

# The Relation Between Character Strengths and Sustainable Consumption Behavior

Petra Jansen<sup>1</sup> , Martina Rahe<sup>2</sup> , Sabine Hoja<sup>1</sup> 

[1] *Institute of Sport Science, Faculty of Human Sciences, University of Regensburg, Regensburg, Germany.* [2] *Institute of Psychology, Faculty of Educational Science, University of Koblenz, Koblenz, Germany.*

---

Global Environmental Psychology, 2025, Vol. 3, Article e12843, <https://doi.org/10.5964/gep.12843>

Received: 2023-09-20 • Accepted: 2024-11-18 • Published (VoR): 2025-12-23

Handling Editor: Isabel Richter, Norwegian University of Science and Technology, Trondheim, Norway

Corresponding Author: Petra Jansen, University of Regensburg, Universitätsstr. 31, 93053 Regensburg, Germany. E-mail: [petra.jansen@ur.de](mailto:petra.jansen@ur.de)

Badges for Good Research Practices:  Data.  Diversity Statement.  Preregistration.

## Abstract

The study aimed to investigate the relationship between character strengths and sustainable consumption. Moreover, the study examined differences in character strengths between individuals who follow vegan/vegetarian diets and those who are omnivores. Participants were 203 adults between 18 and 68 years. Significant correlations were found between sustainable consumption of food and the character strengths of kindness, forgiveness, curiosity, love of learning, prudence, zest, and judgment, and between sustainable consumption of clothes and the character strengths of hope, kindness, love, curiosity, love of learning, gratitude, and zest. Sustainable food consumption was predicted by spirituality, curiosity, prudence, and diet preference, and sustainable consumption of clothes was predicted by kindness, curiosity, and diet preference. To conclude, the study has revealed some relations between character strengths and sustainable consumption, hinting that inner transformational qualities could be essential to behaving sustainably. However, the relations are weak. This study can only be seen as a first step towards a deeper analysis of internal transformative qualities for sustainable behavior. In general, well-powered intervention studies with fostering values or connectedness must be conducted to investigate if internal transformative qualities are relevant for a change toward sustainable behavior.

## Keywords

values, virtues, food, reusable clothes, vegetarian/vegans



This is an open access article distributed under the terms of the [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/), CC BY 4.0, which permits unrestricted use, distribution, and reproduction, provided the original work is properly cited.

## Non-Technical Summary

### Background

Several individual factors are related to sustainable consumption, including values, the attribution of responsibility, awareness of consequences, personal and social norms, attitudes, and more. In this study, the relationship between character strengths and sustainable and generconsumption behavior is investigated.

### Why was this study done?

This study adds to the previous literature on the relationship between character strengths and sustainable consumption behavior by investigating different consumption areas (food, clothes, and general).

### What did the researchers do and find?

Two hundred three participants (vegan/vegetarian and omnivore) completed questionnaires on character strengths and sustainable consumption. Sustainable food consumption was predicted by spirituality, curiosity, prudence, and diet preference, and sustainable consumption of clothes was predicted by kindness, curiosity, and diet preference.

### What do these findings mean?

There are some relations between character strenghts and sustainable consumption, even the relations are weak.

## Highlights

- Relationships between character strenghts and sustainable consumption were investigated.
- Some relationships could be detected.
- Diet preference predicted sustainable food consumption and sustainable consumption of clothes.
- The study is a first step towards a deeper analysis of internal transformative qualities for sustainable consumption.

The goal of sustainable consumption behavior is to reduce the environmental impact of consumption behavior (Kumar & Yadav, 2021). Geiger et al. (2018) defined sustainable consumption behavior as an act where individuals satisfy their own needs without compromising the ecological and socio-economic conditions of all people. They developed a model of sustainable consumption behavior with different sustainability dimensions, consumption phases, and consumption areas, like food and clothes. Several individual factors are related to sustainable consumption or pro-environmental behavior, such as

values, the ascription of responsibility, awareness of consequences, personal and social norms, attitudes, intentions, perceived behavior control, and habits described in the Comprehensive Action Determination Model (Klößner, 2013). Many of these factors have already been mentioned in other theories, such as values in the value-belief-norm-theory (Stern, 2000). This theory (Stern, 2000) integrates the three essential components of value theory, the new environmental paradigm, and norm activation. Different values (altruistic, biospheric, and egoistic) influence the beliefs (ecological worldview, adverse consequences for valued objects, and the perceived ability to reduce stress), which in turn activate pro-environmental personal norms (the obligation to act in a pro-environmental way) and behavior (activism, nonactivist public sphere behaviors, private-sphere behavior and behaviors in organizations). However, all these factors cannot explain sustainable consumption behavior altogether, so theoretical assumptions are arguing for the activation of the consumers on a deeper level (Thiermann & Sheate, 2021). Thiermann and Sheate (2021) conceptualized a model with a relational pathway as a separate pathway next to the normative pathway in the Comprehensive Action Determination Model that determines environmental behavior independently of other predictors. This relational pathway includes the concepts of relatedness, empathy, and compassion for nature. The so-called 2-path model of pro-environmental behavior aligns with scientific articles fostering the idea that inner transformational qualities should be included to explain sustainable consumption behavior (e.g., Ives et al., 2020). According to Wamsler et al. (2021), the inner transformative qualities encompass the factors of connection, awareness, insight, purpose, and agency. The factor of purpose includes activating and reflecting on one's values (Wamsler et al., 2021).

