71	13	<0.01
Self-regulation	4.09	0.66	15	4.03	0.74	17	4.13	0.61	14	0.27
Appreciation of beauty	4.15	0.78	13	3.95	0.87	19	4.26	0.70	9	<0.01
Gratitude	4.47	0.68	3	4.34	0.45	9	4.55	0.63	3	0.03
Hope	4.28	0.72	9	4.33	0.76	10	4.25	0.70	10	0.40
Humor	4.08	0.83	17	4.16	0.81	13	4.04	0.85	20	0.33
Spirituality	3.37	1.23	24	3.24	1.23	24	3.44	1.23	24	0.25

Note: M, mean; S, standard deviation, R = rank of mean (1 indicates numerically highest mean and 24 indicates the numerically lowest mean of the scores in the CSRF).

Table 3

Correlations between strengths and different indicators of subjective and physical wellbeing and rank order (whole sample, $N = 217$)

Strengths	SWL	R	PA	R	NA	R	SRH	R
Creativity	0.14*	17	0.29**	10	-0.01	16	0.18*	9
Curiosity	0.20**	11	0.30**	8	-0.11	6	0.20**	7
Open-mindedness	0.01	23	0.27**	13	0.01	20	0.18**	13
Love of learning	0.21**	9	0.43**	3	-0.06	8	0.29**	2
Perspective	0.12	19	0.29**	11	-0.01	18	0.20**	8
Bravery	0.21**	8	0.39**	4	-0.06	9	0.18**	11
Perseverance	0.21**	10	0.33**	7	-0.15*	3	0.25**	4
Honesty	0.17*	13	0.26**	15	0.04	23	0.12	16
Zest	0.41**	2	0.50**	2	-0.28**	1	0.27**	3
Love	0.29**	4	0.27**	12	0.02	22	0.14*	15
Kindness	0.09	21	0.19**	18	0.06	24	-0.06	24
Social intelligence	0.08	22	0.20**	17	-0.01	17	0.08	18
Teamwork	0.19**	12	0.17	20	-0.05	11	0.18**	10
Fairness	0.24**	6	0.30**	9	-0.02	15	0.15*	14
Leadership	0.16*	14	0.35**	5	0.01	21	0.18*	12
Forgiveness	0.11	20	0.13	21	-0.04	12	-0.02	23
Modesty	-0.03	24	0.10	23	-0.03	13	0.07	21
Prudence	0.13	18	0.11	22	-0.13	4	0.08	19
Self-regulation	0.34**	3	0.26**	14	-0.12	5	0.23**	5
Appreciation of beauty	0.14*	16	0.19**	19	-0.01	19	0.08	20
Gratitude	0.23**	7	0.20**	16	-0.06	10	0.12	17
Hope	0.52**	1	0.53**	1	-0.25**	2	0.38**	1
Humor	0.28**	5	0.33**	6	-0.09	7	0.23**	6
Spirituality / Religiosity	0.15*	15	-0.01	24	-0.02	14	0.05	22

Note: LS, satisfaction with life; PA, positive affect; NA, negative affect, SRH, self-rated health, R = rank of the correlations coefficients.

*Table 4*Correlations between strengths and subjective / physical wellbeing in the 46–65 age group ($n = 76$)

Strengths	SWL	R	PA	R	NA	R	SRH	R
Creativity	0.03	18	0.14	14	0.05	14	-0.03	22
Curiosity	0.12	12	0.25*	10	-0.06	9	0.15	14
Open-mindedness	0.01	20	0.09	18	0.05	13	0.17	13
Love of learning	0.29*	6	0.38**	4	-0.08	8	0.36**	3
Perspective	0.02	19	0.11	15	0.07	17	0.13	18
Bravery	0.23*	8	0.37**	5	-0.10	6	0.26*	6
Perseverance	0.18	11	0.28*	7	-0.12	4	0.30**	5
Honesty	0.04	17	0.09	17	0.13	21	0.14	16
Zest	0.46**	3	0.46**	2	-0.41**	1	0.14	17
Love	0.35**	5	0.27*	9	-0.01	10	0.23*	9
Kindness	-0.03	23	-0.01	22	0.23	24	-0.06	24
Social intelligence	0.00	21	-0.04	24	0.07	18	0.03	20
Teamwork	0.08	16	0.07	19	0.09	19	0.09	19
Fairness	0.24*	7	0.19	12	0.12	20	0.26*	7
Leadership	0.11	14	0.27*	8	0.15	23	0.15	15
Forgiveness	0.12	13	0.10	16	0.05	15	0.01	21
Modesty	-0.15	24	0.02	20	0.02	12	0.20	11
Prudence	0.08	15	-0.01	23	-0.09	7	0.18	12
Self-regulation	0.46**	2	0.41**	3	-0.10	5	0.42**	2
Appreciation of beauty	0.18	10	0.17	13	0.00	11	0.25*	8
Gratitude	0.21	9	0.19	11	0.07	16	0.21	10
Hope	0.56**	1	0.56**	1	-0.20	2	0.45**	1
Humor	0.39**	4	0.33**	6	-0.20	3	0.30**	4
Spirituality /Religiosity	-0.02	22	-0.00	21	0.13	22	-0.04	23

Note: SWL, satisfaction with life; PA, positive affect; NA, negative affect, SRH, self-rated health; R = rank of the correlations coefficients.

