Heavy Crisis, New Perspectives?

Investigating the role of Consumption, Time Wealth and Meaning Construction during countrywide Covid-19 lockdown in Germany

Tilman Hüpffau¹, Nadine Richter¹, Marcel Hunecke¹

¹ Faculty of Applied Social Sciences, University of Applied Sciences and Arts Dortmund

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Declaration of interests

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Corresponding author

Tilman Hüpffau, Emil-Figge Straße 38a, 44227 Dortmund, Germany

tilman.hueppauff@fh-dortmund.de

Abstract

The Covid-19 pandemic profoundly changed the way we live and consume. One open question is whether the crisis provides an opportunity to increase alternatives to materialistic consumption. We characterize these alternatives as sustainable leisure behaviour. In this context, Time Wealth and Meaning Construction in the form of Life Reflection might be important variables. In our study we aimed: (i) To investigate changes in behaviour frequency of consumption and sustainable leisure before and during lockdown. (ii) Analyse how potential changes in behaviours are appraised and if there are intentions to keep changed behaviour frequencies. (iii) Analyse whether Time Wealth and Life Reflection can be related to reduced consumption behaviours and increased sustainable leisure behaviours during lockdown.

We collected data from 947 participants in a Germany-wide online survey using questionnaires. Participants reported behaviour frequency of consumption and sustainable leisure before and during lockdown. In cases where behaviour frequencies changed participants evaluated this change and indicated future intentions.

Main findings: (i) Pairwise t-tests revealed reduced consumption behaviour in Electronics and Clothes. All sustainable leisure behaviours increased during lockdown. (ii) The increase of sustainable behaviour was positively correlated with evaluation and future intentions and we found mixed results concerning consumption behaviour. (iii) In multiple regression analysis, Time Wealth was positively related to sustainable leisure behaviours as well as Life Reflection except for Outdoor Activities. Explorative analysis revealed small but significant positive correlations of sustainable leisure behaviours with Life Satisfaction and Presence of Meaning.

In section 4.3 we discuss how findings can inform future actions towards sustainability.

Keywords

Time Wealth, Meaning, sustainable consumption, sustainable leisure, Covid-19, Wellbeing

1. Introduction

The Covid-19 crisis has turned the world upside-down. To prevent the collapse of health care systems drastic lockdown regulations were imposed by the German government. Measurements taken included social distancing, closing down shops and firms and introducing stay at home regulations for work and private life-sphere. Thus, the crisis is a huge changemaker for individual lifestyles. Yet, it remains unclear what potential positive and negative impact the crisis has for adopting environmentally appropriate behaviour. The goal of the current study is to investigate changes of consumption behaviour and behaviours that pose alternatives to buying and consuming products, which we call sustainable leisure behaviour. Furthermore, we examined Time Wealth and Life Reflection as relevant factors connected to behaviour alternative to consumption.

Reese et al. (2020) presented research questions connecting the Covid-19 crisis to pro-environmental behaviour, wellbeing and potential influencing factors. Overall, the question stands out as to whether the Covid-19 crisis “can be helpful for understanding and even supporting a social-ecological transformation” (Reese et al., 2020, p. 2). Life interventions created by Covid-19 might provide opportunities to change habits towards more sustainable behaviours (DeAngelis, 2020; Reese et al., 2020; Whitmarsh et al., 2021). From our point of view this connects to the broader question of how less resource intensive lifestyles can create wellbeing (Hunecke, 2018; Kasser, 2017; Raymond & Raymond, 2019).

1.1 Consumption behaviour, impact and consumerism

In a pre-pandemic world the resource intensive consumption of products, clothes and services are among the main drivers for climate pollution in industrialised countries such as Germany (Ivanova et al., 2016). Increasing wealth and massive advertising shifted consumption motives from satisfying human necessities towards social status, distinctiveness and luxury (Jackson, 2009, pp. 98-102; Kasser, 2016). In a consumerist culture such as

Germany, the average German lifestyle needs resources for 3 planets (Global Footprint Network, 2020), although consumption might be unevenly distributed (Gore, 2020). Thus, one key factor for solving the climate crisis is to enable and encourage alternative ways *of* as well as alternatives *to* material consumption. Although findings suggest that valuing material wealth and status through consumption does not benefit psychological wellbeing (Kasser, 2016) and that acting more sustainable on the other hand has the potential to increase wellbeing (Brown & Kasser, 2005; Kasser, 2017; Venhoeven et al., 2020; Venhoeven et al., 2017), cultural norms and habits create strong barriers towards a smaller environmental impact (Gifford, 2011).

1.2 Change in consumption and leisure through Covid-19 lockdown

Lockdown measurements, however, altered ways of consumption through social distancing and the shutdown of shops and firms. Even though online shopping options were still available, consumption levels decreased worldwide (Jo et al., 2021). This systemic shock could be a changemaker for alternative ways of consumption. Lowered consumption levels might indicate that people spent time committing to alternative meaningful activities. Thus, in our present study we therefore focused on behaviours that can be associated with sustainable leisure activities (Bedfort et al., 2011). Ropke and Godsken (2007) characterized sustainable leisure as requiring low levels of resources, being time consuming, close to home, using shared facilities and focusing on one thing at a time. Corley et al. (2021) for example could show that garden use increased during covid-19 and is connected to better health among older adults. Furthermore, activities such as spending time outdoors (Lemmey, 2020) or sustainable food consumption (Borsellino et al., 2020; Whitmarsch et al., 2020) increased.

1.3 Time Wealth

One influencing factor regarding the emergence of sustainable leisure behaviour during the pandemic might be the amount of time people feel to have on hand. This subjective

feeling can be conceptualized as personal Time Wealth (Von Jorck et al., 2019) or Time Affluence (Kasser & Sheldon, 2009). The main indicator for feeling “affluent of time” is the amount of time that is perceived to be free from obligatory tasks (Goodin et al., 2005; Kasser & Sheldon, 2009; Von Jorck et al., 2019). Von Jorck et al. (2019) furthermore suggest tempo, plannability, synchronisation, sovereignty as relevant indicators of Time Wealth. Increased Time Wealth e.g. through reducing working time is argued to have a triple dividend namely increasing “sustainability, social equity and enhanced life satisfaction” (Buhl & Acosta, 2016). The relationship between Time Wealth and sustainable behaviour has not yet been tested extensively. However, experiencing a lack of time is identified as a major barrier for sustainability behaviour (Speck & Hasselkuss, 2015; Young et al., 2010). Chai et al. (2015) could show that people who enjoyed more time free of paid or unpaid work (discretionary time) could more successfully address the value-action gap concerning environmental behaviour. Other studies found that higher levels of Time Wealth were not necessarily associated with lower resource consumption (Buhl & Acosta, 2016), but with higher wellbeing and social engagement (Buhl & Acosta, 2016; Kasser & Sheldon, 2009). However, Time Wealth might be an important factor regarding the adoption of sustainable leisure behaviour during covid-19 lockdown.