This study's primary goal is to investigate the relationship between moral values and sustainable behavior. Values can be seen as trans-situational goals of different importance as a guiding principle (Schwartz, 1992). Here, we focus on character strengths, which can be seen as values in action (Park & Peterson, 2006) or moral competencies (Valor et al., 2020).

## Character Strengths as Moral Values

One type of moral value is character strength, one specific aspect of psychological strength (Seligman et al., 2005). Character strengths can be defined either as "...positive traits reflected in thoughts, feelings, and behaviors" (Park et al., 2004) or as skills that lead to a morally praiseworthy action and, therefore, are some moral competencies (Valor et al., 2020). According to 12 criteria for character strength, for example, ubiquity and moral value, 24 character strengths (creativity, curiosity, judgment, love of learning, perspective, bravery, perseverance, honesty, zest, love, kindness, social intelligence, teamwork, fairness, leadership, forgiveness, humility, prudence, self-regulation, beauty, gratitude, hope, humor, and spirituality) were detected. Those 24 character strengths are described in the Value in Action (VIA) framework. They can be divided into the

six virtue categories of wisdom (e.g., creativity), courage (e.g., honesty), humanity (e.g., kindness), justice (e.g., fairness), temperance (e.g., forgiveness), and transcendence (e.g., hope). Virtues are manifestations of character strengths that enable human beings to flourish (Fowers, 2005).

The measurement of character strengths, the VIA-IS (Value in Action Inventory of Strengths) with 240 items, ten items for each character strength (Peterson & Seligman, 2004), is used to operationalize the character strengths. Peterson and Seligman (2004) reported data from more than 150,000 participants. They found that all scales had sufficient reliability and that test-retest correlations were also  $>.70$  (across four months). Results from a preliminary exploratory factor analysis showed a five-factor solution with the strength of restraint: intellectual strength, interpersonal strength, emotional strength, and theological strength. After analyzing ipsative data, two factors with contrasting types of strength were emphasized: the first factor of emotional expression vs. intellectual strengths, and the second factor focusing on self and others (Peterson, 2006).

## Character Strengths and Sustainable Consumption Behavior

Until now, only four studies have used the VIA-IS to investigate the relationship between sustainable consumption attitude and behavior. Six character strengths were highly interrelated in the first study with Mexican participants, and a common virtue factor was built. Sustainable behavior was retrieved with four scales (pro-social, ecological, frugal, and equitable behavior) summarized in a common factor (Corral Verdugo et al., 2015). The results show a high correlation between all character strengths and sustainable behavior, conceptualized as the mean of pro-ecological, altruistic, frugal, and equitable behavior. In the second study of Valor et al. (2020) with Spanish participants, only seven character strengths (appreciation of beauty and excellence, kindness, leadership, love of learning, modesty and humanity, perspective, and self-regulation) are significantly related to sustainable consumption behavior, which was retrieved with one scale of only six items. A third study showed that appreciation of beauty and excellence was the strongest predictor of self-reported pro-environmental behavior and the intention for pro-environmental behavior (Diessner & Niemiec, 2023). Another study demonstrated the relation between some character strengths and explicit and implicit attitudes towards vegetarian and vegan food (Jansen, Rahe et al., 2024). In this study, the explicit attitudes towards vegetarian and vegan food could be predicted by the character strengths of prudence, appreciation of beauty and excellence, humor, teamwork, and by diet preference.

No relevant study has been published regarding the relation between the 24 character strengths and the cloth dimension. However, compassion, the sensitivity to the suffering of others, was positively related to sustainable cloth consumption, and the manipulation of compassion has a small positive effect on the willingness to pay for sustainable clothes (Geiger et al., 2018). Another study within a Chinese sample showed that biospheric, altruistic, and egoistic values were related to sustainable cloth consumption behavior

and can be explained in the framework of the value-belief norm theory with a Chinese sample (Hong et al., 2024). In this study, sustainable fashion consumption and trust in recycling were significant predictors of sustainable cloth consumption behavior.

This study will add to the three others (Corral Verdugo et al., 2015; Diessner & Niemiec, 2023; Valor et al., 2020) in that it will investigate the relationship between character strengths and, according to the model of Geiger et al. (2018), different dimensions (food, clothes, and general) of sustainable consumption behavior.

## Research Question and Hypotheses

In line with the studies of Corral Verdugo (2012) and Valor et al. (2020), we expect that participants with high values in some character strengths will show high values of sustainable behavior toward food, clothes, and life in general. According to that research question, the following hypotheses are formulated:

1. According to the study of Jansen, Rahe et al. (2024), we assume that the character strengths of prudence, appreciation of beauty and excellence, humor, teamwork, and diet preference predict sustainable behavior towards food.
2. According to the study of Valor et al. (2020) we expect that the seven character strengths of appreciation of beauty and excellence, kindness, leadership, love of learning, modesty and humanity, perspective, and self-regulation are significant positive predictors of general sustainable consumption behavior.
3. In an exploratory manner, which character strength predicts the consumption behavior towards cloth will be investigated.

## Method

### Participants

In this correlational study, 203 people from Germany, 144 women, 57 men, and two diverse participated. One hundred thirty-seven were omnivores, and 65 were vegetarians/vegans; one person did not answer this question. Participants were recruited through newsletters and social media from the participating universities. If they were students at the participating university, they got course credit. However, the participant's name could not be linked to the data. For Hypothesis 1, medium effect sizes for the correlations ( $r = .3$ ) between character strengths and the three sustainable behavioral consumption categories are assumed. Due to multiple tests,  $p$  was Bonferroni corrected and set to .002. The power analysis (power of  $1-\beta = .80$ ) resulted in  $N = 145$  participants (Faul et al., 2007). For Hypothesis 2, a power analysis for the linear regression resulted in  $N = 172$  (Faul et al., 2007) assuming a medium effect size of  $f^2 = 0.15$ , an alpha level of  $p = .05$ , a power of  $1-\beta = .80$  and 25 possible predictors for the dependent variable

sustainable behavior regarding clothes, food, and in general (24 character strengths and diet preference).

## Material

### Demographic Questionnaire

A demographic questionnaire was applied with the following variables: sex (*Male, Female, Diverse*); age; level of education (categorical: *No qualification, 'Mittlere Reife', A-levels, Bachelor, Master, PhD*); frequency of active meditation experience (with the categories *Never, Minutes per year, month, week or day*); mindful movement experience (with the categories *Never, Minutes per year, month, week or day*); choice of diet (*Vegetarian/Vegan, Omnivorous*); the importance of, a) nutrition, b) the choice of a diet due to environmental and ethical reasons, and c) the choice of a diet due to health reasons. All choices were registered with a scale from 1 = *Not important at all* to 5 = *Very important* (see Table 1 below).

The demographic and mindfulness activity data were primarily collected to provide a detailed description of the sample because it has been shown that some aspects of dispositional mindfulness and sustainable attitude and behavior are related (Jansen, Rahe & Wolff, 2024). No hypothesis was formulated regarding the relation to the character strengths.

### German Values in Action Inventory of Strengths 120-Item Short Form (VIA-120)

The German Values in Action Inventory of Strengths (Short Form; Höfer et al., 2020) consists of 120 items, with different items for each of 24 character strengths, which could be classified according to Peterson and Seligman (2004) into the six virtues of wisdom, courage, humanity, transcendence, justice, and moderation. Intercorrelations between the scales of the 120-item version and the original 240-item version (Sample 1) ranged from  $r = .52$  (Hope) to  $r = .89$  (Prudence). Criterion validity was demonstrated with the Satisfaction with Life Scale (SWLS) and the Brief Inventory of Thriving (BIT). The comparison of the factor structure between the original and the short form showed a good convergence (Tucker's Phi .93 – .99 Sample 1 general population, .95 – .98 Sample 2, physicians and medical students).

The questionnaire uses a five-point Likert scale from 1 = *Strongly disagree* to 5 = *Strongly agree*. The short form is comparable in terms of the validity and reliability of the original VIA 240-item long form (Höfer et al., 2020). Seven character strengths (appreciation of beauty, fairness, honesty, humility, leadership, self-regulation, teamwork) could not be included in the further analyses due to low reliability (Cronbach's alpha <.69). The reliabilities of all character strengths are reported in Table 2.

## Sustainable Consumption Behavior Measurement

The questionnaire on sustainable consumption behavior (SCB; Geiger et al., 2018) towards food (16 items, for example: “I buy fair-trade food”), clothes (16 items, for example: “I buy ecologically produced clothes, e.g., from bio-cotton”), and in general (6 items, for example: “I take a short shower instead of a long bath”) has been used. Answers were given on a seven-point scale. The scale is based on the cube model of SCB (Geiger et al., 2018). The reliability was acceptable for the food questionnaire (Cronbach’s alpha = .774) and the cloth questionnaire (Cronbach’s alpha = .764) but not for the general questionnaire (Cronbach’s alpha = .538). For this, the scale *in general*, was not considered further anymore.

## Procedure

The survey was set in an online tool for questioning, SoSciSurvey (Leiner, 2019). The link to the study was provided to the students at the respective universities and via social media. First, all participants gave their informed consent. Then, they filled out the socio-demographic questionnaire, the character strengths questionnaire, and the questionnaires of sustainable measurement. The study with the sample size calculation and the analysis plan was preregistered at OSF (see Jansen et al., 2022); all data can be found there. In an exploratory manner, we investigate if the character strengths and virtues differ between vegetarians/vegans and omnivores (see Jansen et al. (2025a) in the Supplementary Materials). Furthermore, the study was conducted according to the ethical guidelines of the Helsinki Declaration and approved by the Ethics Research Board of the University of Regensburg (No. 22-3059-101).

## Statistical Models

First, the correlation between the 17 character strengths (bravery, creativity, curiosity, forgiveness, gratitude, hope, humor, judgment, kindness, love, love of learning, perseverance, perspective, prudence, social intelligence, spirituality, zest) was calculated with a reliability  $\geq .70$ , and the two questionnaires on sustainable behavior. Second, two multiple stepwise hierarchical regressions with sustainable food and clothes criteria were conducted. In the first block, diet preference was included as a predictor because it has been shown that the explicit attitudes towards vegetarian compared to meat-based food depend on their diet (Siebertz et al., 2022). The 17 character strengths were included as predictor variables in the second block.

