Components and Correlates of Personality Coherence in Action, Agency, and Authorship

Marc A. Fournier[1] [iD], **Mengxi Dong**[1], **Matthew N. Quitasol**[1],
Nic M. Weststrate[2] [iD] **and Stefano I. Di Domenico**[1]

Abstract

Personality coherence is an individual difference capturing the extent to which a person's psychological characteristics are coordinated, unified, and integrated. The present research addressed the extent to which coherence indicators inter-correlate and predict relevant outcomes over and above the effects of the Big Five among midlife adults ($N = 446$). Coherence indicators loaded onto four components: *actor coherence*, which captured the extent to which people were consistent in their interpersonal values, traits, and behavior; *agent coherence*, which captured the extent to which people's goals were coordinated and need-congruent; *author coherence*, which captured the extent to which people's self-defining stories were well composed and theme laden; and *controlled coherence*, which captured the extent to which people experienced their goals as pressured or compelled and as leading them to need-detracting futures. Although actor coherence correlated with both agent and author coherence, agent and author coherence were not correlated. Nevertheless, the actor-, agent-, and author-coherence composites each predicted at least one of the outcome variables (i.e., well-being, autonomy, and ego development) over and above the Big Five. The present findings suggest that the coherence of personality constitutes an individual difference domain of consequence beyond the established content dimensions of personality.

People have traits (Goldberg, 1993), they have goals (Austin & Vancouver, 1996), and they have life stories (McAdams, 1999), each of which represents part of the complex whole known as "personality." Given the complexity of human personality, it is perhaps not surprising then that some people feel at odds with themselves, and describe their sense of personhood as compartmentalized, fragmented, and conflicted, while others in contrast feel that the varied aspects of their personalities are coordinated, unified, and integrated. Although ideas relating to the coherence of personality date back to the origins of the field (Allport, 1937), scholars have since approached the problem of personality coherence from different theoretical perspectives, leading to stark differences in the conceptualization and measurement of personality coherence in contemporary personality research.

The purpose of the present line of investigation is to organize the various construals of personality coherence into an integrative framework wherein the following questions can be answered. First, do indicators of personality coherence all significantly inter-correlate? And second, do indicators of personality coherence all contribute significantly and incrementally to the prediction of important outcomes, such as psychological adjustment and ego

[1]Department of Psychology, University of Toronto Scarborough, Toronto, Ontario, Canada
[2]Department of Educational Psychology, University of Illinois Chicago, Chicago, Illinois, USA

Corresponding author:
Marc A. Fournier, Department of Psychology, University of Toronto Scarborough, 1265 Military Trail, Toronto, ON M1C 1A4, Canada.
Email: marc.fournier@utoronto.ca

development? The findings that we report here are thus intended to reveal whether the coherence of personality constitutes a domain of individual differences that are of consequence over and above the established content dimensions of personality (i.e., the five-factor model or "Big Five" trait dimensions of neuroticism, extraversion, agreeableness, conscientiousness, and openness to experience; John et al., 2008).

Layers of Personality

People's capacities to reconcile a range of potentially contradictory attributes reflect the phenomenon of *personality coherence*, defined as the extent to which a person's characteristics are coordinated, unified, and integrated (e.g., Fournier, 2021; Fournier & Di Domenico, 2016; Fournier et al., 2015). Since Allport (1937, 1961) first formulated an abiding interest in what he called the *unity of personality*, scholars have suggested that accounting for the coherent functioning of the whole individual arguably represents the core problem and "central, unique charge" of personality psychology (Cervone & Shoda, 1999, p. 3). However, the discipline of personality psychology is conceptually and methodologically more differentiated than it was during Allport's time. Research communities have formulated distinct perspectives on personality coherence using their own focal constructs and methods of interest (Fournier, 2021; Fournier & Di Domenico, 2016; Fournier et al., 2015). As researchers have been studying the coherence of personality from different perspectives using widely differing definitions and operationalizations of the construct, it remains to be seen whether or not they have been studying the same phenomenon.

Recently, Fournier (2021) proposed organizing the varying approaches to coherence in the conceptual framework developed by McAdams (1995, 2013). Within McAdams' framework, personality is considered from three different vantage points or perspectives—that is, the person-as-actor perspective with its focus on *traits*, the person-as-agent perspective with its focus on *goals*, and the person-as-author perspective with its focus on *life stories*—each layering upon the next to afford an incrementally more detailed understanding of human development. Each personality layer therefore provides its own unique perspective on the integrated person (Fournier, 2021), from the *coherent actor* with a unified configuration of trait attributes (Biesanz & West, 2000) to the *coherent agent* with a unified sense of direction and purpose (Sheldon & Kasser, 1995) to the *coherent author* with a unified recollection of the past (Habermas & Bluck, 2000). Here, we review the extant literature on personality coherence from each of these perspectives.

Person-as-Actor. People first enter the world as *social actors*, and manifest a broad range of differences and consistencies in their performances as actors that are observable from the very beginnings of life (McAdams & Olson, 2010). The temperamental characteristics that constitute people's native endowments are presumed to develop and mature over time into the generalized consistencies we later recognize as personality traits (Shiner, 2006). Contemporary trait research is focused on the processes that link repeated momentary trait-relevant states to long-term trait development (Hennecke et al., 2014; Roberts, 2018; Roberts & Jackson, 2008; Wrzus, 2021; Wrzus & Roberts, 2017). Traits, in turn, are powerful incremental predictors of consequential life outcomes (Ozer & Benet-Martínez, 2006; Roberts et al., 2007). Trait development can be characterized in terms of differential continuity and mean-level change. Across personality traits and methods of measurement, the temporal stability of individual differences tends to increase to a plateau between the ages of 50 and 70 (Roberts & DelVecchio, 2000). Across individuals, mean-level increases in the traits of conscientiousness, emotional stability, dominance, and agreeableness attest to the maturing adult's increasing investment in normative social roles relating to family, work, and civic involvement (Roberts et al., 2006).

In earlier writings, the trait definition of personality coherence was equated with the extent of interrater agreement in the patterning of people's traits (Biesanz & West, 2000), an approach that equated the coherence of a person's trait profile with the accuracy with which that profile is perceived. Subsequent writings differentiated personality coherence from judgeability (Human & Biesanz, 2013), specifying that personality coherence constitutes the "consistency in one's personality and behavior across situations as well as stability over time" (p. 252) that in turn facilitates being accurately perceived (i.e., judgeability). Researchers now quantify these coherence-relevant consistencies in terms of personality-behavior congruence, indexed from the degree to which one's profile of behavior in a given situation is structurally corresponsive with one's personality trait profile (Human et al., 2014; Human et al., 2019; Sherman et al., 2012). Personality-behavior congruence has correlated consistently with psychological adjustment (Human et al., 2014; Sherman et al., 2012) and been found to mediate the established link between psychological adjustment and judgeability (Human et al., 2019).

Although the dynamics underlying personality-behavior congruence are still not well understood, Whole Trait Theory (Fleeson & Jayawickreme, 2015) may provide a promising line of investigation. From a whole-trait perspective, a full accounting of personality traits requires both description and explanation. On the descriptive side, the theory advises that we think of traits as density distributions of states, summarizing how frequently a person manifests a

given trait at every possible level of that trait. Fleeson has repeatedly shown that people's density distributions are stable over time, although different distributional parameters (i.e., location, size, and shape) are stable to different degrees (Fleeson, 2001; Fleeson & Gallagher, 2009). On the explanatory side, the theory advises that we identify the social-cognitive processes responsible for these density distributions, including interpretative processes (e.g., situation appraisals), motivational processes (e.g., hopes and fears), and stability-inducing processes (e.g., homeostatic forces). From a whole-trait perspective, coherence in the interpretive, motivational, and stability-inducing processes could thus provide the basis for the consistency and judgeability of behavior. Indeed, consistencies in how people interpret the psychological situation (Sherman et al., 2010) and what goals people pursue within and across situations (McCabe & Fleeson, 2016) have been found to account for at least some of the observed consistency in behavior.

Person-as-Agent. Whereas the temperamental features of personality may be observable from the very beginnings of life, a person's sense of their own agency and their capacity for self-determination emerge more gradually over the course of childhood (McAdams & Olson, 2010). For while children clearly act in purposeful (i.e., goal-directed) ways, it is only by middle childhood that they begin to conceive of themselves and others as *intentional agents* whose actions are predicated on their own beliefs and desires (Apperly, 2012), with goals and values that imbue the domains of human action and decision-making with direction, purpose, and moral consequence. Goal development can be characterized in terms of normative changes in the content and structure of personal goals across the contemporary life course, from goals related to education and intimacy in young adulthood, to goals related to generativity and financial security in middle adulthood, to goals related to health and leisure in older adulthood (Freund & Riediger, 2006). Goals are commonly conceptualized as being hierarchically organized (Carver & Scheier, 1998), with the more abstract goals and values at the top of the hierarchy providing the reference values (i.e., target or end states) for the more concrete goals and plans underneath. Importantly, people's goals can be distinguished from their basic psychological needs, defined as those categories of experience that are universally essential to growth, with which people's individual goals are either congruent or in conflict (i.e., need-fulfilling or need-frustrating; Deci & Ryan, 2000).

In regard to understanding how people's goals cohere, some researchers have focused on the extent to which people's goals are structurally and functionally organized to be mutually facilitating or mutually interfering (e.g., Carver & Scheier, 1998), while other researchers have focused on the extent to which people's goals are congruent or in conflict with their organismic psychological needs (e.g., Deci & Ryan, 2000). Functional coherence among people's goals has been found to predict higher levels of psychological adjustment (Emmons & King, 1988), whereas structural coherence among people's values and goals has been found to predict higher levels of ego development (Bauer & McAdams, 2004). Goals also vary in the extent to which they are need-congruent, which forms the basis for distinguishing between intrinsic goals that directly fulfill people's basic psychological needs (e.g., striving for personal growth) and extrinsic goals that may detract from need fulfillment (e.g., striving for fame). Studies have found that adopting intrinsic goals over extrinsic goals, structuring one's goals to align with intrinsic over extrinsic values, and experiencing one's goals as autonomously motivated all predict performance and adjustment benefits (Ryan & Deci, 2017).

