

# **Supplementary materials: detailed results**

Character strengths, well-being, and ill-being

## **Table of contents**

# 1 Deviations from the preregistration

Following discussions with the Editor and the Reviewers, we modified part of the analysis and slightly deviated from our preregistration. For transparency, we report here all the deviations from the preregistration.

Table S 1: Deviations from the preregistration

Topic	Deviation	Explanation
Moderation analyses for clinical and non-clinical samples	Not performed in the main paper but reported in supplementary.	The minimum number of k effects was not reached.
Robustness check	We performed a non-preregistered leave-one-out analysis to check the robustness of our findings.	Accepted reviewers' suggestion
Publication bias analysis	We performed non-preregistered PET regressions to test for possible publication bias in our data.	Accepted reviewers' suggestion
Correction for unreliability	We considered corrected and not (as preregistered) raw correlations coefficients for the meta-analysis	Accepted reviewers' suggestion

## 2 Comparisons with personality traits

Table S 2: Correspondence between character strengths and personality, and expected correlations with well-being and mental health

Character strength	Most correlated facet <sup>1</sup>	Corresponding broad trait	Expected r with well-being <sup>2</sup>		Expected r with mental health <sup>3</sup>	
Appreciation of beauty	<b>Aesthetic Appreciation</b>	HEXACO Openness	.16	.19	-.02	.06
Bravery	<b>Aesthetics</b>	Big 5 Openness				
	<b>Social boldness</b>	HEXACO Extraversion	.16	.46	-.02	.40
	<b>Assertiveness</b>	Big 5 Extraversion				
	Creativity	HEXACO Extraversion				
	Self-Consciousness	Big 5 Extraversion				
Creativity	<b>Creativity</b>	HEXACO Openness	.16	.19	-.02	.06
	<b>Ideas</b>	Big 5 Openness				
	Fantasy	Big 5 Openness				
Curiosity	<b>Inquisitiveness</b>	HEXACO Openness	.18	.48	-.02	.40
	<b>Ideas</b>	Big 5 Openness				
	Aesthetics	Big 5 Openness				
	Liveliness	HEXACO Extraversion				
Fairness	<b>Altruism</b>	HEXACO Interstitial scale	.25	.46	.23	.27
	<b>Gentleness</b>	HEXACO Agreeableness				
	Altruism	Big 5 Agreeableness				
	Angry Hostility	Big 5 Neuroticism				
Forgiveness	<b>Compliance</b>	Big 5 Agreeableness	.18	.25	.21	.23
	<b>Forgivingness</b>	HEXACO Agreeableness				
Gratitude	Sentimentality	HEXACO Agreeableness	.18	.48	.11	.40
		Agreeableness				

Character strength	Most correlated facet <sup>1</sup>	Corresponding broad trait	Expected r with well-being <sup>2</sup>	Expected r with mental health <sup>3</sup>
Honesty	Altruism	HEXACO Interstitial scale		
	Positive emotions	Big 5 Extraversion		
	Liveliness	HEXACO Extraversion		
	Warmth	Big Five Extraversion		
	Altruism	Big 5 Agreeableness		
	<b>Fairness</b>	Honesty- Humility	.16 .46	.22 .27
	<b>Dutifulness</b>	Big 5 Conscientiousness		
	Diligence	HEXACO Conscientiousness		
Hope	Vulnerability	Big 5 Neuroticism		
	<b>Liveliness</b>	HEXACO Extraversion	.46 .48	.27 .40
	<b>Depression</b>	Big 5 Neuroticism		
	Positive emotions	Big 5 Extraversion		
Humility	<b>Modesty</b>	Honesty- Humility	.16 .18	.22 .23
	<b>Modesty</b>	Big 5 Agreeableness		
	Gentleness	HEXACO Agreeableness		
Humor	<b>Liveliness</b>	HEXACO Extraversion	.37 .48	.11 .40
	<b>Positive Emotions</b>	Big 5 Extraversion		
Judgment	<b>Prudence</b>	HEXACO Conscientiousness	.28 .36	.22 .26
	<b>Deliberation</b>	Big 5 Conscientiousness		
	Competence	Big 5 Conscientiousness		

