

**Character Strengths, Strength Use and Subjective Wellbeing in Young Adults**

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### **Abstract**

Research has shown that character strengths are positively linked to wellbeing and consistently demonstrated that the so-called happiness strengths hope, love, zest, gratitude and curiosity indicate stronger relations to wellbeing than any other strength. Similarly, the use of strengths has been identified as the causal link between the possession of character strengths and wellbeing. Against this background, the aim of this study was to investigate in how far individuals high in the happiness strengths have a much better prospect of being happy, in the context of strength use. This study examined the cross-sectional relationship between character strengths, in particular that of hope, zest, love, gratitude and curiosity, strength use and wellbeing among a sample of 141 young adults (aged 18-25) who completed an online survey. Results showed that the happiness strengths indicate the strongest relations to life satisfaction of all character strengths. Hope, love, zest, and gratitude displayed the strongest positive relations to positive affect. Hope, zest, gratitude, and curiosity indicated the strongest positive relations to strength use and strength use, in turn, was significantly associated to wellbeing. Mediation analyses revealed strength use as mediator between the happiness strengths and positive affect and love, zest, gratitude and curiosity and life satisfaction. Although the findings are merely correlational, they suggest that the happiness strengths might have stronger relations to wellbeing as they also indicate the strongest relations to strength use. Future research should explore this relationship with a longitudinal research design in order to make stronger statements about the relationship between the happiness strengths. The results of this study support previous findings that the happiness strengths are stronger related to wellbeing as well as the assumption that they might represent a more straightforward relationship to wellbeing compared to the other strengths. Thus, this research provided further insights in the topic of character strengths, more specifically that of hope, zest, love, gratitude and curiosity, their use and relation to wellbeing.

*Keywords:* character strengths, happiness strengths, strength use, wellbeing

## Introduction

For a long time, the focus in psychology lay exclusively on identifying causes for mental illnesses and on developing effective treatments for those who already suffer from mental diseases (Gable & Haidt, 2005). In today's times, however, with depression on the rise especially in young adults (World Health Organisation, 2020a), the need to identify factors that are able to prevent mental illnesses has gained attention. Still, interventions focusing on the prevention of depressive symptoms and fostering positive mental health are lacking to a great extent (McLaughlin, 2012). The concept of positive mental health is well-captured with the WHO's definition of mental health which emphasises that mental health is essentially a state of wellbeing (World Health Organisation, 2020b). Concretely, positive subjective wellbeing is characterised by evaluating life as overall positive due to experiencing predominantly positive emotions compared to negative (Myers & Diener, 1995, as cited in McCullough, Huebner, & Laughlin, 2000). Hence, positive emotions seem to be especially important in the context of wellbeing and have shown to be associated with numerous physical as well as psychological health benefits. Moreover, they have shown to be able to buffer against stress as well as depressive symptoms (Tugade, Frederickson, Feldman Barrett, 2004). Since the turn of the century, a new field of psychology emerged that is solely dedicated to identifying and fostering factors that enhance people's wellbeing, positive psychology. The emphasis of positive psychology on the positive supplements the traditional pathological approach by focusing on individual strengths in order to enable positive experiences (Peterson & Seligman, 2004).

It is exactly these strengths that represent a central pillar of positive psychology. Peterson and Seligman (2004), believe "that character strengths are the bedrock of the human condition" (p.4) and identified and classified the positive traits in people. As result they presented the Virtues in Action (VIA) Classification of character strengths and virtues which identifies 24 ubiquitous character strengths (e.g. love, social intelligence, and bravery) every individual possesses in different degrees that fall under six core virtues which are wisdom, courage, humanity, justice, temperance and transcendence (The VIA Institute on Character, 2020a).

These 24 character strengths are thought of as positive parts of an individual's personality and impact cognition, perception and behaviour. Character strengths are central to personality and induce a feeling of purpose and fulfilment when they are used (The VIA Institute of Character, 2020b). Thus, their *use* appears to be crucial and Peterson and Seligman (2004) also identified the engagement in character strengths as an inherent part of

their definition (Peterson & Seligman, 2004). Peterson and Seligman (2004) also state that when individuals know which strengths they have, cherish them and frequently engage in them, this strength-congruent behaviour represents a crucial route to feel fulfilled and happy. This implies that especially individuals who are able to use their strengths perceive the greatest benefit from their strengths.

This theoretical framework is supported by Linley, Nielsen, Gillet and Biswas-Diener (2010) and Proctor, Maltby, and Linley (2011) who demonstrated that strength use enhances subjective wellbeing. Moreover, a systematic review (Steen, Park, & Peterson, 2005) and a meta-analysis (Bolier et al., 2013) empirically validated that positive interventions focusing on the application of character strengths increases subjective wellbeing. Wood et al. (2011) pointed out that the more frequently individuals use their strengths, the greater is their self-reported wellbeing. Most importantly, are however the findings of Zhang and Chen (2018) who identified the use of strengths as the causal link between character strengths and wellbeing. These findings emphasise the fact that the possession of character strengths is only a prerequisite to enhance wellbeing and stress that it is the actual application of character strengths that leads to greater happiness. This is in accordance with Govindij and Linley (2007) who found that strength knowledge does not cause any increases in wellbeing, but that it is specifically the engagement in strengths that promotes higher wellbeing.

Against this background, it is intriguing that studies focusing solely on the possession of character strengths in relation to wellbeing, consistently find specific strengths to be more related to wellbeing than others: the possession of the strengths zest, hope, love, curiosity and gratitude are consistently found to be related with higher levels of wellbeing (Park, Peterson & Seligman, 2004; Brdar & Kashdan, 2009; Harzer, 2016). These strengths are also referred to as happiness strengths (Niemi, 2013a). Contrarily, the strengths modesty, creativity, appreciation of beauty and excellence, judgement and love of learning have found to be only weakly related with life satisfaction (Park, Peterson & Seligman, 2004).

