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Assertive behaviour: not a one-size-fits-all solution to poor psychological well-being

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Abstract

Extraversion as both a personality trait and state has robust links with well-being; extraverted state, or behaviour, is sufficient to increase positive affect (PA) regardless of disposition. However, examining extraversion more closely at the aspect and facet level has, to date, yielded mixed results for this relationship. This study sought to clarify extraversion's impact on psychological well-being (PWB) and positive affect by investigating state and trait assertiveness as one aspect of extraversion (next to enthusiasm; DeYoung et al., 2007). It was hypothesized that this aspect specifically contributes to several PWB outcomes at the trait level, but not at the state level if well-being outcomes increase in high trait-assertive individuals only. Participants ($N = 28$) engaged in an embedded discussion task to induce PWB and PA state outcomes by means of instructions to behave assertively or authentically (control). To then quantitatively measure and report participants' levels of traits and well-being states, several questionnaires were administered directly before and after the discussion task. Results showed that overall, Assertiveness (trait and state) was unrelated to most PWB outcomes and PA; however, assertive behaviour led to surprisingly lower environmental mastery compared to the control group ($p = .031$), which is likely explained by an interaction with low trait assertiveness characterising most of the assertive condition. Trait interactions with assertive behaviour were also visible, though not uniform, for within-groups increases in environmental mastery, self-acceptance, and PA. Limitations and implications for state-trait isomorphism, the Whole Trait Theory, and the general extraversion-wellbeing relationship are discussed.

Keywords: personality, assertiveness, extraversion, positive affect, psychological well-being, Whole Trait Theory

Introduction

People are always judged for their personality, as it influences virtually all spheres of life including but not limited to relationships, hiring decisions, worldview and political ideology, and morality. Personality is often viewed as at least somewhat stable over time and across situations (Diener & Lucas, 2022), raising the question whether it can change throughout the lifespan at all, if only to meet societal expectations. The question becomes even more intriguing when considered from a well-being perspective. For example, the causal link between extraversion and positive affect (PA) has been widely researched for decades (e.g., Costa & McCrae, 1980), but what exactly renders it a component of a happy personality? Is it plausible to want to alter one's own to fit it? By investigating Assertiveness as part of the extraverted trait in detail, a better understanding of such questions can be gained.

Although several models of personality have been developed over time, such as Eysenck and Eysenck's (1985) PEN model of personality or the more recent HEXACO-60 personality inventory (Ashton & Lee, 2009), none of them have been received as favourably since their conception as the Five Factor Model (FFM, also known as the "Big Five"; most widely associated with McCrae & Costa, 1987). The FFM describes five broad personality traits (i.e., neuroticism, extraversion, agreeableness, conscientiousness, and openness to experience), which encapsulate much of personality in a rich and meaningful way (Costa & McCrae, 1992). Of these, extraversion and neuroticism, respectively, have predicted PA and negative affect, and more generally, well-being, best (e.g., González Gutiérrez et al., 2005).

Although Smillie et al. (2012) claim that PA is inextricably linked with extraversion, in their view the relationship is not tautological due to item similarity or overlap. It is disputed whether differing affective content of extraversion questionnaires minimises circularity (Pytlik Zillig et al., 2002) or is independent of the trait's link with PA (Lucas et al., 2008); nevertheless, Wilt et al. (2012) find variety in methodologies to be a deciding factor in establishing extraversion as a cause rather than a consequence of PA. Indeed, on the trait level, the extraversion-wellbeing relationship has been steadily replicated across situations, methodologies, and well-being types. Pavot et al. (1990) confirmed that the link extends to non-social situations, whilst Smillie et al. (2012) employed experience sampling as well as diary studies to support the robustness of the relationship, which holds true not only for PA (Magnus et al., 1993) but also for emotional, subjective, psychological, and social well-being, life satisfaction, positive mental health (Lamers et al., 2012) and other positive life events (Magnus et al., 1993). Finally, studies using different cultural (Lu & Shih, 1997), geographic and demographic (Diener et al., 1992) variables have cemented trait extraversion as one of the most significant personality predictors of well-being. Simply put, extraverted people are happier.

Although the exact reasons for the extraversion-wellbeing relationship are yet unclear, they are likely the same on both the trait and the state level (Fleeson et al., 2002). More recently, attention has increasingly shifted to explicate enacted extraversion regardless of disposition as a sufficient condition for well-being, both empirically and theoretically. Enacted extraversion, also known as state extraversion, carries the same descriptors (e.g., talkativeness, energy, assertiveness) as trait extraversion, but for shorter durations (Fleeson & Jayawickreme, 2015). Fleeson et al. (2002) show not just between-persons variation in extraversion to be responsible for PA but also within-person variation; the latter was even found to exceed the former (Fleeson & Jayawickreme, 2021; Heller et al., 2007). In other words, a person's extraverted behaviour may vary across situations, contributing to overall

trait level. For participants with at least average levels of trait extraversion, even manipulated behaviour feels authentic, which in turn, reduces tiredness (Jacques-Hamilton et al., 2019). Thus, in contrast to previous long-term clinical interventions aiming to increase PA by increasing extraversion over time, the simple instruction to act extraverted in a controlled situation (Fleeson et al., 2002) and in everyday life not necessarily involving social situations (Jacques-Hamilton et al., 2019; van Allen et al., 2021) demonstrates that the benefits of being and acting extraverted are the same.

The robustness of the extraversion-PA relationship has also been theoretically established, and it has been approached from both a trait and an affective standpoint. Whilst the behavioural concordance model (Moskowitz & Côté, 1995) argues that trait-consistent behaviour increases PA, the Circumplex (Russell, 1980) and the Factor (Watson & Tellegen, 1985) models of affect each illustrate the link by describing traits as eliciting pleasant valence and positive activation, respectively. Smillie et al. (2014) combine the merits of the latter two models to describe the link, but even so, a description is not sufficient. However, an explanation of a relationship perhaps requires an explanation of its variables (e.g., traits), which the models lack.

Addressing this gap, the Whole Trait Theory (WTT; Fleeson, 2012) is a unified perspective on personality traits, combining their descriptive and explanatory aspects from previous approaches (i.e., the stable trait approach and dynamic social-cognitive approach); both comprise the “whole” trait responsible for daily behaviour. As mentioned, personality traits are often conceived as stable across situations (Diener & Lucas, 2022), and to an extent, that may be true between persons. However, in Jayawickreme et al. (2019), a core principle of the WTT assumes that the descriptive aspect of traits defines traits as both flexible and consistent: They are flexible within the person across individual situations often requiring adjustment, but these situational behaviours add up to form an often wide “density distribution” of typical behaviours (first put forth in Fleeson, 2001; Figure 1), which ultimately become consistently descriptive of the person as traits. According to the author, the density distributions model visualises an individual’s behavioural fluctuations around their highly unique point(s) of central tendency, thus providing evidence of single behaviours incorporated into a wider average representation of a trait. Only then do high correlations between within-person central tendencies allow for reliable predictions of average differences between persons.