Character strength	Most correlated facet <sup>1</sup>	Corresponding broad trait	Expected r with well-being <sup>2</sup>	Expected r with mental health <sup>3</sup>
Kindness	<b>Altruism</b>	HEXACO Interstitial scale	.16 .37	.11 .19
	<b>Warmth</b>	Big 5 Extraversion		
	Sentimentality	HEXACO Emotionality		
	Altruism	Big 5 Agreeableness		
Leadership	<b>Assertiveness</b>	Big 5 Extraversion	.28 .48	.11 .40
	<b>Social boldness</b>	HEXACO Extraversion		
	Diligence	HEXACO Conscientiousness		
Love	<b>Warmth</b>	Big 5 Extraversion	.37 .48	.11 .40
	Social	HEXACO Extraversion		
	Self-Esteem	HEXACO Extraversion		
	Positive Emotions	HEXACO Extraversion		
	Sociability	HEXACO Extraversion		
	Liveliness	HEXACO Extraversion		
	<b>Ideas</b>	HEXACO Openness		
Love of learning	<b>Inquisitiveness</b>	Big 5 Openness	.16 .19	-.02 .06
	Aesthetic Appreciation	HEXACO Openness		
	<b>Diligence</b>	HEXACO Conscientiousness		
	<b>Self-discipline</b>	Big 5 Conscientiousness		
Perseverance	Achieve Striving	Big 5 Conscientiousness	.28 .36	.22 .26
	<b>Competence</b>	Big 5 Conscientiousness		
	Diligence	HEXACO Conscientiousness		
Perspective	<b>Competence</b>	Big 5 Conscientiousness	.16 .46	-.02 .27
	Diligence	HEXACO Conscientiousness		

Character strength	Most correlated facet <sup>1</sup>	Corresponding broad trait	Expected r with well-being <sup>2</sup>	Expected r with mental health <sup>3</sup>
Prudence	Vulnerability	Big 5 Neuroticism		
	Liveliness	Big 5 Extraversion		
	Creativity	HEXACO Openness		
	<b>Prudence</b>	HEXACO Conscientiousness	.28 .36	.22 .26
	<b>Deliberation</b>	Big 5 Conscientiousness		
Self-regulation	Dutifulness	Big 5 Conscientiousness		
	<b>Diligence</b>	HEXACO Conscientiousness	.28 .46	.26 .27
	<b>Impulsiveness</b>	Big 5 Neuroticism		
Social intelligence	Self-discipline	Big 5 Conscientiousness		
	<b>Warmth</b>	Big 5 Extraversion	.37 .48	.11 .40
	<b>Social Boldness</b>	HEXACO Extraversion		
	Sociability	HEXACO Extraversion		
Spirituality	Values	Big 5 Openness	.16 .48	-.02 .19
	Fairness	Honesty-Humility		
	Liveliness	HEXACO Extraversion		
Teamwork	Tender-mindedness	Big 5 Agreeableness		
	<b>Sociability</b>	HEXACO Extraversion	.18 .48	.11 .40
	<b>Warmth</b>	Big 5 Extraversion		
	Gregariousness	Big 5 Extraversion		
	Gentleness	HEXACO Agreeableness		

Character strength	Most correlated facet <sup>1</sup>	Corresponding broad trait	Expected r with well-being <sup>2</sup>	Expected r with mental health <sup>3</sup>
Zest	<b>Liveliness</b>	HEXACO Extraversion	.36 .48	.22 .40
	Activity	Big Five Extraversion		
	Achieve Striving	Big 5 Conscientiousness		
	Depression	Big 5 Neuroticism		

**Note.** In bold are facets that have been found to be the best correlates in multiple samples.

<sup>1</sup> Based on NEO-PI-R and IPIP-NEO facets in McGrath (2020) and the NEO-PI-R facets in Nettle et al. (2011).

<sup>2</sup> Based on Anglim et al. (2020) and Pletzer et al. (2024).

<sup>3</sup> Based on Pletzer et al. (2024) and Strickhouser et al. (2017). For example, appreciation of beauty was found to be most associated to the “Aesthetic Appreciation” and “Aesthetics” facets; correlations for well-being ranged from .16 to .19 depending on the meta-analysis, while correlations for mental health ranged from -.02 to .06.

Table S 3: Correspondence between character strengths and personality, expected and current correlations with well-being and mental health