The dynamics of functional coherence depend upon the organization of goal-directed behavior into a system of negative feedback loops nested within one another. Negative feedback loops are autocorrecting (i.e., self-regulating) mechanisms that operate by first comparing the current state of the system (i.e., the input value) to some goal state (i.e., the reference value) and then operating on the environment so as to reduce the discrepancy between these two states of the system. As negative feedback loops are nested hierarchically, such that higher-order goals provide the reference values for lower-order goals, all goal-directed behavior can be construed as occurring in the service of discrepancy reduction down the goal hierarchy (Carver & Scheier, 1998). In contrast, the dynamics of organismic congruence depend upon the individual's capacity for autonomous functioning, as reflected both in their spontaneous volitional strivings to explore, master, and assimilate their experiences (i.e., intrinsic motivation) and in their capacities to take into the self those activities and values promoted in their social environments and cultural contexts (i.e., internalization). Autonomous functioning develops in contexts that provide people with experiences of need fulfillment, including the experiences of *competence* (i.e., the feeling of growing mastery), *relatedness* (i.e., the feeling of being social connected), and *autonomy* (i.e., the feeling of volition and self-determination) (Deci & Ryan, 2000).

Person-as-Author. Although people are born into the world as social actors and by middle childhood have become intentional agents, it is not until adolescence and emerging adulthood that people truly become *autobiographical authors*, with organized recollections of the past that give rise to a sense of personal (or narrative) identity. Of course, young children tell stories of the self; however, the cognitive abilities required for self-authorship—including a cultural understanding of how the typical life unfolds, a

chronological understanding of how critical life events led up to, were transformed by, or were meaningfully related to subsequent life events, and a narrative understanding of the principles, values, or themes that integrate a life together (Habermas & Bluck, 2000)—do not typically come online until adolescence. From then on, the person's life story becomes a work in progress, characterized by notable inconsistencies in the key scenes being narrated together alongside marked temporal consistencies in emotion and motivation (i.e., tone and theme). Life story development can be characterized in terms of growing coherence and complexity, such that middle-aged adults tend to demonstrate greater psychological sophistication and interpretation in life-storytelling relative to younger adults (Baddeley & Singer, 2007; Pasupathi & Mansour, 2006).

Personal identity can thus be construed as an internalized and evolving life story, the central function of which is to integrate the recollected past and the anticipated future so as to imbue one's life in the perceived present with a sense of direction, purpose, and meaning (McAdams, 2001). Here, personality coherence manifests in the form of narrative coherence, defined as "the problem of being understood in a social context" (McAdams, 2006, p. 111). Narrative coherence is not typically assessed from the individual's entire life story, given the length of time life story interviews can take and the resources needed to code them, but rather from a selection of key self-defining memories (e.g., high points, low points, or turning points) that serve as a proxy for the individual's life story as a whole (Adler et al., 2017). Indicators of narrative coherence include: contextual coherence, which concerns the extent to which the story orients the listener to time and place; chronological coherence, which concerns the extent to which the listener can infer the ordering of events in the story; and thematic coherence, which concerns the extent to which the meaning of the story is developed through causal connections, elaborations, and interpretations (Reese et al., 2011). Indicators of narrative coherence correlate with a host of positive outcomes, including higher levels of ego development (Adler et al., 2016).

Narrative researchers have identified both intrapersonal and interpersonal processes related to the development of a coherent life story. First, individuals attain narrative coherence by reflecting on their own lives. *Autobiographical reasoning* refers to the reflective operations through which individuals explore the meaning of their experiences. Through these processes, individuals develop links and connections between the recollected past, perceived present, and anticipated future, narrating their personal memories into a culturally, temporally, causally, and thematically coherent life story (Habermas, 2011). Second, individuals attain narrative coherence by sharing their autobiographical stories with others. *Interactive storytelling* enables individuals to further refine their life stories on the basis of the feedback they receive from valued audiences (e.g., Pasupathi, 2001). The narrative construction of a life is thus achieved through the dual processes of story-making and story-telling, both of which in turn are constrained by *master narratives* (e.g., Bamberg, 1997), those established sociocultural scripts that outline what constitutes an intelligible life story in a given cultural milieu.

Summary. A review of the personality coherence constructs can be found in Table 1, alongside the corresponding coherence indicators that were included in the present research. Although contemporary research communities continue to draw upon Allport's (1937, 1961) conceptualization of personality coherence as the within-person integration of psychological attributes, there are also marked differences between these perspectives. Each perspective advances its own personality contents (i.e., traits vs. goals vs. life stories) and each posits, albeit in varying degrees of explicitness, its own mechanisms and processes through which coherence is established (e.g., interpretative vs. autocorrective vs. self-reflective processes). Notably, the personality coherence indicators differ in their definitions of *incoherence*, with some scales defining incoherence as the *absence of coherence* (i.e., the indicators of narrative coherence, organismic congruence, and vertical goal coherence) and other scales defining incoherence as the *presence of conflict* (i.e., the indicators of horizontal goal coherence and personality-behavior congruence). Contemporary researchers thus differ both methodologically and substantively in their approaches to studying personality coherence. Given these varied perspectives, a central question for personality researchers concerns the dimensionality of personality coherence. If people's experiences of unity and wholeness correlate across layers, then we can conclude that the coherent actor, the coherent agent, and the coherent author are simply different facets of the same individual; if people's experiences of unity and wholeness are differentiated across layers, then we must consider personality coherence a multidimensional problem. To date, there have been few systematic attempts to bring differing formulations of personality coherence together.

In an early study, Sheldon and Kasser (1995) assessed functional and organismic indicators of integrated goal striving, asking participants to list their own personal strivings and then rate the extent to which each striving helped them to attain each of their other strivings (i.e., horizontal coherence), the extent to which each striving helped them to attain a range of intrinsic and extrinsic values (i.e., vertical coherence), and the extent to which they pursued each striving for autonomous or controlled reasons (i.e., self-concordance). They found that the indicators of functional and organismic integration were

Table 1. Personality Coherence in Action, Agency, and Authorship.

Concept	Conceptualization	Indicators
	Person-as-Actor	
Personality-behavior congruence (Sherman et al., 2012)	The cross-situational consistency and temporal stability of a person's trait-relevant behavior, as reflected in the extent to which a person's profile of behavior in a specific situation is correlated with their profile of personality traits	Interpersonal value-behavior coherence Interpersonal trait-behavior coherence Interpersonal value-trait coherence
	Person-as-Agent	
Functional coherence (Carver & Scheier, 1998; Sheldon & Kasser, 1995)	The coordination of goals into a functional hierarchy, as reflected in the extent to which goals at a given level of a person's goal hierarchy aid the attainment of goals at the same level (horizontal coherence) and in the extent to which a person's lower-order goals aid the attainment of their higher-order goals (vertical coherence)	Short-term horizontal coherence Short-term intrinsic vertical coherence Short-term extrinsic vertical coherence Short-term autonomous striving Short-term controlled striving Long-term horizontal coherence
Organismic congruence (Deci & Ryan, 2000; Sheldon & Kasser, 1995)	The cohesive self-regulation of behavior toward the fulfillment of basic (universal) psychological needs, as reflected in the extent to which people experience their behavior as choicefully initiated, volitionally enacted, and personally endorsed (autonomous)	Long-term intrinsic vertical coherence Long-term extrinsic vertical coherence Long-term autonomous striving Long-term controlled striving Idiographic vertical coherence
	Person-as-Author	
Narrative coherence (Baerger & McAdams, 1999; McAdams, 2006; Reese et al., 2011)	The integration of significant autobiographical memories into a unified life narrative, as reflected in the extent to which the story orients the listener to time and place (contextual coherence), the listener can infer the ordering of story events (chronological coherence), and the story's meaning is developed through causal linkages, elaborations, and interpretations (thematic coherence)	Contextual coherence, chronological coherence, and thematic coherence across high-point, low-point, and turning-point memories

significantly inter-related, and furthermore correlated with self-report inventories of health, vitality, and engagement. In a subsequent study intended to test an intervention to enhance semester goal striving (Sheldon et al., 2002), participants (i.e., students) were randomly assigned to either a goal-training program or a control condition. Replicating Sheldon and Kasser (1995), the indicators of functional and organismic integration were significantly inter-related, and furthermore predicted students' goal progress over the course of the term. Although the intervention did not significantly influence subsequent goal attainment (perhaps because participants were randomly assigned to the program, rather than choosing on their own to participate), those participants with the highest baseline levels of personality integration were those who later on reported the highest levels of goal progress. However, this line of research is limited in its focus on person-as-agent constructs.

Addressing this limitation, we previously sought to determine the extent to which personality coherence indicators inter-relate across the person-as-agent and person-as-author perspectives (Fournier et al., 2018). Undergraduates ($N = 391$) provided narrative accounts of three personal memories (which were coded for contextual, chronological, and thematic coherence), listed five personal strivings (which they compared and evaluated in order to provide indices of functional coherence and organismic congruence), and rated their psychological adjustment. We found that the coherence indicators bifurcated into two dimensions, with the person-as-agent indicators and the person-as-author indicators all loading onto distinct components. Indicators of coherence were generally uncorrelated across layers of personality, except for the negative correlations between the indicators of narrative coherence and the need-detracting indicators of goal coherence. Nevertheless, both the person-as-agent and person-as-author components of coherence were correlated independently and positively with indices of psychological adjustment. Acknowledging that emerging adults have only

begun to manifest their capacities for autobiographical reasoning and self-authorship (McAdams, 2013), we speculated that stronger associations among coherence indicators might be found among midlife adults (i.e., ages 40–65), on whom the present study is focused.

There are at least three reasons to think that the study of midlife adults might afford unique insights into the integration of personality. First, as we speculated with respect to our earlier findings (Fournier et al., 2018), it might take time for the coherent agent to mature into a coherent author. Those individuals who pursue integrated goal strivings may find those strivings subsequently easier to narrate coherently, suggesting that person-as-agent and person-as-author coherence indicators might become more significantly inter-related across the life span. Second, the organization of personality at midlife might set the stage for specific tasks or "big questions" related to personality coherence: by midlife, adults' traits are least likely to change (Roberts & DelVecchio, 2000), tasking them to come to terms with who they are now; midlife adults have fewer but more consequential goal conflicts (Gray et al., 2017; Riediger & Freund, 2008), tasking them to come to terms with who they most want to become; and midlife adults' capacities for autobiographical reasoning have become increasingly sophisticated (Pasupathi & Mansour, 2006), tasking them to come to terms with how they came to be who they are today. Finally, midlife might represent a developmental tipping point of particular consequence for the coherence of personality. Whereas midlife is for some adults a time of agency and growth, for others it is a time of frustration and stagnation (McAdams & Olson, 2010). We would suggest that the divide between those who flourish and those who languish at midlife might be partly conditioned on individual differences in personality coherence.

