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The Crucial Role of Comparison Groups in Studying Life Events and Personality Change

Manon A. van Scheppingen

Department of Developmental Psychology, Tilburg University
manonvanscheppingen@gmail.com

Bühler et al. present a comprehensive synthesis of the current evidence on life events and personality trait change. I highlight the need for case-control designs to replicate some of the findings. Because of the shortage of studies including comparison groups, conclusions are now based on pre- and post-event personality measures, which might capture changes occurring regardless of events. Despite limitations in the research designs of past studies, this meta-analysis demonstrates that the impact of single life events on personality is small. I complement the authors' suggestions for future research with approaches from life course sociology used to contextualize life events.

The Importance of Comparison Groups when Studying Life Events and Personality Change

With great pleasure I read this meta-analysis on personality trait change in response to 10 common life events in the domains of love and work. I share the authors' hope that this meta-analysis will function as a turning point to move from studying single life events to more complex study designs to better understand why people continue to change in their personality across the lifespan. In this commentary, I especially focus on the importance of good comparison groups to improve causal inference. The authors argue that this meta-analysis provides proof of the effect of life events on personality change, and that these effects are more consistent in the work domain compared to the love domain. I argue that the effects need to be replicated using more rigorous case-control designs, especially in the work domain. I additionally provide ideas for how future studies can build on this research by implementing approaches from other fields – like sociology and demography – who already have put more thought into measuring life events in a more nuanced way.

Why are comparison groups essential when studying life events and personality change? Behavioral genetic research has demonstrated that both genetic and environmental influences contribute to personality stability and change (Bleidorn et al., 2014). To study if a life event causes personality change and to distinguish this effect from possible biological processes, mere pre- and post-

event measures of personality are insufficient. That is, this approach may inadvertently capture personality changes that happen for most individuals in a particular life phase, irrespective of whether they go through the life event or not. This issue is particularly pronounced when studying prevalent and age-graded (i.e., normative) life events, such as graduation and the transition into the work force.

I applaud the authors' efforts to compare studies with and without a comparison group. When comparing the effect sizes of studies without (Table 3 and 4) and with comparison groups (Table S1 and S2) for each of the Big Five traits, convincing evidence emerges for one life event in the domain of love: entering a new relationship. Specifically, for increases in conscientiousness after entering a new relationship, the effect size (d) remains larger than 0.1 even when including a comparison group.

However, I find the evidence pertaining the work domain to be less compelling. For the work-related events, almost no effects remained significant when control groups were incorporated. In fact, the significant decrease in conscientiousness after unemployment even changed into a significant increase when including a comparison group in the estimation. Furthermore, there is an absence of studies with comparison groups for graduation, and only one study with a comparison group for the transition to the first job. I therefore disagree with the authors that the largest and most consistent effects in this meta-analysis are found in the work domain. Especially when it comes to graduating and starting a first job, it might be that the Big Five personality changes found in the studies without a control group (i.e., increases in emotional stability and conscientiousness) take place in this life phase for most individuals, irrespective of the occurrence of these specific life events.

To be able to draw conclusions on which life events trigger personality change, we need more studies that provide strong tests of causal effects in observational data. For example, techniques such as coarsened exact matching and propensity-score matching (Shadish et al., 2002; van Scheppingen & Leopold, 2019) can be used to select comparison groups that are similar on pre-existing variables, such as education level and personality measured before the life event. This is particularly important because personality predicts selection into life events. An even more robust approach, not used in any of the studies in this meta-analysis, is a co-twin control design (e.g., Burt et al., 2010). In this design, personality development can be compared within pairs of twins who experience divergent life events – like one pursuing university education while the other does not. By contrasting twins who differ in their exposure to specific life events, researchers can disentangle the effects of genetics and shared early environmental factors, allowing a clearer view of the impact of life events on personality development.

Despite my reservations about the conclusions drawn on personality changes following work transitions, I believe we do have sufficient evidence to reject single life events as key explanations for the robust findings of

personality development across the lifespan. Shifting focus from single life events, a promising way forward involves more detailed measures of environmental factors to examine why some individuals change more than others. In addition to exciting developments in our field, such as the measurement of subjective experiences of life events (e.g., Schwaba et al., in press), other disciplines with well-established theories and methodologies for investigating longitudinal demographic changes could offer us valuable insights. Notably, life course sociological research has emphasized that life events should not be measured in isolation but must be understood as a holistic life course trajectory (Shanahan, 2000). A powerful method to study the complete life course trajectory (e.g., someone's complete career or marital history) is sequence analysis. Initially designed for DNA research, this method has been adopted to discern how people differ in the order, timing and frequency of multiple life events (Aisenbrey & Fasang, 2010). It can even capture the complex interdependencies of multiple family and work transitions (Lacey et al., 2016), and can be used to unveil typical clusters of demographic sequences in longitudinal data, which can in turn be linked to personality stability and change (Puroil et al., 2020).

In summary, this meta-analysis provides a valuable overview of the current state of research regarding life events and their influence on personality trait change. It also highlights certain research gaps, such as the lack of control groups for some life events. These gaps can be filled by future studies using strong designs to improve causal inference. As personality psychologists, we have a long tradition of measuring personality and all its facets, but we have devoted comparatively less attention to measuring life events in a detailed way. To better understand why people differ in the extent and direction of personality change, it is crucial to continue advancing research by adopting more sophisticated approaches to measuring life events and other environmental factors.

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We have a lot of work to do

Christopher J. Hopwood¹, Janina Larissa Bühler², Ulrich Orth³, Louisa Scheling⁴, Elisa Weber⁵, André Kretschmar⁵ and Wiebke Bleidorn⁵

¹University of Zurich

²University of Mainz

³University of Bern

⁴University of Mainz

⁵University of Zurich

We are tremendously grateful to our colleagues for taking the time to write commentaries on our meta-analysis of the impact of life events on personality change. As we said in the paper, we hoped that this study would foment discussion and application of designs that could move the field toward more sophisticated approaches to capturing developmental processes. Ask and you shall receive! The ideas within these commentaries constitute a roadmap for the next generation of research on this topic.

We organize our response into two sections, the first having to do with how the effects reported in our study were interpreted and the second alluding to design innovations that could move this area of study forward.