Character strength	Broad trait	Exp. r well-being <sup>2</sup>	$\hat{r}$ well-being	Exp. r mental health <sup>3</sup>	$\hat{r}$ mental health
Appreciation of beauty	O	.16 –.19	.18	-.02 –.06	.06
Bravery	E, O, N	.16 –.46	.27	-.02 –.40	.17
Creativity	O	.16 –.19	.22	-.02 –.06	.11
Curiosity	O, E	.18 –.48	.38	-.02 –.40	.25
Fairness	I, A, N	.25 –.46	.21	.23 –.27	.14
Forgiveness	A	.18 –.25	.25	.21 –.23	.21
Gratitude	A, I, E	.18 –.48	.43	.11 –.40	.30
Honesty	HH, C, N	.16 –.46	.25	.22 –.27	.20
Hope	E, N	.46 –.48	.53	.27 –.40	.46
Humility	HH, A	.16 –.18	.07	.22 –.23	.06
Humor	E	.37 –.48	.28	.11 –.40	.19
Judgment	C	.28 –.36	.21	.22 –.26	.16
Kindness	I, E, N, A	.16 –.37	.26	.11 –.19	.14
Leadership	E, C	.28 –.48	.28	.11 –.40	.19
Love	E	.37 –.48	.43	.11 –.40	.34
Love of learning	O	.16 –.19	.24	-.02 –.06	.19
Perseverance	C	.28 –.36	.35	.22 –.26	.27
Perspective	C, N, E, O	.16 –.46	.30	-.02 –.27	.20
Prudence	C	.28 –.36	.19	.22 –.26	.18
Self-regulation	C, N	.28 –.46	.30	.26 –.27	.29
Social intelligence	E	.37 –.48	.33	.11 –.40	.24
Spirituality	O, HH, E, A	.16 –.48	.23	-.02 –.19	.14
Teamwork	E, A	.18 –.48	.30	.11 –.40	.23
Zest	E, C, N	.36 –.48	.53	.22 –.40	.43

**Note.**

<sup>1</sup> Based on McGrath (2020) and Nettle et al. (2011).

<sup>2</sup> Based on Anglim et al. (2020) and Pletzer et al. (2024).

<sup>3</sup> Based on Pletzer et al. (2024) and Strickhouser et al. (2017).

$\hat{r}$  = meta-analytical correlation



Table S 4: Correspondence between character strengths and personality: expected and current correlations with well-being specific outcomes

Character strength	Trait	Life satisfaction	Positive affect	Negative affect	SWB	PWB
App. Beauty	O	.16 (.05 –.10)	.23 (.13 –.24)	.08 (.01 – .04)	.14 (.08)	.15 (.11)
Brav.	E, O, N	.21 (.05 –.48)	.27 (.13 –.51)	.10 (.01 – .39)	.17 (.08 –.42)	.30 (.09 –.37)
Creat.	O	.19 (.05 –.10)	.30 (.13 –.24)	.02 (.01 – .04)	.14 (.08)	.25 (.11)
Cur.	O, E	.32 (.05 –.41)	.40 (.13 –.51)	.12 (.01 – .39)	.30 (.08 –.42)	.35 (.11 –.37)
Fair.	I, A, N	.17 (.09 –.39)	.19 (.12 –.34)	.15 (.06 – .56)	.16 (.13 –.19)	.19 (.09 –.14)
Forg.	A	.21 (.17 –.20)	.24 (.14 –.24)	.22 (.21 – .25)	.17 (.18)	.17 (.14)
Grat.	A, I, E	.42 (.14 –.48)	.37 (.14 –.51)	.19 (.06 – .39)	.34 (.18 –.42)	.36 (.14 –.37)
Hone.	HH, C, N	.22 (.09 –.39)	.24 (.07 –.35)	.13 (.15 – .56)	.22 (.12 –.18)	.31 (.09 –.22)
Hope	E, N	.49 (.09 –.48)	.51 (.12 –.51)	.33 (–.56 –.21)	.48 (.13 –.42)	.45 (.09 –.37)
Humil.	HH, A	.08 (.09 –.20)	.04 (.07 –.24)	.04 (.15 – .25)	.05 (.12 –.18)	.05 (.14)
Humor	E	.23 (.32 –.41)	.28 (.44 –.51)	.11 (.21 – .39)	.25 (.42)	.27 (.37)
Judgm.	C	.18 (.19 –.27)	.23 (.20 –.35)	.06 (.12 – .25)	.14 (.19)	.23 (.22)
Kind.	I, E, N, A	.21 (.09 –.48)	.23 (.12 –.51)	.09 (.06 – .56)	.18 (.13 –.42)	.26 (.09 –.34)
Lead.	E, C	.24 (.19 –.41)	.28 (.20 –.51)	.12 (.12 – .39)	.19 (.19 –.42)	.29 (.22 –.37)
Love	E	.39 (.32 –.41)	.33 (.44 –.51)	.16 (.21 – .39)	.37 (.42)	.38 (.37)
Learn.	O	.18 (.05 –.10)	.28 (.13 –.24)	.13 (.01 – .04)	.17 (.08)	.22 (.11)
Perse.	C	.31 (.19 –.27)	.34 (.20 –.35)	.16 (.12 – .25)	.25 (.19)	.35 (.22)
Persp.	C, N, E, O	.27 (.06 –.48)	.33 (.12 –.61)	.12 (.01 – .56)	.22 (.09 –.50)	.31 (.09 –.37)
Prud.	C	.17 (.19 –.27)	.16 (.20 –.35)	.10 (.12 – .25)	.08 (.19)	.18 (.22)
Self-reg	C, N	.27 (.09 –.27)	.28 (.12 –.35)	.23 (.12 – .56)	.17 (.13 –.19)	.26 (.09 –.22)
Soc.Int	E	.28 (.32 –.41)	.34 (.44 –.51)	.14 (.21 – .39)	.24 (.42)	.33 (.37)
Spir.	O, HH, E, A	.22 (.05 –.41)	.22 (.07 –.51)	.09 (.01 – .39)	.18 (.08 –.42)	.19 (.09 –.37)
Team.	E, A	.25 (.17 –.41)	.25 (.14 –.51)	.16 (.21 – .39)	.24 (.18 –.42)	.27 (.14 –.37)
Zest	E, C, N	.45 (.09 –.41)	.52 (.12 –.51)	.25 (.12 – .56)	.40 (.13 –.42)	.42 (.09 –.37)