The Present Study

The purpose of this study was to explore whether the pattern of findings we had obtained earlier with a university sample of emerging adults (Fournier et al., 2018) would replicate using a community sample of midlife adults (ages 40–65), and to extend the scope to include coherence indicators from all three personality layers (person-as-actor, person-as-agent, person-as-author). As each successive layer of personality is presumed to introduce new psychological capacities and complexities, we predicted that coherence constructs would be more correlated within than across layers of personality. Nevertheless, as the different layers of personality are never wholly independent (e.g., McAdams et al., 2004), we predicted that coherence constructs from different layers of personality would still be correlated. Thus, we hypothesized that correlations between coherence constructs would be larger within than across layers of personality, but that cross-layer correlations would still be significantly greater than zero. Furthermore, we hypothesized that indicators of coherence would predict relevant outcomes incrementally over and above the established content variables of personality (i.e., the Big Five). These hypotheses originate from our earlier work but were not preregistered. Replicating the design of our earlier study, participants were asked to recount three self-defining personal memories (i.e., a high point, a low point, and a turning point), which were then coded for contextual, chronological, and thematic coherence. Participants were also asked to list five personal strivings and then rate the extent to which each striving helped them to attain each of their other strivings (i.e., horizontal coherence), the extent to which each striving helped them to attain six intrinsic and extrinsic values (i.e., vertical coherence), and the extent to which they pursued each striving for autonomous versus controlled reasons (i.e., self-concordance). Extending the design of our earlier study, the new protocol additionally included the following features.

First, we included indices of personality-behavior congruence to assess coherence at the person-as-actor layer of personality. Personality-behavior congruence is typically indexed from the degree to which people's situation-specific profiles of Big Five-relevant behavior correlate with their profile of traits on the Big Five. However, as the Big Five include contents relevant to adjustment (i.e., neuroticism), relying on the Big Five to assess personality-behavior congruence runs the risk of building psychological adjustment into the assessment of coherence rather than allowing adjustment to serve as a criterion for coherence to predict. Consequently, we adapted these procedures to assess personality constructs using the interpersonal circumplex model (IPC; Fournier et al., 2011), which parsimoniously organizes interpersonal constructs around a two-dimensional circle. The vertical (or *agentic*) dimension concerns autonomy and control and spans from dominance to submissiveness. The horizontal (or *communal*) dimension concerns affiliation and connection and spans from warmth to cold-heartedness. The agentic and communal dimensions of the IPC constitute latent variables that give rise to a circular continuum (Guttman, 1954), allowing variables to be assessed at comparable levels of conceptual breadth (i.e., using axes, quadrants, or octants) around the circumference of the IPC. We took advantage of the structural correspondence across IPC surfaces to investigate a wider array of congruence coefficients, including the congruence between people's interpersonal traits and their behavior, the congruence between people's interpersonal values and their behavior, and the congruence between people's interpersonal values and their interpersonal traits.

Second, we sought to expand the measures we used to assess goal coherence at the person-as-agent layer of personality. Reflecting upon the measures we had used earlier (Fournier et al., 2018) we noted that we had relied on idiographic constructs (i.e., people's unique goals) to assess the "horizontal" component of goal coherence (i.e., the coherence among different goals at the same level of the goal hierarchy) while relying on nomothetic constructs (i.e., pre-specified intrinsic and extrinsic values; personal growth, community contributions, close relationships, wealth, fame, or outward attractiveness) to assess the "vertical" component of goal coherence (i.e., the coherence among lower-order and higher-order goals in the goal hierarchy). Here, we asked participants to specify both the lower-order (i.e., everyday) goals that they are currently pursuing and the higher-order (i.e., lifespan) goals that constitute their long-term pursuits. Participants rated the extent of coherence among their everyday goals, the extent of coherence among their lifespan goals, the extent of coherence between their everyday and lifespan goals, and the extent of coherence between their idiographic goals and six intrinsic and extrinsic nomothetic values. This permitted us to calculate indices of "horizontal" and "vertical" goal coherence from participants' uniquely specified goals and values as well as to compare nomothetic and idiographic indices of vertical goal coherence.

Third, we wanted to examine the validity of personality coherence indices in regard to relevant and consequential criteria. To test the adaptive significance of personality coherence, we included indices of participants' psychological adjustment, from both the hedonic perspective that focuses on happiness and life satisfaction and the eudaimonic perspective that focuses on fulfillment and self-realization (Ryan & Deci, 2001). To test the longstanding hypothesis that personality coherence is a hallmark of psychological maturation (Allport, 1937), we assessed levels of ego development using the 36-item Washington University Sentence Completion Test for Ego Development (WUSCTED; Loevinger & Wessler, 1970), which is widely regarded as one of the most psychometrically sound measures of personality maturation. Loevinger (1976) conceptualized the ego as the fundamental structural unity of personality organization that serves as the "frame of reference" through which individuals perceive their own social worlds, such that personality development and growth could be understood as the sequential restructuring of the ego around sets of psychological capacities (e.g., impulse control) and developmental milestones (e.g., a concern with self-evaluated standards). People's levels of ego development can in turn be inferred from how they organize their open-ended responses to the sentence completion task. Here, we examined the extent to which indicators of personality coherence predicted levels of psychological adjustment and ego development over and above the variance explained by the content dimensions of personality (i.e., the Big Five).

Method

The present research was approved by the Research Ethics Board of the University of Toronto. Participants were recruited from Amazon's Mechanical Turk (MTurk), an online crowdsourcing platform that allows individuals to complete various tasks (e.g., research studies) for monetary compensation. Data were collected from MTurk workers between April 2018 and June 2018. Using TurkPrime, we configured our sampling demographics to exclusively recruit middle-aged (i.e., 40–65) workers who were residents of the United States. Workers were invited to complete a series of online self-report questionnaires about their personality traits, their goals and strivings, and their personal memories in exchange for paid compensation ($5.00 USD). Participants were excluded if they indicated that they were either under the age of 40 or over the age of 65. To further ensure the quality of the data, participants were also screened and excluded based on their ability to follow instructions during the personal memory task. In this task, participants are asked to describe three different types of experiences (i.e., a high point, a low point, and a turning point). We found that less than 1% of participants completed this task with disingenuous responses (e.g., copying and pasting text from a Google search or psychological literature containing key words from our task instructions).

We set out to obtain a sample of $N = 400$ participants, knowing that we would need at least $N = 391$ participants to detect an effect of $r = .18$ (the lower bound of the middle third of correlation coefficients in psychology; Hemphill, 2003) with 95% power. Although data were collected from a total of $N = 454$ participants, a small number of participants were later identified as falling outside the age range ($N = 7$) and were excluded from the subsequent analyses. One other participant was excluded due to disingenuous responding. The final sample consisted of $N = 446$ participants (53% female) who ranged in age from 40 to 65 years ($M = 48.39$, $SD = 7.30$): 79% identified as White, 7% identified as Black, 3% identified as Latin American/Hispanic, 2% identified as East Asian, 1% identified as South Asian, and 1% identified as Southeast Asian, with 6% of the sample indicating multiple ethnicities; 98% indicated that their first language was English; 98% rated their fluency as "excellent" while the remaining 2% rated their fluency as "good"; the median household income was $50,000 to $75,000, and the median level of educational attainment was "university graduate or higher."

Measures

Participants completed (a) person-as-actor measures of their interpersonal values, interpersonal traits, and relationship-specific interpersonal behavior, (b) person-as-agent measures in which they were asked to list their everyday (short-term) and lifespan (long-term) personal strivings and then compare and evaluate these strivings along a number of dimensions, (c) person-as-author measures in which they were asked to recount three self-defining personal memories, (d) self-report measures of their Big Five traits as well as their levels of psychological adjustment, and (e) the WUSCTED, a standardized sentence completion task from which their levels of ego development were later coded. Descriptive statistics for all variables can be found in Table 2. Reliabilities for the indicators of narrative coherence and ego development were indexed using ICC(2,k), which we describe in greater detail later. Reliabilities for all other variables were indexed using omega totals with polychoric correlation matrices (McNeish, 2017). A copy of all measures can be found at https://osf.io/7adtj/.

Person-as-Actor Measures. Participants completed the 32-item International Personality Item Pool-Interpersonal Circumplex (IPIP-IPC; Markey & Markey, 2009), a self-report measure of people's interpersonal tendencies. The IPIP-IPC presents statements regarding interpersonal tendencies for each of the eight octants of the IPC (four items per octant), and participants rate the extent to which each of these statements is descriptive of their behavior on a scale ranging from 1 (*very inaccurate*) to 5 (*very accurate*). Sample items include: "demand to be the center of attention" (dominant), "let others finish what they are saying" (submissive), "reassure others" (agreeable), and "don't fall for sob stories" (cold-hearted). Octant scores were calculated by averaging participants' responses to each set of items.

Participants were subsequently asked to think of the three individuals with whom they spend the most time, to identify their role relationship to that individual (i.e., friend, colleague, parent, child, romantic partner, etc.), and then to complete a modified, 16-item version of the IPIP-IPC (in which two of the four items were retained for each octant scale) to describe their interpersonal tendencies specifically in relation to each of these three individuals. Relationship-specific octant scores were calculated by averaging participants' responses to each pair of items. An index of trait-behavior coherence was then calculated from the within-person correlation between each participant's relationship-specific interpersonal tendencies and the generalized interpersonal tendencies they reported on the IPIP-IPC, and then averaging together the congruence coefficients for each participant using Fisher's *r*-to-*z* transformation.

In addition to completing measures of their interpersonal traits and relationship-specific patterns of behavior, participants also completed the 32-item Circumplex Scales of Interpersonal Values (CSIV; Locke, 2000), which assesses the importance that people assign to either acting, appearing, or being treated in particular ways when they are in interpersonal situations on a scale ranging from 0 (*not important to me*) to 4 (*extremely important to me*). Sample items include whether it is important "that I appear confident" (dominant), "that I do what they want me to do" (submissive), "that I feel connected to them" (agreeable), and "that they keep their distance from me" (cold-hearted). Octant scores were calculated by averaging participants' responses to each set of four items. Congruence coefficients were then calculated from the within-person correlation between each participant's relationship-specific interpersonal behavior and their interpersonal values (i.e., value-behavior coherence) and from the within-person correlation between each participant's interpersonal traits and their interpersonal values (i.e., value-trait coherence).