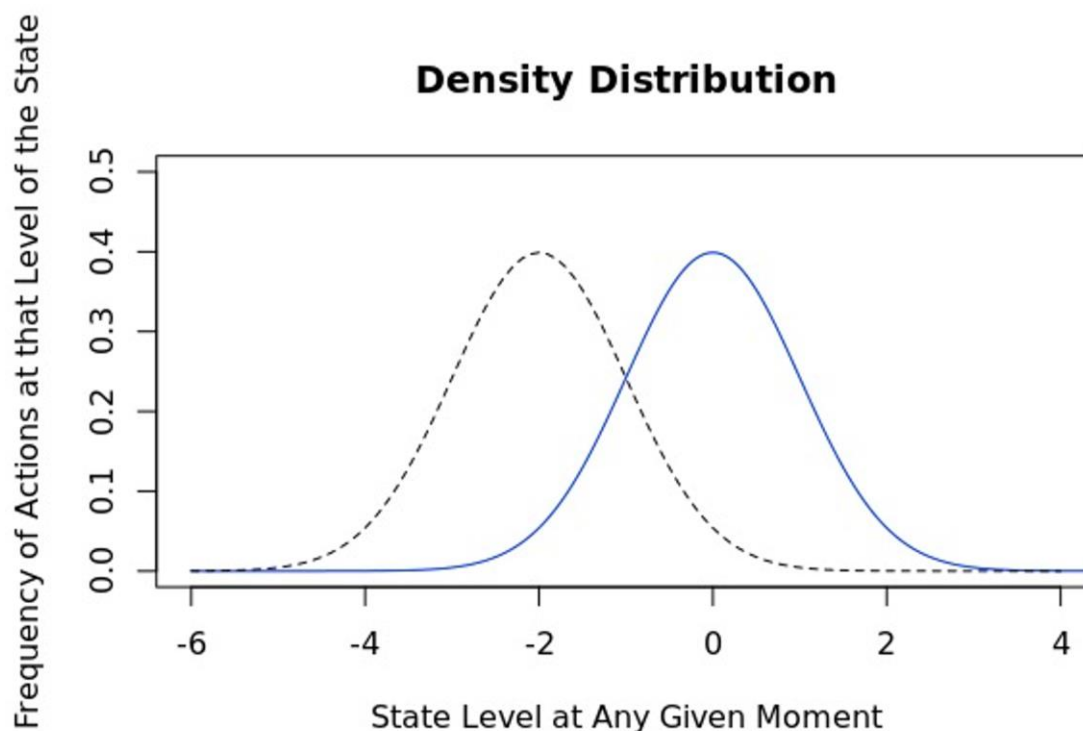


Figure 1: Density Distribution of Personality State

Note. Adapted from “Whole Trait Theory” by W. Fleeson, and E. Jayawickreme (2015), *Journal of Research in Personality*, 56, p. 86. Copyright 2015 by Journal of Research in Personality

Previously, the WTT has been used empirically to explain the benefits of simply acting extraverted as an alternative to having high extraversion as a trait (McCabe & Fleeson, 2012). But what exactly does it mean to act extraverted? According to the Big Five Aspect Scales (DeYoung et al., 2007), the domain of extraversion consists of two lower-level aspects: Enthusiasm and Assertiveness. These can be further subdivided into corresponding facets: gregariousness, warmth, activity, and positive emotions for Enthusiasm; and excitement-seeking and assertiveness (also called dominance; Watson et al., 2019) for Assertiveness. To its credit, Enthusiasm alone has been deemed the primary representation of the affective component of extraversion (Smillie et al., 2014), and it seems intuitive just by looking at its facets. However, this communal aspect creates more overlap with agreeableness (Depue & Collins, 1999), which forms another FFM trait with documented links with elevated PA (DeNeve & Cooper, 1998). This makes it more difficult to clearly pinpoint PA to either source, although it is possible (DeYoung, 2013). Conversely, the link between assertiveness and agreeableness is not entirely clear (see Bagherian & Mojambari, 2016; Kammrath et al., 2015; Quilty et al., 2013).

On an aspect level, Assertiveness relates to social ascendancy and “the subjective sense of potency in accomplishing goals” (Depue & Collins, 1999, p. 492), alongside ambition, boldness, leadership, drive, and so on (DeYoung et al., 2013). Trait extraversion has already been found to have strong links with perceived social power (e.g., Anderson et al., 2012), and such perceptions correlate with increased PA (Langner & Keltner, 2008). Smillie et al. (2015) argue that engaging in assertive social behaviours might enhance a sense of social power and thus PA, which in turn, might explain why extraverts have higher PA and well-being levels.

As mentioned, well-being extends beyond more general PA, and has been conceptualised in different ways, including but not limited to subjective, emotional, psychological, and social well-being. Psychological well-being (PWB) is sometimes argued to overlap conceptually with (Gallagher et al., 2009) or even to be indistinguishable from (Lamers et al., 2012) social well-being. PWB has also been defined as including both eudaimonic and hedonic elements (Ryan & Deci, 2001, as cited in Tang et al., 2019), the former of which are traditionally associated with PWB, whilst the latter are usually understood as defining emotional well-being. Thus, social and emotional well-being arguably represent subcomponents of the umbrella term that is PWB. Unsurprisingly, Assertiveness is more strongly related to PWB (Lamers et al., 2012) than to what can be considered its constituents. PWB is marked by the presence of six factors: autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance (Ryff, 1989). It is often measured with the Psychological Well-being Scales based on the author's six-factor model. Of those, autonomy, environmental mastery, and self-acceptance have been independently found to be predicted by assertiveness (Hurley, 1998; Parray & Kumar, 2017; Siegler & Brummett, 2000; Sun et al., 2017).

Previous research has not much delved into the impact of trait assertiveness, much less state assertiveness, on well-being outside of its context with extraversion or other aspects and traits. Moreover, existing research is mixed: On the one hand, it demonstrates both modest (Sun et al., 2017) and stronger correlations with well-being overall, particularly with induced activated PA (e.g., Smillie et al., 2013), which corresponds with the concept of Assertiveness being characterised by energy, alertness and vigour and connected to a desire to pursue and sensitivity to receiving rewards (DeYoung et al., 2013). McNiel et al. (2010) identified PA to lie somewhere between activated and pleasant affect, and in terms of extraversion, activated affect is indeed uniquely related to reward pursuit but does not explain why extraverts are generally happier than introverts (Smillie et al., 2012). Moreover, Watson et al. (2019) link Assertiveness as an aspect with externalising psychopathology in the form of mania, psychopathy, antagonism, narcissism, for which the excitement-seeking (or venturesomeness in the authors' terminology) facet is the strongest predictor. Assertiveness is moderately positively linked with manipulateness, risk taking, attention-seeking, and grandiosity, although that depends on the inventory used to measure these outcomes (Watson et al., 2019). Nonetheless, assertiveness as a facet predicts life satisfaction, if only for men (Herringer, 1998).

Assertiveness as a positive factor in the extraversion-wellbeing relationship could also have implications on clinical interventions; however, currently it appears that of the two extraversion aspects, only the Assertiveness-wellbeing relationship remains unclear. Further, in keeping with state-trait isomorphism (Fleeson et al., 2002), it is unknown whether assertive behaviour alone will induce the same positive effect on well-being as extraverted behaviour. PWB and PA resulting from assertive behaviour might also depend on high trait assertiveness if counter dispositional behaviour feels inauthentic to low trait-assertive persons and induces more tiredness than well-being (Jacques-Hamilton et al., 2019). The present study sought to clarify the extraversion-wellbeing relationship by assessing the mixed opinions on the trait's Assertiveness aspect and well-being. Thus, several questions arose, and the following hypotheses attempted to predict their answers: First, trait assertiveness will be positively related to PWB and PA. Second, assertive behaviour will not overall correlate with increased PWB and PA due to trait-dependent cancellation effects (see hyp. 3). Third, PWB and PA outcomes will increase in high trait-assertive people only.

Methodology

Participants

All participants ($N = 58$) were undergraduate psychology students at the University of Plymouth, recruited online through SONA for partial course credit. Of those, 30 participants were randomly assigned to two other conditions (i.e., agreeableness, attention-seeking) not relevant to the current analyses and were therefore excluded. 13 participants were randomly placed into the assertive condition, and 15 participants were randomly placed into the authentic (control) condition. Eligibility criteria included age 18+, fluency in English, and access to a device with the Zoom client (Zoom Video Communications Inc., 2016) installed.

Materials

Trait assertiveness

The questionnaires were administered via Qualtrics ("Qualtrics XM - Experience Management Software", 2022) and included the ten items from the Big Five Aspect Scales (BFAS; DeYoung et al., 2007) relating to assertiveness; statements were pseudo-randomised among items relating to enthusiasm, agreeableness and attention-seeking. Self-reported agreement with these statements (e.g., "I usually see myself as a good leader", "I usually lack the talent for influencing people" [R]) was measured on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

Positive affect

The Scale of Positive and Negative Experience (SPANE; Diener et al., 2009) was used three times – as measuring trait and state PA both before and after discussion – with adjectives reflecting frequency of experienced feelings (e.g., "joyful", "unpleasant"). Responses were scored on a 5-point Likert scale ranging from 1 (*not at all*) to 5 (*very much*).