Table 5

Correlations between strengths and subjective / physical in the 66–94 age group ($n = 141$)

Strengths	SWL	R	PA	R	NA	R	SRH	R
Creativity	0.21*	13	0.37**	7	-0.05	18	0.29**	3
Curiosity	0.26**	6	0.34*	11	-0.13	6	0.24**	5
Open-mindedness	0.02	24	0.18*	21	-0.02	21	0.18*	9
Love of learning	0.19*	17	0.45**	3	-0.05	17	0.25**	4
Perspective	0.19*	16	0.39**	5	-0.06	14	0.22*	7
Bravery	0.20*	15	0.42**	4	-0.04	19	0.16	13
Perseverance	0.23**	11	0.36**	10	-0.18*	3	0.20*	8
Honesty	0.27**	4	0.36**	9	-0.01	22	0.10	15
Zest	0.37**	2	0.53**	1	-0.20*	2	0.35**	2
Love	0.28**	3	0.27**	15	0.04	24	0.07	19
Kindness	0.18*	18	0.31*	14	-0.05	16	-0.06	24
Social intelligence	0.13	20	0.32**	13	-0.06	15	0.08	16
Teamwork	0.25**	8	0.21*	18	-0.12	8	0.22**	6
Fairness	0.24**	10	0.36**	8	-0.10	10	0.08	17
Leadership	0.20*	14	0.39**	6	-0.08	12	0.18*	10
Forgiveness	0.11	22	0.16	23	-0.09	11	-0.03	23
Modesty	0.05	23	0.17	22	-0.06	13	-0.00	21
Prudence	0.17*	19	0.22*	16	-0.17	4	0.05	20
Self-regulation	0.24**	9	0.21*	20	-0.14	5	0.17	12
Appreciation of beauty	0.11	21	0.21*	19	-0.01	23	-0.03	22
Gratitude	0.26**	7	0.22*	17	-0.13	7	0.07	18
Hope	0.48**	1	0.53**	2	-0.29**	1	0.37**	1
Humor	0.21*	12	0.33**	12	-0.03	20	0.18*	11
Spirituality /Religiosity	0.26**	5	-0.01	24	-0.11	9	0.14	14

Note: SWL, satisfaction with life; PA, positive affect; NA, negative affect, SRH, self-rated health, R = rank of the correlations coefficient

Table 6

Z-tests and associated *p* values for comparing the correlations between strengths and well-being indicators across age groups (Age 46–65 vs. age 66–94)

Strength	SWL		PA		NA		SRH	
	Z	p	Z	p	Z	p	Z	p
Creativity	-1.18	0.12	-1.66	0.048	0.63	0.62	-2.31	0.01
Curiosity	-0.92	0.18	-0.61	0.27	0.49	0.31	-0.60	0.28
Open-mindedness	-0.17	0.43	2.19	0.01	0.44	0.12	-0.08	0.47
Love of learning	0.59	0.28	-0.58	0.28	-0.22	0.41	0.80	0.21
Perspective	-1.13	0.13	-2.03	0.02	0.83	0.20	-0.63	0.27
Bravery	0.24	0.41	-0.39	0.35	-0.34	0.37	0.74	0.23
Perseverance	-0.37	0.36	-0.58	0.28	0.39	0.35	0.72	0.24
Honesty	-1.59	0.06	-1.85	0.03	0.94	0.17	0.29	0.39
Zest	-0.76	0.23	-0.64	0.26	-1.49	0.07	-1.55	0.06
Love	0.67	0.25	-0.05	0.48	-0.36	0.36	1.12	0.13
Kindness	-1.39	0.08	-2.16	0.02	1.92	0.03	0.03	0.49
Social intelligence	-0.91	0.18	-2.44	<0.01	0.82	0.21	0.34	0.37
Teamwork	-1.23	0.11	-0.94	0.17	1.41	0.08	-0.90	0.18
Fairness	0.01	0.50	-1.22	0.11	1.46	0.07	1.24	0.11
Leadership	-0.66	0.25	-0.84	0.20	1.54	0.06	-0.21	0.42
Forgiveness	0.12	0.45	-0.39	0.35	0.96	0.17	0.24	0.40
Modesty	-1.35	0.09	-1.00	0.16	0.51	0.31	1.42	0.08
Prudence	-0.63	0.26	1.56	0.06	0.55	0.29	0.92	0.18
Self-regulation	1.69	0.045	1.48	0.07	0.24	0.41	1.85	0.03
Appreciation Beauty	0.52	0.30	-0.31	0.38	0.06	0.48	1.97	0.03
Gratitude	-0.18	0.43	-0.20	0.42	1.31	0.10	0.97	0.17
Hope	1.05	0.15	0.24	0.40	0.59	0.28	0.65	0.26
Humor	1.84	0.03	0.05	0.48	-1.18	0.12	0.90	0.19
Spirituality / Religiousness	-1.94	0.03	0.04	0.48	1.58	0.06	-1.23	0.11

Note: SWL, satisfaction with life; PA, positive affect; NA, negative affect, SRH, self-rated health.