Park and Peterson (2006) suggested that in general “strengths of the heart” (e.g. gratitude, hope, love and zest) are more associated with wellbeing. More specifically, strengths promoting *connection* seem to be especially powerful in predicting wellbeing (Gillham et al., 2011): The strength of love helps to connect to other people (Peterson & Seligman, 2004). Zest empowers individuals to approach life in general with energy, excitement, and enthusiasm and hope is important to positively connect with the future (Zhang & Chen, 2018). Gratitude is thought to connect individuals gratefully and happy to the past (Zhang & Chen, 2018) and curiosity can be thought to powerfully connect someone to

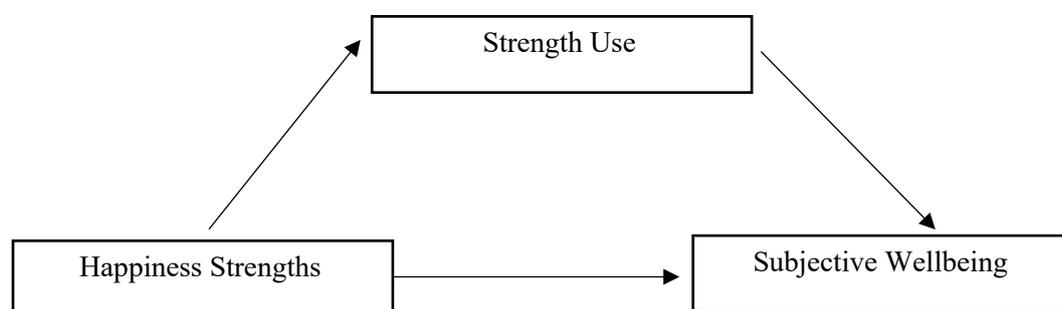
present events and actions. This leads to the assumption that some strengths might be more relevant in supporting well-being than others. Zhang and Chen (2018) arrived at the same conclusion and Wood et al. (2011) remarked that it would be important to consider “whether it is the use of any strength that leads to well-being, or whether specific strengths are responsible for the observed relationship.”

This specifically is the research gap this study aims to address, in how far, individuals who are high in the so-called happiness strengths have a much better prospect of being happy in the context of strength use. On the one hand, the possession of the five happiness strengths has shown to be especially relevant in relation to wellbeing. On the other hand, it is the *application* of strengths that has identified as the explaining factor that is responsible for increases in wellbeing. Consequently, the question arises whether the use of the happiness strengths more effectively increases wellbeing. Zhang and Chen (2018) argue that people fail to become happy not because they do not have the strengths beneficial to improve wellbeing, but because they do not engage in them. They assume that it is the unblocked use of the happiness strengths that would be a more direct predictor to achieve optimal functioning.

Against this background the central aim of this study is to investigate whether the happiness strengths indicate a more meaningful relation to strength use compared to the other character strengths. Moreover, this study is conducted in a population of young adults. Individuals aged between 18 and 25 represent a particularly vulnerable group when it comes to mental illnesses. This age group is especially affected by numerous life stressors, such as finding a job after graduating from university, making important decisions for the future or paying back student loans (Robbins & Wilner, 2001). In the context of the prevention of mental illnesses, the application of character strengths has shown to be able to buffer against stress (Harzer & Ruch, 2015) as well as to build resilience (Martinez-Marti & Ruch, 2016). Therefore, it is important to gain deeper insights in the employment of character strengths in this specific age group as these could be translated into effective depression prevention programmes with the aim to increase positive experiences in young adults.

The current study expects that the happiness strengths indicate the strongest positive relations to subjective wellbeing (H1) and that the happiness strengths are most strongly related to strength use (H2). Additionally, this study expects that strength use is significantly and positively related to subjective wellbeing (H3). This study assumes that strength use

mediates the relationship between the happiness strengths and wellbeing (H4).



*Figure 1.* Hypothesised relations between the happiness strengths, strength use, and subjective wellbeing.

## Method

### Design

This study was part of a larger study on character strengths and wellbeing. It made use of a cross-sectional survey design using an online questionnaire to investigate the association between the ‘happiness’ character strengths (as predictor variable), strength use (as mediator variable) and subjective wellbeing (as outcome variable). The study was approved by the Ethics Committee of the Faculty of Behavioural Sciences at the University of Twente (request nr. 200274).

### Participants

In total, 181 young adults, aged 18-25, participated in the research. In order to participate in the study participants needed to have an English language proficiency. Of the participants, 18 were excluded because they were younger or older than the required age range as well as one participant who did not give consent. Another exclusion criterion was a previous diagnosis with a serious mental illness, including depression, anxiety disorder, psychotic disorder and substance use disorders. Based on this criterion, 21 participants were excluded. This left a sample of 141 young adults with a mean age of  $M_{\text{age}} = 21.89$  ( $SD_{\text{age}} = 1.66$ ). Moreover, 125 were German (88.7%), 13 indicated ‘other’ (9.2%) and three were Dutch (2.1%). 93 were female (66%), 47 were male (33.3%), and one participant identified as ‘other’ (0.7%). Additionally, 121 were students (85.8%), 18 indicated to be employed (12.8%), one person stated to have no occupation (0.7%) and another one to be self-employed (0.7%). The participants represented a convenience sample which was obtained through

snowball sampling through Facebook polls as well as the university's SONA system, where students from the faculty of Behavioural, Management and Social sciences can sign up to participate in studies conducted at the university for partial study credit.

## **Materials**

In order to assess character strengths, their use and the participant's subjective wellbeing, an online questionnaire was created with the help of Qualtrics survey software. The online survey could be accessed by any internet connected computer or mobile phone. In the following the questionnaires that comprised the survey will be clarified. The complete survey can be found in Appendix B.

### ***Character Strengths.***

Participant's character strengths were assessed using the 72-item version of the Values in Action Inventory (VIA-72) (Peterson & Seligman, 2004). The VIA-72 is derived from the original VIA-IS and includes three items to assess each character strengths that are internally most consistent (The VIA Institute on Character, 2020c). The questionnaire uses a 5-point Likert scale which ranges from 1 ("very much unlike me") to 5 ("very much like me"). The sum score varies between 3 and 15 for each scale. The higher the score is, the higher the prevalence of a certain strength. An example of assessing the character strengths *curiosity* would be: "I can find something of interest in any situation.". The questionnaire has an adequate reliability with  $\alpha = .75$  on average and validity coefficients ranging from .36 to .48 (The VIA Institute on Character, 2020c). In the present sample Cronbach's alpha was as well adequate with  $\alpha = .62$  on average. This was acceptable, as the individual scales only consist of three items (Field, 2013).