Psychological well-being

Selected items were taken from the Psychological Wellbeing Scale (PWB; Ryff, 1989) to measure the PWB outcomes previously associated with high assertiveness; that is, autonomy (AU), environmental mastery (EM), and self-acceptance (SA). A total of nine statements (three per outcome) were presented before and after the discussion task and pseudo-randomised among unrelated PWB outcomes (e.g., "I have/had confidence in my opinions, even if they are/were contrary to the general consensus", "The demands of (the) task(s) (often) get/got me down [R]", "I (often) feel/felt confident and positive about myself"). Participants rated their agreement with these items on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

Tiredness

The trait tiredness scale (Jacques-Hamilton et al., 2019) indicated participants' self-reported general tiredness with adjectives and statements (e.g., "lethargic" and "I nearly always feel alert and awake [R]"). It was scored using a 5-point Likert scale ranging from "very slightly or not at all" to "extremely". The scale was also adapted to include questions on state tiredness after discussion, scored on a 5-point Likert scale ranging from "not at all" to "very much".

Subjective authenticity

The adapted trait authenticity scale (Fleeson & Wilt, 2010; Jacques-Hamilton et al., 2019) asked for agreement with statements; for example, “I act like my true self” or “I feel like I am putting on an act” [R]. It included a 7-point Likert scale ranging from “*strongly disagree*” to “*strongly agree*”. Measured as a state, some statements were converted into questions and scored on a 5-point Likert scale ranging from “*not at all*” to “*very much*”.

Manipulation check

Pseudo-randomised self- and peer-ratings of assertive states using adjectives, e.g., “direct” and “emphatic” were included.

Procedure

Set-up of trials

Two to four participants per time slot received a Zoom link to access the group discussion. Before the beginning of each trial, the experimenter changed the Zoom settings to restrict the chat function to communication with the host only, and disallowed recording, renaming, and the share screen settings for participants. A protocol was drafted ahead of time to ensure standardisation of the procedure. Participants were automatically kept in a waiting room upon joining the call and admitted one by one to have their microphones checked, names changed (e.g., to “Participant A”) to maintain anonymity, and the procedure broadly explained to them whilst being prompted for questions. They were allowed to leave their camera off. In case of more than two no-shows or insufficient registrations, the time slot had to be cancelled and participants were given another opportunity to sign up with an excused or unexcused absence. Tardiness was excused but late participants were excluded from the trial following a max. 10-minute waiting period, after which the remaining participants were invited back into the main room.

Baseline questionnaires

At the start of the trial, a survey link was posted into the chat box for participants to open, which consisted of the consent form, demographics questions, and several questionnaires measuring trait assertiveness (amongst other traits), regular and current experiences of PA, as well as PWB, and trait tiredness and authenticity. Questions were welcome for the duration of the trial. Afterwards, the survey instructed them to signal completion of this part via chat to the experimenter, who waited for all announcements before proceeding. To ensure a similar pace for all participants in the progress of the trial, the experimenter provided a code participants typed into the survey to enter the discussion phase.

Discussion task

Participants were randomly instructed to act assertively or authentically (control) and reminded to keep their condition confidential. Other instructions were given to participants excluded from this analysis. The 20-minute discussion task consisted of ranking items by importance as outlined in the “Lost at sea” scenario (based on Fleeson et al., 2002, Study 3). After instructing them to unmute themselves and begin the discussion, the experimenter turned off their own camera and microphone whilst remaining available for questions or additional prompts if discussion ended prematurely. Afterwards, participants were asked to submit their rankings previously agreed upon as a group into the survey.

Follow-up questionnaires

The final part of the trial required participants to submit responses to measures of state PA, PWB outcomes of the discussion task, as well as state tiredness and subjective authenticity in their behaviours. In addition, they rated themselves and each other on a list of adjectives describing each condition. Finally, participants were encouraged again to ask questions, before being debriefed and thanked. The total duration of one slot did not exceed one hour, and credit was granted by the end of the day.

Data Analyses

Descriptive statistics and *t*-tests were run in RStudio (R Core Team, 2021); Cronbach’s alpha was calculated with the psych package (v2.1.3; Revelle, 2020), Cohen’s *d* was calculated with the effsize package (v0.8.1; Torchiano, 2020), *t*-tests were executed using the BayesFactor (v0.9.12-4.2; Morey & Rouder, 2018) package, and graphs were created with the dplyr (v1.0.6; Wickham et al., 2021), ggplot2 (Wickham, 2016) and jtools (v2.1.0; Long, 2020) packages. Results were deemed statistically significant if meeting the set criterion of $p < .05$. 95% confidence intervals were used. The mean was calculated for responses from every continuous survey scale, e.g., SPANE, and the median was drawn from scales to then split and convert them into categorical scales, e.g., “low” vs. “high” trait assertiveness.

Results

Descriptive statistics

Answer options for both age and gender were given as categories instead of continuous variables; therefore, only frequencies are reported here. Answer options for age included “18-20”, which yielded 21 responses (or 75% of the sample); “21-25”, which yielded three responses (or about 10.7% of the sample); “26-30”, which yielded two responses (or about 7.1% of the sample); “31+”, which again yielded two responses (or about 7.1% of the sample); “Prefer not to say”, which yielded no responses. Answer options for gender included “Male”, for which six responses were given (or about 21.4% of the sample); “Female”, for which 21 responses were given (or 75% of the sample); “Other”, for which one response was given (or about 3.6% of the sample); “Prefer not to say”, for which no responses were given. Three males and ten females were sorted into the assertive condition, and three males, eleven females, and one “other” were sorted into the authentic condition. Age in the assertive condition was more evenly distributed compared to the authentic condition; there were seven 18–21-year-olds, two 21–25-year-olds, two 26–30-year-olds, and two 31+ year-olds. In the authentic condition, there were fourteen 18–21-year-olds, one 21–25-year-old, no 26–30-year-olds, and no 31+ year-olds. Additionally, measuring trait assertiveness across conditions showed more high trait assertive participants in the authentic condition and more low trait assertive participants in the assertive condition. This naturally resulted in higher total trait assertiveness scores in participants in the authentic condition than in the assertive condition, although based on an independent samples *t*-test, that difference was not statistically significant ($t = 0.47$, $df = 25.83$, $p = .643$). Distributions of those scores can be viewed in Table 1.

Table 1: Distribution of Self-Reported Trait Assertiveness Levels across both Conditions

Trait assertiveness	<i>Assertive condition</i>			<i>Authentic condition</i>		
	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>
High	3.60	0.45	5	3.69	0.31	8
Low	2.81	0.41	8	2.69	0.36	7

Total	3.12	0.57	13	3.22	0.61	15
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Note. *N* = 28.

Reliability analysis

Internal consistency was determined by calculating Cronbach’s alpha for each questionnaire. Values ranged from $\alpha = .61$ to $\alpha = .91$, the lower limit of which satisfies reliability requirements for data analysis. The individual values are as follows: selected items from the BFAS ($\alpha = .78$), SPANE measuring three different timeframes of positive affect (values ranging from $\alpha = .76$ to $\alpha = .91$), selected items from the PWB scale measuring two different timeframes of psychological well-being (values ranging from $\alpha = .61$ to $\alpha = .69$), trait tiredness ($\alpha = .73$), trait authenticity ($\alpha = .88$), state tiredness ($\alpha = .86$), state subjective authenticity ($\alpha = .81$), and rated adjectives for the manipulation check ($\alpha = .82$).

Manipulation check

Participants in both conditions reported the same levels of assertive behaviour ($M = 3.39$ for both; $SD = 0.50$ for the assertive condition, $SD = 0.71$ for the authentic condition). This indicates that the manipulation was successful in the assertive group, considering its composition of mostly low trait-assertive individuals. However, here the manipulation did not induce a higher mean of assertive behaviour than in the authentic group, suggesting that its effectiveness was limited.

Effects of Trait Assertiveness levels on Well-being Outcomes and PA

General PWB. Results for trait assertiveness effects on all well-being outcomes are presented in Table 2 (see also Figure 2 for individual trait assertiveness and well-being outcome results).