**Table 1**

*Demographic Data*

Choice of diet	Sex	Age	Level of education	Importance of nutrition <sup>2</sup>	Diet choice: Environmental/ethical reasons <sup>2</sup>	Diet choice: Health reasons <sup>2,3</sup>	Active meditation (min/week)	Mindful movement experience (min/week)
<b>Vegetarian/vegan (N = 65)</b>	Female: 84.6%	27.34 (11.14)	No qualification: 1.5% ‘Mittlere Reife’ <sup>4</sup> : 9.2% A-levels: 66.2%	1: 0% 2: 7.7% 3: 16.9%	1: 0% 2: 4.6% 3: 10.8%	1: 1.5% 2: 7.7% 3: 13.8%	2.90 (8.13)	4.48 (10.19)
	Diverse: 3.1%		Bachelor: 12.3% Master: 9.2% PhD: 1.5%	4: 41.5% 5: 33.8% M = 4.02 (0.910)	4: 32.3% 5: 52.3% M = 4.32 (0.850)	4: 46.2% 5: 30.8% M = 3.97 (0.951)		
			No qualification: 1.5% ‘Mittlere Reife’ <sup>4</sup> : 20.4% A-levels: 62.8%	1: 0% 2: 3.6% 3: 35.0%	1: 1.5% 2: 14.6% 3: 43.8%	1: 0% 2: 2.9% 3: 31.4%	1.07 (4.12)	1.84 (4.83)
			Bachelor: 9.5% Master: 5.1% PhD: 0.7%	4: 43.8% 5: 17.5% M = 3.75 (0.784)	4: 32.1% 5: 8.0% M = 3.31 (0.871)	4: 46.7% 5: 18.2% M = 3.81 (0.765)		
	<b>Omnivorous (N = 137)</b>	Female: 64.2% Male: 35.8%	28.40 (11.64)					

*Note.* ‘Missing information regarding diet preference (vegetarian/vegan or omnivorous) for one person. <sup>2</sup>Categories: 1 = Not important at all, 2 = Not important, 3 = Neutral, 4 = Important, 5 = Very important. <sup>3</sup>Missing data for one person from the group of omnivores. <sup>4</sup>‘Mittlere Reife’ = school leaving certificate after 10 years of school.

**Table 2**  
Means And Standard Deviations of and Correlations Between the Study Variables and Reliability of the Measurements

Variable	M	SD	alpha	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
1. Food	4.63	0.85	.77	—																		
2. Clothes	3.33	0.92	.76	.541**	—																	
3. Bravery	3.64	0.61	.72	.073	.164*	—																
4. Creativity	3.33	0.74	.81	.106	.184**	.419**	—															
5. Curiosity	3.50	0.72	.77	.305***	.335***	.369**	.550**	—														
6. Forgiveness	3.53	0.74	.72	.235***	.162*	.178*	.035	.282**	—													
7. Gratitude	3.54	0.75	.79	.166*	.239***	.192**	.193**	.413**	.450**	—												
8. Hope	3.47	0.82	.78	.175*	.214***	.306**	.240**	.588**	.384**	.593**	—											
9. Humor	3.82	0.65	.72	.039	.136	.313**	.247**	.306**	.177*	.329**	.223**	—										
10. Judgment	3.86	0.69	.77	.220***	.095	.290**	.255**	.316**	.240**	.197**	.169*	.190**	—									
11. Kindness	4.22	0.62	.77	.256***	.253***	.238**	.185**	.299**	.397**	.491**	.267**	.453**	.254**	—								
12. Love	3.72	0.86	.70	.210**	.239***	.307**	.192**	.456**	.265**	.516**	.564**	.248**	.212**	.358**	—							
13. Love of learning	3.20	0.84	.76	.239***	.305***	.258**	.486**	.543**	.249**	.233**	.334**	.073	.363**	.242**	.194**	—						
14. Perseverance	3.68	0.71	.79	.170*	.185**	.460**	.230**	.424**	.232*	.338**	.508**	.175*	.301**	.193**	.308**	.223**	—					
15. Perspective	3.47	0.65	.70	.080	.179*	.371**	.312**	.326**	.179*	.337**	.287**	.248**	.448**	.256**	.329**	.273**	.276**	—				
16. Prudence	3.51	0.70	.73	.268***	.101	.221**	.177*	.221**	.339**	.393**	.284**	.110	.667**	.364**	.267**	.276**	.375**	.471**	—			
17. Social intelligence	3.92	0.64	.70	.154*	.202**	.357**	.183**	.338**	.252**	.458**	.383**	.275**	.203**	.496**	.507**	.160*	.356**	.386**	.311**	—		
18. Spirituality	2.18	0.98	.85	-.072	.007	.209**	.241**	.335**	.234**	.522**	.398**	-.021	.059	.224**	.243**	.252**	.288**	.309**	.215**	.286**	—	
19. Zest	3.32	0.76	.79	.228***	.246***	.404**	.381**	.660**	.363**	.515**	.773**	.407**	.184**	.339**	.510**	.446**	.491**	.230**	.219**	.374**	.375**	—

Note. alpha = Cronbach's alpha.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$

## Results

After Bonferroni corrections ( $p \leq .002$ ), there were significant correlations between sustainable behavior towards food and kindness, forgiveness, curiosity, love of learning, prudence, zest, and judgment. Furthermore, there were significant correlations between sustainable behavior towards clothes and hope, kindness, love, curiosity, love of learning, gratitude, and zest. Correlations between all study variables are shown below in Table 2.

The first stepwise hierarchical regression analysis with the criterion sustainable behavior towards food, the 17 character strengths, and the diet preference as predictors showed that the model was significant. There was no multi-collinearity and no autocorrelation but heteroscedasticity. The results showed that the first model with diet preference was significant,  $F(1, 200) = 44.645$ ,  $p < .001$ . Diet preference explained already 17.8%. The second model, which included the character strengths as predictors, showed significant improvement of the first model,  $F(4, 197) = 21.655$ ,  $p < .001$ . Curiosity, prudence, and negatively spirituality were significant predictors of sustainable behavior toward food and added 12.3% of the variance to the first step, and this final model accounted for 30.1%, Table 3a.

**Table 3a**

*Hierarchical Regression Results for Sustainable Behavior Towards Food*

Variable	B	95% CI for B		SE B	$\beta$	$R^2$	$\Delta R^2$
		LL	UL				
<b>Step 1</b>						.18	.18***
Constant	4.77***	-4.66	4.89	0.06			
Diet preference	0.39***	-0.50	-0.27	0.06	-.43***		
<b>Step 2</b>						.25	.07***
Constant	3.68***	-3.16	4.20	0.26			
Diet preference	-0.36***	-0.47	-0.25	0.06	-.40***		
Curiosity	0.31***	-0.17	0.45	0.07	.26***		
<b>Step 3</b>						.29	.04***
Constant	3.02***	-2.37	3.67	0.33			
Diet preference	-0.35***	-0.46	-0.24	0.06	-.39***		
Curiosity	0.26***	-0.12	0.40	0.07	.22***		
Prudence	0.24***	-0.09	0.39	0.08	.20***		
<b>Step 4</b>						.31	.02***
Constant	2.99***	-2.35	3.64	0.33			
Diet preference	-0.32***	-0.43	-0.21	0.06	-.36***		
Curiosity	0.32***	-0.17	0.47	0.08	.27***		
Prudence	0.27***	-0.12	0.42	0.08	.22***		

Variable	95% CI for B			SE B	β	R <sup>2</sup>	ΔR <sup>2</sup>
	B	LL	UL				
Spirituality	-0.13***	-0.24	-0.02	0.06			

Note. CI = Confidence Interval; LL = Lower Limit; UL = Upper Limit.

Diet preference: -1 = Vegan/vegetarian, 1 = Omnivorous.

\**p* < .05. \*\**p* < .01. \*\*\**p* < .001.

The second stepwise hierarchical regression analysis with the criterion sustainable behavior towards clothes, the 17 character strengths, and the diet preference as predictors showed that the model was significant. There was no multi-collinearity and no autocorrelation or heteroscedasticity. The results showed that the first model with diet preference was significant,  $F(1, 200) = 16.813, p < .001$ . Diet preference explained 7.3%. The second model, which included the character strengths as predictors, showed significant improvement from the first model. Curiosity and kindness were significant predictors of sustainable behavior toward clothes. They added 11.8% of the variance to the first step; this final model accounted for 19.1% of the variance, see Table 3b.

**Table 3b**

*Hierarchical Regression Results for Sustainable Behavior Towards Clothes*

Variable	95% CI for B			SE B	β	R <sup>2</sup>	ΔR <sup>2</sup>
	B	LL	UL				
<b>Step 1</b>							.08 .08***
Constant	3.43***	3.30	3.56	0.07			
Diet preference	-0.28***	-0.41	-0.14	0.07			
<b>Step 2</b>							.17 .09***
Constant	2.03***	1.43	2.62	0.30			
Diet preference	-0.24***	-0.37	-0.12	0.06			
Curiosity	0.40***	0.23	0.56	0.08			
<b>Step 3</b>							.19 .02***
Constant	1.30***	0.41	2.19	0.45			
Diet preference	-0.23***	-0.35	-0.10	0.06			
Curiosity	0.34***	0.17	0.51	0.09			
Kindness	0.22***	0.02	0.42	0.10			

Note. CI = Confidence Interval; LL = Lower Limit; UL = Upper Limit.

Diet preference: -1 = Vegan/vegetarian, 1 = Omnivorous.

\**p* < .05. \*\**p* < .01. \*\*\**p* < .001.

## Discussion

Regarding Hypothesis 1, our results showed positive (despite the character strength of spirituality on consumption behavior of food) relations between some character strengths and sustainable behavior toward food and clothes. The character strengths that are positively related to sustainable behavior toward food and clothes are kindness, love of learning, curiosity, and zest. This is only in line with our second hypothesis for the character strengths of prudence. However, sustainable behavior towards food was predicted, besides diet preference by curiosity, prudence, and negative spirituality. Sustainable behavior towards clothes was additionally to the diet preference predicted by kindness and curiosity. The third hypothesis was not further investigated due to the low reliability of the general consumption measurement.

### Relation of Character Strengths and Sustainable Behavior Toward Food and Clothes

The relationship between kindness and love of learning towards both types of sustainable behavior is in line with the results of the study by Valor et al. (2020). Kindness describes the values of care, compassion, and generosity (Park et al., 2004), which could be included in the prosocial behavior concept related to sustainable behavior (Otto et al., 2021). Love of learning comprises the mastery of new skills and the ability to systematically add further information to what one knows (Park et al., 2004). The result is also in line with a study by Jansen, Rahe et al. (2024), which showed that love of learning correlates to explicit attitudes towards vegetarian and vegan food, but only for omnivores. For the vegans and vegetarians, the implicit attitudes towards vegetarian and vegan food were positively correlated with the character strength of love of learning. Besides this, curiosity and zest were related to sustainable behavior but not relevant correlational factors in the study of Valor et al. (2020). Curiosity describes the need for an information search to close a knowledge gap (Loewenstein, 1994). Zest describes the ability to approach life with excitement and energy (Park et al., 2004). Both character strengths are related to openness to new experiences, and openness is related to sustainable behavior (Song & Kim, 2018). There are different facets within the concept of openness, and the facet of intellectual curiosity is consistently associated with pro-environmental attitudes and behaviors (Markowitz et al., 2012).

However, when entering the character strengths and the diet preference in both regression models, curiosity was relevant in both models. Curiosity is essential to acquire new knowledge about the sustainable behavior of food and clothes. Prudence means to be aware of the extended consequences of one's actions. Choosing a vegetarian or vegan diet means considering the implications for your health and the planet. The negative prediction of the character strength of spirituality on sustainable food consumption is difficult to explain – people with high scores in spirituality report lower sustainable food

consumption. Even this seems contradictory; it is in line with the result that vegetarians and vegans show a lower value of spirituality than omnivores (see Jansen et al. (2025a) in the Supplementary Materials). Because animal welfare, health, and environmental reasons were the most dominant motivators for a vegetarian diet within developed Western nations (Rosenfeld, 2018) and also in Germany (Janssen et al., 2016), where this study has been conducted, the reasons for sustainable food behavior are more rational than spiritual in this specific sample.

Kindness was a significant predictor of sustainable clothing consumption. This aligns with the study of Geiger and Keller (2018), which demonstrated a relation between compassion and the willingness to pay for fair-trade clothes. Kindness and compassion are both prosocial constructs, though it was indicated that kindness and compassion result from separable motivation systems differing in their emotional reaction and resulting actions (Kirby et al., 2022).

In some respects, this study's results differ from those of Corral Verdugo et al. (2015), Valor et al. (2020), and Diessner and Niemiec (2023). Reasons for this could be the different measurements of sustainable behavior and the various analysis methods in the few studies on the relation between character strengths and sustainable behavior. Some studies use composite scores to investigate sustainable behavior (e.g., Valor et al., 2020) or the Pro-Environmental Behavior Scale, where participants had to indicate how frequently they engaged in 12 pro-environmental behaviors during the past year (Diessner & Niemiec, 2023). The result of the study of Diessner and Niemiec (2023), which showed that appreciation of beauty and excellence is essential for pro-environmental behavior, could not be replicated because this character strength shows low reliability in this study. In contrast to the former studies, this study here differentiates, according to the model of Geiger et al. (2018), between two areas of sustainable behavior.

## Theoretical and Practical Implications

The study hints that internal transformative qualities like character strengths might be relevant to sustainable behavior. However, the few existing correlational studies have different results regarding which character strength is related to which type of sustainable behavior, which limits the conclusive evaluation of the importance of character strengths for sustainable behavior. One reason for these different results might be the various measurements of sustainable consumption behavior. A methodological study that compares the different measurements and validates the essential components would be needed. Furthermore, studies on the relationship between character strengths and sustainable behavior are conducted in various countries. Central cultural value orientations like collectivism, femineity, future orientation, and uncertainty avoidance can influence sustainable consumption (Chwialkowska et al., 2020). Besides, a possible cultural effect of the VIA should be discussed. Seven of the 24 character strengths show low internal consistencies, which contradicts the study of Corral Verdugo (2012) in a Mexican sample.

The relevant character strengths for sustainable behavior towards food and clothes were kindness, love of learning, curiosity, and zest. Hence, we suggest emphasizing those character strengths without neglecting the others because the results depend on measuring sustainable behavior. For example, simple shifts can be made in daily life to strengthen the character strength of kindness, like smiling from the heart to others and appreciating other people. But there is also a link to environmental design. Biophilic design might lead to improved character strengths like a love of learning, so it has been shown that students in classrooms with a natural view are more positive in rating the course than students in a course with a view of a concrete retaining wall (Benfield et al., 2015).

Because the explained variance of sustainable behavior is 19%–31%, relevant predictors of sustainable behavior, like personal and social norms or habits and attitudes, should be included in further studies (Klößner, 2013).

## Limitations and Future Studies

The study is limited because seven of the 24 character strengths showed low reliability. Nevertheless, emphasizing measurement efficiency over internal consistency can be sufficient using short scales (Ziegler et al., 2014). Furthermore, the percentage of participating men and women, vegetarians/vegans, are different. Besides this, in future studies, the reasons for executing sustainable behavior concerning food and clothing, the possible gratification and social reward, and the costs of carrying out this consumption behavior for behaving sustainably should be included in the analysis. The study presented here is a starting point for further investigations on the various factors of internal transformative qualities (connection, awareness, insight, purpose, and agency) and different dimensions of sustainable consumption behavior.

---

## Openness and Transparency Statements

The present article has been checked by its handling editor(s) for compliance with the journal's open science and transparency policies. The completed *Transparency Checklist* is publicly available at:  
<http://doi.org/10.23668/psycharchives.21538>

---

### Author Contributions.

PETRA JANSEN: Conceptualization. Formal analysis. Writing – original draft. Writing – review & editing.

MARTINA RAHE: Validation. Formal analysis. Writing – review & editing.

SABINE HOJA: Validation. Writing – review & editing.

---

**Acknowledgments.** The authors have no additional (i.e., non-financial) support to report.

---

**Funding.** The authors have no funding to report.

**Competing Interests.** The authors have declared that no competing interests exist.

**Ethics Statement.** The study was conducted according to the ethical guidelines of the Helsinki Declaration and approved by the Ethics Research Board of the University of Regensburg (No. 22-3059-101).

**Diversity Statement.** In the list below, the check mark (☑) indicates which steps were taken to increase diversity within the context of this paper. Steps that were not taken or did not apply are unmarked (☐).

- Ethnically or otherwise diverse sample(s)
- Gender balanced sample(s)
- Inclusive gender measure
- Inclusive materials
- Sampling justification
- Extensive sample description
- Discussion of generalizability
- Diverse reference list
- Underprivileged / minority author(s)
- Early career author(s)
- Degree of privilege/marginalization considered in authorship order
- Author(s) from sampled population (avoiding 'helicopter science')

**Data Availability.** For the use of the tests of sustainable behaviour, a request via email should be sent to Sonja Geiger (sonja.geiger@hnee.de).

**Supplementary Materials.** The following table provides an overview of the accessibility of supplementary materials (if any) for this paper.

Type of supplementary material	Availability/Access
<b>Data</b>	
Study data – CS sustainability osf.	Jansen et al. (2025a)
<b>Code</b>	
No code was used	–
<b>Material</b>	
No material was provided from the study.	–
<b>Study/Analysis preregistration</b>	
Preregistration.	Jansen et al. (2022)
<b>Other</b>	
Cronbach's alpha reliability – character strengths.	Jansen et al. (2025a)
Short study summary.	Jansen et al. (2025b)

**Badges for Good Research Practices.**

Open data: YES.

Open code: NO.

Open materials: NO.

Preregistration: YES.

Diversity statement: YES.

Note: YES = the present article meets the criteria for awarding the badge. NO = the present article does not meet the criteria for awarding the badge or the criteria are not applicable.

---

## References

- Benfield, J. A., Rainbolt, G. N., Bell, P. A., & Donovan, G. H. (2015). Classrooms with nature views: Evidence of differing student perceptions and behaviors. *Environment and Behavior*, *47*(2), 140–157. <https://doi.org/10.1177/0013916513499583>
- Chwialkowska, A., Bhatti, W. A., & Glowik, M. (2020). The influence of cultural values on pro-environmental behavior. *Journal of Cleaner Production*, *268*, Article 122305. <https://doi.org/10.1016/j.jclepro.2020.122305>
- Corral Verdugo, V. (2012). The positive psychology of sustainability. *Environment, Development and Sustainability*, *14*, 651–666. <https://doi.org/10.1007/s10668-012-9346-8>
- Corral Verdugo, V., Tapia-Fonllem, C., & Ortiz-Valdez, A. (2015). On the relationship between character strengths and sustainable behavior. *Environment and Behavior*, *47*(8), 877–901. <https://doi.org/10.1177/0013916514530718>
- Diessner, R., & Niemiec, R. M. (2023). Can beauty save the world? Appreciation of beauty predicts pro-environmental behavior and moral elevation better than 23 other character strengths. *Ecopsychology*, *15*(2), 93–109. <https://doi.org/10.1089/eco.2022.0047>
- Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G\* Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, *39*(2), 175–191. <https://doi.org/10.3758/BF03193146>
- Fowers, B. J. (2005). *Virtue and psychology: Pursuing excellence in ordinary practices*. American Psychological Association.
- Geiger, S. M., & Keller, J. (2018). Shopping for clothes and sensitivity to the suffering of others: The role of compassion and values in sustainable fashion consumption. *Environment and Behavior*, *50*(10), 1119–1144. <https://doi.org/10.1177/0013916517732109>
- Geiger, S. M., Otto, S., & Schrader, U. (2018). Mindfully green and healthy: An indirect path from mindfulness to ecological behavior. *Frontiers in Psychology*, *8*, Article 2306. <https://doi.org/10.3389/fpsyg.2017.02306>
- Höfer, S., Hausler, M., Huber, A., Strecker, C., Renn, D., & Höge, T. (2020). Psychometric characteristics of the German Values in Action Inventory of Strengths 120-item Short Form. *Applied Research in Quality of Life*, *15*, 597–611. <https://doi.org/10.1007/s11482-018-9696-y>
- Hong, Y., Al Mamun, A., Yang, Q., & Masukujjaman, M. (2024). Predicting sustainable fashion intentions and practices. *Scientific Reports*, *14*, Article 1706. <https://doi.org/10.1038/s41598-024-52215-z>

- Ives, C. D., Freeth, R., & Fischer, J. (2020). Inside-out sustainability: The neglect of inner worlds. *Ambio*, 49, 208–217. <https://doi.org/10.1007/s13280-019-01187-w>
- Jansen, P., Rahe, M., & Hoja, S. (2022). *Character strengths and sustainable behavior* [OSF Preregistration]. Open Science Framework. <https://doi.org/10.17605/OSF.IO/KU9VX>
- Jansen, P., Rahe, M., & Hoja, S. (2025a). *Character strengths and sustainable behavior* [OSF Project Page containing study data, and Cronbach's alpha reliability character strengths ratings]. Open Science Framework. <https://osf.io/pcmys>
- Jansen, P., Rahe, M., & Hoja, S. (2025b). *Supplementary materials to “The relation between character strengths and sustainable consumption behavior”* [Supplementary material containing short study summary]. PsychOpen GOLD. <https://doi.org/10.23668/psycharchives.21537>
- Jansen, P., Rahe, M., Hoja, S., & Jost, L. (2024). Are character strengths and attitudes towards vegetarian food related? *International Journal of Applied Positive Psychology*, 9, 1–25. <https://doi.org/10.1007/s41042-023-00104-7>
- Jansen, P., Rahe, M., & Wolff, F. (2024). How does mindfulness relate to sustainable attitude and behavior? The role of possible mediators. *Current Psychology*, 43, 19708–19720. <https://doi.org/10.1007/s12144-024-05741-y>
- Janssen, M., Busch, C., Rödiger, M., & Hamm, U. (2016). Motives of consumers following a vegan diet and their attitudes towards animal agriculture. *Appetite*, 105, 643–651. <https://doi.org/10.1016/j.appet.2016.06.039>
- Kirby, J. N., Gerrish, R., Sherwell, C., & Gilbert, P. (2022). The role of likeability in discriminating between kindness and compassion. *Mindfulness*, 13, 1555–1564. <https://doi.org/10.1007/s12671-022-01900-z>
- Klößner, C. A. (2013). A comprehensive model of the psychology of environmental behaviour – A meta-analysis. *Global Environmental Change*, 23(5), 1028–1038. <https://doi.org/10.1016/j.gloenvcha.2013.05.014>
- Kumar, S., & Yadav, R. (2021). The impact of shopping motivation on sustainable consumption: A study in the context of green apparel. *Journal of Cleaner Production*, 295, Article 126239. <https://doi.org/10.1016/j.jclepro.2021.126239>
- Leiner, D. J. (2019). *SoSci Survey* (Version 3.1.06). <https://www.sosicisurvey.de>
- Loewenstein, G. (1994). The psychology of curiosity: A review and reinterpretation. *Psychological Bulletin*, 116(1), 75–98. <https://doi.org/10.1037/0033-2909.116.1.75>
- Markowitz, E. M., Goldberg, L. R., Ashton, M. C., & Lee, K. (2012). Profiling the “pro-environmental individual”: A personality perspective. *Journal of Personality*, 80(1), 81–111. <https://doi.org/10.1111/j.1467-6494.2011.00721.x>
- Otto, S., Pensini, P., Zabel, S., Diaz-Siefer, P., Burnham, E., Navarro-Villaruel, C., & Neaman, A. (2021). The prosocial origin of sustainable behavior: A case study in the ecological domain. *Global Environmental Change*, 69, Article 102312. <https://doi.org/10.1016/j.gloenvcha.2021.102312>

- Park, N., & Peterson, C. (2006). Moral competence and character strengths among adolescents: The development and validation of the Values in Action Inventory of Strengths for Youth. *Journal of Adolescence*, 29(6), 891–909. <https://doi.org/10.1016/j.adolescence.2006.04.011>
- Park, N., Peterson, C., & Seligman, M. E. (2004). Strengths of character and well-being. *Journal of Social and Clinical Psychology*, 23(5), 603–619. <https://doi.org/10.1521/jscp.23.5.603.50748>
- Peterson, C. (2006). *A primer in positive psychology*. Oxford University Press
- Peterson, C., & Seligman, M. E. P. (2004). *Character strengths and virtues: A handbook and classification*. American Psychological Association/Oxford University Press.
- Rosenfeld, D. L. (2018). The psychology of vegetarianism: Recent advances and future directions. *Appetite*, 131, 125–138. <https://doi.org/10.1016/j.appet.2018.09.011>
- Schwartz, S. H. (1992). Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. *Advances in Experimental Social Psychology*, 25, 1–65. [https://doi.org/10.1016/s0065-2601\(08\)60281-6](https://doi.org/10.1016/s0065-2601(08)60281-6)
- Seligman, M. E., Steen, T. A., Park, N., & Peterson, C. (2005). Positive psychology progress: Empirical validation of interventions. *American Psychologist*, 60(5), 410–421. <https://doi.org/10.1037/0003-066X.60.5.410>
- Siebertz, M., Schroter, F. A., Portele, C., & Jansen, P. (2022). Affective explicit and implicit attitudes towards vegetarian and vegan food consumption: The role of mindfulness. *Appetite*, 169, Article 105831. <https://doi.org/10.1016/j.appet.2021.105831>
- Song, S. Y., & Kim, Y. K. (2018). Theory of virtue ethics: Do consumers' good traits predict their socially responsible consumption? *Journal of Business Ethics*, 152, 1159–1175. <https://doi.org/10.1007/s10551-016-3331-3>
- Stern, P. C. (2000). Towards a coherent theory of environmentally significant behavior. *Journal of Social Issues*, 56(3), 407–424. <https://doi.org/10.1111/0022-4537.00175>
- Thiermann, U. B., & Sheate, W. R. (2021). The way forward in mindfulness and sustainability: A critical review and research agenda. *Journal of Cognitive Enhancement: Towards the Integration of Theory and Practice*, 5, 118–139. <https://doi.org/10.1007/s41465-020-00180-6>
- Valor, C., Antonetti, P., & Merino, A. (2020). The relationship between moral competences and sustainable consumption among higher education students. *Journal of Cleaner Production*, 248, Article 119161. <https://doi.org/10.1016/j.jclepro.2019.119161>
- Wamsler, C., Osberg, G., Osika, W., Herndersson, H., & Mundaca, L. (2021). Linking internal and external transformation for sustainability and climate action: Towards a new research and policy agenda. *Global Environmental Change*, 71, Article 102373. <https://doi.org/10.1016/j.gloenvcha.2021.102373>
- Ziegler, M., Kemper, C. J., & Krueger, P. (2014). Short scales – Five misunderstandings and ways to overcome them. *Journal of Individual Differences*, 35(4), 185–189. <https://doi.org/10.1027/1614-0001/a000148>