

Future Directions in the Study of Personality in Adulthood and Older Age

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Abstract

Over the past 20 years, empirical evidence has brought about a change in the view on how, or even whether, personality traits change or develop in adulthood and later life. Now we know personality can and does change for many people, if not most. Changes in personality may occur due to biological or environmental factors. This paper presents key empirical findings on personality change in adulthood and provides evidence that personality change affects mental and physical health. Our goal is to provide a broad overview on personality change research that would be an invaluable resource for students and researchers. We organize this paper into 3 sections. The first is focused on techniques in analyzing personality change in adulthood and later life. The second is focused on personality change as an outcome; we explore what factors predict personality change. The third discusses a relatively novel idea: personality change as a predictor of mental and physical health. We conclude that more research on factors predicting personality change is needed and we provide suggestions on how research on personality change can progress.

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Introduction

Personality refers to individual differences in characteristic patterns of behaving, feeling, and thinking [1]. In this paper, we mainly discuss personality change with regards to the Big Five traits: extraversion, openness to experience, agreeableness, conscientiousness, and neuroticism. We summarize the main findings of personality development in adulthood and old age in terms of patterns of personality changes. In addition, we discuss predictors and consequences of these changes. Our approach focuses mostly on methodological aspects of the existing research. Therefore, readers who are interested in theoretical perspectives are encouraged to look at the work of, for example, Roberts and Mroczek [2], Specht et al. [3], and Srivastava et al. [4].

The study of personality has a long history in psychology, although it was not until the 1930s that research on personality became empirical. By the late 1980s, we thought we knew everything about personality development in adulthood and later life. It was widely believed that no change occurred. Unless a person developed dementia, had a stroke, or experienced a head injury, personality traits were not expected to change much during the vast expanse of adulthood. Non-trait aspects of personality, such as life narratives [5] or goal strivings, were

assumed to change. However, since most personality development researchers focused on traits, the overarching assumption was that there was little personality development beyond the age of 30 years [6].

The Life Span Perspective [7], which states that development (including personality development) is lifelong, has significantly changed the way modern researchers think about development. Although Baltes' ideas of plasticity did not gain traction for a number of years, in the late 1990s and early 2000s various empirical studies continued to support this view [8–10]. Now we know personality can and does change for many people, if not most. Although there are different theoretical perspectives on why personality change occurs, such as biological (e.g., hormonal processes) and environmental (e.g., stressors and toxics) [11], researchers are still investigating other factors that can possibly explain why personality changes. The first section of this paper is focused on techniques in analyzing personality change in adulthood and later life; the second is focused on personality change as an outcome of major life events as we consider what predicts personality change, and the third section discusses a relatively novel idea, change as a predictor, and identifies avenues for future research in the area of personality change.

Techniques in Analyzing Personality Change in Adulthood

Researchers have found some general patterns concerning the shape of the population level trajectories for various traits. For example, neuroticism tends to go down over the course of adulthood, agreeableness and conscientiousness tend to go up, and openness and extraversion do not appear to have simple linear trajectories [9, 12]. It is important to remember, however, that some people change and others do not, which is a life span principle of 'individual differences in intraindividual change' [7]. Even for those who do change, there is variation in their rate of change such that some people go up or down more than others. The direction of these change trajectories also vary across individuals. Simply put, there are wide individual differences in personality change.

Growth mixture modeling (GMM) in longitudinal personality research is one promising method that could give order to these seemingly disparate change trajectories. Instead of assuming all individuals follow one mean growth trajectory, GMM statistically identifies subgroup growth trajectories. Individual trajectories fit better within these subgroups than to the overall mean. Addition-

ally, the subgroups themselves could provide a coherent picture of a few distinct ways in which a single personality trait changes over time.

One of the biggest weaknesses of empirically driven methods such as GMM can be lack of replicability; in any given GMM analysis, there is a possibility that a subgroup growth trajectory could have been identified due to chance [13]. Additionally, personality research is faced with a general replicability crisis. Integrated Data Analysis (IDA) is an emerging analytic approach designed to replicate findings [14, 15]. Unlike traditional meta-analysis, which attempts to aggregate results from a variety of differing analytic methods, IDA techniques run identical analyses 'from scratch' across multiple data sets. In IDA, researchers can run the same analysis multiple times on each individual study data set (coordinated analysis) [15], or they can run one analysis on a combined data set (pooled analysis) [14].

Future personality change research must also address the multitude of differing personality scales. Even within the Big Five personality traits, there are a number of widely used scales, such as the NEO Personality Inventory, the Big Five Inventory, and the International Personality Item Pool, etc. [16]. Caution is needed when comparing studies that supposedly measure the same trait (e.g., extraversion), because the underlying constructs are not completely the same (although they may have somewhat acceptable convergent validity). Using the Item Response Theory (IRT) has the potential to create a bridge between Big Five constructs. For a given personality trait (e.g., extraversion), the IRT can rescore each item from each separate scale onto a new aggregate construct. Whereas a typical personality scale item only provides information regarding an individual's presence or absence of that trait (discrimination), IRT scoring also provides information regarding the item's ability to differentiate high trait scorers from low trait scorers (severity) [14].