### ***Strength use.***

The participants' use of strengths was measured using the Strength Use Scale (Govindij & Linley, 2007). The Strength Use Scale consists of 14 items and uses a 7-point scale ranging from 1 ("strongly disagree") to 7 ("strongly agree"). An example of an item assessing how much people are able to use their strengths would be: "I am regularly able to do what I do best.". A higher mean score indicates a more frequent use of strengths. All items of the scale load on a single Strength Use factor (Govindij & Linley, 2007) and the scale shows high internal consistency (Cronbach's  $\alpha = .94-.97$ ) (Wood et al. 2011). In the present study, the Strength Use Scale showed an excellent reliability coefficient of .90.

### ***Subjective wellbeing.***

Subjective wellbeing was assessed with the Positive and Negative Affect Schedule (PANAS) (Watson, Clark, & Tellegen, 1988) and the Satisfaction with Life Scale (SWLS) (Diener, Emmons, Larsen, & Griffin, 1985). The PANAS consists of two subscales, each comprising ten items that assess positive (e.g. interested, excited) and negative affect (e.g. distressed, hostile). Respondents rate on a 5-point scale ranging from 1 (“very slightly or not at all”) to 5 (“extremely”) to which extent they experience the positive and negative emotions. The scores for the positive affect and the negative affect subscale were summed up separately and ranged from 10 to 50. The PANAS showed high reliability coefficients for both subscales: positive affect (Cronbach’s  $\alpha = .88$ ) and negative affect (Cronbach’s  $\alpha = .87$ ) (Merz et al., 2013). In the present study the positive affect scale and negative affect scale indicated a high internal consistency with reliability coefficients of  $\alpha = .80$  (PA) and  $\alpha = .85$  (NA).

The Satisfaction with Life Scale comprises five statements to which respondents indicate their agreement on a 7-point scale. An example of an item would be: “The conditions of my life are excellent”. Total scores could vary from 5 to 35. The higher the sum score was, the higher was the perceived life satisfaction. The scale has adequate reliability (Cronbach’s  $\alpha = .78$ ) as a review of several studies showed (Corrigan et al., 2013). In the current study SWLS had a high internal consistency of  $\alpha = .83$ .

### **Procedure**

The participants accessed the survey through a link on Facebook or by signing up for the study in the Sona system of the University of Twente. Prior to the start of the study the participants were informed about the aim of the study, that their data will be anonymised and that they could withdraw from the study at any time without providing a reason. Afterwards they could give their informed consent (see Appendix A). Subsequently, they provided their demographic characteristics (age, gender, nationality and occupation) and indicated whether they were or had been diagnosed with a serious mental illness (depression, anxiety disorder, psychotic disorder and substance abuse disorder). If this was the case, they were directed to the end of the survey. If the participants were not diagnosed with a serious mental illness, they continued to the items of the Satisfaction with Life Scale, the Strength Use Scale, the PANAS, and lastly the VIA-72. At the end of the survey, participants were given the opportunity to contact the researchers for further questions about the research as well as the opportunity to discuss concerns about the study with the Secretary of the Ethics Committee of the Faculty of Behavioural, Management and Social Sciences at the University of Twente.

## Data analysis

In order to statistically analyse the collected data, IBM SPSS Statistics 26.0 was used. Firstly, the data were checked for missing values. Participants who did not fall into the required age range as well as those who indicated to have been diagnosed with a mental illness were excluded from the data set using listwise deletion. Subsequently, the raw data were prepared for further analysis: values and labels were adapted if needed and to operationalise the data the scores for every participant on the different questionnaires were computed. Moreover, the distribution of the data for the variables were explored to check whether it looked normal. The total values of skewness and kurtosis smaller than 1 or -1 indicated no violation of normal distribution (Miles & Shevlin, 2001), which was the case for all variables.

Next, assumptions for conducting a Pearson's correlation as well as linear regression analyses were inspected, and descriptive statistics were conducted for the characteristics of the participants as well as the variables of interest. All assumptions for the following analysis were met. Thus, to explore the different relations, Pearson's correlations were conducted. In regard to H1 it was examined whether the associations between the happiness strengths (love, zest, hope, gratitude and curiosity) and life satisfaction, as well as positive affect were significant and positive. For the relation between the happiness strengths and negative affect it was inspected whether the relation was significant and negative. Subsequently, the strengths of the correlation coefficients of love, zest, hope, gratitude and curiosity were compared to the coefficients of the other character strengths to see if the happiness strengths indicated the strongest association in relation to life satisfaction, positive and negative affect. In regard to H2 it was firstly investigated whether the association between the happiness strengths and strength use was significant and positive. Subsequently, the correlation coefficients were compared to the other character strengths in order to assess whether the happiness strengths indicate the strongest correlation coefficients in relation to strength use. In order to test H3 it was examined whether strength use is significantly related with life satisfaction, positive and negative affect. More specifically, it was examined whether increases in strength use are associated with increases in life satisfaction and positive affect as well as decreases in negative affect. The association between the variables was interpreted as negligible when the correlation coefficient indicated .00 to 0.19, and as weak when the coefficient was .20 to .29. The association was interpreted as moderate with a coefficient of .30 to .39 and as strong with a coefficient of .40 to .69. A very strong association between the variables was indicated by a

correlation coefficient above .70 (Moore & McCabe, 2006).

Lastly, mediation analyses were conducted with help of the PROCESS macro developed by Andrew Hayes (2013) to test H4. Mediation was explored for each of the happiness strengths separately. Mediation was assumed to have occurred if the strength of love, zest, hope, gratitude and curiosity, respectively, predict life satisfaction, positive and negative affect less strongly after including strength use in the model. As it is not possible in PROCESS to run models with multiple independent variables the p-value was set at 0.01 in order to attempt to account for type 1 and type 2 error of multiple testing.