Table 2: Descriptive Statistics and Independent Samples *T*-Test Values (*t*, *df*, *p*) for Post-Experimental State Well-being Outcomes Related to Trait Assertiveness Scores across both Conditions

Well-being outcome	Low trait assertiveness		High trait assertiveness		<i>t</i>	<i>df</i>	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
AU	3.09	0.77	3.51	0.87	1.36	24.30	.187
EM	3.24	0.50	3.90	0.57	3.22	24.09	.004
SA	3.07	0.71	3.49	0.86	1.40	23.52	.175
PWB	3.13	0.40	3.63	0.63	2.46	19.83	.023
PA	3.71	0.70	4.18	0.55	1.97	25.75	.059

Note. *N* = 28. AU = Autonomy; EM = Environmental Mastery; SA = Self-acceptance; PWB = General Psychological Well-being; PA = Positive Affect.

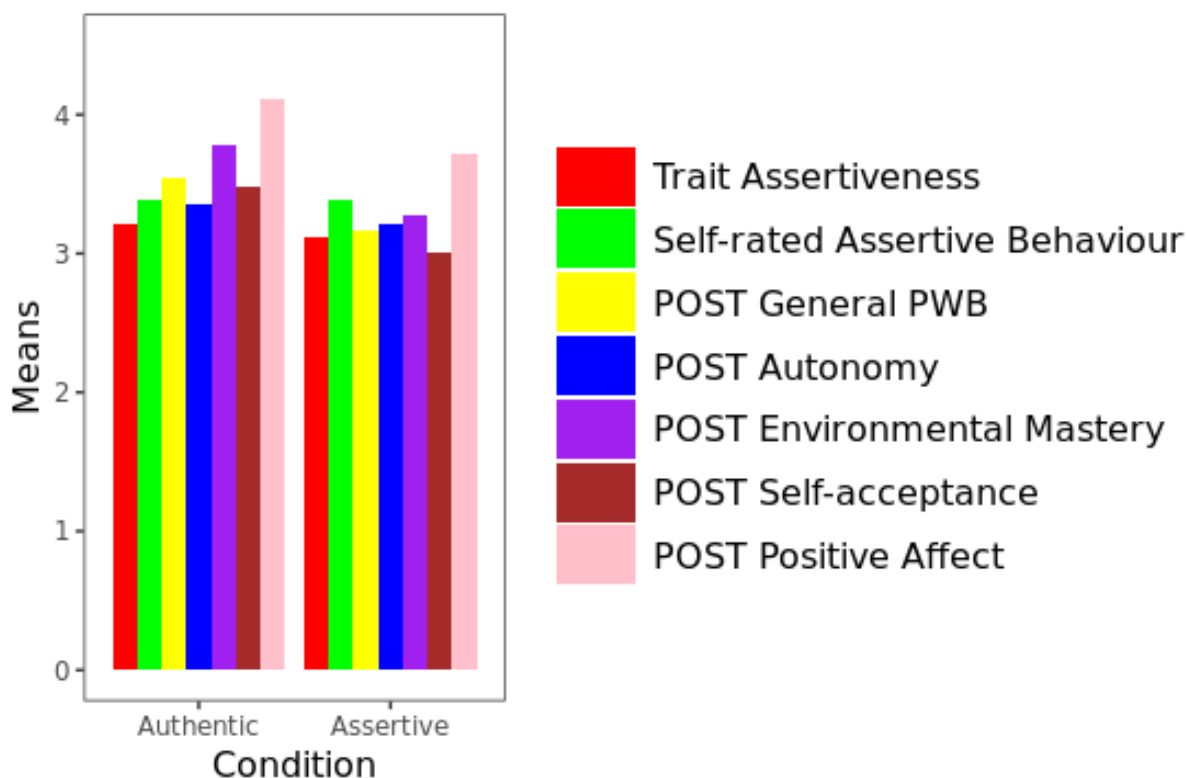


Figure 2: Levels of Trait Assertiveness and Self-Rated Assertive Behaviour alongside Post-Experimental State Well-being Outcomes across both Conditions

Trait assertiveness was shown to be significantly related to general PWB regardless of the condition, with high trait assertiveness positively correlating with higher general PWB than low trait assertiveness ($d = 0.96$). General PWB included all three individual well-being outcomes of AU, EM, and SA.

AU, EM, and SA

As shown in Table 2, AU itself was not significantly related to trait assertiveness ($d = 0.52$). On the other hand, the results for EM suggest that this well-being outcome was significantly related to trait assertiveness ($d = 1.23$); namely, high trait assertiveness was related to higher EM compared to low trait assertiveness. SA did not significantly link with trait assertiveness ($d = 0.54$). However, it is worth noting that the means show low trait assertiveness to be related to SA scores that are the lowest in this sample compared to other well-being outcomes, followed by AU scores.

PA

Table 2 indicates that trait assertiveness was not significantly related to PA ($d = 0.73$). However, it is worth noting that the means show high trait assertiveness to be related to PA scores that are the highest in this sample compared to other well-being outcomes, followed by EM scores.

Effects of the Assertive Condition on Well-being Outcomes and PA

The differences of effect between acting assertively and acting authentically were only significant for post-experimental EM ($d = 0.86$), and the results suggest that acting assertively in fact decreased feelings of EM in comparison with authentic

behaviour. These and all other results are summarised in Table 3; see again Figure 2.

Table 3: Descriptive Statistics and Independent Samples *T*-Test Values (*t*, *df*, *p*) for Post-Experimental State Well-being Outcomes across both Conditions

Well-being outcome	Assertive condition		Authentic condition		<i>t</i>	<i>df</i>	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
AU	3.21	0.75	3.36	0.91	0.48	25.95	.637
EM	3.28	0.57	3.78	0.57	2.28	25.41	.031
SA	3.00	0.78	3.49	0.76	1.67	25.27	.108
PWB	3.16	0.55	3.54	0.54	1.83	25.24	.080
PA	3.72	0.74	4.11	0.57	1.56	22.37	.132

Note. *N* = 28. AU = Autonomy; EM = Environmental Mastery; SA = Self-acceptance; PWB = General Psychological Well-being; PA = Positive Affect.

Whilst the between-groups differences for EM were significant, Table 4 (visualised in Figure 3) shows that the decrease from pre- to post-experimental EM was rather small (*d* = 0.05), which gave substantial evidence for the null hypothesis.

Table 4: Descriptive Statistics and Bayesian Paired *T*-Test Values (Bayes Factor; *BF*) for Pre- and Post-Experimental State Well-being Outcomes in the Assertive Condition

Well-being outcome	Pre		Post		<i>BF</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
AU	3.15	0.55	3.21	0.75	0.30
EM	3.31	0.48	3.28	0.57	0.28
SA	2.69	0.70	3.00	0.78	0.49
PWB	3.05	0.45	3.16	0.55	0.34
PA	3.69	0.51	3.72	0.74	0.28

Note. *n* = 13. AU = Autonomy; EM = Environmental Mastery; SA = Self-acceptance; PWB = General Psychological Well-being; PA = Positive Affect.

This suggests that assertive behaviour made no difference in feelings of EM in this group. Similarly, for all other well-being outcomes evidence for the null hypothesis ranged from substantial to anecdotal. Comparatively, the strongest effect was the small effect size for SA (*d* = 0.41), followed by general PWB (*d* = 0.22) and AU (*d* = 0.07). Apart from EM, the most negligible effect size was calculated for PA (*d* = 0.05).