Two relatively straightforward issues of personality change measurement involve how fast personality can change and how generalizable results from current studies actually are. Most longitudinal studies have made use of a few measurement occasions over a period of 5–20 years, but few have made frequent measurements over shorter periods in adulthood. Increasing frequency of measurement occasions may reveal interesting phenomena such as slowing or accelerating rates of change over shorter periods. The generalizability of the current personality change literature is also limited due to the existence of few cross-cultural and non-Western studies. Longitudinal studies conducted beyond the USA and Eu-

rope would allow for a deeper understanding of universal patterns and clarify the role of cultural norms in personality development.

Lastly, we may be able to better predict personality change by utilizing novel measurements for particular time periods in adult development. For example, most adult development studies have made use of chronological age (years from birth), but in many adult studies people are closer to death than birth. Some preliminary evidence suggests that mortality-related decline ('distance to death') may be a better predictive measure than age-related decline, when accounting for end-of-life declines in wellness [17]. If certain personality changes are related to end-of-life declines, a model that uses distance to death instead of chronological age ('distance from birth') should better predict those changes.

Personality Change in Adulthood as an Outcome

Given that we now know that personality change occurs among some and not others (individual differences in intraindividual change), as well as to varying degrees, the compelling question is why these changes occur. Across cultures and between individuals, the level and rate of change in personality trajectories vary. The Big Five traits are subject to a number of contextual and developmental influences across the life span that differ across cultures and between individuals.

Longitudinal studies suggest that personality follows overall patterns of change as we age. Neuroticism, openness, and extraversion tend to decrease over the life span, with some studies showing stability of extraversion [9, 18, 19]. On the other hand, agreeableness and conscientiousness tend to increase across development. More specifically, conscientiousness tends to show increases especially in young adulthood, most likely in response to new roles and demands [20, 21]. This section will elaborate on these types of influences that bring about these general patterns in trait change over the life span.

Certain life tasks and life transitions occurring throughout the life span contribute to personality change through investment in and commitment to new social roles as suggested by theoretical models such as the social investment principle [22, 23]. These processes likely account for general trends in population level trajectories among various traits [9, 12] as individuals age and socially invest in various normative age-graded roles. However, solid confirmation of this is still needed and represents an important future direction.

Variation in cultural norms in the timing of these universal role transitions into adulthood status, such as dating, marriage, parenthood, and career establishment, can partly explain cross-cultural differences in age effects on personality development [24], although Terracciano [25] raises concern regarding more proximal indicators of cultural norms in cross-cultural studies.

We propose that individual variation in intraindividual trajectories of personality are partially accounted for by age-graded life events and role changes occurring throughout the life course, in line with the social investment principle [22]. A meta-analysis by Lodi-Smith and Roberts [26] provided support for the conceptualization of social investments in psychological terms (e.g., the nature and quality of the social investment) as they were more strongly related to agreeableness, conscientiousness, and emotional stability across all four domains (i.e., work, family, religion, and volunteerism) in contrast to the use of simple demographic markers of social status. Additional support for the social investment principle was provided in the study by Mroczek and Spiro [9], which found that men who remarried in the middle of older age showed decreases in neuroticism. Including social investment constructs in future studies will allow for the field of personality development to more reliably tap into the developmental experiences and mechanisms behind personality trait change.

Whereas some studies have provided support for the social investment principle, other longitudinal studies have not [27–29]. For example, Specht et al. [28] did not find evidence of 'personality maturation', which would have been indicated by increases in conscientiousness or decreases in neuroticism brought about by theoretically salient life events such as marriage or having a child. However, others have found that individuals who experienced the *least* amount of trait change over time already had relatively 'mature' levels of certain traits (low neuroticism, high conscientiousness, extraversion, and agreeableness) at baseline [30–32]. This suggests that simply experiencing role transitions may not be sufficient for personality development or maturation; for instance, the timing of role transitions may be as important as the transition itself in predicting change [33]. Other factors may be mediating the changes in traits, above and beyond the occurrence of life events and investment in new social roles. For instance, Specht et al. [28] observed systematic differences between individuals who did and did not mature. This study found that individuals with higher life satisfaction during these role transitions showed greater increases in agreeableness than those who did not, sug-

gesting that life satisfaction may be an indicator of 'increased commitment and ability to invest in new social roles' [34].

Personality Change in Adulthood as a Predictor of Health Outcomes

An increasing interest in personality and its relation to health outcomes has prompted questions regarding whether personality change could be a predictor of physical and mental health. Conceptualizing personality change in adulthood as a predictor is a relatively novel idea because for many years personality traits were believed to be fairly stable over time. However, several longitudinal studies have revealed that personality actually does change across the life span [2] and such change may have significant implications for health outcomes. For example, trait changes can predict several health outcomes: cognitive health [35, 36], physical health [37–39], mental health [37, 40], and mortality [41].