H1, H2, H3 and H4 represent multiple hypotheses summarised in one as they would be unnecessary lengthy if written out. This means that they can be partially accepted.

## Results

### Descriptive Statistics

In total, 181 individuals participated in the study of which 40 were excluded for further analyses (see Participants). In the current sample, the five most prevalent strengths were honesty, humour, fairness, love and kindness and the least prevalent five strengths were spirituality, curiosity, humility, gratitude and bravery. The descriptive statistics for the means and standard deviations of subjective wellbeing, the happiness strengths, and strength use can be found in Table 1.

**Table 1**

*Descriptive Statistics for Subjective Wellbeing, Strength Use and the Happiness Strengths*

	Mean	Std. Deviation
Life satisfaction	25.67	5.29
Positive affect	32.07	6.53
Negative affect	20.67	7.31
Strength use	5.02	0.78
Love	11.81	2.47
Gratitude	11.36	1.75
Curiosity	10.82	1.53
Hope	11.12	2.21
Zest	10.56	2.08

## **Correlations**

### ***Happiness strengths and Subjective Wellbeing***

All happiness strengths were significantly and positively associated with life satisfaction and positive affect at the 0.01 level. The associations were moderate to strong (see Table 2) except for curiosity, which indicated a significant weak relation to positive affect ( $r = .269$ ;  $p = .001$ ). Love, zest, hope, gratitude and curiosity indicated the strongest positive relations to life satisfaction. In regard to positive affect, zest, gratitude, hope, and love displayed the highest positive relation, followed by spirituality and curiosity. However, the correlation between the happiness strengths as well as all other strengths and negative affect were not found to be statistically significant except for spirituality. Spirituality had a positive, weak relation to negative affect ( $r = .209$ ;  $p = .013$ ).

In regard to the remaining character strengths, social intelligence, kindness, leadership, perspective and bravery indicated significant negligible to weak positive relations to life satisfaction and positive affect as well as significant weak to moderate associations to strength use. In contrast, prudence, appreciation of beauty and excellence, humility, love of learning, humour, judgment, and self-regulation indicated no relation to life satisfaction, positive affect and strength use.

### ***Happiness Strengths and Strength Use***

The happiness strengths were all significantly and positively associated to strength use and indicated moderate to strong associations at the 0.01 level (Table 2). Zest, gratitude, hope and curiosity indicated the strongest relations to strength use succeeded by perseverance, social intelligence, and love.

### ***Strength Use and Wellbeing***

Lastly, strength use had a significant moderate association to life satisfaction ( $r = .365$ ;  $p = .000$ ), and a significant strong relation to positive affect ( $r = .409$ ;  $p = .000$ ). The relation to negative affect was not significant ( $p = 0.06$ ).

**Table 2***Correlations Between Character Strengths Strength Use and Subjective Wellbeing*

	Strength Use	Life Satisfaction	Positive Affect	Negative Affect
Hope	.446**	.447**	.459**	-.155
Curiosity	.415**	.308**	.269**	-.099
Gratitude	.408**	.377**	.483**	.009
Zest	.408**	.374**	.551**	-.066
Perseverance	.400**	.085	.237**	-.033
Social Intelligence	.370**	.264**	.229**	-.088
Love	.339**	.427**	.396**	.008
Perspective	.311**	.181*	.225**	-.067
Creativity	.298**	.122	.230**	.022
Leadership	.294**	.184*	.168*	-.139
Fairness	.265**	.232**	.159	-.144
Bravery	.228**	.169*	.171*	.067
Honesty	.211*	.049	.147	.015
Forgiveness	.062	.174*	.058	-.094
Kindness	.195*	.233**	.203*	-.128
Judgment	.142	.076	.098	.075
Teamwork	.210*	.123	.054	-.064
Self-Regulation	.141	.066	.054	.051
Love of Learning	.118	.122	.075	.008
Humour	.114	.025	.072	.008
Spirituality	.064	.113	.303**	.209*
Appreciation of Beauty & Excellence	.048	.063	.048	.164
Humility	.035	.024	-.042	-.003
Prudence	.032	.017	.035	.009
Strength Use	-	.365**	.409**	-.159

\*\**. Correlation is significant at the 0.01 level (2-tailed).*

\**. Correlation is significant at the 0.05 level (2-tailed).*

## Mediation

A mediation analysis using the PROCESS macro (Hayes, 2013) was conducted based on 5000 bootstrapped sample using bias corrected and accelerated 99% confidence intervals.

### *The Happiness Strengths predict Life Satisfaction through Strength Use*

The total effect models showed that all happiness strengths significantly predict life satisfaction: hope: [ $F(1,139) = 34.69, p < 0.001, R^2 = 0.20$ ]; zest: [ $F(1,139) = 22.67, p < 0.001, R^2 = 0.14$ ]; love: [ $F(1,139) = 31.07, p < 0.001, R^2 = 0.18$ ]; gratitude: [ $F(1,139) = 22.99, p < 0.001, R^2 = 0.14$ ]; and curiosity: [ $F(1,139) = 14.58, p = .0002, R^2 = 0.09$ ].

Moreover, the relationships between the happiness strengths and the mediator strength use were significant (see Table 3). Also, strength use was significantly related to life satisfaction for the mediation models with zest, love, gratitude and curiosity as predictors. Only for the mediation model with hope as predictor, strength use was not significantly connected to life satisfaction at the stringent alpha level of .01 ( $b = 1.40, p = 0.014$ ).