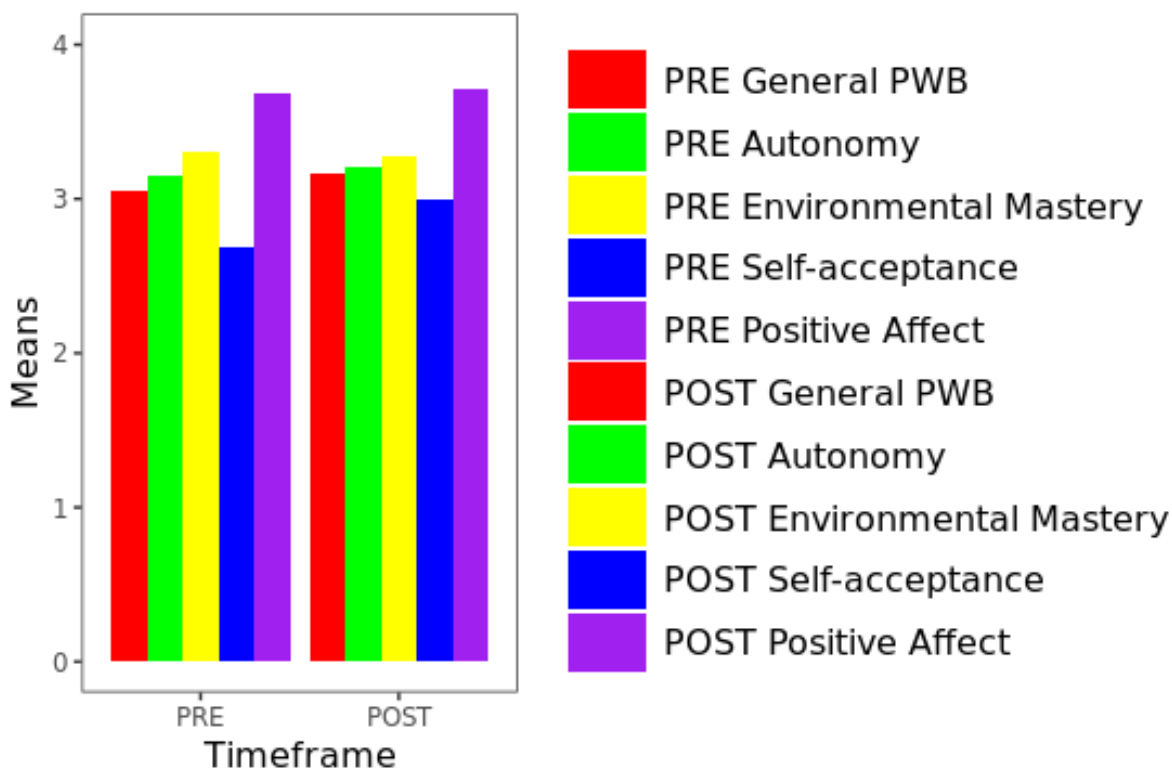


Figure 3: Pre- and Post-Experimental State Well-being Outcomes in the Assertive Condition

State Subjective Authenticity & State Tiredness

State subjective authenticity was significantly higher for participants in the authentic condition ($d = 0.86$). There was no statistically significant difference for state tiredness, and the effect size was negligible ($d = 0.06$). These results are displayed in Table 5 and Figure 4.

Table 5: Descriptive Statistics and Independent Samples *T*-Test Values (t , df , p) for Post-Experimental State Tiredness and Subjective Authenticity across both Conditions

State (post)	Assertive condition		Authentic condition		t	df	p
	M	SD	M	SD			
Tiredness	2.54	1.03	2.60	1.18	0.15	26.00	.884
Subj. Authenticity	3.18	0.86	3.96	0.93	2.29	25.40	.030

Note. $N = 28$. Subj. = Subjective.

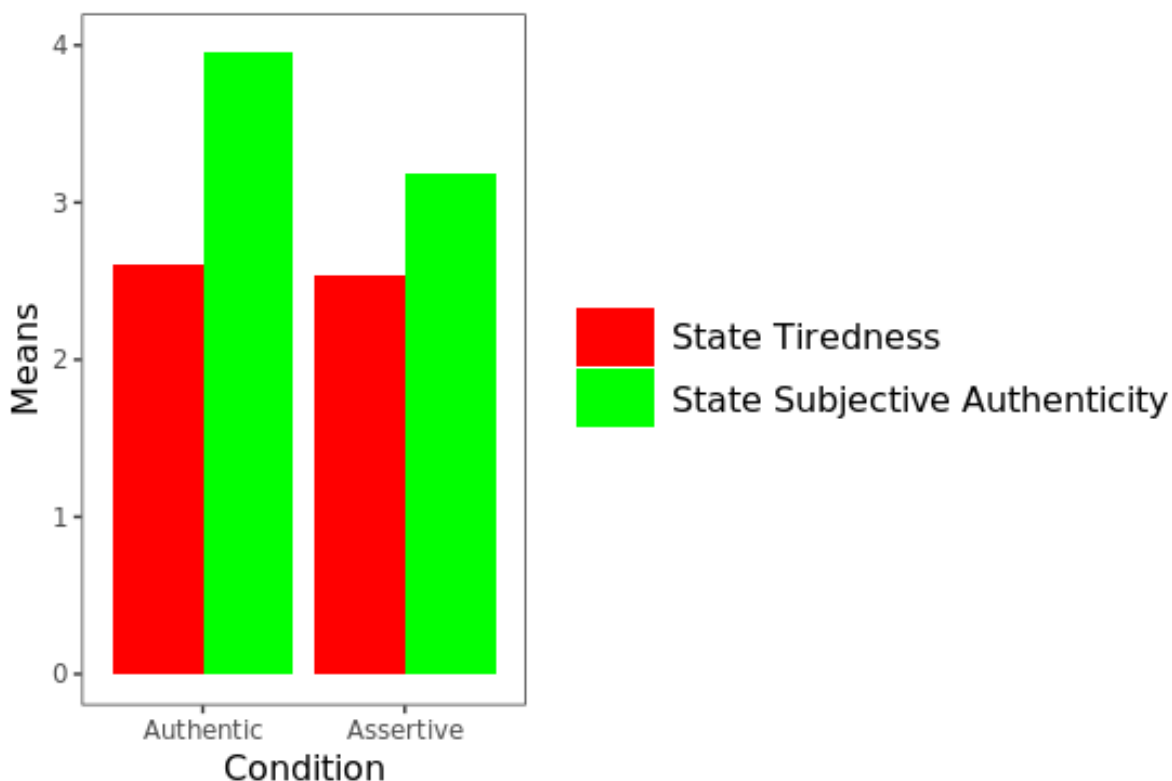


Figure 4: Post-Experimental State Tiredness and Authenticity across both Conditions

Did Changes in Well-being Outcomes depend on Trait Assertiveness?

Table 6 shows that there was anecdotal evidence in favour of an absence of effect of trait assertiveness on overall state PWB changes.

Table 6: Descriptive Statistics and Bayesian Paired *T*-Test Values (Bayes Factor; *BF*) for Pre- and Post-Experimental State Well-being Outcomes Related to Trait Assertiveness Scores across both Conditions

Well-being outcome	Trait Assertiveness	Pre		Post		<i>BF</i>
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
AU	High	3.36	0.63	3.51	0.87	0.39
AU	Low	2.98	0.58	3.09	0.77	0.30
EM	High	3.38	0.72	3.90	0.57	1.03
EM	Low	3.27	0.64	3.24	0.50	0.26
SA	High	3.13	0.71	3.49	0.86	0.50
SA	Low	2.62	0.73	3.07	0.71	3.28
PWB	High	3.29	0.47	3.63	0.63	0.88
PWB	Low	2.96	0.45	3.13	0.40	0.78
PA	High	3.76	0.73	4.18	0.55	3.75
PA	Low	3.60	0.58	3.71	0.70	0.30

Note. *N* = 28. AU = Autonomy; EM = Environmental Mastery; SA = Self-acceptance; PWB = General Psychological Well-being; PA = Positive Affect.

On closer inspection, the statistical values for the effect of low trait assertiveness on AU gave a negligible effect size ($d = 0.16$), and similarly, substantial evidence in favour of an absence of effect of low trait assertiveness. There was anecdotal evidence in favour of an absence of effect of high trait assertiveness on state AU changes ($d = 0.20$). In terms of EM, there was anecdotal evidence in favour of an effect of high trait assertiveness ($d = 0.79$), and substantial evidence in favour of an absence of effect of low trait assertiveness ($d = 0.04$), on state changes. For SA, the analysis yielded anecdotal evidence in favour of an absence of effect of high trait assertiveness on state ($d = 0.46$), but substantial evidence in favour of an effect of low trait assertiveness on state SA ($d = 0.61$). In sum, whilst changes in overall PWB outcomes did not depend on trait assertiveness, changes in individual outcomes; namely, EM and particularly SA did interact with trait assertiveness. The largest difference was for PA: Changes in this well-being outcome also interacted with trait assertiveness in that there was substantial evidence found in favour of an effect of high trait assertiveness ($d = 0.64$), and substantial evidence in favour of an absence of effect of low trait assertiveness ($d = 0.17$). In other words, increases in PA tended to transpire in high trait-assertive but not in low trait-assertive participants.