Person-as-Agent Measures. Participants' everyday and lifespan strivings were assessed using procedures modeled after Sheldon and Kasser (1995) and Bauer and McAdams (2004). First, participants were asked to provide written descriptions of five everyday strivings, defined as "something that you are typically or characteristically trying to do in your everyday behavior." Later, participants were asked to think broadly about their future and provide written descriptions of three lifespan strivings. For both everyday and lifespan strivings, participants were asked to rate the extent to which they pursued each striving for each of four reasons, on a scale ranging from 1 (*not at all*) to 7 (*completely*): "because it matches my values and interests" (intrinsic), "because I believe it would be an important and meaningful concern" (identified), "because I would feel bad (guilty, ashamed, or anxious) if I didn't" (introjected), and "because it is expected of me or I am receiving something in return for pursuing it" (external). Scores for autonomous and controlled striving were calculated separately for both everyday and lifespan strivings by averaging together participants' intrinsic and identified scores on the one hand and participants' introjected and external scores on the other. Reliabilities were satisfactory for both autonomous striving (omega total = .93) and controlled striving (omega total = .91) in participants' everyday strivings and for both autonomous striving (omega total = .89) and controlled striving (omega total = .93) in participants' lifespan strivings.

In both the everyday and lifespan striving tasks, participants were presented with each possible pair of strivings and then asked to consider whether being successful in each striving would have a helpful or harmful effect on each of their other strivings on a

Table 2. Descriptive Statistics.

	M	SD	Range	N
Coherence of Action				
Trait-Behavior Coherence	.53	.35	−.63–.99	417
Value-Behavior Coherence	.60	.32	−.58–.95	416
Value-Trait Coherence	.42	.41	−.93–.97	422
Coherence of Agency				
Short-Term Autonomous Striving	6.32	0.70	3.10–7.00	445
Short-Term Controlled Striving	4.54	1.37	1.00–7.00	445
Short-Term Horizontal Coherence	0.98	0.64	−0.55–2.00	442
Short-Term Intrinsic Vertical Coherence	5.33	1.09	1.67–7.00	442
Short-Term Extrinsic Vertical Coherence	3.75	1.49	1.00–7.00	442
Long-Term Autonomous Striving	6.51	0.73	2.67–7.00	427
Long-Term Controlled Striving	4.54	1.67	1.00–7.00	427
Long-Term Horizontal Coherence	0.97	0.77	−2.00–2.00	427
Long-Term Intrinsic Vertical Coherence	5.36	1.14	1.78–7.00	427
Long-Term Extrinsic Vertical Coherence	3.46	1.66	1.00–7.00	427
Idiographic Vertical Coherence	1.05	0.59	−0.20–2.00	426
Coherence of Authorship				
Contextual Coherence	1.67	0.53	0.44–3.00	446
Chronological Coherence	1.92	0.64	0.33–3.00	446
Thematic Coherence	2.22	0.47	1.11–3.00	446
Criteria				
SWLS Life Satisfaction	4.55	1.68	1.00–7.00	421
SPANE Positive Affect	22.19	5.26	6.00–30.00	421
SPANE Negative Affect	12.63	5.21	6.00–29.00	421
IAF Autonomous Functioning	3.69	0.47	2.27–4.93	426
WUSCTED Ego Development	4.73	0.39	3.50–6.50	441
Covariates				
Neuroticism	2.51	0.94	1.00–4.92	421
Extraversion	3.14	0.80	1.00–5.00	421
Agreeableness	3.98	0.68	1.25–5.00	421
Conscientiousness	3.97	0.76	1.00–5.00	421
Openness to Experience	3.90	0.77	1.17–5.00	421

Note. N = 416–446.

scale ranging from –2 (*very harmful*) to 2 (*very helpful*). These ratings were then averaged together to produce indices of horizontal coherence for both everyday strivings (omega total = .95) and lifespan strivings (omega total = .93). Thereafter, participants were asked to rate the extent to which each striving would help take them toward possible futures in six culturally endorsed value domains on a scale ranging from 1 (*not helpful at all*) to 7 (*very helpful*). Participants were presented with the following three intrinsic futures: self-acceptance and personal growth (i.e., "being happy and having a very meaningful life"), intimacy and friendship (i.e., "having many close and caring relationships with others"), and societal contribution (i.e., "working to make the world a better place"). Participants were presented with the following three extrinsic futures: financial success (i.e., "having a job that pays very well and having a lot of nice possessions"), fame and recognition (i.e., "being known and admired by many people"), and physical appearance (i.e., "looking good and being attractive to others"). These ratings were then averaged together to produce indices of intrinsic vertical

coherence for both everyday strivings (omega total = .93) and lifespan strivings (omega total = .91) and indices of extrinsic vertical coherence for both everyday strivings (omega total = .95) and lifespan strivings (omega total = .95).

Finally, participants were presented with each of their five everyday strivings and asked to consider whether being successful in each striving would have a helpful or harmful effect on each of their lifespan strivings on a scale ranging from –2 (*very harmful*) to 2 (*very helpful*). These ratings were then averaged together to produce an idiographic index of vertical coherence with which to complement the nomothetic indices of vertical coherence that we had obtained earlier from asking participants to consider their personal strivings in relation to six culturally endorsed (intrinsic/extrinsic) value domains. In total, these procedures yielded 11 indices of goal coherence: (a) short-term autonomous striving, (b) short-term controlled striving, (c) short-term horizontal coherence, (d) short-term intrinsic vertical coherence, (e) short-term extrinsic vertical coherence, (f) long-term autonomous striving, (g) long-term controlled

striving, (h) long-term horizontal coherence, (i) long-term intrinsic vertical coherence, (j) long-term extrinsic vertical coherence, and (k) idiographic (short-term/long-term) vertical coherence.

Person-as-Author Measures. Personal memory tasks were modeled after McAdams' (2008) _Life Story Interview_. Following common practices in the field of narrative psychology (e.g., Adler et al., 2017), participants provided written accounts of three personally significant autobiographical memories: a high point (i.e., a positive experience), a low point (i.e., a negative experience), and a turning point (i.e., a transitional or life-changing experience). Memories were then coded using Reese et al.'s (2011) Narrative Coherence Coding System to score the level of narrative coherence in each memory along three dimensions: _contextual coherence_, defined as the extent to which the narrator established a specific time and place for the story; _chronological coherence_, defined as the extent to which the story events could be placed on a timeline; and _thematic coherence_, defined as the extent to which the narrative remained on topic and lacked digression. Each dimension of narrative coherence was scored on a scale ranging from 0 to 3, with higher scores indicating higher levels of narrative coherence.

Nine coders were trained to score narrative coherence using standard practices in the field of narrative psychology (Adler et al., 2017; Syed & Nelson, 2015). Coders were split into three equal groups and then trained to code a single dimension of narrative coherence using narrative practice materials drawn from an unrelated data set that contained the same three memory types. Once their training was complete, they proceeded to code participants' narratives in six waves, with reliability computed after each wave to assess for coder drift. The order of narratives within each wave was randomized across coders. Reliabilities were indexed using ICC(2,k), a two-way random effects model that is appropriate for instances when each participant is rated by each rater, all raters have been randomly sampled from a population of raters, and the average measurement across k raters is to be used.

Adequate levels of reliability were obtained at each wave of coding for contextual coherence, range in ICC(2,3) = .74 to .91, chronological coherence, range in ICC(2,3) = .74 to .83, and thematic coherence, range in ICC(2,3) = .73 to .83. Levels of reliability were consistently high across the three memory types for contextual coherence, range in ICC(2,3) = .80 to .90, chronological coherence, range in ICC(2,3) = .78 to .82, and thematic coherence, range in ICC(2,3) = .78 to .86. Scores for each of the three dimensions of narrative coherence were calculated by averaging raters' scores across high-point, low-point, and turning-point memories, which in turn evinced adequate reliability: contextual coherence, ICC (2,3) = .90; chronological coherence, ICC(2,3) = .87; thematic coherence ICC(2,3) = .87.

Criterion Measures. Ego development was assessed via the 36-item version of Form 81 of the WUSCTED (Hy & Loevinger, 1996). Participants were asked to complete 36 unfinished sentence stems (e.g., "When a child will not join in group activities…"). Three undergraduate coders (none of whom served as narrative coherence coders) were then trained to rate the stage of ego development manifested in participants' responses. Coders first gained an understanding of each of the eight stages of ego development, and then practiced by rating 20 sample responses for each of the 36 items listed in the manual (Hy & Loevinger, 1996). Any disagreements among the coders were resolved through group discussions moderated by the second and third authors. Participants' levels of ego development were assessed in two phases. In the first phase, coders rated each participant's response to each of the 36 items. Inter-rater agreement was assessed for each of the 36 items using ICC(2,k). ICCs across the 36 items ranged from .79, 95% CI [.76, .82] to .96, 95% CI [.95, .97]. The ratings from all three coders were therefore averaged, yielding one score per item for each participant. In the second phase, an overall ego development score was calculated for each participant by averaging their scores across all 36 items.

Psychological adjustment was assessed from both hedonic and eudaimonic perspectives. Participants completed: the five-item Satisfaction with Life Scale (SWLS; Diener et al., 1985), which asked them to rate the extent to which they agree with a series of statements (e.g., "I am satisfied with my life") on a scale ranging from 1 (_strongly disagree_) to 7 (_strongly agree_); the 12-item Scale of Positive and Negative Experience (SPANE; Diener et al., 2010), which asked them to rate how often they experienced various positive feelings (e.g., "happy," "joyful," and "contented") and negative feelings (e.g., "sad," "afraid," and "angry") over the last 4 weeks on a scale ranging from 1 (_very rarely or never_) to 5 (_very often or always_); and the 15-item Index of Autonomous Functioning (IAF; Weinstein et al., 2012), which asked them to rate how truthfully each statement conveyed their experiences relating to authorship/self-congruence, interest-taking, and (low) susceptibility to control on a scale ranging from 1 (_not at all true_) to 5 (_completely true_). Reliabilities were satisfactory for the SWLS (omega total = .95), the SPANE (positive affect, omega total = .97; negative affect, omega total = .95) scales, and the IAS (omega total = .92).

Covariate Measures. Participants completed the 60-item Big Five Inventory-2 (BFI-2; Soto & John, 2017) to assess the Big Five trait dimensions of personality; that is, neuroticism (e.g., "is temperamental,

gets emotional easily"; omega total = .96), extraversion (e.g., "is outgoing, sociable"; omega total = .92), agreeableness (e.g., "is compassionate, has a soft heart"; omega total = .93), conscientiousness (e.g., "is dependable, steady"; omega total = .95), and openness to experience (e.g., "is curious about many different things"; omega total = .94). These constructs were assessed to determine whether (a) indices of personality coherence are distinct from indices of personality content and (b) indices of personality coherence predict criterion variables (e.g., ego development) over and above the variance explained by indices of personality content.