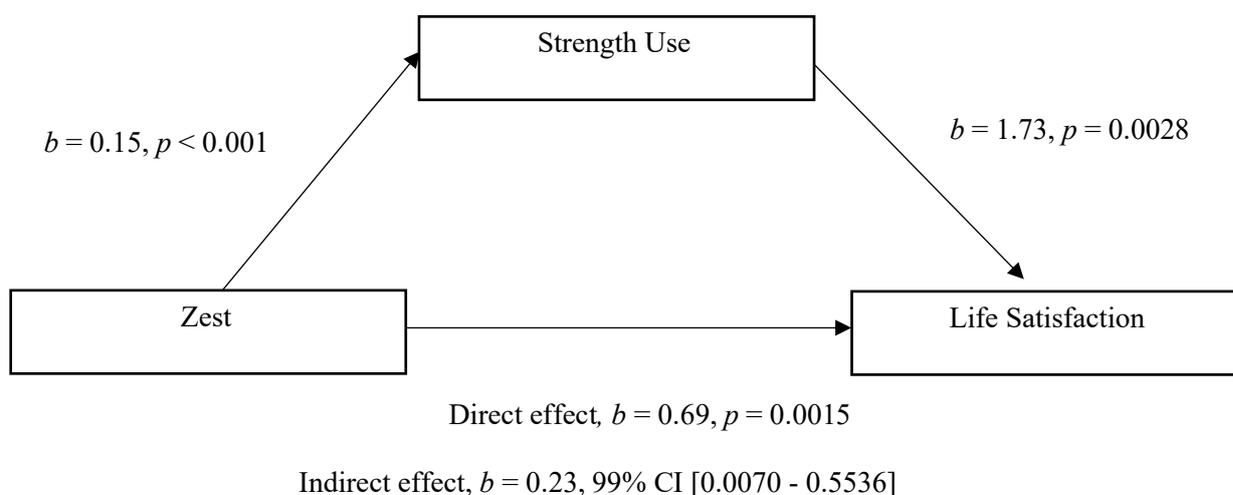
Mediation effects were significant for zest, love, gratitude and curiosity (see Table 3), however, not for hope ( $b = 0.22, 99\% \text{BCa} [-.0340 - .5296]$ ). Zest, love, and gratitude had significant direct effects on life satisfaction. In contrast, the direct effect was no longer significant for curiosity with the stringent alpha level of .01, when strength use was included as a mediator ( $b = 0.65, p = 0.029$ ). Moreover, the strengths of the relationships of the happiness strengths and life satisfaction was reduced when strength use was included in the model (see Table 3). An exemplary mediation model for the association of zest, strength use and life satisfaction is illustrated in Figure 2. Lastly, 24% of variance in life satisfaction was explained by love and strength use ( $F(2,138) = 21.52, p < 0.001, R^2 = 0.24$ ), zest and strength use together explained 20% of variance ( $F(2,138) = 16.66, p < 0.001, R^2 = 0.20$ ) as did gratitude and strength use ( $F(2,138) = 16.79, p < 0.001, R^2 = 0.20$ ). Curiosity and strength use accounted for 16% of variance in life satisfaction ( $F(2,138) = 13.45, p < 0.001, R^2 = 0.16$ ).

**Table 3**

*Results of Mediation Analysis for the Happiness Strengths as Predictor, Strength Use as Mediator and Life Satisfaction as Outcome Variable*

Predictor	a	b	c	c'	Mediation			Total R <sup>2</sup>
					Total effect	Direct effect	by Strength Use	
Hope	0.16**	1.40	1.07**	0.85**	0.22	-.0340	.5296	0.23**
Zest	0.15**	1.73**	0.95**	0.69**	0.23**	.0070	.5536	0.20**
Love	0.11**	1.67**	0.92**	0.73**	0.18**	.0132	.4227	0.24**
Gratitude	0.18**	1.72**	1.14**	0.82**	0.31**	.0230	.6659	0.20**
Curiosity	0.21**	1.95**	1.1**	0.65	0.41**	.0617	.8935	0.16**

*Note.* Effect is expressed by regression coefficient *b*. *a* = effect of predictor variable (happiness strengths) on mediator (strength use); *b* = effect of mediator (strength use) on outcome variable (life satisfaction); *c'* = direct effect of the happiness strengths on life satisfaction; *a x b* = indirect effect of the happiness strengths on life satisfaction through strength use. \*\**p* < 0.01.



*Figure 2.* Exemplary mediation model with zest as predictor of life satisfaction and strength use as mediator.

### ***The Happiness Strengths predict Positive Affect through Strength Use***

The total effects model of the five happiness strengths and positive affect showed that all happiness strengths are significantly related to positive affect (see Table 4). The relationships between the happiness strengths and strength use were significant, as well as the relationship of strength use and positive affect for each model. Moreover, hope, zest, love, gratitude and curiosity had all significant indirect effects on positive affect. For curiosity, the direct effect was not significant ( $b = 0.51$ ;  $p = 0.16$ ), while for hope, zest, love and gratitude the direct effect remained significant. The strengths of the relationship of the happiness strengths and positive affect was reduced after including strength use in the model. Zest and strength use accounted for 34% of variance in positive affect ( $F(2,138) = 36.24$ ,  $p < .001$ ,  $R^2 = .34$ ), gratitude and strength use for 29% ( $F(2,138) = 27.86$ ,  $p < .001$ ,  $R^2 = .29$ ) and hope and strength use for 26% ( $F(2,138) = 24.59$ ,  $p < .001$ ,  $R^2 = .26$ ). Love and strength use explained 24% of the variance in positive affect ( $F(2,138) = 22.08$ ,  $p < .001$ ,  $R^2 = .24$ ) and curiosity and strength use 18% ( $F(2,138) = 15.08$ ,  $p < .001$ ,  $R^2 = .18$ ).

**Table 4**

*Results of Mediation Analysis for the Happiness Strengths as Predictor, Strength Use as Mediator and Positive Affect as Outcome Variable*

Predictor	a	b	Total Effect	Direct Effect	Mediation		Total R <sup>2</sup>	
					by Strength Use	BCa 99% indirect effect		
Hope	0.16**	2.14**	1.35**	1.02**	0.34**	.0554	.7163	0.26**
Zest	0.15**	1.85**	1.73**	1.45**	0.28**	.0298	.6170	0.34**
Love	0.11**	2.6**	1.04**	0.77**	0.28**	.0756	.5796	0.24**
Gratitude	0.18**	2.13**	1.80**	1.14**	0.39**	.0848	.8224	0.29**
Curiosity	0.21**	3.01**	1.15**	0.51	0.64**	.2476	1.1832	0.18**

*Note.* Effect is expressed by regression coefficient  $b$ .  $a$  = effect of predictor variable (happiness strengths) on mediator (strength use);  $b$  = effect of mediator (strength use) on outcome variable (positive affect);  $c'$  = direct effect of the happiness strengths on positive affect;  $a \times b$  = indirect effect of the happiness strengths on positive affect through strength use. \*\* $p < 0.01$ .