Cognitive Health

Recent work has found that personality trait changes, specifically increases in neuroticism, are associated with worse cognitive performance in older adults [36]. Additionally, there are a number of studies demonstrating that personality changes occur during the early stages of dementia (e.g., mild cognitive impairment), and that personality change is associated with cognitive deterioration among those with mild Alzheimer's disease [42, 43]. It is possible that personality change is a symptom of cognitive decline and dementia.

Physical Health

Human et al. [37] found that individuals who exhibited more personality trait change over 10 years had worse self-reported health, worse general well-being, and riskier metabolic profiles. Increased neuroticism and decreased conscientiousness were related to poor health and well-being. Interestingly, the results also demonstrated that individuals who experienced favorable change (e.g., decrease in neuroticism) also reported worse health and well-being. According to the authors, one possible explanation for this phenomenon is that every change, either in a desirable or undesirable direction, is stressful.

Mental Health

Magee et al. [40] examined whether changes in the five major personality domains were related to self-reported

mental and physical health. The results indicated that individuals whose levels of neuroticism increased over a period of 4 years reported poorer mental and physical health, whereas individuals who became more conscientious and extraverted reported better mental and physical health. The relationship between a change in personality traits and health outcomes was stronger for younger adults than for older adults.

Mortality

Previous studies indicated that individuals with low conscientiousness, high neuroticism, and low extraversion have a higher mortality risk [44]. What remains unknown is how changes in personality influence health outcomes. In order to answer this question, Mroczek and Spiro [41] tested whether a decline in neuroticism or an increase in extraversion reduced mortality risk. Changes in personality traits were assessed among 1,663 men over a period of 12 years. The results indicated that men who reported high neuroticism at baseline and experienced an increase in this trait over a follow-up time were at a greater risk of mortality than men whose neuroticism did not increase. Therefore, it was concluded that not only the level of personality trait but also the direction of change was important.

In summary, these studies demonstrate that not only personality trait levels but also personality trait change may play an important role in predicting health outcomes. A greater empirical and theoretical understanding of personality change could be of substantial benefit by informing the design of effective interventions. For example, knowing that an increase in neuroticism is related to earlier mortality may prompt targeting this personality trait in health campaigns.

Future research should examine the direction of change and its direct and indirect effects on health more closely. So far, findings regarding the direction of change have demonstrated that negative changes to one's personality traits (e.g., increased neuroticism, decreased conscientiousness) may be related to negative health behaviors, and thus worse health outcomes. For example, decreases in conscientiousness may lead to an unhealthy diet and less exercise [45]. In addition, any socially undesirable change to the personality traits is related to decreases in social well-being [46]. On the other hand, Human et al. [37] found that personality change in a positive direction was not associated with improved health and well-being. Both increases and decreases in neuroticism were associated with worse psychological well-being and worse metabolic profiles among older adults. They also found that

personality changes, independent of the direction, were associated with worst outcomes. Further research is needed to investigate the complex role of changes in personality.

Some of the available studies investigating personality change in adulthood use self-reported measures of mental and physical health [40]. In order to demonstrate that personality change is associated with health outcomes, it would be beneficial to also consider objective indicators of health [47]. Future research should also look at personality change and its implications for health among individuals at different stages of life. Some personality changes may have more pronounced effects on younger adults, whereas other changes in personality traits may have more detrimental effects on older adults. In addition, a better understating of personality change and its rate could be achieved by measuring change at multiple time points.

The mechanisms through which personality changes affect proximal (e.g., metabolic syndrome) and distal (e.g., mortality) outcomes should also be investigated. A number of studies have examined mediator models that test the health behavior model or the physiological pathways model to understand the role of these mechanisms in personality trait levels [47], but few have used them to deepen our understanding of personality change. Understanding the pathways through which personality change

contributes to improved or declining health and well-being seems to be crucial for the prevention of a number of diseases.

Conclusion

The study of adult personality development has grown immensely over the past 25 years, and we know quite a bit about how personality changes. However, as we have indicated in this paper, we do not have definitive research on what drives personality change in adulthood. We have listed some possibilities, but it may be that personality trajectories (as well as cognitive and mental health trajectories) are highly idiosyncratic and thus difficult to predict. Molenaar and Campbell [48] have called this non-ergodicity. If personality change is not ergodic, then prediction may prove to be challenging. Yet, regardless of what predicts personality change, an exciting new area involves using change as a predictor. Even if change trajectories are idiosyncratic, they can still be used as predictors of later outcomes such as disease onset or mortality. This is a potentially very fruitful area. In sum, there is a great deal of work to do in the area of adult personality development. The studies that will follow in the coming years will undoubtedly be enlightening and very interesting, and will deepen our understanding of human individuality.

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