1.4 Meaning, crisis and reflection

“In times of crisis, people reach for Meaning. Meaning is strength. Our survival may depend on our seeking and finding it.” This quote associated to existential psychologist Viktor Frankl as cited in Schaffner (2020) might be applicable to the climate crisis as well as the current covid-19 crisis. As Schnell (2021) illustrates “What was long taken for granted is now called into question by reality: The primacy of growth and progress is crumbling in the face of a pandemic, economic crisis, climate change and widening income gaps.” (p. 238). Research has identified two fundamental meaning processes. *Seeking* meaning (search) and *having* meaning (presence) (Steger et al., 2006). People actively search for meaning when existing

meaning assumptions are challenged (Park, 2010). Although searching for meaning can be accompanied by negative emotions it holds potential for the adaption needed for solving a crisis (Schnell, 2021, pp. 105-106). In the context of climate crisis, the active construction of meaning might be one way for developing sustainable lifestyles (Hunecke, 2018; Hunecke & Richter, 2019). Meaning Construction describes the conscious reflection about experiences made by making efforts to integrate those experiences into personal meaning systems (Delle Fave, 2020; Park, 2010). However, such deliberative and active reflection requires considerable resources. In daily life decisions are mostly guided by habitual thinking and acting (Kahneman, 2003). Covid-19 as a major life incident has disrupted daily habits and created circumstances where some people might reflect more profoundly on their values and choices. Thus, we tested whether reflections stimulated by Covid-19 are connected to a less resource intensive lifestyle.

1.5 The present study

Based on the reviewed literature we developed the following research questions:

[RQ 1] Firstly, we investigated whether Covid-19 measurements have changed consumption behaviour as well as behaviour of sustainable leisure. Thus, we tested whether Covid-19 measurements led to a decrease in consumption behaviour frequency [RQ 1a] and if Covid-19 measurements led to an increase in sustainable leisure behaviour frequency [RQ 1b].

[RQ 2] How were potential changes in consumption and sustainable leisure behaviour evaluated? In order to explore this question, we analysed if increasing sustainable leisure behaviours [RQ 2a] and decreasing consumption behaviours [RQ 2b] were associated with positive evaluations of behaviour.

[RQ 3] Furthermore, we investigated whether there are intentions to continue potential behaviour-specific changes. Specifically, we tested whether increasing sustainable leisure behaviour [RQ 3a] and decreasing consumption behaviour [RQ 3b] could be linked to higher

intentions to keep behaviour change in the future.

[RQ 4] We also tested the role of Time Wealth in lowering barriers for sustainable living during Covid-19. Thus, we analysed if increased Time Wealth during covid-19 lockdown was connected to higher levels of sustainable leisure behaviour [RQ4a] and lower levels of consumption behaviour [RQ4b].

[RQ 5] In a similar way we tested if Meaning Construction in the form of Life Reflection during lockdown was linked to a stronger commitment in sustainable leisure behaviour [RQ 5a] and lower levels of consumption behaviour [RQ 5b].

[EXPLORATIVE ANALYSES] In an explorative analysis we checked whether sustainable leisure behaviours were connected to indicators of wellbeing during Covid-19 lockdown. This might hold implications for future research on how sustainable lifestyles and psychological wellbeing can be reconciliated.

2. Method

2.1 Participants

Using SoSci Survey (<https://www.soscisurvey.de>), we collected data from 947 participants. The cross-sectional survey was carried out in Germany from April 21 to May 10, 2020 during the national lockdown. We used a convenience sampling with no compensation for study participation. All participants included in the analysis explicitly agreed to an informed consent. In total we excluded $N = 44$ participants. $N = 7$ for completing the questionnaire in under 5 minutes. Additionally, $N = 2$ were excluded using quality indicators provided by SoSci Survey software for extremely fast completion (Leiner, 2019; SoSci Survey, 2021). $N = 1$ was excluded due to age being younger than 16. Due to the increasing lift of lockdown restrictions, we stopped data collection after the 10th of May and excluded subjects who completed the questionnaire after this date ($N = 17$).

$N = 920$ participants were thus included in the analysis. $N = 652$ identified themselves as

female, $N = 246$ indicated their gender as male and $N = 7$ were diverse. Because of the small group of diverse participants, they were excluded from analysis using gender as a variable.

The average age was $M_{\text{age}} = 38.25$ ($SD = 14.37$). Most of the participants reported to hold a university degree (55.7%), 33.6% had an advanced level education, 8.7% a general level of secondary education. Average income level was between 2,501-3,000 Euro. An overview of missing data is in the Appendix A.

In order to determine the necessary sample size for our analysis we performed a priori power analysis using G*Power 3.1.9.4 (Faul et al., 2007) based on $\alpha = .05$ and power = 0.80. For our analysis we estimated small effect sizes. Estimations revealed a sample size needed of $N = 485$ or higher. Thus, current sample size was sufficient for testing proposed research questions.

2.2 Study material

The next section describes the operationalisation of the variables included in the analysis. The survey also assessed other variables that are not part of the present investigation: Policy acceptance, mobility behaviour, social environment perception, social diffusion, Covid-19 stress, one-item satisfaction with life scale and perceived solidarity.

2.2.1 Sociodemographics

For sociodemographics we assessed age, gender, education, relationship status, profession and income. Furthermore, we asked for county and postal code and also measured living conditions that might influence the appraisal of the lockdown situation. This included household size, access to private outside areas, childcare during Covid-19 and workplace changes (home office, short-time work). We furthermore assessed whether participants experienced Covid-19 tests. Participants also had the chance to write about their feelings and thoughts concerning the onset of the covid-19 wave.

2.2.2 Time Wealth.

For assessing Time Wealth we oriented towards the Time Affluence scale used by Kasser and Sheldon (2009). The scale focuses mainly on subjective feelings of tempo (“my life is too rushed”) and the amount of free time (“I have enough time to do the things that are important to me”). Building on recent advancements in measuring Time Wealth (Von Jorck et al., 2019), we furthermore added the facets plannability (“I can plan my time the way I want”) and sovereignty (“I can use my time self-determined”). The 9-item scale had an internal consistency of $\alpha = .91$.

2.2.5. Life Reflection

To investigate the role of Meaning Construction in the context of covid-19 and alternative consumption behaviour, we used *the Life Reflection scale* by Lüders et al. (2021). The scale measures fundamental reflection processes stimulated by events or objects. We framed the questions explicitly with regard to the covid-19 crisis. Item examples are “the coronavirus and its consequences make me think about what sort of person I want to be” or “the coronavirus and its consequences encourage me to think about in which world I want to live in. Cronbach’s alpha was at $\alpha = .91$.

2.2.6 Consumption behaviour

As consumption behaviour we used single items to measure the purchasing behaviour of Electronics (“purchase of electronic devices”), Clothes (“purchase of clothes”) and House & Garden (“purchase of Items for House & Garden”). We also included Streaming (“streaming media services”) as it also has a significant environmental impact (Shehabi et al., 2014). Participants were asked to indicate behaviour frequency before lockdown measures and during lockdown measures separately on a scale from 1 (“*rarely/not at all*”) to 5 (“*very often/always*”).

2.2.7 Frequency of sustainable leisure behaviour

Under the term sustainable leisure behaviour we measured the frequency of Outdoor Activities (“outdoor activities [excursion, walks, sports]”), Crafting Activities (“crafting activities in the house, flat or garden [repairing, renewing, maintaining]”), Creative Activities (“creative activities [sewing, building, painting, making music]”) as well as Food Preparation (“food preparation [cooking, baking]”) using single items. Again, participants were asked to indicate their behaviour frequency before and during lockdown on a scale from 1 (“*rarely/not at all*”) to 5 (“*very often/always*”).

2.2.8 Evaluation of behaviour change

As described under section 1.5 one aim was to measure how participants evaluated potential behaviour changes in consumption and sustainable leisure. Thus, if behaviour frequency during lockdown measurements differed from behaviour frequencies before lockdown we asked them to evaluate these behaviour changes on a scale from 1 (“*very negative*”) to 5 (“*very positive*”).

2.2.9 Future intentions of behaviour change

To assess intentions to keep behaviour frequencies that changed during covid-19 lockdown we asked participants to rate the statement “I intend to keep my behaviour changes for the future” on a scale from 1 (“*does not apply at all*”) to 5 (“*fully applies*”) for each changed behaviour.

2.2.8 Personal Norm

As personal ecological norms are an important predictor of pro-environmental behaviour (Bamberg & Möser, 2007), we included this variable as a control. The 4 items included statements such as “I feel responsible that I should contribute to climate protection through my choice of transport” and “To protect the environment I feel obliged to save energy at home”. Items were adapted from Hunecke et al. (2007). Internal consistency was at $\alpha = .87$.

2.2.2. Life Satisfaction

We also included the Satisfaction with Life Scale (Diener et al., 1985) to assess current life satisfaction. When necessary, we adapted the items to the current pandemic situation (“The current situation does not hinder me from getting the import things I want in life”). Internal consistency was $\alpha = .79$.

2.2.3. Presence of Meaning

To measure Presence of Meaning, we used the presence subscale of the Meaning Life Questionnaire by Steger et al. (2006). The MLQ assesses the presence of Meaning using items such as “I have discovered a satisfying life purpose” and “I understand my life’s meaning”. Cronbach’s alpha was .90.

3. Results

3.1 Behaviour change [RQ1]

Figure 1 shows changes in consumption behaviour before and after lockdown. Pairwise comparisons revealed a significant decrease in consumption behaviour for Clothes, $t(919) = 23.17, p < .001$, BCa 95% CI [.72, .86], $d = -.88$, and Electronics, $t(919) = 10.46, p < .001$, BCa 95% CI [.20, .29] $d = -.31$. Also Streaming increased, $t(919) = -14.74, p < .001$, BCa 95% CI [-.48, .37], $d = .34$. House & Garden consumption did not differ significantly, $t(919) = 0.89, p < .376$, BCa 95% CI [-.04, .10], $d = -.002$.

Figure 1

Behaviour frequencies of consumption behaviour before and during lockdown

Note. Error bars show standard errors. Significance level: *** $p < .001$. Sample size: $N = 920$.

Frequency of sustainable leisure behaviour increased in all behaviour categories. Effect was the largest for Food Preparation, $t(919) = -18.44$, $p < .001$, BCa 95% CI $[-.65, -.52]$, $d = .55$, as well as Crafting Activities, $t(919) = -19.68$, $p < .001$, BCa 95% CI $[-.70, -.56]$, $d = .55$, followed by Creative Activities, $t(919) = -11.32$, $p < .001$, BCa 95% CI $[-.43, -.31]$, $d = .30$, and Outdoor Activities, $t(919) = -6.48$, $p < .001$, BCa 95% CI $[-.37, -.20]$, $d = .26$. Effects are illustrated in figure 2

Figure 2.

Behaviour frequencies of consumption behaviour before and during lockdown

Note. Error bars show standard errors. Significance level: *** $p < .001$. Sample size: $N = 920$.

3.2 Appraisal of behaviour change [RQ2; RQ3]

As described in the method section, we asked participants with respect to behaviours, that because of covid-19 changed in their frequency, how they would evaluate these changes and whether they intended to keep this changed behaviour in the future. To be able to connect behaviour change with evaluation and behaviour intention we created difference scores between behaviour frequency during the pandemic (t2) and before the pandemic (t1). We performed Spearman's rho correlation analysis to test whether a stronger increase in behaviour frequency can be connected to higher evaluation and intention.

Table 1 - 4 depict correlation analyses for consumption behaviour. Spearman's correlations between behaviour change and evaluation were small but significant. Negative relationships between behaviour change and evaluation of change indicated that *decreasing* behaviour frequencies were evaluated *positively*. This was the case for the consumption of Clothes, Electronics and Streaming. Analysing House & Garden consumption revealed a small significant positive relationship indicating that increasing consumption was evaluated

positively. For future behaviour intentions, only Electronics showed a significant small negative correlation effect.

Table 5 - 8 depicts evaluation and future intention for sustainable leisure behaviour change. Spearman's correlation effects between behaviour change and evaluation were all positive and highly significant. Overall, this indicates that increasing sustainable leisure activities were evaluated positively. Correlations were strong for Outdoor Activities and small for Food Preparation, Crafting Activities and Creative Activities. Furthermore, Future intention was positively correlated with behaviour change, although effects were smaller. This means that the higher the increase of behaviour, the more participants intend to keep behaviour patterns

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Table 1

Correlation of behaviour Change, Evaluation and Future Intentions for Clothes consumption including descriptive statistics

Clothes	N	M	SD	1	2	3
1. Behaviour change	920	-0.79	1.04	-		
2. Evaluation	551	3.21	1.01	-.09*	-	
3. Future Intention	551	3.01	1.10	-.04	.57***	-

Note. *p<.05. **p<.01. ***p<.001

Behaviour change: t1 (Before Pandemic) - t2 (During Pandemic)

Table 3

Correlation of behaviour Change, Evaluation and Future Intentions for House & Garden consumption including descriptive statistics

House & Garden	N	M	SD	1	2	3
1. Behaviour change	920	-0.03	1.04	-		
2. Evaluation	413	3.19	.84	.17***	-	
3. Future Intention	413	3.07	.94	.02	.49***	-

Note. *p<.05. **p<.01. ***p<.001

Behaviour change: t1 (Before Pandemic) - t2 (During Pandemic)

Table 2

Correlation of behaviour Change, Evaluation and Future Intentions for Electronics consumption including descriptive statistics

Electronics	N	M	SD	1	2	3
1. Behaviour change	920	-0.25	0.71	-		
2. Evaluation	295	3.14	0.98	-.16**	-	
3. Future Intention	295	3.06	1.21	-.15*	.65***	-

Note. *p<.05. **p<.01. ***p<.001

Behaviour change: t1 (Before Pandemic) - t2 (During Pandemic)

Table 4

Correlation of behaviour Change, Evaluation and Future Intentions for Streaming consumption including descriptive statistics

Streaming	N	M	SD	1	2	3
1. Behaviour change	920	0.43	0.88	-		
2. Evaluation	373	2.97	0.96	-.16**	-	
3. Future Intention	373	2.87	1.11	-.09	.58***	-

Note. *p<.05. **p<.01. ***p<.001

Behaviour change: t1 (Before Pandemic) - t2 (During Pandemic)