### *The Happiness Strengths predict Negative Affect through Strength Use*

The mediation model with negative affect as outcome variable showed no significant total effect of the happiness strengths on negative affect, as well as no significant direct and indirect effect (see Table 5).

**Table 5**

*Results of Mediation Analysis for the Happiness Strengths as Predictor, Strength Use as Mediator and Negative Affect as Outcome Variable*

Predictor	a	b	Total Effect	Direct Effect	Mediation		Total R <sup>2</sup>
					by Strength Use	BCa 99% indirect effect	
Hope	0.16**	-1.05	-.51	-.35	-.17	Lower: -.5865 Upper: .1952	.03
Zest	0.15**	-1.48	-.23	-.01	-.23	Lower: -.6469 Upper: .1723	.02
Love	0.11**	-1.71	0.02	0.21	-.18	Lower: -.5607 Upper: .0676	.03
Gratitude	0.18**	-1.83	0.04	.37	-.33	Lower: -.8463 Upper: .1108	.03
Curiosity	0.21**	-1.33	-.47	-.19	-.28	Lower: -.8854 Upper: .2431	.02

*Note.* Effect is expressed by regression coefficient *b*. *a* = effect of predictor variable (happiness strengths) on mediator (strength use); *b* = effect of mediator (strength use) on outcome variable (negative affect); *c'* = direct effect of the happiness strengths on negative affect; *a x b* = indirect effect of the happiness strengths on negative affect through strength use. \*\**p* < 0.01.

### **Discussion**

The aim of this study was to investigate the relationship of character strengths, in particular the relationship of the happiness strengths, and wellbeing in the context of strength use. The results showed that the happiness strengths are significantly related to life satisfaction and positive affect. In regard to life satisfaction, the happiness strengths indicated the strongest positive relations of all character strengths. Zest, gratitude, hope, and love displayed the strongest associations in relation to positive affect, with curiosity indicating the 6<sup>th</sup> strongest relationship behind spirituality. Unexpectedly, except from spirituality, none of the character strengths was significantly related to negative affect. This is, however, in

accordance with Cohn et al. (2011) who suggested that an increase in positive emotions is not necessarily associated with a decrease or absence of negative emotions and similarly, that negative emotions do not impede the benefits of positive emotions. Cohn et al. (2011) found that it is in particular positive emotions that are a better predictor of life satisfaction even in the “midst of negative emotions”. This is also in line with the premise of positive psychology to complement the traditional pathological approach of psychology by enhancing specifically the positive aspects of life (Lino, 2018). Therefore, it is argued that the decrease or absence of negative emotions does not necessarily constitute a defining part of subjective wellbeing, but more importantly, the presence of positive emotions and whether individuals are satisfied with their lives. Against this background, this study concludes that H1 is partly accepted, as no relationship was found in regard to negative affect, however the happiness strengths had the strongest relations to life satisfaction and positive affect, except for the association of curiosity and positive affect.

These findings are in line with Peterson et al. (2007), Park et al. (2004) as well as Brdar and Kashdan (2009) and Harzer (2016) who similarly identified hope, zest, love, gratitude and curiosity as the strengths with the strongest relations to wellbeing. Again, the “strengths of the heart” (Park & Peterson, 2006) were most strongly associated with wellbeing. Moreover, Peterson et al. (2007, as cited in Niemiec, 2013b) suggested that character strengths related to meaning, engagement, and pleasure are especially important in relation to wellbeing, which are essentially hope, zest, gratitude, curiosity and love. This thus emphasises the fact that these character strengths might be especially relevant in enhancing life satisfaction compared to the remaining character strengths.

Additionally, the results of this study are insofar in line with Park et al.’s (2004) and Kaufmann’s (2015) findings which show that prudence, appreciation of beauty and excellence, humility, love of learning, humour, judgment and self-regulation were the least relevant strengths in relation to wellbeing. In the current study these strengths showed no relation to life satisfaction or positive affect whereas Park et al. (2004) and Kaufmann (2015) still found these strengths significantly correlated to wellbeing, they indicated however the least strong relations to wellbeing. A reason why the relationship of the aforementioned strengths was not found to be related to wellbeing could be that these strengths also indicated no significant relationship with strength use, which is previously identified as the causal link to wellbeing (Zhang & Chen, 2018). Thus, in the present study the strengths of prudence, appreciation of beauty and excellence, humility, love of learning, humour, judgment and self-

regulation were not found to be associated with the factor that has shown to be responsible for enhancing wellbeing.

The findings of the current study are further in accordance with previous research as they identified hope and zest as strongest predictors of positive affect (Martinez-Marti and Ruch, 2014; Harzer, 2016) as well as gratitude and love (Martinez-Marti and Ruch, 2014). Findings of the current research are different from earlier findings (Harzer, 2016) as curiosity was not among the strongest predictors of positive affect. A reason for this difference could be that the current research was conducted at the onset of the COVID-19 pandemic, which might have altered how individuals rated their positive emotions. At the onset of the COVID-19 pandemic, people were required to stay at home, to work from home and moreover, except from system-relevant institutions, like supermarkets, every shop, restaurant and official institution was closed down. However, Park et al. (2004) put the character strength curiosity as synonymous to “openness to experience” and define it as “exploring and discovering” (p. 606). Thus, it would seem plausible that individuals with curiosity as core strength felt more restricted, as they could no longer “explore and discover” in the same way they would usually, which in turn might have affected that curiosity was not found among the five strongest predictors of positive affect. In the context of the COVID-19 pandemic, it is also comprehensible that spirituality was found among the five strongest predictors of positive affect: Saroglou, Buxant, and Tilquin (2004) state that negative events and crises increase spirituality, as they serve as a refuge and provide shelter. Similarly, the context of the COVID-19 pandemic could also explain, why spirituality even predicted negative affect: Ciarrocchi and Brelsford (2009) are of the opinion that spiritual struggles or the image of an abandoning or punishing God increase emotional distress which could have been enhanced in face of the crisis.