Results

Analyses were carried out in R 3.1.0 (R Core Team, 2016) with the *psych* (Revelle, 2017) and *reshape2* (Wickham, 2020) packages. First, we examined the extent to which the coherence indicators correlate both within and across layers of personality. Then, we examined the extent to which the coherence indicators correlate with the Big Five traits, with psychological adjustment, and with ego development. Finally, we examined the extent to which the coherence indicators predict levels of psychological adjustment and ego development over and above the variance explained by the Big Five. A copy of the data and R code can be found at https://osf.io/7adtj/.

Components of Coherence

We hypothesized that the correlations between coherence constructs would be larger within than across layers of personality, but that the cross-layer correlations would nevertheless be significantly greater than zero. Correlations among all coherence indicators are presented in Table 3, with levels of significance corrected for multiple comparisons (Holm, 1979). As predicted, coherence indicators were significantly inter-correlated within layers of personality. At the person-as-actor layer, all three coherence indicators were found to be significantly inter-correlated, mean $r = .56$, range in $r = .46 - .64$; at the person-as-agent layer, indicators of goal coherence were found to be significantly correlated in 49 out of the 55 pairwise correlations (89%), mean $r = .38$, range in $r = -.01 - .80$; and at the person-as-author layer, all three coherence indicators were found to be significantly inter-correlated, mean $r = .64$, range in $r = .51 - .87$. There was also evidence to suggest that some coherence indicators correlated across layers of personality. Notably, both chronological and thematic coherence at the person-as-author layer were negatively correlated with short-term and long-term extrinsic vertical goal coherence at the person-as-agent layer, and both thematic coherence and long-term autonomous striving at the person-as-author and person-as-agent

layers, respectively, were positively correlated with all three indicators of coherence at the person-as-actor layer.

To better understand how the coherence indicators inter-correlated, we submitted the 17 indicators of coherence to a principal components analysis (PCA) with an oblique (i.e., promax) rotation. A comparison of the eigenvalues from this PCA (i.e., 4.53, 3.07, 1.81, 1.64, 1.08, 0.84, 0.64, 0.59, 0.52, 0.49, 0.37, 0.34, 0.31, 0.25, 0.22, 0.17, and 0.12) to the eigenvalues obtained from a parallel analysis with 100 replications (i.e., 1.35, 1.28, 1.22, 1.18, 1.14, 1.09, 1.06, 1.02, 0.99, 0.96, 0.92, 0.89, 0.85, 0.82, 0.78, 0.74, and 0.69) indicated that the first four components (explaining 75% of the total variance) should be retained. The rotated componential loadings are presented in Table 3. As can be seen, all three interpersonal coherence indicators loaded onto an actor-coherence component, the seven functional and need-fulfilling goal coherence indicators loaded onto an agent-coherence component, and all three narrative coherence indicators loaded onto an author-coherence component, while the four remaining, need-detracting goal coherence indicators loaded onto a controlled-coherence component.

We extracted componential scores from the PCA, weighting each indicator by its respective componential loading, in order to examine each component's patterns of correlation. The actor-coherence component correlated positively with both the agent-coherence component, $r(414) = .21$, 95% CI [.12, .30], $p < .001$, and the author-coherence component, $r(414) = .25$, 95% CI [.16, .34], $p < .001$, which were themselves not significantly correlated, $r(414) = -.02$, 95% CI [−.11, .08], $p = .759$. The controlled-coherence component correlated positively with the agent-coherence component, $r(414) = .35$, 95% CI [.26, .43], $p < .001$, negatively with the author-coherence component, $r(414) = -.14$, 95% CI [−.23, −.04], $p = .005$, and non-significantly with the actor-coherence component, $r(414) = -.04$, 95% CI [−.13, .06], $p = .44$. Components of coherence thus correlated across layers of personality, although not to the extent to which indicators of coherence correlated within layers of personality, and not across all layers.

Correlates of Coherence

Table 4 presents the correlations between the coherence indicators and the Big Five trait dimensions, with levels of significance that have again been corrected for multiple comparisons (Holm, 1979). As can be seen, although about one third of the correlations with the Big Five achieved significance, the proportion of significant correlations varied markedly by layer of personality, with the Big Five traits correlating significantly with the actor-coherence indicators over 90% of the time and with the agent- and author-coherence indicators about 20% of the time. The

Table 3. Correlations and Principal Component Loadings for the Personality Coherence Indicators.

C1	C2	C3	C4	Indicator	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
-.09	-.06	.06	**.91**	1. Trait-Behavior Coherence	—	[.38, .54]	[.57, .69]	[.11, .29]	[-.16, .03]	[.00, .19]	[.08, .27]	[-.17, .02]	[.14, .32]	[-.11, .08]	[-.06, .13]	[.08, .26]	[-.17, .02]	[-.03, .16]	[.02, .21]	[.05, .24]	[.08, .27]
-.12	.06	-.05	**.80**	2. Value-Behavior Coherence	.46**	—	[.52, .65]	[.00, .19]	[-.14, .05]	[-.13, .06]	[-.06, .13]	[-.22, -.03]	[.15, .33]	[-.12, .07]	[-.13, .06]	[-.09, .10]	[-.28, -.09]	[-.13, .06]	[.01, .21]	[.14, .32]	[.15, .33]
.04	-.04	-.06	**.82**	3. Value-Trait Coherence	.64**	.59**	—	[.05, .23]	[-.07, .12]	[-.05, .14]	[.06, .24]	[-.14, .05]	[.11, .29]	[-.04, .15]	[-.08, .12]	[.04, .23]	[-.17, .02]	[-.06, .13]	[-.06, .13]	[.06, .25]	[.09, .27]
.66	.22	-.10	.08	4. Short-Term Autonomous Striving	.20**	.10	.14**	—	[.09, .27]	[.30, .46]	[.31, .47]	[-.01, .18]	[.56, .67]	[.06, .24]	[.20, .37]	[.24, .41]	[-.09, .10]	[.30, .46]	[-.01, .18]	[.05, .23]	[.05, .23]
-.05	.12	**.76**	.02	5. Short-Term Controlled Striving	-.06	-.05	.03	.18**	—	[.08, .26]	[.09, .27]	[.28, .44]	[.01, .20]	[.58, .70]	[.05, .23]	[.17, .35]	[.28, .45]	[.12, .30]	[-.09, .09]	[-.16, .02]	[-.17, .01]
.83	-.06	-.08	-.10	6. Short-Term Horizontal Coherence	.10	-.04	.05	.39**	.17**	—	[.51, .64]	[.16, .33]	[.21, .38]	[.05, .24]	[.42, .56]	[.34, .49]	[.08, .27]	[.62, .73]	[-.11, .07]	[-.18, .00]	[-.17, .01]
.67	-.12	.18	.11	7. Short-Term Intrinsic Vertical Coherence	.17**	.04	.15**	.39**	.18**	.58**	—	[.38, .52]	[.19, .36]	[.13, .31]	[.33, .49]	[.61, .72]	[.26, .43]	[.50, .63]	[-.11, .07]	[-.19, .00]	[-.20, -.02]
.09	-.11	**.77**	-.03	8. Short-Term Extrinsic Vertical Coherence	-.07	-.13*	-.05	.09	.36**	.25**	.45**	—	[-.02, .17]	[.31, .47]	[.10, .28]	[.36, .51]	[.76, .83]	[.22, .39]	[-.17, .02]	[-.26, -.08]	[-.30, -.12]
.59	.19	-.09	.21	9. Long-Term Autonomous Striving	.23**	.24**	.20**	.62**	.10*	.29**	.28**	.08	—	[.09, .27]	[.22, .39]	[.30, .46]	[-.10, .09]	[.27, .44]	[-.01, .18]	[.04, .23]	[.04, .23]
-.05	.19	**.81**	.05	10. Long-Term Controlled Striving	-.02	-.02	.05	.15**	.64**	.15**	.22**	.40**	.18**	—	[.12, .30]	[.19, .36]	[.34, .49]	[.12, .30]	[-.05, .14]	[-.10, .09]	[-.11, .08]
.79	-.04	-.05	-.15	11. Long-Term Horizontal Coherence	.03	-.04	.02	.28**	.14**	.49**	.42**	.19**	.31**	.21**	—	[.42, .57]	[.13, .31]	[.64, .74]	[-.11, .08]	[-.18, .01]	[-.18, .01]
.60	-.09	.29	.11	12. Long-Term Intrinsic Vertical Coherence	.17**	.00	.13*	.33**	.26**	.42**	.67**	.44**	.39**	.28**	.50**	—	[.34, .50]	[.46, .60]	[-.12, .07]	[-.20, -.01]	[-.20, -.01]
.01	-.14	**.80**	-.06	13. Long-Term Extrinsic Vertical Coherence	-.08	-.19**	-.08	.01	.37**	.18**	.35**	.80**	-.01	.42**	.23**	.42**	—	[.17, .35]	[-.19, .00]	[-.30, -.12]	[-.33, -.15]
.88	-.02	-.01	-.14	14. Idiographic Vertical coherence	.06	-.03	.03	.39**	.21**	.68**	.56**	.31**	.36**	.22**	.69**	.53**	.26**	—	[-.12, .07]	[-.16, .03]	[-.16, .03]
.00	**.78**	.09	-.12	15. Contextual Coherence	.11*	.11*	.03	.08	.00	-.02	-.02	-.08	.09	.04	-.02	-.02	-.09	-.02	—	[.46, .60]	[.44, .58]
-.04	**.92**	.00	-.01	16. Chronological Coherence	.15**	.23**	.16**	.14**	-.07	-.09	-.10*	-.17**	.14**	.00	-.08	-.11*	-.21**	-.06	.53**	—	[.85, .89]
-.04	**.90**	-.04	.02	17. Thematic Coherence	.17**	.25**	.18**	.14**	-.08	-.08	-.11*	-.21**	.14**	-.02	-.08	-.10*	-.24**	-.07	.51**	.87**	—

Note. N = 416–446. C1 = Component 1; C2 = Component 2; C3 = Component 3; C4 = Component 4.
Principal component loadings > .40 are presented in boldface. Correlations are presented below the diagonal; 95% confidence intervals are presented above the diagonal. Correlations that remain significant after correcting for multiple comparisons are presented in boldface.

*p < .05, two-tailed. **p < .01, two-tailed.

Table 4. Correlates of the Personality Coherence Indicators.