Discussion

Research has paid much attention to the now undisputed link between extraversion and well-being for decades, yet the exact causes and participating subcomponents of the trait in the relationship remain unclear. Although Enthusiasm has been documented as contributing to well-being, mixed research on the other aspect of Assertiveness calls its role in well-being into question. Even less is known about the relationship between well-being and trait-independent assertive behaviour, despite an emerging focus on state-trait isomorphism (Fleeson et al., 2002).

The present study sought to fill this gap by examining well-being outcomes of assertive or authentic state, as well as levels of trait assertiveness and their relations to behaviour, well-being, and tiredness and authenticity. It was hypothesised that PWB and PA would be positively related to trait assertiveness and would increase in high trait-assertive individuals only, and that assertive behaviour would not overall correlate with increased PWB and PA. All three hypotheses were partially supported.

Overall, the current findings suggest that Assertiveness is unrelated to PWB or PA (trait assertiveness is related to general PWB only through EM), which is in line with the literature. PA is best understood as activated and pleasant affect combined (McNiel et al., 2010) but Assertiveness is only related to activated PA, whereas Enthusiasm is related to both (DeYoung, 2013). Smillie et al. (2012) showed that activated PA, though increasing reward sensitivity, which is linked to Assertiveness (DeYoung et al., 2013), does not ultimately characterise the extraversion-PA relationship. Thus, the latter is better explained by Enthusiasm (Smillie et al., 2014).

In terms of PWB, assertive behaviour was significantly related (only) to EM, although its difference between groups was contrary to expectations. It is presently unknown whether low trait-assertive participants in the authentic group experienced higher EM levels. However, the between-group finding that assertive behaviour led to lower EM does not agree with empirical research or intuition, until the interaction with trait assertiveness is considered more closely. High trait-assertive participants tended to experience a larger increase in EM, whilst there was virtually no difference between pre- and post-experimental EM scores in low trait-assertive participants. The finding

complements Tables 1, 3 and 4 in that it clarifies that EM was not necessarily negatively affected by assertive behaviour itself but more likely, it was due to the random placement of more low trait-assertive individuals into the assertive condition. However, more research is needed as these and the following results must be interpreted with caution.

Interestingly, across conditions, low trait-assertive individuals experienced the most increases in post-experimental SA, whilst high trait assertiveness was unrelated. Equal levels of assertive behaviour between groups suggest that counterdispositional assertive behaviour had this effect independent of the condition, which would also explain the insignificance of the between-group difference in post-experimental SA. In contrast, increases in PA were greater for high but not low trait-assertiveness, raising the question why the mechanisms behind these effects may be different.

In sum, general PWB (EM by proxy) was related to trait assertiveness but not assertive behaviour, described in more detail by the negligible effect size for assertive behaviour on EM compared to the large effect of trait assertiveness. As mentioned, both groups exhibited the same amount of self-rated assertive behaviour, yet there were striking differences in EM. Within groups, SA's and PA's association with assertive behaviour was ultimately also dependent on trait assertiveness. Both results indicate that although state can induce a well-being outcome, it cannot do so on its own, and so it is still a weaker predictor of it than trait.

Despite Assertiveness forming a key part of extraversion, it was not expected that results related to the aspect and domain would match. Indeed, these implications challenge empirical research, especially Fleeson et al.'s (2002) state-trait isomorphism, which is based on state extraversion alone having the same PA outcomes as trait extraversion. A somewhat more suitable explanation is Côté and Moskowitz's (1998) contradictory finding that PA is higher for trait-authentic extraverts when exhibiting dominance, which supports their behavioural concordance model (Moskowitz & Côté, 1995): Although SA increases were higher for counterdispositional behaviour, this was not the case for SA overall. However, the apparent differing mechanisms underlying EM and PA on the one hand, and SA on the other hand, may not only support but be explained by the WTT (Fleeson, 2012).

McCabe and Fleeson (2012) posit that differences in goals, specifically approach-avoidance goals for extraversion (Heller et al., 2007), are at the root of differences in states and traits, and that the latter become an instrument to achieve the former. Increased PA may thus follow not from behavioural concordance but from goal concordance, as it were; McCabe and Fleeson (2012) view state extraversion as a mediator linking goals with PA. EM has been defined as the "ability to shape environments to suit one's needs and desires" (Sun et al., 2017, p. 4); thus, the relevance of the motivational process of the WTT for the link between assertiveness and EM is already in its definition. If different levels of trait assertiveness indicate different goals, perhaps the behaviour of a high scorer manifests a desire to dominate a social situation the same way extraversion can be enacted to connect with others (McCabe & Fleeson, 2012). Social dominance, in turn, is strongly associated with EM (Siegler & Brummett, 2000). Conversely, assertive behaviour without this intrinsic motivation might not have mattered to low scorers in terms of EM.

On the other hand, low trait-assertiveness may indicate avoidance or accommodation goals (Ames et al., 2017), which may come at the cost of SA. However, these participants might have found their momentary goal to act assertively in accommodating the experimenters, and perhaps their SA increases induced by the behaviour surprised even them. Counterdispositional assertiveness could also have resulted in a lack of reward sensitivity, which, in turn, would have failed to elevate activated PA. However, ultimately McNiel et al. (2010) found no support for reward sensitivity as a mechanism in the extraversion-wellbeing link, which might relate to why even the presence of activated PA alone does not define it (Smillie et al., 2012). An absence thereof would thus not have significantly affected well-being.

Finally, subjective authenticity was low for participants in the assertive condition, which, due to their low trait assertiveness, is in line with Jacques-Hamilton et al.'s (2019) argument that authenticity is contingent on at least average levels of trait extraversion. However, state tiredness did not increase as a result of this inauthenticity, which contradicts the authors' claim that the two are causally related.

Limitations and Future Directions

Several limitations can be identified in the present research. First, the low sample size affected the distribution of trait-assertive individuals in their conditions, resulting in the conditions being unequally represented by low and high trait-assertive participants. A higher sample size would have likely avoided this issue. Second, gender could have additionally been related to assertive behaviour and well-being; it was not considered in the current study, but Herringer (1998) suggests that men have higher well-being outcomes when acting assertively. Here, the vast majority of the sample was female, and it remains unclear whether their gender could have moderated their results. Again, a higher sample size might have resolved at least part of the problem. Third, the discussion task did not take place face-to-face and most participants left their cameras off during the Zoom call, limiting the natural feel of the interactions, including body language and other physical cues. This might have facilitated assertive behaviour given that participants were able to focus more on themselves, but it could also have impacted PWB as they had to rely only on verbal cues to gauge the effect of their behaviour on other participants.

Fourth, all questionnaire scores were based on self-ratings, which may have been biased. A combination of different sources of data (e.g., a peer report on trait assertiveness prior to the Zoom call) might have controlled for bias in these scores. Fifth, the surveys themselves might have conceptualised constructs, particularly Assertiveness and PA, differently than other inventories might have done (Smillie et al., 2014; Watson et al., 2019); for example, SPANE appears to capture pleasantly valenced affect only and not activated positive affect. Finally, the present study utilised a cross-sectional design and thus does not predict long-term PWB or PA.

Future research should employ a more varied design, for example experience sampling and diary studies (Smillie et al., 2012), and expand investigating enacted assertiveness to narrower well-being domains (e.g., social well-being). The effect of state as opposed to trait assertiveness on perceived social power (Smillie et al., 2015) would be an area of interest. Additionally, longer manipulations would likely have more sizable effects on PWB and PA as well as tiredness. Finally, in future the suggestions to avoid current limitations should be implemented.