Secondly, hope, zest, gratitude, and curiosity had the strongest relations to strength use. In contrast, love had the 7<sup>th</sup> strongest relation to strength use after perseverance and social intelligence. Thus, H2 was as well partially confirmed. These findings are insofar in line with Zhang and Chen (2018) as zest was among the five strongest related strengths to strength use and that hope, gratitude, curiosity and love were significantly related to strength use. The findings of the current study differ from the findings of Zhang and Chen (2018) as in their study hope, gratitude, curiosity and love were not among the five strongest predictors of strength use. Additionally, the current study did not find all character strengths to be related to strength use in contrast to Zhang and Chen (2018) even though Peterson and Seligman (2004) state that people have the “intrinsic motivation to use their strengths” (p.18). In this regard,

the results of the current study are neither in accordance with theoretical assumptions established by Peterson and Seligman (2004), nor with empirical results that found all character strengths related to strength use.

An important concern was raised by Niemiec (2012) as according to him, most people do not know specifically which strengths they possess. Therefore, it remains uncertain, whether the indicated strengths have no relation to strength use or whether no relation was found because the respondents did not know which strengths they have, let alone how to engage in them. Against the background that hope, zest, gratitude and curiosity displayed the strongest relations to strength use the question arises whether individuals high in these strengths knew better how to engage in them or whether they might be easier to apply than other character strengths. Up to the present time, no research investigated this question. Therefore, the results of the present study only allow for the following interpretation: if strength use represents the causal link between the possession of character strengths and wellbeing, it can be argued, that the strengths that are found to be most strongly related to wellbeing, should also indicate the strongest relations to strength use, which was the case for the present study, except for the character strength of love. For interventions this implies that it would be important to consider if people know what their strengths are before they can consciously engage in them.

Thirdly, the present study showed that strength use predicts life satisfaction as well as positive affect but not negative affect, thus H3 was also confirmed against the background that specifically positive emotions and life satisfaction constitute a defining part of subjective wellbeing, but not necessarily negative affect (Cohen et al., 2011). This is in accordance with a large body of research demonstrating that strength use enhances wellbeing (Linley et al., 2010; Proctor et al., 2011; Wood et al., 2011). To this date, little research has investigated why specifically strength use enhances wellbeing (Douglass & Duffy, 2015). Theoretically, character strengths are viewed as natural capacities individuals seek to pursue to be their authentic self which in turn is argued to positively affect wellbeing (Govindij & Linley, 2007). Character strengths are also thought of as the foundation of the human condition (Peterson & Seligman, 2004). Behind that background that character strengths are central to personality, it is argued, that especially individuals that are able to act in accordance with themselves (as in engaging in their strengths to be their authentic self) perceive the greatest benefit in terms of wellbeing. This argumentation would be in line with Kernis and Goldman (2006) who demonstrated that authentic functioning predicts subjective wellbeing. Accordingly, Govindij and Linley (2007) pointed out that strength knowledge would not

cause any increases in wellbeing, but that it is specifically the engagement in strengths that promotes higher wellbeing. Consequently, the actual application of character strengths is unarguably the most important factor in relation to enhancing wellbeing, supporting already existing literature (Steen, Park, & Peterson, 2005; Bolier et al., 2013).

Lastly, the mediation analyses showed that strength use mediates the relationship between all happiness strengths and positive affect as well as between zest, love, gratitude, curiosity and life satisfaction, except for hope. Moreover, as there was no relation of the character strength and strength use with negative affect, H4 was partly confirmed. These findings of the present study are consistent with findings of Zhang and Chen (2018) who showed that strength use mediates the relationship between all character strengths and wellbeing. The focus of the current study lay on the five happiness strengths, hope, zest, love, gratitude and curiosity, but again confirmed for zest, love, gratitude and curiosity that their relationship to subjective well-being is also mediated by strength use. In contrast to Zhang and Chen (2018), the current study did not find strength use to mediate the relationship between hope and life satisfaction. An explanation of this could be that during the COVID-19 pandemic, positive thinking in terms of having a positive outlook on the future, which is the definition of the character strength hope (Park et al., 2004), was impaired in relation to life satisfaction as this situation was something no one had experienced so far. At the beginning of the crisis everything seemed uncertain as the virus in general, how it spreads and how fatal a course of disease is was still unknown. Thus, the strengths of positive thinking might have been impeded due to the novel and frightening situation which is usually shown to predict life satisfaction (Bailey, Eng, Frisch, & Synder, 2007).

Strengths of the present study are that the findings support the assumption that some strengths might be more relevant in explaining the relationship to wellbeing (Wood et al., 2011; Zhang & Chen, 2018). Additionally, this study found that corresponding to the strength indicating the strongest relations to wellbeing, the same strengths indicated the strongest relations to strength use. Thus, this study provided more detailed insights into the relationship between character strengths and wellbeing in the context of strength use and cautiously said, point in the direction that it could be the application of specific strengths, rather than all character strengths, that are related to a more effective increase in wellbeing. For the development of strength use interventions this means that it would be especially important to focus on the happiness strengths and to translate these into applicable programs as the happiness strengths indicate a more straightforward relationship with strength use as well as wellbeing compared to the other strengths.

Limitations of the study include that the respondents represented a convenience sample which was reflected in the demographics as most of the participants were German, female students. However, gender, occupation and nationality did not seem to have affected the variables significantly as they were still largely consistent with previous findings (Zhang & Chen, 2018; Peterson et al., 2007; Park et al., 2004); Brdar & Kashdan, 2009; Harzer, 2016). Therefore, the findings of the present study are considered as generalisable to a larger population of young adults. Additionally, this study made use of a cross-sectional survey design, which does not allow to draw conclusions about causal relationships for the involved variables. Nonetheless, the used design still indicated important relations between the variables which represents a good starting point for future research. Therefore, future research is needed to investigate the relationships of the current research with a longitudinal research design in order to make stronger statements about the relationship between the happiness strengths, and their relation to strength use and wellbeing compared to the other character strengths. Furthermore, the current study only asked students in general about the frequency of their strength use without specifying whether the participants knew which strength(s) they have or taking into account to which specific strength(s) the use of strengths applied. Consequently, further research should include strength knowledge in addition to strength use in order to explore whether individuals scoring high on the happiness strengths know better about their strengths, and whether these strengths are consequently easier to apply than other character strengths.

Concluding, this research provided further insights in the topic of character strengths, their use and relation to wellbeing. More specifically, the present study provided detailed insights in the relationship of the happiness strengths and wellbeing in the context of strength use. This study showed that the happiness strengths are most strongly associated to wellbeing as well as strength use compared to the other strengths. Moreover, strength use was identified as explaining the relationship between the happiness strengths and wellbeing. Therefore, the results emphasise that the use of the happiness strengths might be especially important in relation to wellbeing, which should be validated in a longitudinal research design to allow for more concrete conclusions. These insights could be used to create effective prevention programmes against depressive symptoms that equip young adults with skills to increase their level of positive experiences which in turn strengthen their psychological resources.

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## Appendix A

### Informed Consent

Thank you for wanting to participate in our study. Please read the following information carefully.

The aim of this study is to investigate the relationship between character strengths and mental health of individuals.

By proceeding to the next page, I agree that ...

I understand that I consent voluntarily to the study. I can refuse to answer questions and can withdraw from the study at any time without having to give a reason.

I understand that the data collected in this online survey will be treated strictly confidential. All analysis of the collected data occurs anonymously and only for the purpose of this study. If the data is published, measures will be taken to ensure that no data of any individual is recognizable as such.

I understand that personal information collected about me that can identify me will not be shared beyond the study team.

I understand that all information I provide will be anonymized.

If you have any further questions, please contact the researchers:

Lili Bechler: [l.d.bechler@student.utwente.nl](mailto:l.d.bechler@student.utwente.nl)

Joanna Greiwe: [j.greiwe@student.utwente.nl](mailto:j.greiwe@student.utwente.nl)

Johanna Kalefeld: [j.kalefeld@student.utwente.nl](mailto:j.kalefeld@student.utwente.nl)

If you have questions about your rights as a research participant, or wish to obtain more information, ask questions, or discuss any concerns about this study with someone other than the researcher(s), please contact the Secretary of the Ethics Committee of the Faculty of Behavioural, Management and Social Sciences at the University of Twente by [ethicscommittee-bms@utwente.nl](mailto:ethicscommittee-bms@utwente.nl).

## Appendix B

### Questionnaires

#### *Satisfaction with Life Scale*

1. In most ways my life is close to my ideal
2. The conditions of my life are excellent
3. I am satisfied with my life
4. So far, I have gotten the important things I want in life
5. If I could live my life over, I would change almost nothing

#### *Strength Use Scale*

1. I am regularly able to do what I do best
2. I always play to my strengths
3. I always try to use my strengths
4. I achieve what I want by using my strengths
5. I use my strengths everyday
6. I use my strengths to get what I want out of life
7. My work gives me lots of opportunities to use my strengths
8. My life presents me with lots of different ways to use my strengths
9. Using my strengths comes naturally to me
10. I find it easy to use my strengths in the things I do
11. I am able to use my strengths in lots of different situations
12. Most of my time is spend doing the things that I am good at doing
13. Using my strengths is something I am familiar with
14. I am able to use my strengths in lots of different ways

### **PANAS**

#### *Positive Affect:*

- Interested, excited, strong, enthusiastic, proud, alert, inspired, determined, attentive, active

#### *Negative Affect:*

- Distressed, upset, guilty, scared, hostile, irritable, ashamed, nervous, jittery, afraid

**VIA-72**

- I have taken frequent stands in the face of strong opposition
- I never quit a task before it is done
- I always keep my promises
- I always look on the bright side
- I am a spiritual person
- I know how to handle myself in different social situations
- I always finish what I start
- I really enjoy doing small favours for friends
- As a leader, I treat everyone equally well regardless of his or her experience
- Even when candy or cookies are under my nose, I never overeat
- I practice my religion
- I rarely hold a grudge
- I am always busy with something interesting
- No matter what the situation, I am able to fit in
- I go out of my way to cheer people who appear down
- One of my strengths is helping a group of people work well together even when they have differences
- I am a highly disciplined person
- I experience deep emotions when I see beautiful things
- Despite challenges, I always remain hopeful about the future
- I must stand up for what I believe even if there are negative results
- I finish things despite obstacles in the way
- Everyone's rights are equally important to me
- I see beauty that other people pass by without noticing
- I never brag about my accomplishments
- I am excited by many different activities
- I am a true life-long learner
- I am always coming up with new ways to do things
- People describe me as "wise beyond my years"
- My promises can be trusted
- I give everyone a chance
- To be an effective leader, I treat everyone the same.
- I am an extremely grateful person.

- I try to add some humour to whatever I do.
- I look forward to each new day.
- I believe it is best to forgive and forget.
- My friends say that I have lots of new and different ideas.
- I always stand up for my beliefs.
- I am true to my own values.
- I always feel the presence of love in my life.
- I can always stay on a diet.
- I think through the consequences every time before I act.
- I am always aware of the natural beauty in the environment.
- My faith makes me who I am.
- I have lots of energy.
- I can find something of interest in any situation.
- I read all of the time.
- Thinking things through is part of who I am.
- I am an original thinker.
- I have a mature view on life.
- I can express love to someone else.
- Without exception, I support my teammates or fellow group members.
- I feel thankful for what I have received in life.
- I know that I will succeed with the goals I set for myself.
- I rarely call attention to myself.
- I have a great sense of humour.
- I always weigh the pro's and con's.
- I enjoy being kind to others.
- I can accept love from others.
- Even if I disagree with them, I always respect the leaders of my group.
- I am a very careful person.
- I have been told that modesty is one of my most notable characteristics.
- I am usually willing to give someone another chance.
- I read a huge variety of books.
- I try to have good reasons for my important decisions.
- I always know what to say to make people feel good.
- It is important to me to respect decisions made by my group.

- I always make careful choices.
- I feel a profound sense of appreciation every day.
- I awaken with a sense of excitement about the day's possibilities.
- Others consider me to be a wise person.
- I believe that it is worth listening to everyone's opinions.
- I am known for my good sense of humour.