	Neuroticism		Extraversion		Agreeableness		Conscientiousness		Openness		LS		PA		NA		IAF		Ego Development	
	r	95% CI	r	95% CI	r	95% CI	r	95% CI	r	95% CI	r	95% CI	r	95% CI	r	95% CI	r	95% CI	r	95% CI
Coherence of Action																				
Trait-Behavior Coherence	**−.37****	[−.45, −.29]	**.48****	[.40, .55]	**.57****	[.51, .63]	**.28****	[.19, .37]	**.27****	[.18, .36]	**.23****	[.14, .32]	**.32****	[.23, .41]	**−.27****	[−.36, −.18]	**.31****	[.22, .40]	**.20****	[.11, .29]
Value-Behavior Coherence	**−.22****	[−.31, −.12]	**.18****	[.09, .28]	**.50****	[.43, .57]	**.24****	[.14, .32]	**.26****	[.16, .34]	**.19****	[.09, .28]	**.27****	[.18, .35]	**−.23****	[−.32, −.14]	**.34****	[.25, .42]	**.29****	[.20, .38]
Value-Trait Coherence	**−.18****	[−.27, −.09]	**.39****	[.31, .47]	**.53****	[.46, .60]	.13*	[.04, .23]	**.25****	[.16, .34]	**.24****	[.14, .33]	**.27****	[.18, .36]	**−.21****	[−.30, −.12]	**.27****	[.18, .35]	**.19****	[.10, .28]
Coherence of Agency																				
Short-Term Autonomous Striving	−.13*	[−.23, −.04]	**.17****	[.07, .26]	**.22****	[.13, .31]	**.27****	[.18, .36]	**.19****	[.09, .28]	.11*	[.01, .20]	**.18****	[.09, .27]	−.12*	[−.21, −.02]	**.35****	[.26, .43]	.14*	[.04, .23]
Short-Term Controlled Striving	.13*	[.03, .22]	.01	[−.08, .11]	−.06	[−.16, .03]	−.03	[−.12, .07]	−.12*	[−.21, −.02]	−.02	[−.12, .08]	−.07	[−.17, .02]	.13*	[.03, .22]	−.05	[−.14, .04]	−.12*	[−.21, −.03]
Short-Term Horizontal Coherence	−.07	[−.17, .02]	.14*	[.04, .23]	.07	[−.03, .16]	.04	[−.06, .13]	.01	[−.09, .10]	.15**	[.06, .25]	**.19****	[.10, .28]	−.08	[−.17, .02]	**.21****	[.12, .30]	−.05	[−.15, .04]
Short-Term Intrinsic Vertical Coherence	−.08	[−.17, .02]	**.18****	[.09, .28]	.13*	[.04, .22]	.03	[−.07, .12]	.08	[−.02, .17]	**.26****	[.17, .35]	**.23****	[.14, .32]	−.10	[−.19, .00]	**.26****	[.17, .35]	−.03	[−.12, .06]
Short-Term Extrinsic Vertical Coherence	.03	[−.07, .13]	.11*	[.01, .20]	**−.17****	[−.26, −.07]	−.04	[−.13, .06]	−.06	[−.16, .03]	.08	[−.02, .17]	.09	[−.01, .18]	.03	[−.07, .12]	−.06	[−.15, .04]	−.16	[−.25, −.06]
Long-Term Autonomous Striving	−.04	[−.14, .06]	**.15****	[.06, .24]	**.23****	[.14, .32]	**.17****	[.08, .26]	**.23****	[.14, .32]	.08	[−.02, .17]	.14*	[.05, .23]	−.08	[−.17, .02]	**.35****	[.26, .43]	**.15****	[.05, .24]
Long-Term Controlled Striving	.10	[.00, .19]	.03	[−.07, .12]	−.07	[−.16, .03]	−.01	[−.11, .09]	−.04	[−.14, .05]	−.03	[−.12, .07]	−.05	[−.15, .04]	.11*	[.02, .21]	−.05	[−.14, .05]	−.04	[−.13, .06]
Long-Term Horizontal Coherence	−.01	[−.11, .09]	.08	[−.01, .18]	.04	[−.05, .14]	.02	[−.08, .11]	−.02	[−.12, .07]	.02	[−.07, .12]	.11	[.01, .20]	.05	[−.05, .14]	.14**	[.05, .24]	−.04	[−.14, .05]
Long-Term Intrinsic Vertical Coherence	−.01	[−.10, .09]	**.16****	[.07, .25]	.10*	[.01, .20]	.02	[−.08, .11]	.13*	[.04, .23]	**.15****	[.05, .24]	**.16****	[.06, .25]	−.04	[−.13, .06]	**.24****	[.15, .33]	.00	[−.10, .09]
Long-Term Extrinsic Vertical Coherence	.02	[−.08, .11]	.08	[−.01, .18]	**−.21****	[−.30, −.11]	−.11*	[−.20, −.11]	−.08	[−.17, .02]	.02	[−.08, .11]	.07	[−.03, .16]	.07	[−.03, .16]	−.09	[−.18, .01]	**−.21****	[−.30, −.11]
Idiographic Vertical Coherence	−.03	[−.13, .06]	.12*	[.02, .21]	.07	[−.03, .16]	.00	[−.09, .10]	.02	[−.07, .12]	**.16****	[.07, .25]	**.18****	[.09, .27]	−.01	[−.10, .09]	**.25****	[.16, .34]	−.04	[−.14, .05]
Coherence of Authorship																				
Contextual Coherence	.01	[−.09, .11]	−.01	[−.11, .08]	.08	[−.02, .17]	.03	[−.06, .13]	**.15****	[.05, .24]	−.08	[−.18, .01]	−.03	[−.13, .06]	.07	[−.02, .17]	.08	[−.02, .17]	**.29****	[.20, .38]
Chronological Coherence	.01	[−.08, .11]	.00	[−.10, .09]	**.17****	[.07, .26]	.10	[.00, .19]	**.21****	[.12, .30]	−.09	[−.19, .00]	−.09	[−.18, .01]	.07	[−.03, .16]	.13*	[.04, .22]	**.45****	[.38, .52]
Thematic Coherence	.01	[−.09, .10]	.02	[−.07, .12]	**.16****	[.07, .25]	**.16****	[.07, .25]	**.20****	[.11, .29]	−.04	[−.14, .05]	−.08	[−.18, .01]	.04	[−.06, .13]	**.14****	[.05, .24]	**.48****	[.40, .55]

author-coherence indicators were most consistently correlated with openness to experience; of the agent-coherence indicators, the autonomous striving and vertical coherence dimensions correlated sporadically but adaptively with several of the Big Five (apart from neuroticism); and all three actor-coherence indicators correlated significantly and adaptively with all of the Big Five, and particularly (if not surprisingly) with the traits of extraversion and agreeableness, which have the most interpersonal content.

Table 4 also presents the correlations between the coherence indicators and relevant outcomes, including life satisfaction, positive/negative affect, autonomous functioning, and ego development, with levels of significance again corrected for multiple comparisons (Holm, 1979). As can be seen, the proportion of significant correlations varied notably by layer of personality. The actor-coherence indicators correlated consistently with all five outcomes; the seven agent-coherence indicators that loaded onto the agent-coherence component correlated significantly and positively with both positive affect and autonomous functioning; and the author-coherence indicators correlated consistently with ego development. We thus sought to determine whether the coherence indicators could predict variance in these outcomes over and above the variance explained by the Big Five. We first standardized and averaged the coherence indicators to create four coherence composites: actor coherence, agent coherence, author coherence, and controlled coherence. Because positive affect, negative affect, and life satisfaction were all highly inter-correlated (all $|r$'s$| \geq .60$), we also standardized and averaged these variables to create a composite index of subjective well-being.

Table 5 presents the results from our multiple regression analyses. Our preliminary models tested the effects of the Big Five, our subsequent models tested the effects of the four coherence composites, and our final models included the Big Five as covariates so that we could to assess the incremental validity of the coherence composites. The results of our preliminary models demonstrated that each outcome variable was associated with its own Big Five signature: subjective well-being correlated positively with extraversion and agreeableness, and negatively with neuroticism; autonomous functioning correlated positively with all of the Big Five, except for neuroticism; and ego development correlated positively with openness, agreeableness, and (unexpectedly) neuroticism. The results of our subsequent models demonstrated that each of the outcome variables was significantly and uniquely associated with three of the four coherence composites, and our final models demonstrated that many of these unique associations remained significant even after controlling for the Big Five. Significant incremental effects were obtained for the agent- and author-coherence composites in the prediction of subjective well-being, for the actor-, agent-,

and controlled-coherence composites in the prediction of autonomous functioning, and for the actor- and author-coherence composites (marginally and significantly, respectively) in the prediction of ego development. The coherence of personality thus predicted relevant outcomes over and above the effects of personality content (i.e., the Big Five).[1]

Discussion

The present line of research was guided by two questions. First, to what extent do indicators of personality coherence inter-correlate? Second, to what extent do indicators of personality coherence predict important life outcomes over and above the established content dimensions of personality? We examined these questions among midlife adults, after having found in earlier work that coherence indicators appear to be only weakly correlated across layers of personality among emerging adults (Fournier et al., 2018). We assessed coherence at all three layers of personality (person-as-actor, person-as-agent, person-as-author) and related these to subjective indicators of psychological adjustment and objective indicators of ego development. Findings from the present research suggest that, among midlife adults, indicators of coherence are strongly correlated within layers of personality, moderately correlated across layers of personality, and incrementally predictive of important outcomes.

We first examined the components of personality coherence. In keeping with McAdams' (2013) ideas that each layer of personality successively introduces new psychological capacities and complexities that are at best only partly foreseeable from and attributable to people's earlier qualities, we identified a distinct component of coherence for each distinct layer of personality. Furthermore, the need-detracting indicators of goal coherence (i.e., controlled goal striving and extrinsic vertical goal coherence) broke away to form their own controlled-coherence component among midlife adults, an unexpected finding to which we will return later in this discussion. We found that actor coherence correlated positively with agent and author coherence, although the latter two components were not significantly correlated. Consistent with our work with emerging adults (Fournier et al., 2018), we found that the author- and controlled-coherence components were also negatively correlated among midlife adults. Adaptive forms of personality coherence thus appear to have become increasingly inter-correlated by middle age, as we had previously speculated (Fournier et al., 2018), whereas maladaptive forms of personality coherence arising from forces outside of the self (Ryan & Deci, 2017) appear to have become increasingly distinct.

We next examined the correlates of personality coherence. Our intention was to determine the extent to which the coherence of personality could

Table 5. Prediction of Criteria From the Personality Coherence Composites.

	Subjective Well-Being				Autonomous Functioning				Ego Development			
	b	SE	t	p	b	SE	t	p	b	SE	t	p
Model 1												
Neuroticism	−0.49	0.041	−12.06	0.00**	0.01	0.028	0.33	0.74	0.07	0.024	3.14	0.00**
Extraversion	0.27	0.044	6.03	0.00**	0.09	0.031	3.10	0.00**	−0.04	0.026	−1.44	0.15
Agreeableness	0.14	0.051	2.69	0.01**	0.16	0.035	4.57	0.00**	0.15	0.030	5.15	0.00**
Conscientiousness	0.01	0.045	0.27	0.79	0.08	0.031	2.67	0.01**	0.04	0.026	1.49	0.14
Openness to Experience	−0.07	0.042	−1.58	0.12	0.11	0.029	3.74	0.00**	0.12	0.025	4.75	0.00**
Model 2												
Actor-Coherence Composite	0.35	0.049	7.19	0.00**	0.16	0.025	6.28	0.00**	0.08	0.020	3.84	0.00**
Agent-Coherence Composite	0.19	0.060	3.08	0.00**	0.25	0.031	8.19	0.00**	0.03	0.025	1.215	0.22
Author-Coherence Composite	−0.16	0.048	−3.44	0.00**	0.03	0.024	1.42	0.16	0.19	0.020	9.86	0.00**
Controlled-Coherence Composite	−0.10	0.055	−1.90	0.06	−0.11	0.028	−3.81	0.00**	−0.05	0.023	−2.12	0.04*
Model 3												
Neuroticism	−0.49	0.040	−12.03	0.00**	0.00	0.027	−0.18	0.86	0.06	0.022	2.66	0.01**
Extraversion	0.23	0.048	4.82	0.00**	0.05	0.032	1.56	0.12	−0.04	0.026	−1.60	0.11
Agreeableness	0.09	0.063	1.38	0.17	0.06	0.042	1.47	0.14	0.09	0.034	2.77	0.01**
Conscientiousness	0.03	0.045	0.66	0.51	0.07	0.030	2.49	0.01*	0.02	0.024	0.67	0.50
Openness to Experience	0.05	0.042	−1.22	0.22	0.09	0.028	3.03	0.00**	0.07	0.023	3.22	0.00**
Actor-Coherence Composite	0.06	0.050	1.17	0.24	0.07	0.033	2.15	0.03*	0.05	0.027	1.85	0.07
Agent-Coherence Composite	0.12	0.046	2.57	0.01*	0.22	0.030	7.20	0.00**	0.02	0.025	0.71	0.48
Author-Coherence Composite	−0.10	0.036	−2.64	0.01**	0.02	0.024	1.01	0.31	0.17	0.019	8.97	0.00**
Controlled-Coherence Composite	−0.06	0.042	−1.36	0.18	−0.09	0.028	−3.23	0.00**	−0.03	0.023	−1.52	0.13

Note. N = 412-416.
*p < .05, two-tailed. **p < .01, two-tailed.

be differentiated from its content, and more specifically from the Big Five. We found that the coherence indicators each demonstrated their own unique pattern of correlates with the Big Five. The author-coherence indicators correlated significantly with openness to experience, in keeping with past research (Adler et al., 2007; cf. Adler, 2012); as openness to experience has also been linked to exploratory self-reflective processes (Lilgendahl et al., 2013; Lodi-Smith et al., 2009; Pals, 2006) that are believed to scaffold the coherent narrative reconstruction of the past (Weststrate et al., 2018), it is not surprising that openness is the personality trait most strongly associated with narrative coherence. A subset of the agent-coherence indicators (i.e., autonomous goal striving and vertical goal coherence) correlated adaptively with several of the Big Five, except for neuroticism. The actor-coherence indicators correlated adaptively with essentially all the Big Five, including neuroticism, but especially with the traits of extraversion and agreeableness that have the most interpersonal content. Nevertheless, the correlations between coherence and content variables were not so large so as to suggest that the coherence of personality reduces to content.

We therefore examined the contributions of personality coherence to incremental prediction. We found that, in spite of their respective patterns of association with the Big Five, the coherence composites were incrementally predictive of important

outcomes. Indeed, the actor-, agent-, and author-coherence composites continued to predict outcomes after controlling for the Big Five and for the other three personality coherence composites: actor coherence was positively and incrementally predictive of both autonomous functioning and ego development (although the latter finding was only marginally significant); agent coherence was positively and incrementally predictive of both subjective well-being and autonomous functioning; and author coherence was incrementally predictive of both ego development (positively) and subjective well-being (negatively). In contrast, controlled coherence was incrementally and negatively predictive of autonomous functioning. As author coherence was unexpectedly associated with decreased subjective well-being in the present sample, we believe this finding should be interpreted cautiously before being replicated.

We identified a controlled-coherence component that was distinct from agent coherence (Ryan & Deci, 2017). Controlled coherence reflected the varying degrees to which midlife adults felt pressured or compelled in their pursuit of both short- and long-term strivings and the varying degrees to which they expected their short- and long-term strivings to lead them toward need-detracting futures (i.e., wealth, popularity, or physical attractiveness). In keeping with previous work (Ryan & Deci, 2017), the controlled-coherence component was negatively associated with subjective well-being, autonomous

functioning, and ego development. It is notable that, when simultaneously entered with other coherence indicators in the principal components analysis, the indicators of controlled coherence coalesced to form their own component rather than getting subsumed (with negative loadings) under agent coherence. These findings suggest that there are regulatory tendencies within the lives of some individuals—tendencies to experience the source of one's goal strivings as coming from outside the self and to align one's goals to futures that have instrumental (vs. intrinsic or need-satisfying) value—that constitute a coherent pattern of self-regulation that could run counter to their long-term psychological adjustment and growth. These findings additionally suggest that personality coherence components are not by definition adaptive, and that future research should address the question of which coherence components scaffold adaptive functioning and which coherence components do not.

In light of longstanding debates between organismic and mechanistic conceptions of personality coherence (see Blasi, 1976), it is also worth noting that both short- and long-term horizontal goal coherence (which assessed the degree to which people experience each of their goals as having a helpful or harmful impact on each of their other goals) loaded sharply onto agent coherence. From a mechanistic point of view, personality coherence reflects the manner in which goals are structurally and functionally organized to be mutually facilitating or mutually interfering; from this perspective, the specific contents of one's goals are not relevant (Carver & Scheier, 1998) and no specific goals are thought to be "privileged, 'good,' or 'natural'" (Blasi, 1976, p. 73). However, from an organismic point of view, personality coherence reflects the autonomous regulation of behavior and need-satisfying aspirations (Ryan & Deci, 2017). The present finding that horizontal goal coherence was subsumed under agent coherence, along with autonomous striving and intrinsic vertical coherence, is consistent with the organismic argument that certain qualities of goal-regulated behavior and certain goal contents are central to adaptive functioning (because if personality coherence were purely mechanistic, then the horizontal goal coherence indicators would have substantially cross-loaded onto controlled coherence). Future research should determine the precise reasons why horizontal goal coherence holds positive associations with autonomous regulations and need-satisfying aspirations.

An important contribution of the present research was its extended array of coherence indicators across all developmental layers of McAdams' (2013) integrative framework, and the demonstration that the methods traditionally used to assess personality-behavior congruence at the person-as-actor layer could be adapted to assess the coherence between people's underlying interpersonal characteristics (i.e., traits and values) and their manifest interpersonal behavior. As noted earlier, personality-behavior congruence has normally been assessed across items relevant to the Big Five. As the five-factor model contains content related to psychological adjustment (i.e., neuroticism), using the content of the Big Five to assess personality-behavior congruence runs the risk of building psychological adjustment into the assessment of coherence. The IPC provides a framework of personality constructs that are substantively distinct from well-being, enabling us to assess the extent to which personality-behavior congruence is in fact associated with psychological adjustment without spuriously inflating their correlation. Furthermore, the availability of well-validated instruments to assess a wide array of interpersonal characteristics (i.e., traits and values) permitted us the opportunity to explore a correspondingly wide array of congruence coefficients, including not only the congruence between people's interpersonal traits and their behavior, but also the congruence between people's interpersonal values and behavior and between people's values and their traits. These coefficients in turn enabled us to obtain a more comprehensive portrayal of the coherent actor.

The approach we have taken differs meaningfully from how others have approached the study of personality coherence. Fajkowska (2013, 2015), for instance, conceptualizes personality as a complex hierarchical system with a three-level nesting structure (i.e., behaviors and actions; trait-, type-, and pattern-based structures; and biological-psychological mechanisms/processes), and with organizational (i.e., top-down) and emergent (i.e., bottom-up) processes that serve respectively to regulate and integrate the system. Within this framework, personality coherence (vs. incoherence) is conceptualized in structural and functional terms as a higher-order property of the personality system, reflecting cross-level correspondences (vs. conflicts) between a set of internal mechanisms at one level of the hierarchy and a set of overt responses and behaviors at another. McAdams' framework, in contrast, conceptualizes personality not as a strict hierarchy but as a sequence of developmental layers (cf. McAdams & Manczak, 2011), with each layer revealing its own unique set of constructs and its own unique way of conceptualizing personality coherence (Fournier, 2021). Our approach has therefore been to first estimate the coherence of personality at each layer and then ask if the coherence indicators correlate across layers, rather than to estimate the coherence of personality intra-individually from functional cross-level consistencies (cf. Fajkowska, 2013, 2015). We consider cross-layer coherence to be an important direction for future research, as we discuss in greater detail later.

Limitations and Future Directions

One limitation of the present research concerns our selection of the coherence indicators and criterion variables. We intended to obtain the widest possible array of coherence indicators, but we succeeded in covering the different layers of development in varying degrees of detail. For instance, whereas we were able to obtain 11 distinct person-as-agent indicators of coherence, our person-as-author indicators of coherence were derived from a more limited sample of three personal memories. Although it is common for researchers to rely on a subset of participants' memories instead of their entire life stories (Adler et al., 2017), it is important to recognize that our assessments of coherence varied in quality and detail across layers of development. In turn, our criterion variables differed in the extent to which they overlapped methodologically with the coherence indicators. For instance, the narrative and ego development tasks both involved coders who rated the quality of written text. While these tasks were assigned to different sets of coders, who were trained to rate different textual attributes (i.e., the context, chronology, and thematic structure of personal memories vs. the complexity, differentiation, and integration expressed in open-ended responses on a sentence-completion task), it is possible that their associations were due to some methodologically relevant third variable (e.g., general cognitive ability). Future research should endeavor to assess indicators of personality coherence at comparable levels of methodological breadth and depth across developmental layers, and to relate these coherence indicators to criterion variables that have been assessed through multiple methods.

Another limitation of the present research, and a critical direction for future research, concerns the question of how to conceptualize the opposing end of the coherence continuum. In the present research, we coded narrative coherence on a unipolar scale ranging from 0 to 3; we asked participants to rate their horizontal goal coherence on bipolar scales ranging from –2 to 2 and to rate their vertical goal coherence as well as the autonomous and controlled dimensions of self-congruence on unipolar scales ranging from 1 to 7; and we asked participants to rate their interpersonal characteristics on unipolar scales ranging either from 1 to 5 (traits) or from 0 to 4 (values), which we in turn used to calculate within-person congruence coefficients that could range on a standardized bipolar scale of –1 to 1. As such, the instruments differ widely in how they define the absence or opposite of coherence. The challenge for developing any indicator of personality coherence is how best to develop static representations of what are fundamentally dynamic, integrative processes. Personality conflict might not represent the opposing end of a coherence continuum, but rather constitute the impetus for integration and an opportunity for growth (Di Domenico et al., 2013; Di Domenico et al., 2016; Ryan, 1995). As integrative processes concern operations that unfold over time, future research should prospectively examine the role of within-person conflicts in the dynamics and development of personality coherence, and how the identification of such conflicts within the self gives rise to a need for personality re-organization to reduce the sense of incoherence.

A primary goal of the present research was to determine whether the components of personality coherence become more conspicuously inter-correlated among midlife adults, in comparison to our earlier research with adolescents and emerging adults (Fournier et al., 2018). We pursued this goal by obtaining a sample of middle-aged participants, and comparing the findings from this midlife sample to those from our younger sample. As the person-as-agent and person-as-author components were modestly negatively correlated in our earlier research, we cautiously interpreted our present findings as evidence that components of personality coherence are more strongly inter-correlated among older than younger adults. That said, a more stringent test of this hypothesis would have involved collecting samples of both emerging and middle-aged adults and then explicitly testing whether the pattern of correlations differed significantly by age cohort. An even more stringent test would have involved a prospective design, in which indicators of personality coherence could be collected repeatedly over time and their growth functions could be explicitly modelled. Only prospective designs can conclusively determine whether the components of personality coherence identified here become increasingly inter-correlated over time.

As we conclude our consideration of how indicators of personality coherence correlate across layers of personality development, we want to outline three directions for future research relating to the concept of cross-level coherence. First, as individuals differ in the extent to which they incorporate information relating to their traits and goals into the content of their life stories (McLean & Fournier, 2008), one direction for future research would be to broaden the range of person-as-author coherence dimensions to include the extent to which individuals draw narrative links to their characteristics at the person-as-actor and person-as-agent layers. Second, just as the assessment of actor coherence involved a consideration of how consistently individuals manifest their traits across different relational contexts, the assessment of both agent and author coherence could be broadened to consider how consistently individuals pursue the same goals and narrate the same themes across differing relational contexts (Dunlop et al., 2013). A third and final future research direction would be to consider how personality contents

across different layers of development combine and interact—in other words, how some people's traits serve to advance their goals, or how some people's goals serve to advance their life stories. For instance, extraversion might direct people's behavior toward the attainment of social goals, which in turn might serve to elaborate and consolidate communal themes in people's life stories. In contrast, conscientiousness might direct people's behavior toward the attainment of occupational goals, which in turn might serve to elaborate and consolidate agentic themes in people's life stories. Such findings would be in keeping with the *channeling hypothesis*, which holds that people's traits should direct the manner in which their social motives are expressed in behavior (Winter et al., 1998). Cross-layer coherence may be evident in the ways that personality contents at different layers of development interact synergistically in the prediction of consequential life outcomes.

Conclusion

Beyond the question of what characteristics a person has (i.e., the question of content), there is the question of how those characteristics are configured (i.e., the question of coherence). Although the content dimensions of personality (i.e., the Big Five) were found to contribute to prediction of outcomes (i.e., subjective well-being, autonomous functioning, ego development), components capturing the coherence of personality were found to contribute incrementally to prediction. The components that we identified suggest that personality coherence is organized by developmental layer, and hence that the problem of personality coherence is multidimensional. Coherence of action was significantly correlated with coherence of both agency and authorship, but the coherence of agency and the coherence of authorship were themselves uncorrelated. The controlled aspects of coherence coalesced into their own component and captured the perils of personality coherence attained through forces outside of the self. Subsequent research should focus on specifying the underlying integrative processes that give rise to personality coherence, identifying the role of within-person conflict in these integrative processes, and examining how personality contents combine and interact across developmental layers in the prediction of consequential life outcomes.

Data Accessibility Statement

The study materials, data, and R code used for this article can be accessed at https://osf.io/7adtj/.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

ORCID iDs

Marc A. Fournier [iD] https://orcid.org/0000-0002-6439-346X
Nic M. Weststrate [iD] https://orcid.org/0000-0001-5272-472X

Note

1. A final question that we considered was whether findings for the person-as-actor constructs could be attributed to the effects of normative or distinctive congruence. Whereas normative personality refers to the characteristics of the average person, distinctive personality refers to the ways in which a specific person's characteristics differ from the average. There is reason to believe that the normative personality profile is fundamentally well adjusted (Letzring, 2008; Wood et al., 2007). We therefore calculated both normative and distinctive indicators of trait-behavior, value-behavior, and value-trait coherence to ascertain upon which the present findings depend. First, we calculated the normative profiles on the IPIP-IPC (traits) and the CSIV (values) by respectively averaging participants' octant scores. Then, we calculated distinctive IPIP-IPC and CSIV profiles for each participant from the difference between each of their octant scores and the octant scores of the normative profile. Indicators of normative and distinctive actor coherence were calculated by re-running the within-person profile correlations, using either the sample's normative profile or each participant's distinctive profile instead of participants' original trait and value profiles. As the normative and distinctive composites were positively correlated, $r(415) = .30$, 95% CI [.21, .38], $p < .001$, we tested the composites together in order to determine their unique contributions. We found significant effects for normative actor coherence, $b = 0.40$, $SE = 0.055$, $t = 7.35$, $p < .001$, but not distinctive actor coherence, $b = 0.05$, $SE = 0.051$, $t = 0.93$, $p = .354$, in the prediction of subjective well-being, for both normative actor coherence, $b = 0.12$, $SE = 0.029$, $t = 4.35$, $p < .001$, and distinctive actor coherence, $b = 0.19$, $SE = 0.026$, $t = 7.26$, $p < .001$, in the prediction of autonomous functioning, and for both normative actor coherence, $b = 0.08$, $SE = 0.025$, $t = 3.39$, $p < .001$, and distinctive actor coherence, $b = 0.11$, $SE = 0.023$, $t = 4.75$, $p < .001$, in the prediction of ego development.

References

Adler, J. M. (2012). Living into the story: Agency and coherence in a longitudinal study of narrative identity development and mental health over the course of psychotherapy. *Journal of Personality and Social Psychology*, *102*, 367–389. https://doi.org/10.1037/a0025289

Adler, J. M., Dunlop, W. L., Fivush, R., Lilgendahl, J. P., Lodi-Smith, J., McAdams, D. P., McLean, K. C., Pasupathi, M., & Syed, M. (2017). Research methods for studying narrative identity: A primer. *Social*

Psychological and Personality Science, *8*, 519–527. https://doi.org/10.1177/1948550617698202

Adler, J. M., Lodi-Smith, J., Philippe, F. L., & Houle, I. (2016). The incremental validity of narrative identity in predicting well-being: A review of the field and recommendations for the future. *Personality and Social Psychology Review*, *20*, 142–175. https://doi.org/10.1177/1088868315585068

Adler, J. M., Wagner, J. W., & McAdams, D. P. (2007). Personality and the coherence of psychotherapy narratives. *Journal of Research in Personality*, *41*, 1179–1198. https://doi.org/10.1016/j.jrp.2007.02.006

Allport, G. W. (1937). *Personality: A psychological interpretation*. H. Holt and Co.

Allport, G. W. (1961). *Pattern and growth in personality*. Holt, Rinehart and Winston.

Apperly, I. A. (2012). What is "theory of mind"? Concepts, cognitive processes and individual differences. *Quarterly Journal of Experimental Psychology*, *65*, 825–839. https://doi.org/10.1080/17470218.2012.676055

Austin, J. T., & Vancouver, J. B. (1996). Goal constructs in psychology: Structure, process, and content. *Psychological Bulletin*, *120*, 338–375. https://doi.org/10.1037/0033-2909.120.3.338

Baddeley, J., & Singer, J. A. (2007). Charting the life story's path: Narrative identity across the life span. In D. J. Clandinin (Ed.), Handbook of narrative inquiry: Mapping a methodology (pp. 177–202). Sage. https://doi.org/10.4135/9781452226552.n7

Baerger, D. R., & McAdams, D. P. (1999). Life story coherence and its relation to psychological well-being. *Narrative Inquiry*, *9*, 69–96. https://doi.org/10.1075/ni.9.1.05bae

Bamberg, M. G. W. (1997). Positioning between structure and performance. *Journal of Narrative and Life History*, *7*, 335–342.

Bauer, J. J., & McAdams, D. P. (2004). Growth goals, maturity, and well-being. *Developmental Psychology*, *40*, 114–127. https://doi.org/10.1037/0012-1649.40.1.114

Biesanz, J. C., & West, S. G. (2000). Personality coherence: Moderating self-other profile agreement and profile consensus. *Journal of Personality and Social Psychology*, *79*, 425–437. https://doi.org/10.1037/0022-3514.79.3.425

Blasi, A. (1976). Concept of development in personality theory. In J. Loevinger (Ed.), Ego development: Conceptions and theories (pp. 29–53). Jossey-Bass.

Carver, C. S., & Scheier, M. F. (1998). *On the self-regulation of behavior*. Cambridge University Press.

Cervone, D., & Shoda, Y. (1999). Social-cognitive theories and the coherence of personality. In D. Cervone & Y. Shoda (Eds.), *The coherence of personality: Social-cognitive bases of consistency, variability, and organization*. Guilford Press.

Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, *11*, 227–268. https://doi.org/10.1207/S15327965PLI1104_01

Di Domenico, S. I., Fournier, M. A., Ayaz, H., & Ruocco, A.C. (2013). In search of integrative processes: Basic psychological need satisfaction predicts medial prefrontal activation during decisional conflict. *Journal of Experimental Psychology: General*, *142*, 967–978. https://doi.org/10.1037/a0030257

Di Domenico, S. I., Le, A., Liu, Y., