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Does counter-habitual behavior carry psychological costs? ☆

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ABSTRACT

Experience sampling studies have shown that people act out of character a lot of the time. These findings have raised the question of potential costs of counter-habitual behavior. The present experience sampling study (N = 242; measurement occasions = 4342) tested, for five behavioral dimensions derived from the Big Five theory, whether self-reported counter-habitual behavior is related to psychological costs in everyday life. The results mostly supported the view that engaging in desirable counter-habitual behaviors is beneficial, though some evidence for counter-habitual costs was found for self-control. Overall, the results suggest that the state-content significance hypothesis better accounts for everyday life behavioral, affective, and self-regulatory processes than the views highlighting the importance of acting according to one's "true self".

1. Introduction

Experience sampling studies have shown that people act out of character a lot of the time, and within-person differences in behavior across situations tend to be larger (e.g. Fleeson, 2001, 2004; Fleeson & Gallagher, 2009; Leikas & Ilmarinen, 2017) or at least of equal magnitude (Heller, Komar, & Lee, 2007) than between-person differences. However, it is relatively unclear whether counter-habitual behavior has intrapsychological consequences – for example, is it tiring to act in a counter-habitual manner? Does it require more self-control? Such questions are directly relevant to our everyday life experiences, behavior, and well-being.

There is a long tradition within psychology endorsing the view that it is beneficial to behave and express oneself according to one's "true self", because such behavior and self-expression is assumed to feel more natural, effortless, or authentic (e.g. Rogers, 1961; Winnicott, 1960). For instance, according to the self-verification theory (e.g. Swann & Read, 1981), people strive to receive social feedback that confirms and verifies their own self-conceptions, rather than wish to receive positive feedback that conflicts with their self-views. Furthermore, Goldman and Kernis (2002) maintain, "we would expect that greater authenticity would be reflected in more favorable psychological functioning and subjective well-being", with authenticity referring to acting in line with inner self. In sum, several research lines and theoretical accounts on selfhood have endorsed the idea that it is beneficial to act and think in line with one's self-view or true self.

While there is evidence for the self-verification theory (Kwang & Swann, 2010), empirical studies recording everyday life experiences and behaviors have largely challenged the view that acting in accordance to one's inner self brings benefits. First, several studies have shown that most people feel happier after behaving in an extraverted, emotionally stable, agreeable, open, and conscientious way, regardless of their habitual level of behaving and regardless of their standing on the corresponding personality dimensions (e.g. Ching et al., 2014; Fleeson, Malanos, & Achille, 2002; Leikas & Ilmarinen, 2017). Second, extraverted behavior has even been shown to cause better mood for both introverts and extraverts (Fleeson et al., 2002; McNiel & Fleeson, 2006).

To summarize, there is evidence that desirable behavior, such as conscientious, agreeable, and extraverted behavior, is psychologically beneficial. Such evidence has been explained with the state-content significance hypothesis (Fleeson & Wilt, 2010), according to which it is the content of behavior, not consistency with self, that is relevant to intrapsychological consequences. However, it is relatively unclear whether counter-habitual behavior might still carry some costs. For instance, acting out of character might require the use of self-control (Gallagher, Fleeson, & Hoyle, 2011), which requires effort (Hofmann, Vohs, & Baumeister, 2012) and may therefore lead to mental depletion or fatigue.

☆ The authors contributed as follows: The third author was the principal investigator and responsible for research planning, theoretical background of the research and overseeing the project. The second author was responsible for research planning and data collection. The first author was responsible for the data analyses and wrote the manuscript.

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Furthermore, while the connection between momentary desirable behaviors and better mood has been rather reliably established, it seems possible that acting out of character could also relate to increased anxiety or stress; thus, people might show elevated positive *and* negative affect after acting in a (desirable) counter-habitual manner.

The possibility of costs of acting out of character has been studied to some extent in the context of extraversion. Several studies have shown that acting extraverted does not increase negative affect among introverts (McNiel & Fleeson, 2006; McNiel, Lowman, & Fleeson, 2010; Zelenski, Santoro, & Whelan, 2012). These studies were valuable in that they were experimental, and thus provided causal evidence (or, as is the case here, lack of such evidence) of the link between extraverted behavior and negative affect among introverts. However, each of these studies only followed individuals in one laboratory situation, not repeatedly in their ongoing everyday lives. Real-life behavior and affect, recorded over many situations, may reveal a more nuanced pattern of the dynamics between behaviors, personality, and affect. Furthermore, as noted, these studies did not consider trait domains other than extraversion.

When it comes to non-affective costs of counter-habitual behavior, Zelenski et al. (2012) showed that experimentally induced introverted behavior indeed carries some self-regulatory costs for trait extraverts. In the Zelenski et al. (2012) studies, extraverts who had acted in an introverted way performed slower in a subsequent Stroop task than introverts who had acted in an introverted way, extraverts who had acted in an extraverted way, or control participants who had acted freely. In addition, Gallagher et al. (2011) found that trait extraverts felt that acting introverted was more effortful than acting extraverted, whereas trait introverts reported no such difference. Again, these results provide unique information about causal dynamics between trait Extraversion, extraverted behavior, and mental depletion, but do not inform us about the correlates of counter-habitual behavior in natural life situations, or about the interplay of traits, states, affect, and self-control in trait domains other than extraversion.

2. Overview of the present research

How common, everyday life behavior relates to one's mood, alertness, and self-regulatory capacity is a focal question relevant to several key aspects of human life: well-being, work performance, and social relationships. In the present research, we try to answer these questions by investigating counter-habitual behavior, positive and negative affect, self-control, and fatigue in the course of natural life in all Big Five/Five-Factor trait domains, as well as possible trait effects on the behavior-outcome relations.

We use experience-sample methodology – i.e., gather reports of participants' self-reported behaviors, mood, fatigue, and self-control-use over many situations – in order to obtain an account of participants' typical level of behavior for specific behaviors within each Big Five/Five-Factor domain. With the above described strategy, we investigate, first, whether behavioral deviations from personal mean are linearly related to psychological outcomes – for example, whether acting more sociably than one typically behaves is related to better mood, and behaving less sociably than one typically does is related to worse mood. This would be indicated by a significant linear behavioral effect in the absence of curvilinear and interaction effects, and support the state-content significance hypothesis – that it is the content of behavior that matters for psychological consequences, regardless of habitual levels of behavior or personality (Fleeson & Wilt, 2010).

Second, we will investigate whether deviations from one's typical level as such, regardless of their direction, are related to either psychological benefits or costs – for instance, whether behaving at one's own typical level of friendliness is related to better mood than behaving either lower or higher levels of friendliness. This would be indicated by a significant, U (or reverse U) -shaped curvilinear relationship between the behavior and the outcome with the turning point of the U-shaped slope within a reasonable range of the behavioral predictor values. As a reasonable range, we considered the range of −3 to 3, which covered over 99% of occasions for each behavior in the present study.

Third, we will investigate whether personality trait levels moderate the linear relationships between behavioral deviation and outcomes – for example, whether acting more responsibly than typically is (linearly) related to positive mood for Conscientious participants, but not for non-Conscientious participants. Such a result would be indicated by a significant behavior × trait interaction. Fourth and finally, we investigate whether personality traits moderate the curvilinear relationships between behavioral deviations and outcomes. For example, is deviating from one's typical level of sociability (to either direction) related to higher fatigue for trait Introverts, but not for trait Extraverts? Such result would be indicated by a significant squared behavior × trait interaction effect.

3. Method

3.1. Overview

This research is part of the population-based cohort study *SleepHelsinki!*. The main study is pre-registered at clinicaltrials.gov, and a full overview of all procedures and measures of the larger project within which the present data was collected can be found at https://clinicaltrials.gov/ct2/show/NCT02964598. The hypotheses of the present research were not pre-registered.

Originally, Finnish Population Registry was utilized to identify all Finnish adolescents born between 1.1.1999 and 31.12.2000 (n = 10476) who resided in Helsinki and whose native language was registered as Finnish (72% of the total sample). The register thus included 7539 adolescents (3789 born in 1999 and 3750 born in 2000), of whom 50% were males. We sent invitation letters to all registered adolescents to participate in the *SleepHelsinki!* –study Phase 1, which consisted of an online survey primarily targeting sleep, health and behavior. The estimated time for filling in the questionnaire was 30 min.

Altogether, 1411 adolescents (19% of the initial cohort) responded to the on-line survey, with usable responses (i.e., participant responded to all parts of the survey) from 1374 (18%) adolescents. The age of the respondents did not differ from the initial cohort mean age (p = 0.34), but the respondents were more often women (34% men, $p < 0.0001$). All respondents signed an electronic consent form for Phase 1. Ethical permission was obtained from The Hospital District of Helsinki and Uusimaa Ethics Committee for gynecology and obstetrics, pediatrics and psychiatry (Decision number 50/13/03/03/2016).

3.2. Power calculations

Power and sample size calculations were conducted in the R environment (version 4.0.2; R Development Core Team, 2015) using the simr package (Green & MacLeod, 2016). We aimed to collect a sample of 300 participants and the ESM plan was 7 days, 3 measurement occasions per day, i.e., 21 observations per participant. Based on previous research, a typical response rate in comparable ESM studies is 60–80% of measurement occasions (e.g. Fleeson & Gallagher, 2009; Leikas & Ilmarinen, 2017).

Table 1
Descriptive Statistics for the Key Variables (N = 242, occasions = 4342).

	M	*SD*	Range
Sociable behavior	4.19	1.81	1–7
Confident behavior	5.49	1.65	1–7
Friendly behavior	4.65	1.51	1–7
Imaginative behavior	3.38	1.68	1–7
Responsible behavior	4.11	1.51	1–7
Positive affect	4.50	1.39	1–7
Negative affect	2.24	1.33	1–7
Fatigue	4.54	1.95	1–8

Note. Possible and actual range for behavior and mood variables was from 1 to 7. Possible range for fatigue was from 1 to 9 (actual range for fatigue was from 1 to 8).

Table 2
Within- and Between-Person Variance Components for Key Variables (N = 242, occasions = 4342).

	Within-person %	Between-person %
Sociable behavior	82%	18%
Confident behavior	58%	42%
Friendly behavior	70%	30%
Imaginative behavior	57%	43%
Responsible behavior	66%	34%
Fatigue	80%	20%
Positive affect	65%	35%
Negative affect	48%	52%

Note. Variance components were calculcated from unconditional (random intercept) multilevel models with the ESM-derived momentary variables as the dependent variables, with no predictors, using REML estimation. Variance components are presented as percentages from each variable's total variance.

Table 3
Correlations between Big Five Traits and Corresponding Behavioral States.

	Single state [95% CIs]	Behavior means [95% CIs]
Sociable-Extraversion	0.25 [0.08, 0.41]	0.45 [0.34, 0.55]
Confident-Emotional Stability	0.33 [0.16, 0.48]	0.52 [0.43, 0.59]
Friendly-Agreeableness	0.10 [-0.07, 0.27]	0.19 [0.07, 0.29]
Imaginative-Openness	0.21 [0.04, 0.38]	0.31 [0.19, 0.43]
Responsible-Conscientiousness	0.34 [0.17, 0.48]	0.50 [0.40, 0.59]

Note. Behavior mean correlations represent correlations between Big Five traits and participants' behavior averages across situations on the corresponding behavioral dimension. Single-state correlations represent the average of the trait-behavior correlations from the first 25 measurement occasions.

With the above considerations in mind, we created a simulated multilevel dataset with 200 participants and with 15 observations per participant. Next, we created a multilevel regression model reflecting the intended actual model (i.e., a random slope model predicting a level 1 outcome from a level 1 predictor, its squared term, a level 2 predictor mimicking a personality trait, and the interaction between level 1 predictor and level 2 predictor). The fixed coefficients were set to 0.10, 0.05, 0.30 and 0.05, random intercept to 0.5, random slope variance to 0.03, random intercept-random slope covariance to 0.05, and residual variance to 1.

Next, using the powerSim function, we tested the power of the dataset to detect the effects of level 1 and level 2 predictors at level 1n of 8, 10, 12 and 15. The results showed that with 8 Level 1 units, the power to detect the effect of level 1 predictor (fixed effect = 0.10) was 0.93 [95% CIs 0.90, 0.94][1], and the power to detect the effect of level 2 predictor (fixed effect = 0.30) was 0.79 [0.76; 0.81]; with 10 Level 1 units the respective power estimates were 0.97 [0.96, 0.98] and 0.81 [0.78, 0.83]. Thus, we felt confident that with a sample of >200 and with Level 1n likely to be above 10 we would be able to detect the significant behavior and trait relations with the outcomes. The r script, the simulated dataset, and details of the power analysis are available at https://osf.io/zgejx/

3.3. Participants

As the *SleepHelsinki!* –study focused on late sleep rhythms, a subsample (N = 552) with late sleep rhythms (bedtime after 1 am at least 3 times a week) was invited to participate to the ESM phase. Out of these 552 adolescents, 353 agreed to participate, 337 provided personality trait data, and 24 dropped out before completing the ESM phase, leaving us with a sample of 329 adolescents. Out of these 329 adolescents, 242 provided ESM data. These 242 adolescents (177 female, 64 male, one participant did not report their gender; mean age = 16.9 years; age range: 15.8–17.8 years, one participant did not report their age) form the sample of the present study. Participants did not differ from the original sample in terms of parental SES (measured with a 3-level self-report single item coded as *low* vs. *middle* vs. *upper*; $\chi^2(2) = 1.68$, $p = .432$) or school achievement (measured with the GPA of 9th grade certificate; $t(241) = 0.53$, $p = .593$). Furthermore, participants did not differ from the 95 adolescents who provided personality trait data, but dropped out before ESM phase or provided incomplete ESM data, in terms of their personality trait scores ($ts(94) = 0.16–1.42$, $ps > 0.156$).

During the ESM phase, participants received three prompts per day, and they were instructed to respond for seven days, but were allowed to continue responding as long as they felt motivated to do so, with the maximum of 22 days. Participants provided 18 ESM reports on average (mode = 13, range = 5–66 reports, 22 participants provided less than 8 reports and 13 participants less than 7 reports), leaving us with 4342 reports total. We retained all available data. The data is available at https://osf.io/zgejx/

3.4. Measures

3.4.1. Self-reported momentary affect

At each ESM measurement occasion participants reported how they felt "right now" with two positive affect items, *happy*, and *content*, and with three negative affect items, *depressed*, *anxious*, and *irritated*, using 7-point scales from 1 (*not at all*) to 7 (*very much*). The affect questions were the first questions in the ESM questionnaire. The two positive affect items correlated strongly within occasion (r = 0.81 [0.80, 0.82]), and were averaged into a positive affect score. Negative affect items were also relatively strongly correlated within occasions (rs = 0.56–0.68 [CIs from 0.53 to 0.70]) and were averaged into a negative affect score.

3.4.2. Self-reported momentary fatigue

Participants reported at each ESM measurement occasion how alert vs. sleepy they had felt during the last 10 min on a 9-point scale with 5 anchors (1 = *very alert*; 3 = *alert*; 5 = *neither alert nor sleepy*; 7 = *sleepy but no trouble staying awake*; 9 = *very sleepy, fighting to stay awake*). The fatigue question followed the affect questions in the ESM questionnaire.

3.4.3. Self-reported momentary behavior

Big Five/Five-Factor-related momentary behaviors were measured with single items. The items were *sociable* for Extraversion, *insecure* (reversed and labeled *confident* in the analyses) for Emotional Stability, *friendly* for Agreeableness, *imaginative* for

[1] From this point forward, all values in brackets represent the 95% confidence intervals for the preceding numeric variable.

Table 4
Results of Multilevel Regressions Predicting Outcomes from Sociable Behavior, Squared Sociable Behavior, Trait Extraversion, Sociable Behavior × Trait Extraversion Interaction and Squared Sociable Behavior × Trait Extraversion Interaction (N = 242).

	Fatigue	Positive affect	Negative affect	Self-Control
Fixed effects				
Intercept	4.59	4.45	2.28	−1.41
Sociable	−0.36 [−0.40, −0.32]	0.31 [0.29, 0.34]	−0.14 [−0.16, −0.12]	−0.06 [−0.11, −0.00]
Sociable^2	−0.02 [−0.04, 0.00]	0.04 [0.03, 0.05]	−0.03 [−0.04, −0.02]	0.03 [0.00, 0.05]
trait E	−0.30 [−0.47, −0.13]	0.58 [0.45, 0.71]	−0.50 [−0.66, −0.35]	−0.16 [−0.41, 0.09]
Sociable × trait E	−0.03 [−0.09, 0.02]	−0.01 [−0.04, 0.03]	0.00 [−0.03, 0.03]	0.02 [−0.05, 0.10]
Sociable^2 × trait E	−0.02 [−0.05, 0.00]	−0.00 [−0.01, 0.01]	−0.01 [−0.02, 0.01]	−0.04 [−0.08, −0.00]
Random effects				
Slope variance	0.03***	0.02***	0.01***	0.02
Level 2 variance	0.69	0.48	0.74	1.31
Level 1 residual	2.66	0.92	0.73	N/A
Correlation between random effects	0.03	0.02	−0.43	N/A
Model comparison random intercept vs. random slope	23.21***	79.87***	53.61***	1.92
	−21/−15	−77/−71	−55/−45	0/6

Note. Fixed effects are unstandardized regression coefficients [95% CIs] from multilevel regression models with random slopes. Models were fitted with Maximum Likelihood. Slope variance significance was calculated via Likelihood ratio tests. The model comparison row presents model comparison results between random slope and random intercept models (χ^2, AIC difference, and BIC difference, negative difference values indicate that the random slope model had better fit than the random intercept only -model). The standard self-control model failed to converge. To reach convergence, the self-control model was ran with random slope and intercept set as uncorrelated. E = Extraversion. *p < .05. **p < .01. ***p < .001.

Table 5
Results of Multilevel Regressions Predicting Outcomes from Confident Behavior, Squared Confident Behavior, Trait Emotional Stability, Confident Behavior × Trait Emotional Stability and Squared Confident Behavior × Trait Emotional Stability Interaction.

	Fatigue	Positive affect	Negative affect	Self-Control
Fixed effects				
Intercept	4.54	4.57	2.20	−1.35
Confident	−0.09 [−0.16, −0.03]	0.20 [0.16, 0.25]	−0.26 [−0.30, −0.22]	−0.12 [−0.22, −0.02]
Confident^2	−0.01 [−0.04, 0.02]	−0.01 [−0.03, 0.01]	0.00 [−0.01, 0.02]	0.01 [−0.03, 0.05]
trait ES	−0.29 [−0.43, −0.16]	0.33 [0.22, 0.44]	−0.59 [−0.70, −0.48]	−0.32 [−0.52, −0.12]
Confident × trait ES	−0.00 [−0.07, 0.07]	0.00 [−0.05, 0.06]	0.02 [−0.03, 0.06]	−0.02 [−0.07, 0.11]
Confident^2 × trait ES	−0.00 [−0.03, 0.03]	0.02 [−0.00, 0.04]	−0.01 [−0.02, 0.01]	0.04 [0.00, 0.11]
Random effects				
Slope variance	0.03**	0.03***	0.03***	0.01
Level 2 variance	0.67	0.53	0.60	1.31
Level 1 residual	2.98	1.12	0.65	N/A
Correlation between random effects	0.02	0.13	−0.17	0.51
Model comparison random intercept vs. random slope	9.32**	66.70***	105.36***	0.99
	−7/−1	−65/−59	−103/−97	1/7

Note. Fixed effects are unstandardized regression coefficients [95% CIs] from multilevel regression models with random slopes. Models were fitted with Maximum Likelihood. Slope variance significance was calculated via Likelihood ratio tests. The model comparison row presents model comparison results between random slope and random intercept models (χ^2, AIC difference/BIC difference, negative difference values indicate that the random slope model had better fit than the random intercept only -model). ES = Emotional Stability.
*p < .05. **p < .01. ***p < .001.

Table 6
Results of Multilevel Regressions Predicting Outcomes from Friendly Behavior, Squared Friendly Behavior, Trait Agreeableness, Friendly Behavior × Trait Agreeableness Interaction and Squared Friendly Behavior × Trait Agreeableness Interaction.

	Fatigue	Positive affect	Negative affect	Self-Control
Fixed effects				
Intercept	4.59	4.50	2.23	−1.35
Friendly	−0.43 [−0.48, −0.37]	0.44 [0.40, 0.48]	−0.22 [−0.25, −0.19]	−0.05 [−0.13, 0.03]
Friendly^2	−0.02 [−0.05, 0.00]	0.04 [0.02, 0.05]	−0.01 [−0.03, −0.00]	0.01 [−0.03, 0.04]
trait A	−0.05 [−0.22, 0.12]	−0.00 [−0.15, 0.15]	−0.23 [−0.40, −0.06]	−0.20 [−0.44, 0.05]
Friendly × trait A	0.04 [−0.03, 0.11]	−0.00 [−0.05, 0.05]	−0.01 [−0.05, 0.04]	−0.01 [−0.10, 0.05]
Friendly^2 × trait A	0.01 [−0.02, 0.04]	0.01 [−0.00, 0.03]	0.00 [−0.01, 0.02]	0.01 [−0.03, 0.06]
Random effects				
Slope variance	0.04***	0.04***	0.03***	0.02
Level 2 variance	0.76	0.67	0.87	1.33
Level 1 residual	2.73	0.90	0.70	N/A
Correlation between random effects	0.20	0.06	−0.37	−0.18
Model comparison random intercept vs. random slope	22.35***	98.90***	99.25***	2.74
	−20/−14	−97/−90	−97/−91	−1/6

Note. Fixed effects are unstandardized regression coefficients [95% CIs] from multilevel regression models with random slopes. Models were fitted with Maximum Likelihood. Slope variance significance was calculated via Likelihood ratio tests. The model comparison row presents model comparison results between random slope and random intercept models (χ^2, AIC difference, and BIC difference, negative difference values indicate that the random slope model had better fit than the random intercept only -model). A = Agreeableness.
*p < .05. **p < .01. ***p < .001.

Table 7
Results of Multilevel Regressions Predicting Outcomes from Imaginative Behavior, Squared Imaginative Behavior, Trait Openness, Imaginative Behavior × Trait Openness Interaction and Squared Imaginative Behavior × Trait Openness Interaction.

	Fatigue	Positive affect	Negative affect	Self-Control
Fixed effects				
Intercept	4.49	4.57	2.18	−1.38
Imaginative	−0.30 [−0.35, −0.25]	0.27 [0.24, 0.31]	−0.12 [−0.15, −0.09]	−0.01 [−0.09, 0.06]
Imaginative^2	0.04 [0.01, 0.06]	−0.01 [−0.03, 0.00]	0.02 [0.00, 0.03]	0.03 [−0.01, 0.06]
trait O	0.07 [−0.08, 0.22]	−0.06 [−0.18, 0.07]	0.16 [0.02, 0.31]	0.24 [0.03, 0.45]
Imaginative × trait O	−0.04 [−0.10, 0.02]	0.02 [−0.02, 0.06]	−0.03 [−0.06, 0.00]	−0.01 [−0.09, 0.06]
Imaginative^2 × trait O	0.00 [−0.02, 0.03]	0.01 [−0.01, 0.02]	−0.00 [−0.01, 0.01]	−0.01 [−0.05, 0.03]
Random effects				
Slope variance	0.04***	0.03***	0.01***	0.02
Level 2 variance	0.76	0.64	0.87	1.31
Level 1 residual	2.83	1.06	0.77	N/A
Correlation between random effects	0.03	−0.05	−0.36	N/A
Model comparison random intercept vs. random slope	12.63***	43.17***	18.67***	2.48
	−10/−4	−41/−35	−16/−11	−0/6

Note. Fixed effects are unstandardized regression coefficients [95% CIs] from multilevel regression models with random slopes. Models were fitted with Maximum Likelihood. Slope variance significance was calculated via Likelihood ratio tests. The model comparison row presents model comparison results between random slope and random intercept models (χ^2, AIC difference/BIC difference, negative difference values indicate that the random slope model had better fit than the random intercept only -model. The standard self-control model failed to converge. To reach convergence, the self-control model was ran with random slope and intercept set as uncorrelated. O = Openness.
*p < .05. **p < .01. ***p < .001.

Table 8
Results of Multilevel Regressions Predicting Outcomes from Responsible Behavior, Squared Responsible Behavior, Trait Conscientiousness, Responsible Behavior × Trait Conscientiousness Interaction, and Squared Responsible Behavior × Trait Conscientiousness Interaction.

	Fatigue	Positive affect	Negative affect	Self-Control
Fixed effects				
Intercept	4.57	4.53	2.22	−1.40
Responsible	−0.23 [−0.28, −0.18]	0.23 [0.20, 0.26]	−0.09 [−0.12, −0.06]	−0.04 [−0.11, 0.02]
Responsible^2	−0.01 [−0.04, 0.01]	0.01 [−0.01, 0.02]	−0.01 [−0.02, 0.00]	0.04 [0.01, 0.07]
Trait C	−0.28 [−0.44, −0.12]	0.44 [0.31, 0.57]	−0.44 [−0.59, −0.29]	−0.03 [−0.26, 0.20]
Responsible × trait C	−0.10 [−0.16, −0.04]	0.02 [−0.03, 0.06]	0.01 [−0.03, 0.05]	0.03 [−0.05, 0.11]
Responsible^2 × trait C	−0.00 [−0.03, 0.03]	0.00 [−0.02, 0.02]	−0.01 [−0.03, 0.01]	−0.02 [−0.06, 0.02]
Random effects				
Slope variance	0.02*	0.03***	0.02***	0.01
Level 2 variance	0.70	0.52	0.76	1.33
Level 1 residual	2.90	1.08	0.76	N/A
Correlation between random effects	N/A	−0.01	−0.31	0.44
Model comparison random intercept vs. random slope	6.41*	62.51***	57.54***	0.06
	−4/2	−60/−54	−55/−49	2/9

Note. Fixed effects are unstandardized regression coefficients [95% CIs] from multilevel regression models with random slopes. Models were fitted with Maximum Likelihood to allow for model comparison. Slope variance significance was calculated via Likelihood ratio tests. The model comparison row presents model comparison results between random slope and random intercept models (χ^2, AIC difference/BIC difference, negative difference values indicate that the random slope model had better fit than the random intercept only -model. The standard random slope model for fatigue failed to converge. To reach convergence, this model was ran with random intercept and random slope set as uncorrelated. C = Conscientiousness.
*p < .05. **p < .01. ***p < .001.

Openness, and *responsible* for Conscientiousness. These particular items were selected on the basis of centrality to the trait domains, and because they were considered to represent behaviors that are likely to vary both between and within persons. Participants reported at each ESM measurement occasion how well each of the above listed items described their behavior during the last hour on a scale from 1 (*not at all*) to 7 (*very much*).

3.4.4. Self-reported momentary self-control

Momentary self-control was measured by asking participants to report, at each ESM measurement occasion, whether they had used self-control or not during the last hour, on a binary (*yes*/*no*) scale. The use of self-control was defined as *whether you tried to prevent yourself from fulfilling a desire, such as eating sweets, surfing the net, or lounging.*

3.4.5. Self-reported personality traits

The Big Five/Five Factor traits were measured with the Finnish translation (Lönnqvist & Tuulio-Henriksson, 2008) of a shortened 30-item version (Körner et al., 2008) of the 60-item NEO-FFI-R (McCrae & Costa, 2004). The 30-item version has been shown to have acceptable reliabilities (αs 0.67–0.81), high 30 item-60-item version correlations (*r*s 0.88–0.93), and relations with external variables that are highly similar to the relations of the 60-item NEO-FFI-R with the same external variables (Körner et al., 2008). Furthermore, the 30-item measure has been shown to manifest the five-factor structure in two representative German population samples (Körner et al., 2008).

Participants responded on a 5-point scale (*not at all true, mostly untrue, neither true nor untrue, mostly true, very true*) in the background questionnaire administered online before the ESM phase. Alpha reliabilities for the five traits were 0.80 (Extraversion), 0.80 (Emotional Stability), 0.74 (Agreeableness), 0.74 (Openness), and 0.80 (Conscientiousness).

4. Results

4.1. Preliminary analyses

Table 1 shows the descriptive statistics for the study variables, except for the binary self-control variable. Participants reported using self-control on 1088 measurement occasions (25%), and not

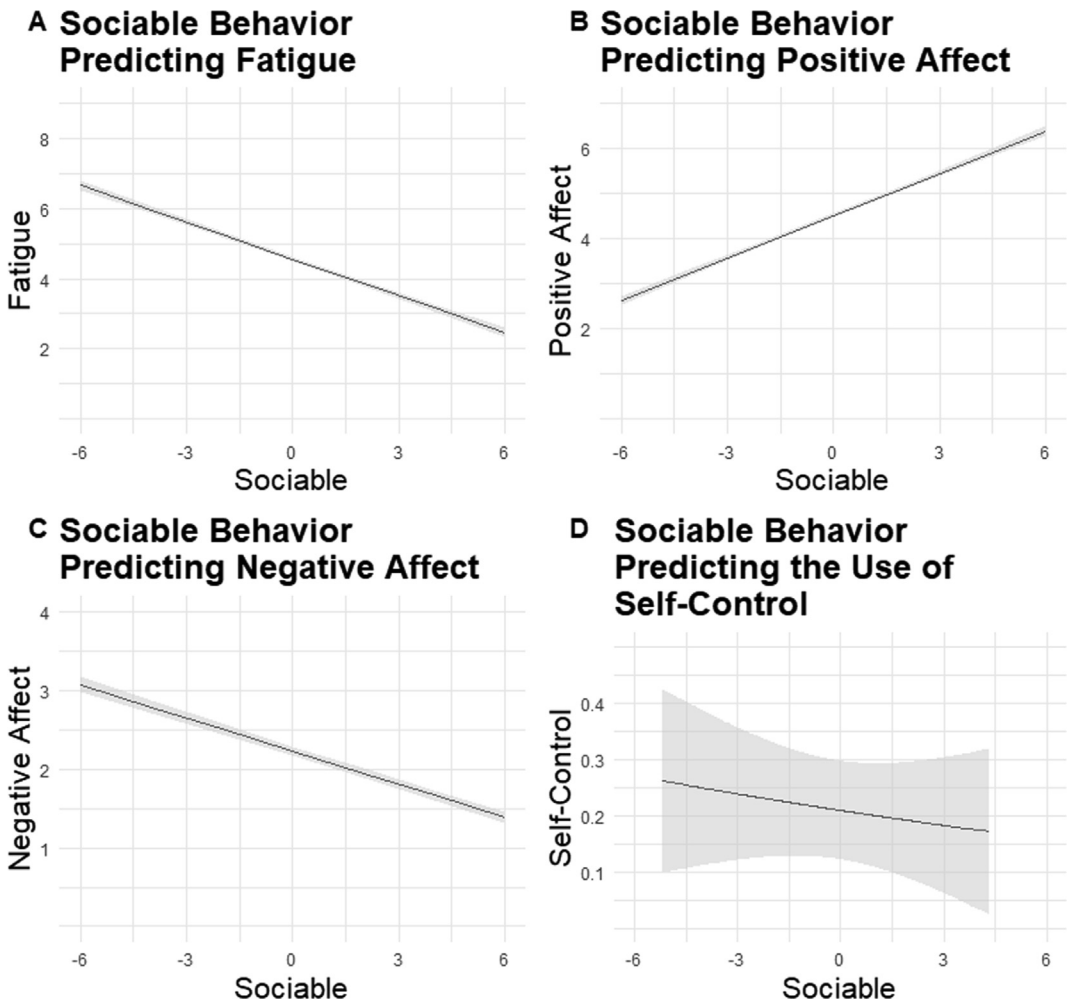

Fig. 1. Sociable behavior predicting the outcomes: linear effects with 95 % confidence bands (light grey areas).

using self-control on 3215 occasions (74%); 39 occasions (1%) had missing values for this variable.

First, within- and between-person components of behavioral variance were calculated via unconditional multilevel models with REML estimation using the lme4 package (Bates, Maechler, Bolker, & Walker, 2015) in R (version 4.0.2; R Development Core Team, 2015). Variance components are presented in percentage form in Table 2. As shown in Table 2, both between-person variance (i.e., variance between participants) and within-person variance (i.e. variance within persons between measurement occasions) was evident for all behavioral predictors and linear outcomes. These results are in line with previous personality-related experience sampling research (e.g. Fleeson & Gallagher, 2009, Leikas & Ilmarinen, 2017). An r script for these analyses is available at https://osf.io/zgejx/

Next, we computed correlations between personality traits and ESM-derived behavior averages and single states. These calculations were conducted in SPSS (v. 25). Behavior average correlations are correlations between each trait measure and each participant's corresponding behavior mean computed across all situations. Single-state correlations were computed by first calculating separate correlations for the first 25 measurement occasions (after which the response rate dropped below N = 30) between traits and corresponding behaviors. These correlations were then Fisher-transformed, averaged, and back-transformed. Confidence intervals were computed from the Fisher-transformed correlations, averaged, and back-transformed. The behavior-trait correlations are presented in Table 3. Regardless of the use of single items which led us to expect low correlations with trait measures, the correlations were in line with those commonly observed in literature (e.g. Fleeson & Gallagher, 2009), with the exception of the trait Agreeableness-friendly behavior correlations, which were low. This may be because of the narrow behavioral measure of Agreeableness, or it may reflect the heavy reliance on reverse-keyed items in the 30-item NEO-FFI-R (Körner et al., 2008), which may have made the trait measure less sensitive to everyday variations in friendliness.

Momentary positive and negative affect correlated negatively with each other (r = −0.58 [−0.60, −0.55]), and momentary fatigue correlated negatively with positive affect (r = −0.47 [−0.49, −0.45]), and positively with negative affect (r = 0.28 [0.25, 0.31]).

4.2. Main analyses

4.2.1. Overview

The behavioral predictors derived from the ESM data were person-mean-centered prior to analyses. Such centering is widely recommended in the multilevel modelling literature (e.g. (Enders & Tofighi, 2007); Raudenbush & Bryk, 2002) because it removes any between-person variance from the estimated within-person relationships between the Level 1 behavioral predictors and Level 1 outcomes. Without person-mean centering, the regression slope would be a mixture of between- and within-person variance, and

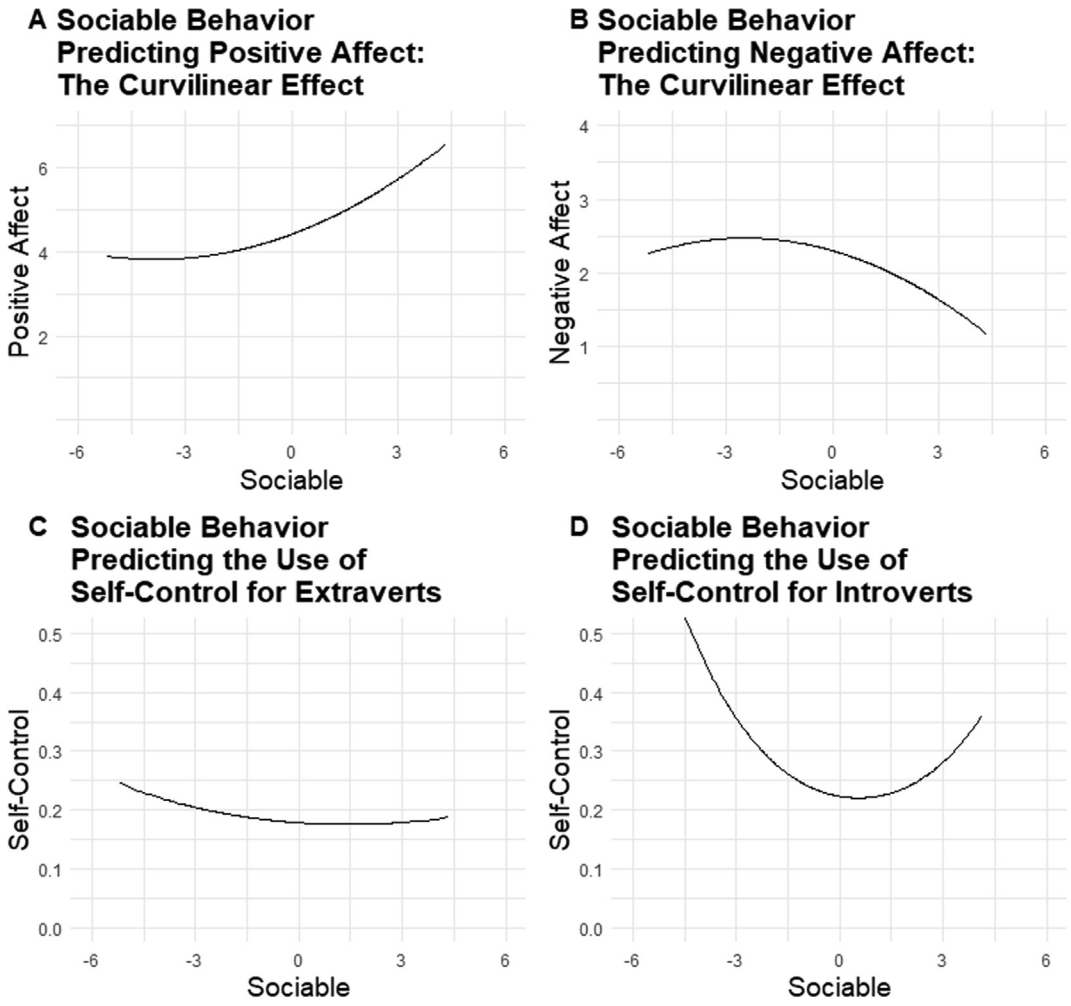

Fig. 2. Sociable behavior predicting the outcomes: The curvilinear effects and the curvilinear x trait Extraversion interaction.

thus not easily interpretable. Personality trait scores were grand-mean centered, as also recommended in the multilevel modelling literature (Raudenbush & Bryk, 2002); grand-mean centering makes the intercept interpretable because the mean values on the trait score will be represented by zero, and the intercept will thus reflect the value of the outcome at the mean level of the trait. Furthermore, grand-mean centering the level 2 variable is recommended for models including cross-level interaction terms in order to disentangle the within- and between-person sources of variance (Enders & Tofighi, 2007).

The relations of each trait domain to each of the outcomes were tested separately in a series of multilevel regression models – linear models for the three continuous outcomes and binary logistic regression models for self-control. Each outcome – fatigue, positive and negative affect, and self-control – was predicted by the person-centered behavior score, squared person-centered behavior score, corresponding grand-mean-centered trait, and behavior × trait interaction. Random intercept and random slope of the behavioral predictor were included to the models. Random intercept allows for the mean of the outcome to vary between participants, and random slopes allow the strength of the relationship between the behavioral predictor and the outcome to vary between participants. The magnitude of random slope variance tells us how large differences there are between participants in a given behavior-outcome relationship. The equations for these models are available in https://osf.io/zgejx/.

Note that the Level 1 regression coefficients (behaviors predicting outcomes) represent participant-level effects: a positive coefficient means that on average, participants acting, for instance, more sociably than their own average level of sociability across the surveyed occasions leads to higher values on the outcome, controlling for the corresponding personality trait score. Thus, the behavior coefficients are our key indicators in investigating whether counter-habitual behavior is related to psychological costs – i.e., is acting higher or lower than one's own habitual level of behavior related to fatigue, mood, or the use of self-control? Furthermore, by including the squared behavior term, we investigate whether the effect of deviation is non-linear.

The cross-level interaction term between the person-centered behavior score and the corresponding trait tells us whether personality traits are able to explain the potential between-participant variability in the behavior-outcome slopes – for instance, whether participants with high trait Conscientiousness would have a positive relationship between behaving more responsibly than typically and positive affect, whereas participants with low trait Conscientiousness would have a negative relationship between these variables.

The logistic regression coefficients for self-control represent changes in the log-odds of using self-control as a function of a given predictor while controlling for the other predictors. We will also present the effects in percentages of increase or decrease per 1 unit change in the predictor in text.

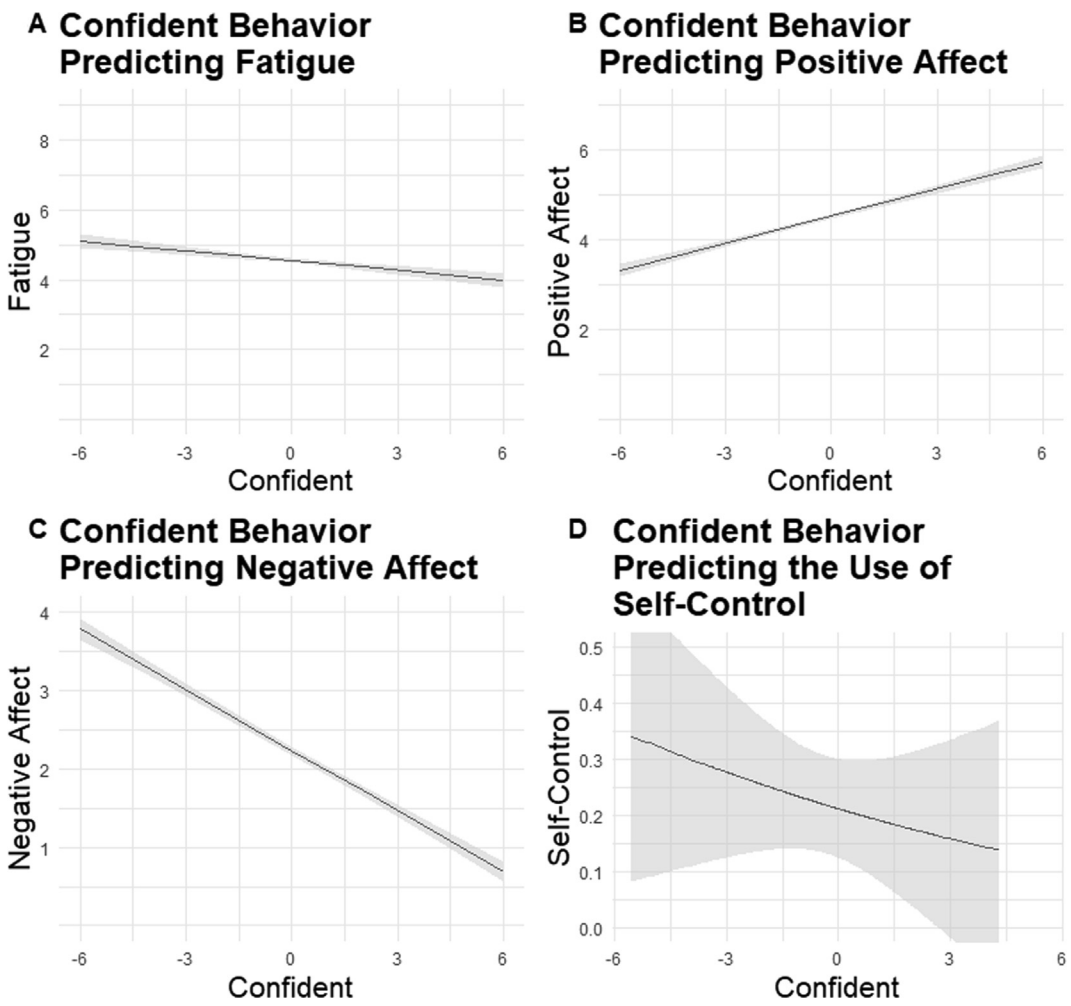

Fig. 3. Confident behavior predicting the outcomes: Linear effects with 95 % confidence bands (light grey areas).

The analyses were conducted in the R environment (version 4.0.2; R Core Team, 2015). Analysis script examples are available at https://osf.io/zgejx/ The results of the main analyses are presented in Tables 4–8, and in detail below.

4.2.2. Sociable behavior-extraversion

As shown in Table 4, acting more sociably than one's personal average negatively predicted fatigue, negative affect, and self-control (odds ratio was 0.94, suggesting that a 1-unit increase in sociable behavior was related to a 6% decrease in the likelihood of using self-control), and positively predicted positive affect. Trait Extraversion also positively predicted positive affect, and negatively predicted fatigue, negative affect, and the likelihood of using self-control (one-unit increase in trait Extraversion was related to a 15% decrease in the likelihood of using self-control). The quadratic term of sociable behavior also predicted positive and negative affect and the use of self-control.

Fig. 1 presents the linear relations between self-reported sociable behavior and the outcomes, and Fig. 2 presents the quadratic effects for positive and negative affect. As shown in Fig. 2a, the curvilinear function for positive affect was not truly U-shaped, and its turning point was at −3.88[2], a very low value of sociable behavior. As can be observed, this effect suggested that at very low levels of sociable behavior (relative to one's personal mean level), the relation between sociable behavior and mood becomes non-significant. The curvilinear function for negative affect (Fig. 2b) was reverse U-shaped, and had a turning point within reasonable range (−2.33), but this effect did not suggest clear costs for counter-habitual behavior. Rather, sociable behavior was related to higher negative affect when participants' sociability was very low to low in relation to their average levels; otherwise, the relation was linear and negative.

The sociable behavior × trait Extraversion interactions were not significant, but the quadratic sociable behavior × trait Extraversion interaction effect was significant for self-control. To further explore this interaction effect, the logistic regression predicting the use of self-control from sociable behavior and squared sociable behavior was ran separately for trait Introverts (trait score below the grand mean) and trait Extraverts (trait score above the grand mean). The curvilinear effect was significant for Introverts (estimate = 0.05, p = .01), but not for Extraverts (estimate = 0.01, p = .599).

The interaction effect is plotted in Fig. 2c and d. Note that the y-axis in Figures depicting effects on self-control represents log-odds of the likelihood of using self-control. As shown in Fig. 2d, Introverts were least likely to use self-control when their sociable behavior was at or close to their own typical level of sociability. When they behaved more or less sociably than their personal average, they were more likely to use self-control. For Extraverts,

[2] Turning points for curvilinear effects were calculated as (−b/2*a), where b was the linear effect coefficient and a was the curvilinear effect coefficient.

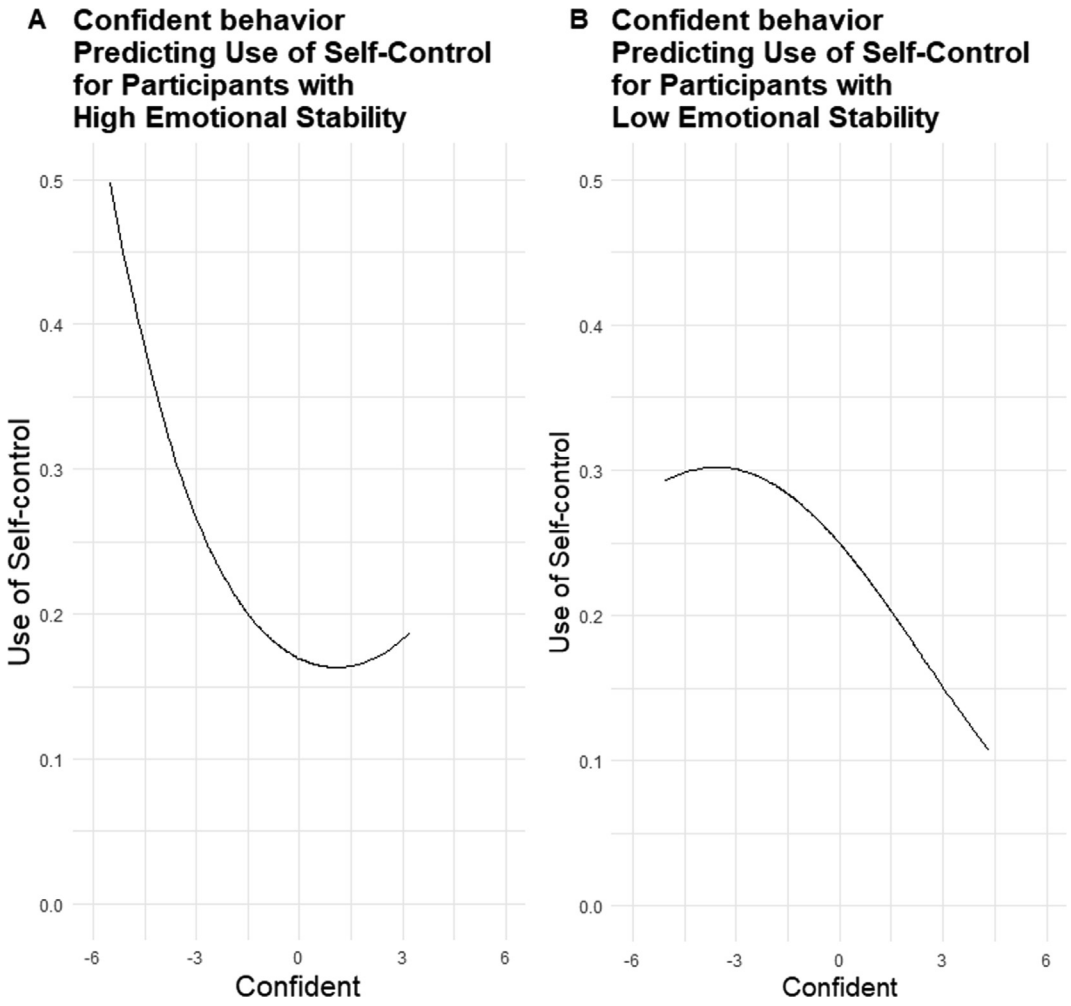

Fig. 4. Squared confident behavior x trait Emotional Stability interaction effect.

sociable behavior was unrelated to the likelihood of using self-control (Fig. 2c). This last effect suggests that for Introverts, acting more or less sociably than their own average level increases the likelihood of using self-control. Finally, individual slopes between sociable behavior deviations from personal average and the outcomes are plotted in Supplementary Figs. S1–S4.

4.2.3. Confident Behavior-Emotional Stability

Mirroring the Extraversion results, self-reported above-personal-average confident behavior and trait Emotional Stability negatively predicted fatigue, negative affect, and the use of self-control (1-unit increase in confident behavior was related to a 11% decrease in the likelihood of using self-control, and 1-unit increase in trait Emotional Stability was related to 27% decrease in the likelihood of using self-control), and positively predicted positive affect (see Table 5). The linear effects are plotted in Fig. 3.

The quadratic terms were not significant, but the interaction between quadratic confident behavior and trait Emotional Stability was significant in predicting the likelihood of using self-control. Therefore, the multilevel logistic regressions were ran separately for participants above and below the grand mean of trait Emotional Stability. However, the quadratic effect was non-significant in both separate models (*ps* > 0.227). The results of these separate models are plotted in Fig. 4. As shown there, the relationship between confident behavior and the use of self-control is negative for participants with high trait ES when they are acting below their average level, but disappears at about mid-point of confident behavior. By contrast, for participants with low trait ES, the relationship is negative except for very low levels of confident behavior (relative to their average level). However, as the curvilinear effects were rendered non-significant in these separate analyses, this interaction effect is not interpreted further. Finally, individual slopes of confident behavior deviations predicting outcomes are plotted in Supplementary Figs. S5–S8.

4.2.4. Friendly behavior-agreeableness

Acting more friendly than one's personal average was negatively related to fatigue and negative affect, and positively to positive affect (see Table 6). The quadratic term was also significant in predicting positive and negative affect but the slopes were not U-shaped and the turning points were −5.5 and −11 for positive and negative affect, respectively. In addition, trait Agreeableness was negatively related to negative affect. The interaction terms were not significant, and none of the predictors was significant for self-control. Slope variance estimates were small but significant for continuous outcomes, but not significant for self-control.

The linear relations between friendly behavior deviations from average and the outcomes are presented in Fig. 5, and curvilinear effects for positive and negative affect are presented in Fig. 6. As shown in these Figures, behaving more friendly than typically is related to lower fatigue and better mood. The curvilinear effects (Fig. 6) showed that the relationship between friendly behavior and mood was weaker at low levels of friendly behavior. The

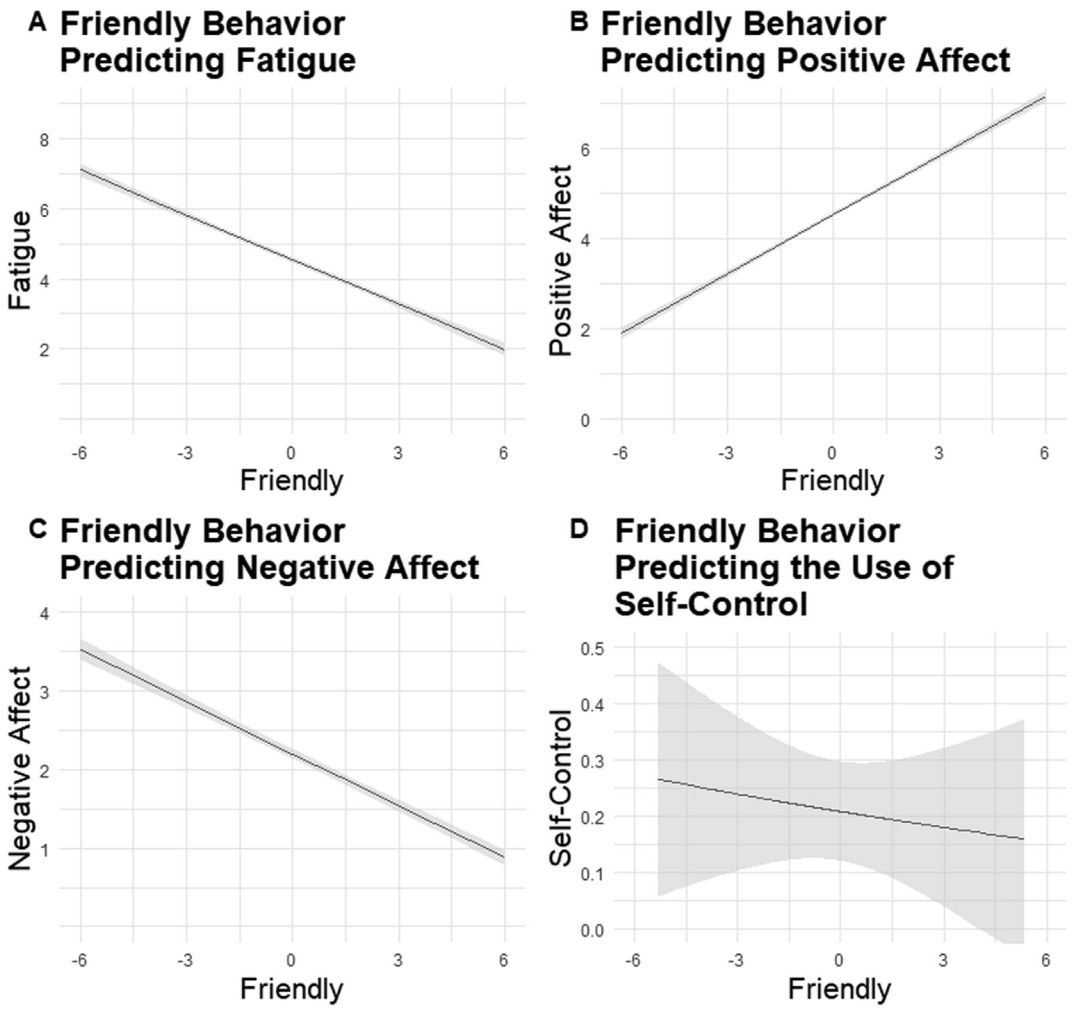

Fig. 5. Friendly behavior predicting the outcomes: Linear effects with 95 % confidence bands (light grey areas).

individual slopes for friendly behavior deviations predicting outcomes are depicted in Supplementary Figs. S9–S12.

4.2.5. Imaginative behavior-openness

Acting more imaginatively than one's personal average was negatively related to fatigue and negative affect, positively related to positive affect, and unrelated to the use of self-control (Table 7). In addition, the curvilinear effect was significant for fatigue and negative affect, but these relationships were not U-shaped, and turning points were at 3.75 and 3.0 of imaginative behavior. Trait Openness was positively related to momentary negative affect and to the use of self-control (one-unit increase in trait Openness increased the likelihood of using self-control by 27 %). Fig. 7 depicts the linear relationships between imaginative behavior deviations from average and the outcomes, and Fig. 8 plots the curvilinear effects on fatigue and negative affect. As shown in Fig. 8, the relationships between imaginative behavior and fatigue/negative affect become non-significant at high levels (relative to personal mean) of imaginative behavior. Finally, the individual slopes of imaginative behavior deviations predicting outcomes are presented in Supplementary Figs. S13–S16.

4.2.6. Responsible behavior-conscientiousness

As shown in Table 8, acting in a more responsible way than one's personal average was related to higher positive affect and to lower negative affect and lower fatigue. Furthermore, the quadratic term predicted the use of self-control (a one-unit increase in quadratic responsible behavior was related to a 4 % increase in the likelihood of using self-control). Trait Conscientiousness was also positively related to positive affect, and negatively related to negative affect and fatigue. In addition, the interaction effect between the linear effect of responsible behavior and trait Conscientiousness was significant. To unpack this interaction effect, the multilevel regression for fatigue was ran separately for participants below and above the grand mean in trait Conscientiousness. The results of these separate analyses showed that acting more responsibly than typically was linearly (and negatively) related to fatigue for both sets of participants, but the effect was stronger for participants with high trait Conscientiousness (estimate = −0.28 [−0.35, −0.21], $p < .001$) than for participants with low trait Conscientiousness (estimate = −0.17 [−0.23, −0.11], $p < .001$). This interaction is not plotted.

Fig. 9 depicts the linear effects of responsible behavior deviations from average on outcomes and Fig. 10 depicts the curvilinear effect on self-control. As shown in Fig. 10, the use of self-control was least likely when participants were acting at their typical levels of responsible behavior, and the likelihood increased when they acted either at lower-than-typical or higher-than-typical levels. This relationship was U-shaped, and the turning point was close to zero (0.17); thus, this effect suggests that acting more or less responsibly than one's typical level is related to increased likelihood of self-control use. The individual slopes of responsible

behavior deviations predicting outcomes are presented in Supplementary Figs. S17–S20.

5. Discussion

The present research investigated whether acting out of character, as defined by one's self-reported habitual way of behaving along Big Five/Five Factor-related behavioral dimensions, is related to affective, alertness-related, or self-regulatory costs. The majority of the finding suggested that acting in a more desirable way than one's habitual behavioral level is related to better mood and lower fatigue, and unrelated to the use of self-control. Furthermore, the individual variation in the relationships between behavior, affect, fatigue and self-control was small, and mostly not related to personality trait scores. Several significant curvilinear relationships between behaviors and outcomes were found, but most of these effects reflected the linear relationship being tempered at very low or high levels of a given behavior, not a U-shaped curve suggesting costs at some point of the given behavior.

Thus, overall, the results suggested that acting in more sociable, confident, friendly, imaginative and responsible ways than one typically does is related to better mood and lower fatigue (and for sociable and confident behavior, also to lower likelihood of using self-control), regardless of one's typical way of behaving or of one's personality trait levels. These results are in line with previous research according to which desirable Big Five- related behavior has affective benefits (e.g. Ching et al., 2014; Leikas & Ilmarinen, 2017). However, the present results contrast with views suggesting that it is beneficial to act according to one's true self (e.g. Rogers, 1961; Winnicott, 1960), at least if "true self" is defined via either typical level of behavior or via major personality trait dimensions.

While the results generally supported the view that desirable behavior is beneficial, we did find some evidence of costs of counter-habitual behavior. Below, we first discuss the general pattern of results, and then the results suggesting that counter-habitual behavior may carry some costs.

5.1. Why acting in desirable way is related to better mood and lower fatigue?

The results showed that behaving in desirable ways is mostly beneficial and does not carry psychological costs, even when it deviates from one's habitual level of behavior. There are several reasons as to why this could be. For instance, behaving in sociable, confident, and friendly way is likely to make others to see the person as likable and socially competent, resulting in positive feedback and more rewarding interpersonal encounters (e.g. Back, Schmukle, & Egloff, 2011, Cuperman & Ickes, 2009). Further, responsible behavior is likely to lead to achieving goals and fulfilling responsibilities, which in turn may lead to favorable outcomes as well as to receiving positive feedback from others. Desirable behaviors could also be inherently linked to higher positive affect simply because they feel good. For instance, friendly and sociable behavior may activate cognitive and affective schemas associated with positive memories and feelings.

How should we view the theories highlighting the importance of being "true to oneself" (e.g. Rogers, 1961; Winnicott, 1960) with respect to present results? In research relevant to this question, Fleeson and Wilt (2010) showed that momentary feelings of authenticity – i.e., feeling true to oneself – were highest when their participants were acting in desirable ways, regardless of their personality traits or habitual ways of acting (Fleeson & Wilt, 2010). Therefore, it could be that situations that are positive in tone and free of external demands prompt both subjective feelings of authenticity, and desirable behavior. Thus, it may be that acting out of character/counter-habitually should not be seen as acting "against oneself" or non-authentically. In fact, some of the earlier conceptualizations of authenticity do not conflict with this notion. According to Sheldon, Ryan, Rawsthorne, and Ilardi (1997), "people

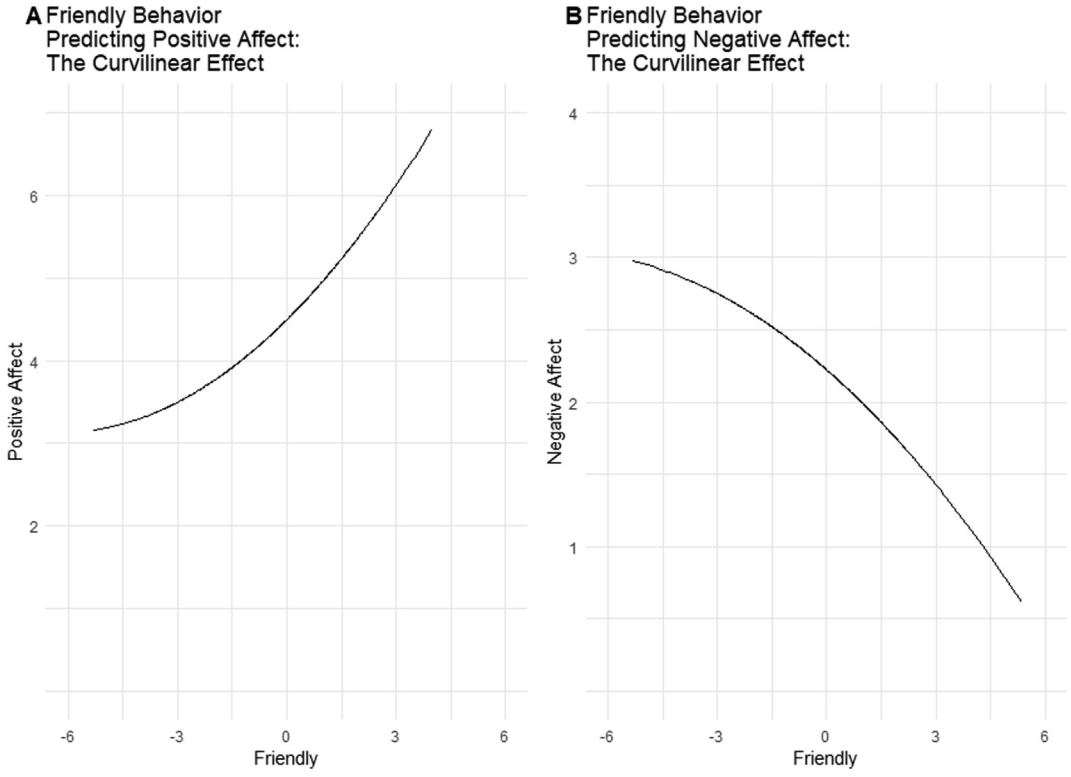

Fig. 6. Friendly behavior predicting positive and negative affect: The curvilinear effects.

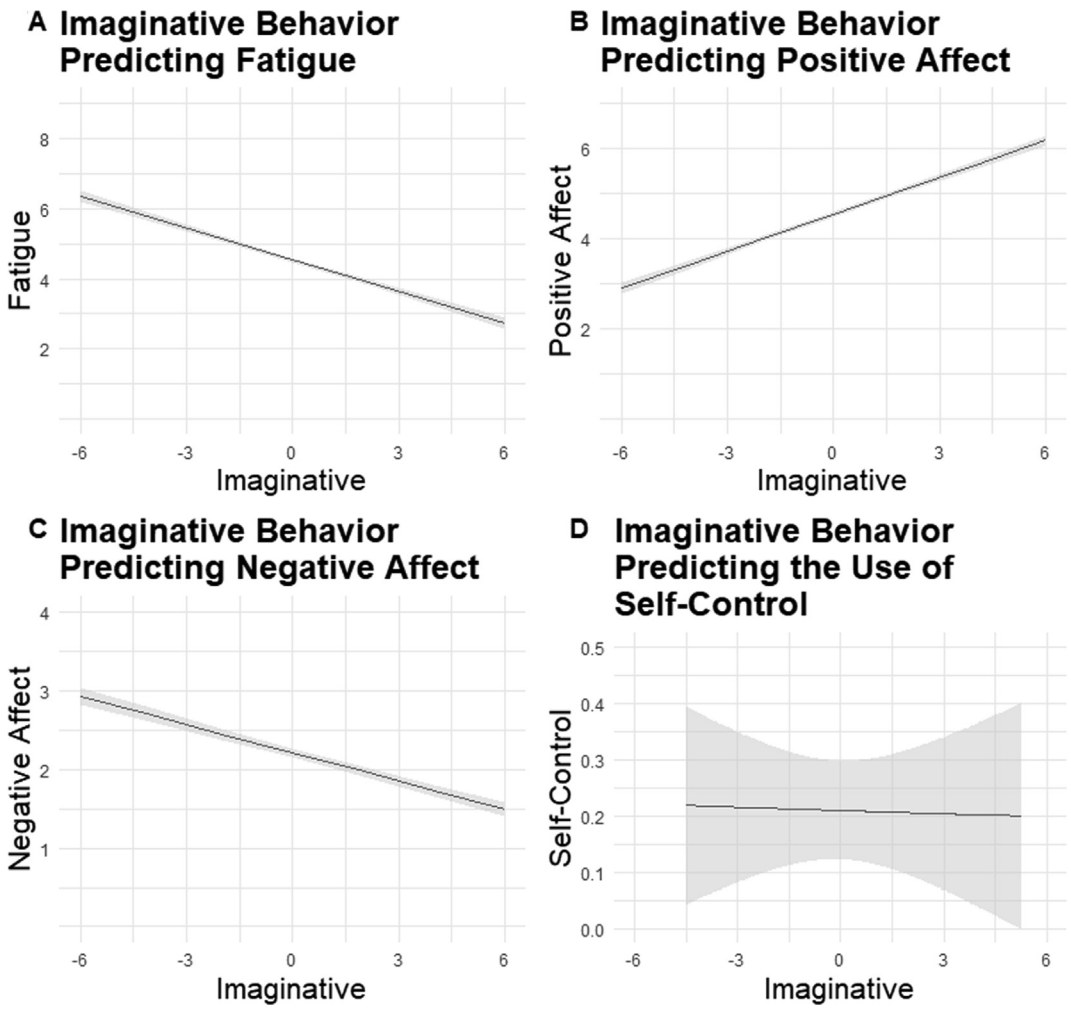

Fig. 7. Imaginative behavior predicting the outcomes: Linear effects with 95 % confidence bands (light grey areas).

feel most authentic when they act with a full sense of choice and self-expression" (p. 1381). Under such circumstances; that is, when people experience that they can freely act in any way they choose, it may be that most of the people would choose to act in way that is desirable in the society (e.g. act in confident, responsible and friendly manner). By contrast, circumstances that constrain individual freedom and agency may set off less acceptable and less desirable behaviors (e.g. irresponsible and disagreeable behavior).

It should also be noted that results such as the present ones and those of Fleeson and Wilt (2010) do not undermine the idea that it is important to be "true to oneself". These results just suggest that when it comes to behaviors related to the major personality dimensions, it is the content of behavior, not consistency with typical behavior that matters to well-being. However, it is entirely possible that being "true to oneself" in the domains of, say, values, attitudes, goals, and interpersonal patterns is important to psychological health and happiness. There is more to "self" than one's personality trait scores and typical levels of behavior. Furthermore, the outcomes measured in the present study – momentary feelings, fatigue, and self-control – do not represent a comprehensive set of possible consequences of acting out of character. It may be that acting out of character has more complex and longer-term consequences, especially in domains arguably more central to one's identity, such as personal values and goals.

Our results are somewhat at odds with some of the results of Gallagher et al. (2011) and Zelenski et al. (2012). In these studies, introverted behavior was more effortful for trait extraverts, whereas we found no differences between trait extraverts and introverts in fatigue or in the use of self-control when they were behaving in an introverted vs. extraverted way (compared to their typical levels). Furthermore, in our study, extraverts were in a better mood than introverts both when they were behaving in an introverted way, and when they were behaving in an extraverted way. However, it should be noted that Gallagher et al. (2011) and Zelenski et al. (2012) research was experimental, and the level of introverted behavior they had their participants to enact in the laboratory discussions was probably more introverted than is typical for most individuals' everyday life's occasional introversion. In addition, acting in an introverted way with strangers per researcher's instructions could well feel more effortful than acting in an introverted way out of one's own choice in a natural-life situation. Thus, despite our results, it is entirely possible that when trait extraverts are externally prompted to act in a very introverted way, as in the Gallagher et al. (2011) and Zelenski et al. (2012) studies, they experience such situations as effortful.

5.2. Costs of acting out of character

As noted, the results suggested that there may be some psychological costs for counter-habitual behavior, at least for some individuals. First, at low levels of sociable behavior (relative to personal mean level), sociable behavior was positively related to negative affect. Given that this relationship was very weak and based on a very limited number of measurement occasions, it is

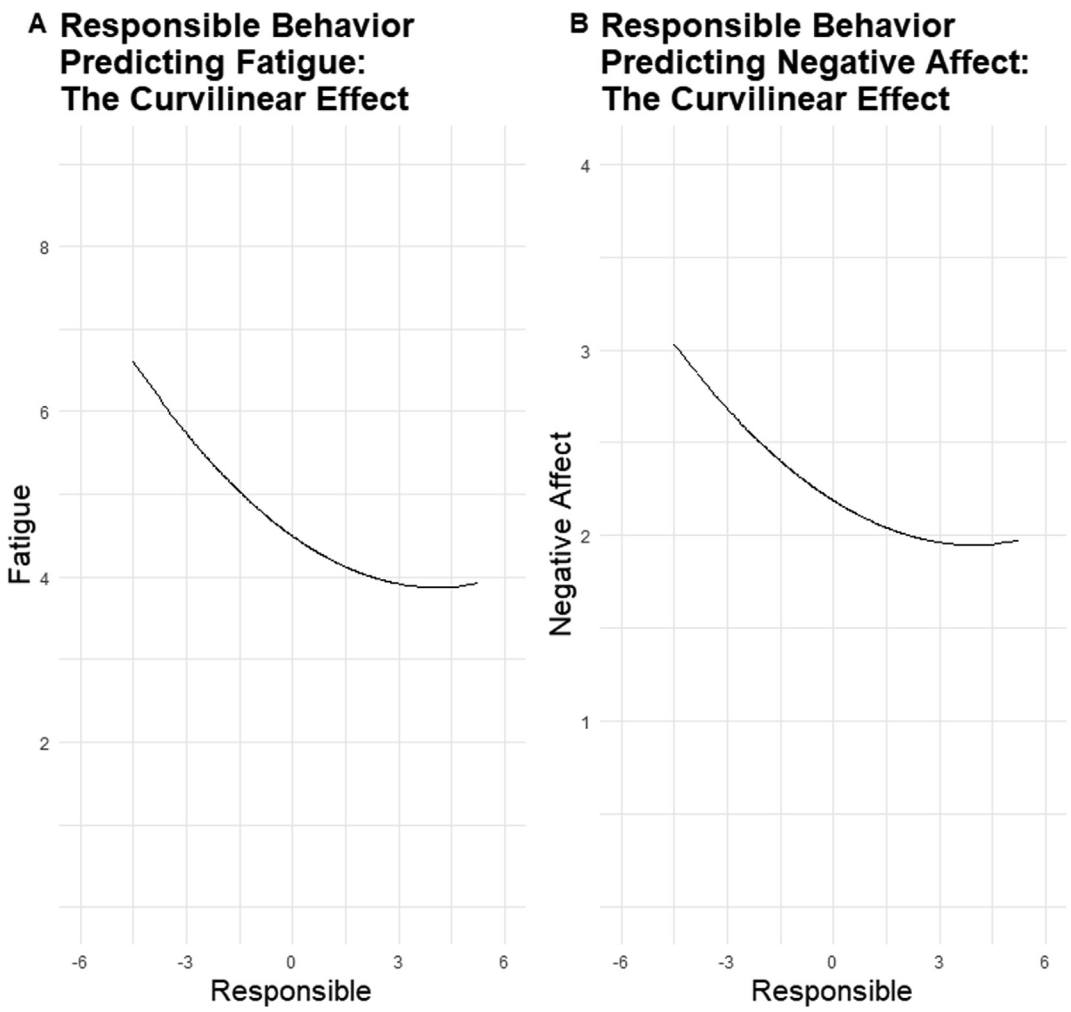

Fig. 8. Imaginative behavior predicting fatigue and negative affect: the curvilinear effects.

unclear how reliable it is. However, it is possible that at very low levels of sociable behavior, the typically negative relationship between sociability and negative affect is reversed. This may be related to the type of situations encountered; for instance, these may reflect situations in which participants have withdrawn from others but are for some reason forced to exhibit some minimal sociability against their will.

Second, deviating from one's habitual level of responsible behavior was related to higher likelihood of using self-control. This result clearly supports the view that counter-habitual behavior has costs, but not in an obvious way. That is, given that responsible behavior is likely to be effortful, it could have been expected that acting more responsibly than typically would predict higher likelihood of using of self-control, but acting less responsibly than typically would not. However, deviations to both directions were related to higher likelihood of using self-control. Unfortunately, it is not possible to say based on the present study whether it is the counter-habitual responsible behavior that leads to the need of self-control, or whether situations requiring counter-habitually low or high levels of responsible behavior prompt the need for self-control. Intuitively, the latter seems more plausible, but more research is needed to disentangle this issue.

Third, acting more responsibly than one's own typical level was related to lower fatigue, but this relationship was stronger for participants with high trait Conscientiousness, as compared to participants with low trait Conscientiousness. This may suggest that acting more responsibly than on average is less tiring for people with high trait Conscientiousness, perhaps because high trait Conscientiousness helps people to deviate from their typical level of responsible behavior to above-average direction.

Fourth, a complex interaction between trait Extraversion and squared sociable behavior suggested that trait Introverts were more likely to use self-control when they acted above or below their typical level of sociability, whereas for Extraverts, sociable behavior was unrelated to the use of self-control. This is a very complex result and it is important not to over interpret it, but it seems possible that this result reflects that deviating from one's habitual level of sociability is difficult to Introverts. One explanation for this could be that it is easier for trait Extraverts to express the whole continuum of sociable behavior than it is for trait Introverts, perhaps because trait Extraverts may have more experience of varying social situations.

5.3. Limitations

The most problematic aspect of the present study was the use of single items as behavioral measures. This is a very narrow way of measuring behavior, and has conceptual and methodological caveats. Thus, it is important to keep in mind that the results presented only inform us of these particular behavioral aspects of the Big Five traits. The results should not be read as informing us generally about, for example, ‘‘extraverted” or ‘‘conscientious” behavior, but only about one aspect of each trait's behavioral domain.

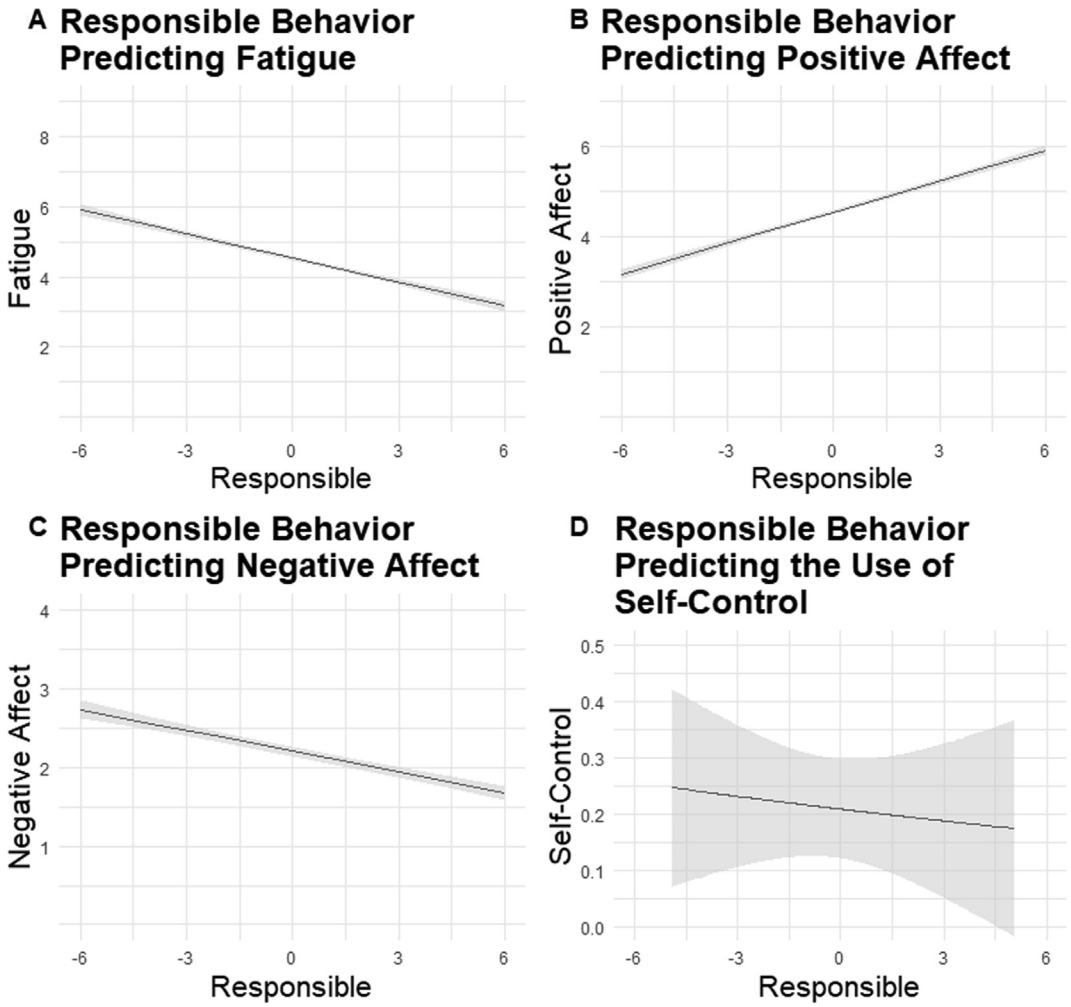

Fig. 9. Responsible behavior predicting the outcomes: Linear effects with 95 % confidence bands (light grey areas).

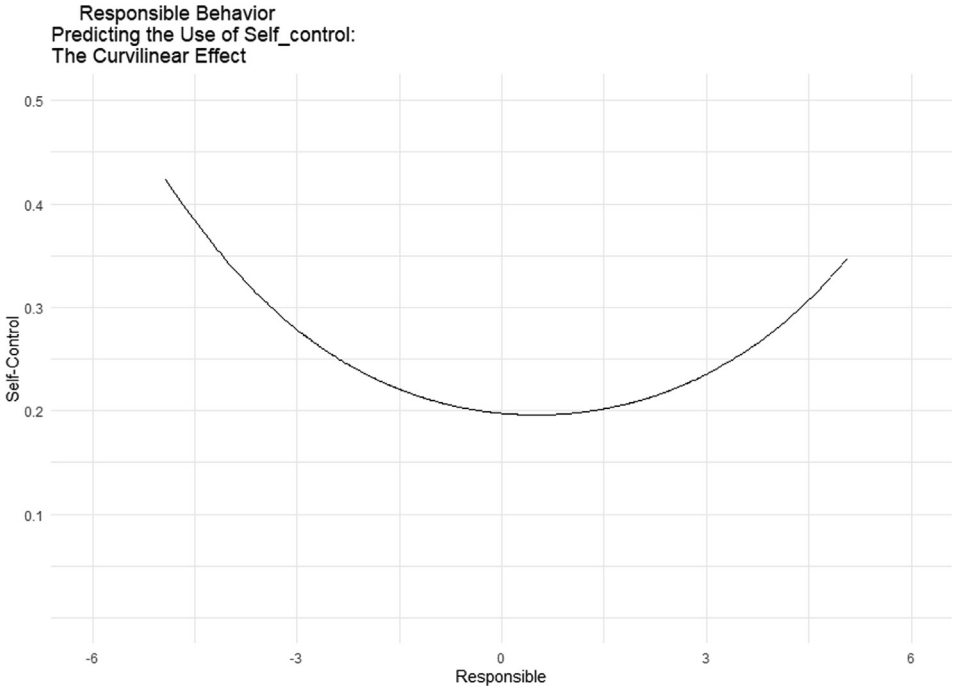

Fig. 10. The curvilinear effect of responsible behavior predicting the use of self-control.

Furthermore, the use of self-reports restricts the interpretation of the results to what participants were able and willing to disclose.

Another important limitation was that we were unable to use response surface analysis (RSA) to analyze possible congruencies between traits and behaviors because the state and trait variables were incommensurate both numerically and conceptually. RSA is the most sophisticated statistical method for uncovering the effects of congruency and incongruency between two variables on outcomes, and it is possible that with RSA, congruency effects between behaviors and traits that now remained hidden could have been detected.

An additional limitation is the binary nature of the self-control variable. The results do not inform us about the amount of self-control participants used, or about whether they succeeded or not.

It should also be noted that the present research could not establish causality between behaviors and outcomes. The results only establish correlational relations between these variables, and it is unclear whether behaviors cause affect or fatigue or vice versa, or whether a third variable (e.g. situational freedom vs. constrictiveness) causes both.

Furthermore, participants in the present study were Finnish adolescents, whose behavioral and affective patterns, as well as diurnal rhythms, which are likely to contribute to alertness vs. fatigue, may differ from those same patterns and rhythms in adults. In addition, all participants had late daily rhythms – they often went to sleep after 1 am – and it is possible that a late rhythm affects the behavioral and affective patterns we investigated here. Thus, the results should be viewed with caution before generalizing to older adult populations or to younger populations with more normative sleep rhythms, or to non-Finnish populations.

6. Conclusions

In the wake of the accumulating results of the variability and affective consequences of behavior in everyday life (Ching et al., 2014; Fleeson, 2001, 2004; Fleeson & Gallagher, 2009; Fleeson & Wilt, 2010; Heller et al., 2007), encouraging people to behave in desirable ways – e.g. acting in sociable, or friendly way – has been put forth as a way of increasing happiness, or even as a potential remedy for depression (e.g. McNiel et al., 2010). However, based on a long psychological tradition emphasizing "being true to oneself", as well as on common sense, it has been suspected that acting out of character might carry some psychological costs (e.g. Zelenski et al., 2012). Previous research has provided initial evidence that this is not true of introverts behaving in an extraverted way (e.g. McNiel et al., 2010). The present research expanded this line of research to natural life situations and to all big five domains, and showed that desirable counter-habitual behavior is not related to worse mood or higher fatigue, or, with the exception of counter-habitual responsible behavior, to the likelihood of using of self-control. All participants reported being happier and less tired when they reported behaving in sociable, confident, friendly, imaginative, and responsible way, regardless of their typical level on these behaviors and regardless of their corresponding personality dispositions. In sum, "acting out of character" in everyday life does not seem to undermine happiness, alertness, or (with the exception of responsible behavior) self-regulatory capacity, as long as acting out of character happens into a desirable direction.

Open practices

Analysis script, data, and supplementary analyses and figures for this research are available at https://osf.io/zgejx/

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary material

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jrp.2021.104077.

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