Conclusions

This research supports an existing relationship between Assertiveness and EM, and SA increases; however, its direction is questionable due to current limitations. The finding that state assertiveness must interact with trait to induce these PWB outcomes but not all suggests that overall, increasing assertiveness (e.g., with clinical interventions), is not a one-size-fits-all solution to poor PWB.

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References

- Ames, D., Lee, A., & Wazlawek, A. (2017). Interpersonal assertiveness: Inside the balancing act. *Social and Personality Psychology Compass*, 11(6), e12317. <https://doi.org/10.1111/spc3.12317>
- Anderson, C., John, O., & Keltner, D. (2012). The personal sense of power. *Journal of Personality*, 80(2), 313-344. <https://doi.org/10.1111/j.1467-6494.2011.00734.x>
- Ashton, M., & Lee, K. (2009). The HEXACO-60: A short measure of the major dimensions of personality. *Journal of Personality Assessment*, 91(4), 340-345. <https://doi.org/10.1080/00223890902935878>
- Bagherian, M., & Mojamari, A. (2016). The relationship between Big Five personality traits and assertiveness. *Tendenzen*, 25(3), 111-119.
- Bleidorn, W. (2009). Linking personality states, current social roles and major life goals. *European Journal of Personality*, 23(6), 509-530. <https://doi.org/10.1002/per.731>
- Costa, P., & McCrae, R. (1980). Influence of extraversion and neuroticism on subjective well-being: Happy and unhappy people. *Journal of Personality and Social Psychology*, 38(4), 668-678. <https://doi.org/10.1037/0022-3514.38.4.668>
- Côté, S., & Moskowitz, D. (1998). On the dynamic covariation between interpersonal behavior and affect: Prediction from neuroticism, extraversion, and agreeableness. *Journal of Personality and Social Psychology*, 75(4), 1032-1046. <https://doi.org/10.1037/0022-3514.75.4.1032>
- DeNeve, K., & Cooper, H. (1998). The happy personality: A meta-analysis of 137

- personality traits and subjective well-being. *Psychological Bulletin*, 124(2), 197-229. <https://doi.org/10.1037/0033-2909.124.2.197>
- Depue, R., & Collins, P. (1999). Neurobiology of the structure of personality: Dopamine, facilitation of incentive motivation, and extraversion. *Behavioral and Brain Sciences*, 22(3), 491-517. <https://doi.org/10.1017/s0140525x99002046>
- DeYoung, C. (2013). The neuromodulator of exploration: A unifying theory of the role of dopamine in personality. *Frontiers in Human Neuroscience*, 7(762), 1-26. <https://doi.org/10.3389/fnhum.2013.00762>
- DeYoung, C., Quilty, L., & Peterson, J. (2007). Between facets and domains: 10 aspects of the Big Five. *Journal of Personality and Social Psychology*, 93, 880-896. <https://doi.org/10.1037/0022-3514.93.5.880>
- DeYoung, C., Weisberg, Y., Quilty, L., & Peterson, J. (2013). Unifying the aspects of the Big Five, the interpersonal circumplex, and trait affiliation. *Journal of Personality*, 81(5), 465-475. <https://doi.org/10.1111/jopy.12020>
- Diener, E. & Lucas, R. (2022). Personality traits. In R. Biswas-Diener & E. Diener (Eds), *Noba textbook series: Psychology*. Champaign, IL: DEF publishers. Retrieved from <http://noba.to/96u8ecgw>
- Diener, E., Sandvik, E., Pavot, W., & Fujita, F. (1992). Extraversion and subjective well-being in a U.S. national probability sample. *Journal of Research in Personality*, 26(3), 205-215. [https://doi.org/10.1016/0092-6566\(92\)90039-7](https://doi.org/10.1016/0092-6566(92)90039-7)
- Diener, E., Wirtz, D., Biswas-Diener, R., Tov, W., Kim-Prieto, C., Choi, D.-w., & Oishi, S. (2009). New measures of well-being. In E. Diener (Ed.), *Assessing well-being: The collected works of Ed Diener* (pp. 247–266). Springer Science + Business Media. https://doi.org/10.1007/978-90-481-2354-4_12
- Eysenck, H., & Eysenck, M. (1985). *Personality and individual differences: A natural science approach*. New York: Plenum.
- Fleeson, W. (2001). Toward a structure- and process-integrated view of personality: Traits as density distributions of states. *Journal of Personality and Social Psychology*, 80(6), 1011-1027. <https://doi.org/10.1037/0022-3514.80.6.1011>
- Fleeson, W. (2012). Perspectives on the person: Rapid growth and opportunities for integration. In K. Deaux & M. Snyder (Eds.), *The Oxford handbook of personality and social psychology* (pp. 33–63). Oxford University Press.
- Fleeson, W., & Jayawickreme, E. (2015). Whole Trait Theory. *Journal of Research in Personality*, 56, 82-92. <https://doi.org/10.1016/j.jrp.2014.10.009>
- Fleeson, W., & Jayawickreme, E. (2021). Chapter Two - Whole traits: Revealing the social-cognitive mechanisms constituting personality's central variable. *Advances in Experimental Social Psychology*, 63, 69-129. <https://doi.org/10.1016/bs.aesp.2020.11.002>

- Fleeson, W., Malanos, A., & Achille, N. (2002). An intraindividual process approach to the relationship between extraversion and positive affect: Is acting extraverted as "good" as being extraverted? *Journal of Personality and Social Psychology*, 83(6), 1409-1422. <https://doi.org/10.1037/0022-3514.83.6.1409>
- Fleeson, W., & Wilt, J. (2010). The relevance of Big Five trait content in behavior to subjective authenticity: Do high levels of within-person behavioral variability undermine or enable authenticity achievement? *Journal of Personality*, 78(4), 1353-1382. <https://doi.org/10.1111/j.1467-6494.2010.00653.x>
- Gallagher, M., Lopez, S., & Preacher, K. (2009). The hierarchical structure of well-being. *Journal of Personality*, 77(4), 1025-1050. <https://doi.org/10.1111/j.1467-6494.2009.00573.x>
- González Gutiérrez, J., Jiménez, B., Hernández, E., & Puente, C. (2005). Personality and subjective well-being: big five correlates and demographic variables. *Personality and Individual Differences*, 38(7), 1561-1569. <https://doi.org/10.1016/j.paid.2004.09.015>
- Gray, J. (1990). Brain systems that mediate both emotion and cognition. *Cognition and Emotion*, 4(3), 269-288. <https://doi.org/10.1080/02699939008410799>
- Heller, D., Komar, J., & Lee, W. (2007). The dynamics of personality states, goals, and well-being. *Personality and Social Psychology Bulletin*, 33(6), 898-910. <https://doi.org/10.1177/0146167207301010>
- Herringer, L. (1998). Facets of extraversion related to life satisfaction. *Personality and Individual Differences*, 24(5), 731-733. [https://doi.org/10.1016/s0191-8869\(97\)00194-3](https://doi.org/10.1016/s0191-8869(97)00194-3)
- Hurley, J. (1998). Agency and communion as related to "Big Five" self-representations and subsequent Behavior in small groups. *The Journal of Psychology*, 132(3), 337-351. <https://doi.org/10.1080/00223989809599172>
- Jacques-Hamilton, R., Sun, J., & Smillie, L. (2019). Costs and benefits of acting extraverted: A randomized controlled trial. *Journal of Experimental Psychology: General*, 148(9), 1538-1556. <https://doi.org/10.1037/xge0000516>
- Jayawickreme, E., Zachry, C., & Fleeson, W. (2019). Whole Trait Theory: An integrative approach to examining personality structure and process. *Personality and Individual Differences*, 136, 2-11. <https://doi.org/10.1016/j.paid.2018.06.045>
- Kammrath, L., McCarthy, M., Cortes, K., & Friesen, C. (2015). Picking one's battles: How assertiveness and unassertiveness abilities are associated with extraversion and agreeableness. *Social Psychological and Personality Science*, 6(6), 622-629. <https://doi.org/10.1177/1948550615572635>
- Lamers, S., Westerhof, G., Kovács, V., & Bohlmeijer, E. (2012). Differential relationships in the association of the Big Five personality traits with positive mental health and psychopathology. *Journal of Research in Personality*, 46(5), 517-524. <https://doi.org/10.1016/j.jrp.2012.05.012>

- Langner, C., & Keltner, D. (2008). Social power and emotional experience: Actor and partner effects within dyadic interactions. *Journal of Experimental Social Psychology, 44*(3), 848-856. <https://doi.org/10.1016/j.jesp.2007.08.002>
- Long, J. (2020). jtools: Analysis and Presentation of Social Scientific Data. R package version 2.1.0. <https://cran.r-project.org/package=jtools>
- Lu, L., & Shih, J. (1997). Sources of happiness: A qualitative approach. *The Journal of Social Psychology, 137*(2), 181-187. <https://doi.org/10.1080/00224549709595429>
- Lucas, R., Le, K., & Dyrenforth, P. (2008). Explaining the extraversion/positive affect relation: Sociability cannot account for extraverts' greater happiness. *Journal of Personality, 76*(3), 385-414. <https://doi.org/10.1111/j.1467-6494.2008.00490.x>
- Magnus, K., Diener, E., Fujita, F., & Pavot, W. (1993). Extraversion and neuroticism as predictors of objective life events: A longitudinal analysis. *Journal of Personality and Social Psychology, 65*(5), 1046-1053. <https://doi.org/10.1037/0022-3514.65.5.1046>
- McCabe, K., & Fleeson, W. (2012). What is extraversion for? Integrating trait and motivational perspectives and identifying the purpose of extraversion. *Psychological Science, 23*(12), 1498-1505. <https://doi.org/10.1177/0956797612444904>
- McCrae, R., & Costa, P. (1987). Validation of the five-factor model of personality across instruments and observers. *Journal of Personality and Social Psychology, 52*(1), 81-90. <https://doi.org/10.1037/0022-3514.52.1.81>
- McNiel, J., Lowman, J., & Fleeson, W. (2010). The effect of state extraversion on four types of affect. *European Journal of Personality, 24*(1), 18-35. <https://doi.org/10.1002/per.738>
- Morey, R., & Rouder, J. (2018). BayesFactor: Computation of Bayes Factors for Common Designs. R package version 0.9.12-4.2. <https://CRAN.R-project.org/package=BayesFactor>
- Moskowitz, D., & Côté, S. (1995). Do interpersonal traits predict affect? A comparison of three models. *Journal of Personality and Social Psychology, 69*(5), 915-924. <https://doi.org/10.1037/0022-3514.69.5.915>
- Parray, W., & Kumar, S. (2017). Impact of assertiveness training on the level of assertiveness, self-esteem, stress, psychological well-being and academic achievement of adolescents. *Indian Journal of Health and Well-being, 8*(12), 1476-1480.
- Pavot, W., Diener, E., & Fujita, F. (1990). Extraversion and happiness. *Personality and Individual Differences, 11*(12), 1299-1306. [https://doi.org/10.1016/0191-8869\(90\)90157-m](https://doi.org/10.1016/0191-8869(90)90157-m)

- Pytlik Zillig, L., Hemenover, S., & Dienstbier, R. (2002). What do we assess when we assess a Big 5 trait? A content analysis of the affective, behavioral, and cognitive processes represented in Big 5 personality inventories. *Personality and Social Psychology Bulletin*, 28(6), 847-858. <https://doi.org/10.1177/0146167202289013>
- Qualtrics XM - Experience Management Software. Qualtrics. (2022). Retrieved 3 May 2022, from <https://www.qualtrics.com>
- Quilty, L., DeYoung, C., Oakman, J., & Bagby, R. (2013). Extraversion and behavioral activation: Integrating the components of approach. *Journal of Personality Assessment*, 96(1), 87-94. <https://doi.org/10.1080/00223891.2013.834440>
- R Core Team (2021). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. <https://www.R-project.org/>
- Revelle, W. (2020). psych: Procedures for Personality and Psychological Research, Northwestern University, Evanston, Illinois, USA. R package version 2.1.3. <https://CRAN.R-project.org/package=psych>
- Russell, J. (1980). A circumplex model of affect. *Journal of Personality and Social Psychology*, 39(6), 1161-1178. <https://doi.org/10.1037/h0077714>
- Ryff, C. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology*, 57(6), 1069-1081. <https://doi.org/10.1037/0022-3514.57.6.1069>
- Siegler, I., & Brummett, B. (2000). Associations among NEO personality assessments and well-being at midlife: Facet-level analyses. *Psychology and Aging*, 15(4), 710-714. <https://doi.org/10.1037/0882-7974.15.4.710>
- Smillie, L., Cooper, A., Wilt, J., & Revelle, W. (2012). Do extraverts get more bang for the buck? Refining the affective-reactivity hypothesis of extraversion. *Journal of Personality and Social Psychology*, 103(2), 306-326. <https://doi.org/10.1037/a0028372>
- Smillie, L., DeYoung, C., & Hall, P. (2014). Clarifying the relation between extraversion and positive affect. *Journal of Personality*, 83(5), 564-574. <https://doi.org/10.1111/jopy.12138>
- Smillie, L., Geaney, J., Wilt, J., Cooper, A., & Revelle, W. (2013). Aspects of extraversion are unrelated to pleasant affective-reactivity: Further examination of the affective-reactivity hypothesis. *Journal of Research in Personality*, 47(5), 580-587. <https://doi.org/10.1016/j.jrp.2013.04.008>
- Smillie, L., Wilt, J., Kabbani, R., Garratt, C., & Revelle, W. (2015). Quality of social experience explains the relation between extraversion and positive affect. *Emotion*, 15(3), 339-349. <https://doi.org/10.1037/emo0000047>

- Sun, J., Kaufman, S., & Smillie, L. (2017). Unique associations between Big Five personality aspects and multiple dimensions of well - being. *Journal of Personality*, *86*(2), 158-172. <https://doi.org/10.1111/jopy.12301>
- Tang, Y., Tang, R., & Gross, J. (2019). Promoting psychological well-being through an evidence-based mindfulness training program. *Frontiers In Human Neuroscience*, *13*(237), 1-5. <https://doi.org/10.3389/fnhum.2019.00237>
- Torchiano, M. (2020). effsize: Efficient effect size computation. R package version 0.8.1. <https://doi.org/10.5281/zenodo.1480624>
- van Allen, Z., Walker, D., Streiner, T., & Zelenski, J. (2021). Enacted extraversion as a well-being enhancing strategy in everyday life: Testing across three, week-long interventions. *Collabra: Psychology*, *7*(1), 1-29. <https://doi.org/10.1525/collabra.29931>
- Watson, D., Ellickson-Larew, S., Stanton, K., Levin-Aspenson, H., Khoo, S., Stasik-O'Brien, S., & Clark, L. (2019). Aspects of extraversion and their associations with psychopathology. *Journal of Abnormal Psychology*, *128*(8), 777-794. <https://doi.org/10.1037/abn0000459>
- Watson, D., & Tellegen, A. (1985). Toward a consensual structure of mood. *Psychological Bulletin*, *98*(2), 219-235. <https://doi.org/10.1037/0033-2909.98.2.219>
- Wickham, H. (2016). *ggplot2: Elegant Graphics for Data Analysis*. New York: Springer-Verlag. <https://ggplot2.tidyverse.org>
- Wickham, H., François, R., Henry, L., & Müller, K. (2021). *dplyr: A Grammar of Data Manipulation*. R package version 1.0.6. <https://CRAN.R-project.org/package=dplyr>
- Wilt, J., Nofhle, E., Fleeson, W., & Spain, J. (2012). The dynamic role of personality states in mediating the relationship between extraversion and positive affect. *Journal of Personality*, *80*(5), 1205-1236. <https://doi.org/10.1111/j.1467-6494.2011.00756.x>
- Zoom Video Communications Inc. (2016). Security guide. Zoom Video Communications Inc. Retrieved from <https://d24cgw3uvb9a9h.cloudfront.net/static/81625/doc/Zoom-Security-White-Paper.pdf>

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