Does personality change matter? A mega-analytic test of predicting life outcomes with personality change

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Background

- Considerable amount of research has established the tendency of the Big Five traits to change across time (e.g., Bleidorn et al., 2013; Roberts et al., 2008)
- This mutability has led to an interest in eliciting changes through interventions, with these endeavors partly guided by the belief that if mean-levels of the Big Five traits predict beneficial outcomes, then changes in these traits should lead to changes in behaviors related to life outcomes. Thus, changes in personality traits should also predict those life outcomes
- If changes in personality are not broadly associated with life outcomes like the trait-levels are, then interventions may be misguided
- This assumption has yet to be tested using all the Big Five traits with a broad variety of outcomes (for examples of past studies with specific outcomes, see Mrozcek & Spiro, 2007 and Hounkpatin et al., 2018)
- Current study examines whether changes in the Big Five traits are associated with future life outcomes by integrating multiple longitudinal datasets and giving special attention to model specification choices and basic moderators to give an indicator of the robustness of these effects

Methods

- Data from *N* = 81,980 participants from seven longitudinal panel datasets
  - GSOEP, HILDA, HRS, LISS, MIDUS, NLSY, SHP
- Overall sample had an average age of 51.22 (*SD* = 18.63) and was 45% female
- For the Big Five traits, the number of waves ranged from 2 to 9 (*M* = 2.98, *SD* = 1.23)
- Across all variables, the number of waves ranged from 2 to 14 (*M* = 7.96, *SD* = 3.66)
  - 13 Outcomes: self-report health status, BMI, # reported physical problems, # reported mental problems, # reported health limitations, exercise (D), married (D), divorced (D), # of times married, university degree (D), unemployment (D), salary, volunteering (D)
  - All outcomes are at a distal wave to the final personality wave measure for all participants
- All trait variables and outcome variables (excluding dichotomous ones, marked with a D) are scaled 0-10 via a Percentage Of Maximum Possible (POMP) score transformation
- Analytic plan consisted of a series of Bayesian models with crossed random effects (study- and person-level)
  - All analyses conducted in R statistical software (R core team, 2020) with the brms package (Bürkner, 2017, 2018)
  - Changes were scaled such that a 1-unit change represented change over a decade
  - Controlled for age and gender in all models

Results

- Out of 65 possible effects for trait-level associations with outcomes, 57 emerged
- Out of 65 possible effects for changes in traits being associated with outcomes, 38 emerged
- The magnitude of the trait-level associations was larger than the magnitude of the associations for changes in traits for 32/38 effects
- Age was minimally related to the traits, with effects ranging in value from -0.02 to 0.02
- Gender was most strongly related to agreeableness (range 0.63 to 0.75) and neuroticism (range 0.25 to 0.52), then conscientiousness (range 0.23 to 0.33) and extraversion (0.20 to 0.32), and mostly unassociated with openness (range -0.10 to 0.02)

Table of the Mega-Analytic Estimates for Personality Trait Levels and Changes per Outcome

		Health Status	BMI	Phys Probs	Mental Probs	Health Limit.	Exercise	Married	Div.	# Marr	Uni. Degree	Unemp.	Salary	Volunteer
Extraversion														
	L	0.10		-0.06	-0.09	-0.07	0.26	0.07	0.07	0.16	0.13	-0.25	0.06	0.34
	C	0.03		-0.05	-0.06	-0.02		0.05	0.08			-0.17	0.05	0.09
Agreeableness														
	L	0.05		-0.02	-0.03	-0.03	0.12	0.05		0.08	0.06	-0.09		0.13
	C	0.02		-0.04	-0.02	-0.02	0.10							
Conscientiousness														
	L	0.10	-0.01	-0.09	-0.11	-0.10	0.21	0.28		0.15	0.28	-0.42	0.10	0.13
	C	0.07		-0.06	-0.03	-0.07	0.22			-0.14	0.13	-0.18	0.05	
Neuroticism														
	L	-0.19	0.01	0.12	0.24	0.15	-0.28	-0.05	0.05	-0.05	-0.28	0.38	-0.12	-0.28
	C	-0.04		0.06	0.08				-0.10	-0.08		0.12		
Openness														
	L	0.07		-0.06		-0.07	0.40	-0.05	0.30	0.06	0.67		0.09	0.33
	C	0.03		-0.05	-0.04	-0.03	0.14		0.09	-0.07				0.12

L = level of trait, C = change in trait. Only effects that did not contain 0 in the credible interval are shown. All effects are in units of the traits. Order and names of the outcomes match the methods slide.

Discussion: General Takeaways

- Although more effects emerged for the trait levels, many effects for changes emerged as well
- When both effects (i.e., for level and change) were present, they were in the same direction for all but three outcome-trait combinations (divorce for N, number of marriages for C and O)
- The number of effects for changes that emerged combined with the mostly consistent direction of associations with their respective trait levels suggests changes in traits could be a viable target for interventions, but changes in behaviors/life outcomes are likely not going to correspond to the strength of association we have come to expect from trait levels

Discussion: Connection with Past Literature

- Health domain results are in line with past work examining health outcomes (e.g., Turiano et al., 2012; Magee et al., 2013; Takahashi et al., 2013)
- For education, only effects for changes in conscientiousness were associated with degree attainment while past work has found it with neuroticism and extraversion (Hoff et al., 2021)
- For financial outcomes, only effects for changes in extraversion and conscientiousness were associated with salary, which is mostly in line with past research (Hoff et al., 2021; Converse et al., 2018), although no effects were found for neuroticism nor openness
- Associations per trait were inconsistent across relationship outcomes, suggesting the relevance of traits varies depending on the particular relationship outcome
- No changes in any of the “mature” traits were associated with volunteer work (Lodi-Smith & Roberts, 2012)

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Thank you!

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