**Note.**

<sup>2</sup> Based on Anglim et al. (2020) and Pletzer et al. (2024).

<sup>3</sup> Based on Pletzer et al. (2024). Please note that happiness and domain-specific satisfaction are not included due to a lack of meta-analytical information.

$\hat{r}$  = meta-analytical association

Table S 5: Correspondence between character strengths and personality: expected and current correlations with mental health specific outcomes

Character strength	Broad trait	General mental health	Anxiety	Depression	Stress
App. Beauty	O	.06 (.13)	-.04 (.10)	.02 (.06)	.00 (.06)
Bravery	E, O, N	.12 (.13 -.56)	.06 (.10 -.45)	.14 (.06 -.46)	.09 (.06 -.33)
Creativity	O	.14 (.16)	.02 (.12)	.12 (.08)	.06 (.07)
Curiosity	O, E	.22 (.13 -.56)	.10 (.10 -.45)	.24 (.06 -.46)	.16 (.06 -.33)
Fairness	I, A, N	.09 (.25 -.27)	.05 (.15 -.29)	.07 (.17 -.18)	.11 (.14 -.19)
Forgiveness	A	.14 (.25)	.11 (.15)	.16 (.18)	.21 (.14)
Gratitude	A, I, E	.20 (.25 -.56)	.12 (.15 -.45)	.29 (.18 -.46)	.19 (.14 -.33)
Honesty	HH, C, N	.12 (.09 -.27)	.10 (.07 -.29)	.16 (.04 -.20)	.13 (.10 -.19)
Hope	E, N	.30 (.27 -.56)	.25 (.29 -.45)	.41 (.18 -.46)	.29 (.19 -.33)
Humility	HH, A	.03 (.09 -.25)	-.01 (.07 -.15)	-.02 (.04 -.18)	.03 (.10 -.14)
Humor	E	.20 (.56)	.10 (.45)	.16 (.46)	.11 (.33)
Judgment	C	.11 (.15)	.09 (.17)	.12 (.20)	.12 (.19)
Kindness	I, E, N, A	.05 (.25 -.56)	.01 (.15 -.45)	.07 (.17 -.46)	.06 (.14 -.33)
Leadership	E, C	.15 (.15 -.56)	.09 (.17 -.45)	.15 (.20 -.46)	.09 (.19 -.33)
Love	E	.19 (.56)	.14 (.45)	.30 (.46)	.16 (.33)
Love of learning	O	.17 (.16)	.08 (.12)	.17 (.08)	.11 (.07)
Perseverance	C	.16 (.15)	.14 (.17)	.26 (.20)	.15 (.19)
Perspective	C, N, E, O	.13 (.13 -.56)	.05 (.10 -.45)	.15 (.06 -.46)	.10 (.06 -.33)
Prudence	C	.08 (.15)	.08 (.17)	.12 (.20)	.13 (.19)
Self-regulation	C, N	.23 (.15 -.27)	.20 (.17 -.29)	.21 (.17 -.20)	.29 (.19)
Social intelligence	E	.18 (.56)	.10 (.45)	.17 (.46)	.16 (.33)
Spirituality	O, HH, E, A	.08 (.13 -.56)	.04 (.10 -.45)	.15 (.06 -.46)	.07 (.06 -.33)
Teamwork	E, A	.13 (.25 -.56)	.09 (.15 -.45)	.15 (.18 -.46)	.11 (.14 -.33)
Zest	E, C, N	.32 (.15 -.56)	.23 (.17 -.45)	.44 (.17 -.46)	.27 (.19 -.33)

**Note.**

<sup>2</sup> Based on Pletzer et al. (2024).

O = Openness to experience, E = Extraversion, N = Neuroticism/Emotionality,

I = Interstitial facet of altruism, A = Agreeableness, HH = Honesty-Humility, C = Conscientiousness.