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Table 5

Correlation of behaviour Change, Evaluation and Future Intentions for Food Preparation including descriptive statistics

Food Preparation	N	M	SD	1	2	3
1. Behaviour change	920	0.59	0.96	-		
2. Evaluation	441	4.08	0.99	.19***	-	
3. Future Intention	441	3.90	1.04	.14***	.68***	-

Note. *p<.05. **p<.01. ***p<.001

Behaviour change: t1 (Before Pandemic) - t2 (During Pandemic)

Table 7

Correlation of behaviour Change, Evaluation and Future Intentions for Outdoor Activities including descriptive statistics

Outdoor Activities	N	M	SD	1	2	3
1. Behaviour change	920	0.28	1.31	-		
2. Evaluation	584	4	1.25	.50***	-	
3. Future Intention	584	3.92	1.30	.39***	.70***	-

Note. *p<.05. **p<.01. ***p<.001

Behaviour change: t1 (Before Pandemic) - t2 (During Pandemic)

Table 6

Correlation of behaviour Change, Evaluation and Future Intentions for Crafting Activities including descriptive statistics

Crafting Activities	N	M	SD	1	2	3
1. Behaviour change	920	0.63	0.96	-		
2. Evaluation	443	3.79	0.99	.27***	-	
3. Future Intention	443	3.54	1.09	.24***	.65**	-

Note. *p<.05. **p<.01. ***p<.001

Behaviour change: t1 (Before Pandemic) - t2 (During Pandemic)

Table 8

Correlation of behaviour Change, Evaluation and Future Intentions for Creative Activities including descriptive statistics

Creative Activities	N	M	SD	1	2	3
1. Behaviour change	920	0.37	0.99	-		
2. Evaluation	394	3.92	1.08	.30***	-	
3. Future Intention	394	3.79	1.12	.27***	.68***	-

Note. *p<.05. **p<.01. ***p<.001

Behaviour change: t1 (Before Pandemic) - t2 (During Pandemic)

3.3 Testing connection of Time Wealth and Life Reflection on consumption behaviour and sustainable leisure behaviour [RQ 4; RQ 5]

To test relationships between Time Wealth, Life Reflection, consumption and sustainable leisure behaviour, we conducted hierarchical regressions. Consumption and sustainable leisure behaviour were included as dependent variables. We added demographic variables (Gender, Education and Age) and personal Ecological Norm as control variables. Concerning consumption behaviour, Time Wealth was no significant predictor for Clothes ($\beta_{\text{Clothes}} = .05$) and Electronics ($\beta_{\text{Electronics}} = .02$). A negligible weight was found for House & Garden ($\beta_{\text{House \& Garden}} = .08$) and a small weight for Streaming ($\beta_{\text{Streaming}} = .11$). Analyses are shown in table 10. Analysis of Life Reflection revealed no significant relationship with Clothes, Electronics and House & Garden ($\beta_{\text{Clothes}} = .04$; $\beta_{\text{Electronics}} = .03$; $\beta_{\text{House \& Garden}} = .03$). There was a significant but negligible relationship found for Streaming ($\beta_{\text{Streaming}} = .09$) (Cohen, 1992).

Results of Time Wealth and Life Reflection on sustainable leisure behaviour are depicted in table 11. Time Wealth showed a positive relationship with all four categories of sustainable leisure behaviour. Overall, weights were small ($\beta_{\text{Outdoor Activities}} = .13$; $\beta_{\text{Crafting Activities}} = .17$; $\beta_{\text{Creative Activities}} = .15$) and negligible ($\beta_{\text{Food Preparation}} = .09$). For Life Reflection we found a significant positive relationship with small weights on Food Preparation ($\beta_{\text{Food Preparation}} = .11$), Crafting Activities ($\beta_{\text{Crafting Activities}} = .10$) and Creative Activities ($\beta_{\text{Creative Activities}} = .11$). There was no significant relationship between Life Reflection and Outdoor Activities ($\beta_{\text{Outdoor Activities}} = -.01$).

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Table 10

Hierarchical Regressions for Time Wealth and Life Reflection on consumption behaviour controlled for demographics and personal ecological norm.

	Clothes		Electronics		Items for House & Garden		Streaming	
	B 95% CI [LL; UL]	ΔR^2	B 95% CI [LL; UL]	ΔR^2	B 95% CI [LL; UL]	ΔR^2	B 95% CI [LL; UL]	ΔR^2
Step 1		.02***		.03***		.003		.14***
Gender	-0.05 [-0.18; 0.08]		0.31*** [0.19; 0.44]		-0.01 [-0.18; 0.17]		0.14 [-0.04; 0.33]	
Age	-0.01*** [-0.01; -0.004]		-0.002 [-0.01; 0.002]		-0.002 [-0.01; 0.002]		-0.002 [-0.01; 0.002]	
Education	0.02 [-0.06; 0.10]		-0.03 [-0.10; 0.05]		0.08 [-0.03; 0.18]		-0.05 [-0.16; 0.06]	
Step 2		.01**		.01***		.0001		.0005
Personal Norm	-0.10* [-0.17; -0.03]		-0.12*** [-0.18; -0.05]		-0.01 [-0.11; 0.08]		-0.03 [-0.13; 0.06]	
Step 3		.01		.001		.007*		.02***
Life Reflection	0.03 [-0.03; 0.10]		0.03 [-0.03; 0.08]		0.04 [-0.05; 0.12]		0.12** [0.04; 0.21]	
Time Wealth	0.05 [-0.01; 0.11]		0.02 [-0.04; 0.07]		0.09* [0.01; 0.17]		0.14* [0.06; 0.23]	

Note. $N = 875$

ΔR^2 = Change in R^2 compared to previous step,

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

Gender: 0 = female; 1 = male

Table 11

Hierarchical Regressions for Time Wealth and Life Reflection on sustainable leisure behaviour controlled for demographics and Personal Norm.

	Outdoor Activities		Food Preparation		Crafting Activities		Creative Activities	
	B	ΔR^2	B	ΔR^2	B	ΔR^2	B	ΔR^2
	95% CI		95% CI		95% CI		95% CI	
	[LL; UL]		[LL; UL]		[LL; UL]		[LL; UL]	
Step 1		.03***		.08***		.02***		.05***
Gender	-0.28** [-0.45; -0.10]		-0.67*** [-0.83; -0.52]		-0.18* [-0.37; -0.01]		-0.58*** [-0.78; -0.39]	
Age	-0.01** [-.01; 0.002]		0.001 [-0.004; 0.01]		0.01*** [0.01; 0.02]		-0.01 [-0.01; 0.001]	
Education	0.19** [0.08; 0.29]		0.10* [0.01; 0.20]		0.04 [-0.07; 0.15]		-0.03 [-0.15; 0.09]	
Step 2		.01***		.03***		.01**		.03***
Personal Norm	0.17*** [0.08; 0.26]		0.23*** [0.15; 0.31]		0.17** [0.07; 0.27]		0.26*** [0.15; 0.36]	
Step 3		.02***		.02***		.04***		.04***
Life Reflection	-0.01 [-0.09; 0.08]		0.11* [0.04; 0.18]		0.12* [0.03; 0.21]		0.15** [0.06; 0.24]	
Time Wealth	0.16*** [0.08; 0.24]		0.09** [0.02; 0.17]		0.21*** [0.13; 0.29]		0.21*** [0.12; 0.30]	

Note. $N = 875$

ΔR^2 = Change in R^2 compared to previous step,

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

Gender: 0 = female; 1 = male

3.4 Explorative analyses: Sustainable Leisure activities and indicators of wellbeing

To test whether sustainable leisure behaviour might correlate with psychological wellbeing during the pandemic, we conducted exploratory correlational analyses. We tested whether higher behaviour frequencies were connected to higher Presence of Meaning as well as higher Life Satisfaction. Results are shown in table 12. Sustainable leisure behaviours were small and significantly connected to Life Reflection and Presence of Meaning except Creative Activities.

Table 12

Spearman's Correlation effects and between sustainable leisure behaviour, Meaning and Life Satisfaction

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6
1. Outdoor Activities	3.72	1.17	-					
2. Food Preparation	4.03	1.05	.21***	-				
3. Crafting Activities	3.17	1.23	.14***	.24***	-			
4. Creative Activities	2.73	1.31	.09**	.17***	.30***	-		
5. Life Satisfaction	3.51	0.80	.17***	.14***	.11**	.05	-	
6. Presence of Meaning [†]	3.82	0.88	.12***	.16***	.14**	.06	.43**	-

Note. $N = 920$ [†] $N = 919$

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

4. Discussion

4.1 Discussion of findings

4.1.1 Changes in consumption behaviour and sustainable leisure during lockdown [RQ 1]

Even though clothing and electronic devices were available during the lockdown via online shopping, consumption decreased. Consumption of Items for house and garden however remained at the same level. The higher frequency of streaming is consistent with previous studies that found strongly increased streaming hours per day during national lockdowns (Bloomberg, 2020). While streaming can still be conveniently carried out at home. The increased streaming as well as the lack of lower consumption in the house and garden domain might be an expression of a stronger focus on one's own domestic activities. Regarding sustainable leisure behaviour, Outdoor, Craft and Creative Activities as well as Food Preparation increased, suggesting a change towards more time consuming, but less material intensive activities during lockdown. In combination with partly reduced

consumption behaviours, results point out a shift towards more sustainable leisure activities compared to the time before the lockdown. This tendency is also confirmed by a study during the first lockdown in England which reported a rise in “low carbon recreation” (Whitmarsch et al., 2020).

4.1.2 Evaluation of Changes in consumption and sustainable leisure [RQ 2]

With regards to consumption, behaviour changes pointing towards decreasing frequencies were appraised positively except for House & Garden consumption which showed a positive correlation between behaviour increase and evaluation. However, this effect may be connected to the high intercorrelation with Crafting Activities (see Appendix table B2). Even if the decrease in material consumption behaviours were mainly triggered by the changed circumstances due to the Covid-19 pandemic, they did not seem to be evaluated as restrictive, but could even be considered as valuable. The positive evaluation of the change towards more sustainable leisure activities suggests a high satisfaction concerning the performance of less material consuming activities. Overall, the changes caused by the lockdown measures and their positive evaluation suggest an opportunity to reduce materialistic consumption behaviours and heighten focus on low material resource activities.

4.1.3 Intentions to sustain the increase of sustainable leisure behaviour and the decrease of consumption behaviour [RQ 3]

Despite the positive evaluation of changes in consumption behaviour, the intention to sustain consumption was only present for electronic devices, indicating a tendency to sustain behaviour after lockdown. As the intention is an important predictor of behaviour (Bamberg & Möser, 2007), this result points out, that participants may not maintain consumption levels which would include buying less clothing as well as spending more time streaming. In general, it is likely that the changes in consumption behaviour are only short-term and will not continue after Covid-19 measures are lifted. In contrast, all changes toward sustainable leisure

behaviour were correlated with a future intention to sustain the change. This points out again, that people not only appraise the changes positively, but also plan to maintain the higher frequency of sustainable leisure behaviour in future.

4.1.4 Time Wealth as a predictor for sustainable leisure behaviour and consumption behaviour [RQ 4]

Overall, Time Wealth is a relevant factor for sustainable leisure behaviour, while it is not for the consumption of material goods. Even though consumption levels of electronics and clothing dropped significantly during Covid-19 lockdown, lower levels were not associated with higher Time Wealth. This might indicate that other factors might be responsible for variance such as variables determining the willingness to shop online (Haridasan & Fernando, 2018) or the general mood for consumption (Handelsverband Deutschland, 2021). Analyses revealed a small effect of Time Wealth on consumption for House & Garden, which was in many areas still available through in-store shopping. As noted in section 4.1.2, this effect might be explained through the intercorrelation with Crafting Activities (see Appendix table B2) in a way that increased Crafting Activities associated with Time Wealth also increase the need for consuming necessary items. Also streaming behaviour was correlated positively with Time Wealth. Out of the investigated consumption forms, streaming is the least affected in its accessibility by the lockdown. In combination with the stay-at-home policy and more free time, the connection between Time Wealth and streaming is very plausible. The positive connection between Time Wealth and sustainable leisure behaviour indicates that participants who feel time affluent spent their time more often with sustainable leisure behaviours. With the changed circumstances in the lockdown, the barrier of a lack of time for sustainable behaviours might be reduced. For example, for some people, more plannability and sovereignty through home office and the absence of a daily work commute might be associated with more perceived free time. In this free time, activities which use low material

resources are more likely to take place. This interpretation would be in line with empirical findings emphasizing Time Wealth a relevant factor in both elevating wellbeing and low consumption lifestyles (Kasser, 2009; Kasser & Brown, 2003).

4.1.5 Meaning reflection as predictor for sustainable leisure behaviour and consumption behaviour [RQ 5]

We found no evidence for corona-induced Life Reflection being connected to consumption in the area of Clothing, House & Garden and Electronics. The positive correlation of meaning reflection and Streaming might be explained through streamed media content. Streaming broadcast services for example could lead to an enhanced reflection concerning the current pandemic situation. Small positive relationships between Life Reflection and sustainable leisure activities indicate that people who reflected more on their meaning in life due to the Covid-19 crisis, decided to spend their time more often with low-resource consuming activities. This suggests that the conscious reflection on what is important in life, goes along with a less resource intensive lifestyle, instead of resource intensive consumption behaviour. One reason may be, that conscious reflection concerning one's own values and goals enhances the possibility to develop sustainable oriented lifestyles (Hunecke, 2018).

4.1.6 Explorative Relationships between Well-Being and sustainable leisure activities during lockdown

Recent studies focused on mechanisms linking sustainable behaviours and well-being (Kasser, 2017; Raymond & Raymond, 2019). As the present study shows small relationships between sustainable leisure behaviours and well-being during the lockdown, it points at least towards a non-contradiction of low material resource behaviours and well-being. Other studies have confirmed this assumption as sustainable behaviours are compatible with living according to intrinsically oriented values (Brown & Kasser, 2005; Kasser, 2017). Further,

most of the sustainable leisure behaviours identified in our study are predestined to go along with flow experience (Csikszentmihalyi, 1992). Flow activities can be seen as a route to obtain low-environmental impact activities with heightened well-being experience (Isham et al., 2019).

4.2 Limitations

Several limitations should be noted. Although we investigated behavioural changes between two time points, the data was cross-sectional and therefore no causal conclusions can be drawn. Additionally, the assessment of only one time point could have led to inaccuracies with regard to the behaviours. Furthermore, data was collected during the first Covid-19 lockdown in Germany using a German-speaking sample and the results are therefore not transferable to other countries, as concrete Covid-19 measures strongly varied between countries. As we did not repeat the data collection at a later point of the pandemic, no conclusions regarding the development of the pandemic can be drawn. Another limitation is the use of a convenience sample, which, on average was highly educated and showed a high ecological awareness. Based on this sample, a generalization in respect of the average German population is restricted. Future studies could therefore validate the present results after the Covid-19 crisis using a representative sample at different time points.

4.3 Conclusion

The future challenges of climate and environmental change call for a reduction of consumption behaviours and for alternatives to consumerism. Non-consumer behaviours, such as low material-consuming sustainable leisure activities have the potential to increase well-being while decreasing negative ecological consequences and therefore constitute one step on the way to realize “win-win solutions” (Jackson, 2005). Regarding the question whether the Covid-19 crisis might provide important lessons for supporting a social-ecological

transformation (Reese et al., 2020), the first countrywide lockdown in Germany might offer a “moment of change” (Whitmarsh et al., 2021, p. 78) concerning everyday consumption behaviour and leisure. Therefore, the present study offers several insights concerning consumer behaviour, sustainable leisure behaviour, Time Wealth and meaning reflection. Creating long-term motivation for individuals to reduce consumption is a great challenge. However, in our data we found no clear evidence that reduced consumption behaviour impairs wellbeing, some findings even indicated a positive appraisal of reduced consumption levels. Still, because of this extraordinary moment in the Covid-19 crisis, it is unlikely that the changes in consumption behaviour will be maintained, if the status quo is re-established. Studies of later lockdowns show already an increase of consumption via e-commerce (Statistisches Bundesamt, 2021). Yet, our results illustrate that in the short-term a shift toward less consumerism can be endured voluntarily. In the long term, ways of consuming and living should be developed which create wellbeing while staying within global resource capacities. In this respect the shift toward sustainable leisure activities seems promising. This crisis revealed that many people preferred to spend more time outdoors, preferred preparing meals at home, performed more crafting activities and were creative more often. This greater emphasis on sustainable leisure activities can also be discussed as a strategy to support resilience (Corley et al., 2021) during the Covid-19 crisis and may be important during the climate crisis as well. Thus, ways to further support this increase in potential low resource activities should be explored. As our study findings suggest promoting Time Wealth might be a starting point. As the feeling of having enough time is an important precondition for self-determined behaviour (Kasser & Sheldon, 2009), a common problem is the observed and actual higher tempo in daily life due to increased time pressure (Garhammer, 2002). To support more time sovereignty, employees should continue to have the possibility to work in home office (Ipsen et al., 2021). Moreover, regular working hours could be reduced to support more autonomous and sustainable lifestyles (Kasser, 2017; Nässén & Larsson, 2015).

To further maintain the increase of sustainable leisure behaviours, meaning construction by actively reflecting on one's needs and values in life might be another important starting point. Even though preference of sustainable leisure behaviors through reflection is not guaranteed as it is an open process by definition (Hunecke, 2013), our findings show a potential relationship. This form of meaning construction in the context of sustainable living might also be supported by mindfulness (Hunecke & Richter, 2019) and its practice. Furthermore, conscious meaning reflection might also be supported through individual coaching, which can be offered by health promotion in the public sector or by companies fostering stress prevention and enhancing subjective well-being (Hunecke, 2018). Overall, a balance of a change of conditions e.g. for employees through home office and individual engagement e.g. in Life Reflection seems to be essential for a change toward non-consumer lifestyles. The first lockdown in Germany pointed towards short-term changes in consumption and sustainable leisure behaviors. In terms of the ongoing climate crisis, those shifts should be supported in the long-term through the increase of Time Wealth and Life Reflection.

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Discussion of Ethics

All procedures performed in studies involving human participants were in accordance with the ethical standards of the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent: Informed consent was obtained from all individual participants included in the study. Informed Consent included purpose, procedure and expected duration of the study.

Participants furthermore were explained their rights concerning the collected data.

Debriefing: Contact details of the study conductors were provided after study completion.

CrediT Author Statement

Tilmann Hüppauff: Conceptualization, Methology, Formal Analysis, Investigation, Data Curation, Writing – Original Draft,

Nadine Richter: Conceptualization, Methology Writing - Original Draft, Writing - Review & Editing

Marcel Hunecke: Conceptualization, Methology, Writing - Review & Editing, Supervision, Funding acquisition

References

- Bamberg, S., & Möser, G. (2007). Twenty years after Hines, Hungerford, and Tomera: A new meta-analysis of psycho-social determinants of pro-environmental behaviour. *Journal of Environmental Psychology*, 27(1), 14-25.
<https://doi.org/https://doi.org/10.1016/j.jenvp.2006.12.002>
- Bedfort, T., Burningham, K., Cooper, G., Green, N., & Jackson, T. (2011). *Sustainable leisure: escalations, constraints and implications*. (RESOLVE Working Paper 12-11).
<http://epubs.surrey.ac.uk/806472/1/RESOLVE%20working%20paper%2012-11.pdf>
- Bloomberg. (2020, March 18). *Coronavirus impact: growth in time spent streaming TV and video worldwide in the weekend of March 13 to 14, 2020*. Retrieved June 14, 2021 from <https://www.statista.com/statistics/1107559/video-streaming-consumption-growth-worldwide-coronavirus/>
- Borsellino, V., Kaliji, S. A., & Schimmenti, E. (2020). COVID-19 Drives Consumer Behaviour and Agro-Food Markets towards Healthier and More Sustainable Patterns. *Sustainability*, 12(20), 8366. <https://doi.org/10.3390/su12208366>
- Brown, K. W., & Kasser, T. (2005). Are Psychological and Ecological Well-being Compatible? The Role of Values, Mindfulness, and Lifestyle. *Social Indicators Research*, 74(2), 349-368. <https://doi.org/10.1007/s11205-004-8207-8>
- Buhl, J., & Acosta, J. (2016). Work less, do less? *Sustainability Science*, 11(2), 261-276.
<https://doi.org/10.1007/s11625-015-0322-8>

- Chai, A., Bradley, G., Lo, A., & Reser, J. (2015). What time to adapt? The role of discretionary time in sustaining the climate change value–action gap. *Ecological Economics*, 116, 95-107.
<https://doi.org/https://doi.org/10.1016/j.ecolecon.2015.04.013>
- Cohen, J. (1992). A power primer. *Psychological bulletin*, 112(1), 155-159.
<https://doi.org/10.1037/0033-2909.112.1.155>
- Corley, J., Okely, J. A., Taylor, A. M., Page, D., Welstead, M., Skarabela, B., Redmond, P., Cox, S. R., & Russ, T. C. (2021). Home garden use during COVID-19: Associations with physical and mental wellbeing in older adults. *Journal of Environmental Psychology*, 73, 101545. <https://doi.org/10.1016/j.jenvp.2020.101545>
- Csikszentmihalyi, M. (1992). *Flow: The psychology of happiness*. Rider.
- DeAngelis, T. (2020). Could Covid 19 change our environmental behaviors? *Monitor on Psychology*, 51(5). <http://www.apa.org/monitor/2020/07/environmental-behaviors>
- Delle Fave, A. (2020). Meaning in life: structure, sources and relations with mental and physical health. *Acta Philosophica*, 29(1), 19-32.
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with Life Scale. *Journal of Personality Assessment*, 49, 71-75.
- 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>

Garhammer, M. (2002). Pace of Life and Enjoyment of Life. *Journal of Happiness Studies*, 3(3), 217-256. <https://doi.org/10.1023/A:1020676100938>

Gifford, R. (2011). The dragons of inaction: Psychological barriers that limit climate change mitigation and adaptation. *American Psychologist*, 66(4), 290.
<https://doi.apa.org/doi/10.1037/a0023566>

Global Footprint Network. (2021). *Country Trends - Germany*. Retrieved June 14, 2021 from <https://data.footprintnetwork.org/#/countryTrends?type=earth&cn=79>

Goodin, R. E., Rice, J. M., Bittman, M., & Saunders, P. (2005). The time-pressure illusion: Discretionary time vs. free time. *Social Indicators Research*, 73(1), 43-70.
<https://doi.org/0.1007/s11205-004-4642-9>

Gore, T. (2020). *Confronting Carbon Inequality: Putting climate justice at the heart of the COVID-19 recovery*. Oxfam.
<https://oxfamilibrary.openrepository.com/bitstream/handle/10546/621052/mb-confronting-carbon-inequality-210920-en.pdf?sequence=1&isAllowed=y>

Haridasan, A. C., & Fernando, A. G. (2018). Online or in-store: unravelling consumer's channel choice motives. *Journal of Research in Interactive Marketing*, 12(2), 215-230.
<https://doi.org/10.1108/JRIM-07-2017-0060>

Hunecke, M. (2013). *Psychological resources for sustainable lifestyles. A report from Denkwerk Zukunft – Foundation for cultural renewal*. Denkwerk Zukunft.
<http://www.denkwerkzukunft.de/downloads/reportpsychologicalresources.pdf>

Hunecke, M. (2018). Psychology of sustainability - Psychological resources for sustainable lifestyles. In O. Parodi & K. Tamm (Eds.), *Personal Sustainability - Exploring the far side of sustainable development*. (pp. 33-50). Routledge.

Hunecke, M., Haustein, S., Grischkat, S., & Böhler, S. (2007). Psychological, sociodemographic, and infrastructural factors as determinants of ecological impact caused by mobility behavior. *Journal of Environmental Psychology*, 27(4), 277-292.
<https://doi.org/https://doi.org/10.1016/j.jenvp.2007.08.001>

Hunecke, M., & Richter, N. (2019). Mindfulness, Construction of Meaning, and Sustainable Food Consumption. *Mindfulness*, 10(3), 446-458. <https://doi.org/10.1007/s12671-018-0986-0>

Ipsen, C., van Veldhoven, M., Kirchner, K., & Hansen, J. P. (2021). Six Key Advantages and Disadvantages of Working from Home in Europe during COVID-19. *International Journal of Environmental Research and Public Health*, 18(4), 1826.
<https://doi.org/https://doi.org/10.3390/ijerph18041826>

Isham, A., Gatersleben, B., & Jackson, T. (2019). Flow Activities as a Route to Living Well With Less. *Environment and Behavior*, 51(4), 431-461.
<https://doi.org/10.1177/0013916518799826>

Ivanova, D., Stadler, K., Steen-Olsen, K., Wood, R., Vita, G., Tukker, A., & Hertwich, E. G.

(2016). Environmental Impact Assessment of Household Consumption. *Journal of Industrial Ecology*, 20(3), 526-536. <https://doi.org/https://doi.org/10.1111/jiec.12371>

Jackson, T. (2005). Live Better by Consuming Less? Is there a “Double Dividend” in Sustainable Consumption? *Journal of Industrial Ecology*, 9(1-2), 19-36.

<https://doi.org/https://doi.org/10.1162/1088198054084734>

Jackson, T. (2009). *Prosperity without Growth. Economics for a Finite Planet*. Earthscan.

Jo, H., Shin, E., & Kim, H. (2021). Changes in Consumer Behaviour in the Post-COVID-19 Era in Seoul, South Korea. *Sustainability*, 13(1), 136.

<https://dx.doi.org/10.3390/su13010136>

Jung, S., Kleibrink, J., & Ruhrup, B. (2021). *HDE Konsumbarometer* (Juni 2021).

Handelsblatt Research Institute.

https://einzelhandel.de/index.php?option=com_attachments&task=download&id=105

78

Kahneman, D. (2003). Maps of Bounded Rationality: Psychology for Behavioral Economics.

American Economic Review, 93(5), 1449-1475.

<https://doi.org/10.1257/000282803322655392>

Kasser, T. (2009). Psychological Need Satisfaction, Personal Well-Being, and Ecological

Sustainability. *Ecopsychology*, 1(4), 175-180. <https://doi.org/10.1089/eco.2009.0025>

- Kasser, T. (2016). Materialistic Values and Goals. *Annual Review of Psychology*, 67(1), 489-514. <https://doi.org/10.1146/annurev-psych-122414-033344>
- Kasser, T. (2017). Living both well and sustainably: a review of the literature, with some reflections on future research, interventions and policy. *Philosophical Transactions of The Royal Society A*, 375(2095), 20160369. <https://doi.org/10.1098/rsta.2016.0369>
- Kasser, T., & Brown, K. W. (2003). On time, happiness and ecological footprints. In J. de Graaf (Ed.), *Take back your time: Fighting overwork and time poverty in America* (pp. 107-112). Berrett-Koehler.
- Kasser, T., & Sheldon, K. M. (2009). Time Affluence as a Path toward Personal Happiness and Ethical Business Practice: Empirical Evidence from Four Studies. *Journal of Business Ethics*, 84(2), 243-255. <https://doi.org/10.1007/s10551-008-9696-1>
- Leiner, D. J. (2019). Too Fast, too Straight, too Weird: Non-Reactive Indicators for Meaningless Data in Internet Surveys. *Survey Research Methods*, 13(3). <https://doi.org/10.18148/srm/2019.v13i3.7403>
- Lemmey, T. (2020). *Connection with Nature in the UK during the COVID-19 Lockdown*. <http://insight.cumbria.ac.uk/id/eprint/5639>
- Lüders, A., Hüppauff, T., & Jonas, E. (2021). The world I want to live in: Identity reflection triggered by climate change threat fosters pro-environmental behaviour. *Unpublished manuscript, University of Salzburg, Salzburg, Austria*.

Nässén, J., & Larsson, J. (2015). Would shorter working time reduce greenhouse gas emissions? An analysis of time use and consumption in Swedish households.

Environment and Planning C: Government and Policy, 33(4), 726-745.

<https://doi.org/10.1068/c12239>

Park, C. L. (2010). Making sense of the meaning literature: An integrative review of meaning making and its effects on adjustment to stressful life events. *Psychological bulletin*,

136(2), 257-301. <https://doi.org/10.1037/a0018301>

Raymond, I. J., & Raymond, C. M. (2019). Positive psychology perspectives on social values and their application to intentionally delivered sustainability interventions.

Sustainability Science, 14(5), 1381-1393. <https://doi.org/10.1007/s11625-019-00705-9>

Reese, G., Hamann, K. R. S., Heidbreder, L. M., Loy, L. S., Menzel, C., Neubert, S., Tröger,

J., & Wullenkord, M. C. (2020). SARS-Cov-2 and environmental protection: A collective psychology agenda for environmental psychology research. *Journal of Environmental Psychology*, 70, 101444.

<https://doi.org/https://doi.org/10.1016/j.jenvp.2020.101444>

Ropke, I., & Godskesen, M. (2007). Leisure activities, time and environment. *International Journal of Innovation and Sustainable Development*, 2(2), 155-174.

<https://doi.org/10.1504/ijisd.2007.016931>

Schaffner, A. K. (2020, April 24). *Crisis Management, Ancient-Style. What we can learn from the Stoics*. Retrieved June 14, 2021 from

<https://www.psychologytoday.com/us/blog/the-art-self-improvement/202004/crisis-management-ancient-style>

Schnell, T. (2021). *The Psychology of Meaning in Life*. Routledge.

Shehabi, A., Walker, B., & Masanet, E. (2014, 2014/05/01). The energy and greenhouse-gas implications of internet video streaming in the United States. *Environmental Research Letters*, 9(5), 054007. <https://doi.org/10.1088/1748-9326/9/5/054007>

SoSci Survey. (2020, March 17). *SoSci Survey User Manual (Version 3.2.05)*. Retrieved June 14, 2021 from [https://www.sosicisurvey.de/help/doku.php/en:results:variables?s\[\]=%2Adeg&s\[\]=time%2A](https://www.sosicisurvey.de/help/doku.php/en:results:variables?s[]=%2Adeg&s[]=time%2A)

Speck, M., & Hasselkuss, M. (2015, 2015/11/01). Sufficiency in social practice: searching potentials for sufficient behavior in a consumerist culture. *Sustainability: Science, Practice and Policy*, 11(2), 14-32. <https://doi.org/10.1080/15487733.2015.11908143>

Statistisches Bundesamt. (2021, June 3). *Monatlicher Umsatzindex im Einzelhandel insgesamt sowie im Internet- und Versandhandel in Deutschland von April 2020 bis April 2021*. Retrieved June 14, 2021 from <https://de.statista.com/statistik/daten/studie/1154827/umfrage/umsatzvergleich-einzelhandel-vs-e-commerce/>

Steger, M. F., Frazier, P., Oishi, S., & Kaler, M. (2006). The meaning in life questionnaire:

Assessing the presence of and search for meaning in life. *Journal of counseling psychology*, 53(1), 80. <https://psycnet.apa.org/doi/10.1037/0022-0167.53.1.80>

Venhoeven, L. A., Bolderdijk, J. W., & Steg, L. (2020, 2020/10/01/). Why going green feels

good. *Journal of Environmental Psychology*, 71, 101492.

<https://doi.org/https://doi.org/10.1016/j.jenvp.2020.101492>

Venhoeven, L. A., Steg, L., & Bolderdijk, J. W. (2017). Can Engagement in Environmentally-

Friendly Behavior Increase Well-Being? In G. Fleury-Bahi, E. Pol, & O. Navarro (Eds.), *Handbook of Environmental Psychology and Quality of Life Research*.

Springer.

Von Jorck, G., Gerold, S., Geiger, S., & Schrader, U. (2019). *Time wealth. Working paper on*

the definition of time wealth in the research project ReZeitKon. (Working Paper).

[http://www.rezeitkon.de/wordpress/wp-](http://www.rezeitkon.de/wordpress/wp-content/uploads/2020/01/Jorck_etal_2019_ReZeitKon_Time_Wealth_Workingpaper.pdf)

[content/uploads/2020/01/Jorck_etal_2019_ReZeitKon_Time_Wealth_Workingpaper.pdf](http://www.rezeitkon.de/wordpress/wp-content/uploads/2020/01/Jorck_etal_2019_ReZeitKon_Time_Wealth_Workingpaper.pdf)

Whitmarsch, L., Hoolohan, C., Larner, O., McLachan, C., & Poortinga, W. (2020). *How has*

COVID-19 impacted low-carbon lifestyles and attitudes towards climate action?

(CAST Briefing Paper 04). Center for Climate Change and Social Transformations.

<https://cast.ac.uk/wp-content/uploads/2020/08/CAST-Briefing-04-Covid-low-carbon-choices-1.pdf>

Whitmarsh, L., Poortinga, W., & Capstick, S. (2021, 2021/12/01/). Behaviour change to address climate change. *Current Opinion in Psychology*, 42, 76-81.

<https://doi.org/https://doi.org/10.1016/j.copsyc.2021.04.002>

Young, W., Hwang, K., McDonald, S., & Oates, C. J. (2010). Sustainable consumption: green consumer behaviour when purchasing products. *Sustainable Development*, 18(1), 20-

31. <https://doi.org/https://doi.org/10.1002/sd.394>

APPENDIX A

Overview of missing values in Sociodemographics variables

Variable	N _{Valid}	N _{Missing}
Age	917	3
Gender	905	15
Income	850	70
Education	892	28

APPENDIX B
Intercorrelations of behaviour items

Table B1

Spearman's Correlation effects and between sustainable leisure behaviour and consumption behaviour before lockdown

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8
1. Clothes	2.51	0.94	-							
2. Electronics	1.84	0.78	.28***	-						
3. House & Garden	2.32	0.94	.34***	.34***	-					
4. Streaming	2.84	1.22	.12***	.14***	.02	-				
5. Nature Activities	3.44	1.02	.04	-.01	.13***	-.13**	-			
6. Food Preparation	3.45	1.10	.11**	.07*	.17***	.07*	.27***	-		
7. Crafting Activities	2.54	1.03	.10**	.17**	.40***	-.04	.19***	.23***	-	
8. Creative Activities	2.37	1.13	-.01	.07*	.13***	.02	.09**	.20***	.29***	-

Note. $N = 920$ $^{\dagger}N = 919$

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

Table B2

Spearman's Correlation effects and between sustainable leisure behaviour and consumption behaviour during lockdown

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7
1. Clothes	1.72	0.86	-						
2. Electronics	1.59	0.81	.29***	-					
3. House & Garden	2.29	1.16	.28***	.33***	-				
4. Streaming	3.26	1.30	.14***	.14***	.14***	-			
5. Outdoor Activities	3.72	1.17	.04	-.04	.12***	.01	-		
6. Food Preparation	4.03	1.05	.07*	.04	.14***	.07*	.21***	-	
7. Crafting Activities	3.17	1.23	.08*	.11**	.44***	.03	.14***	.24***	-
8. Creative Activities	2.73	1.31	.04	.04	.15	.09	.09**	.17***	.30***

Note. *N* = 920 †*N* = 919

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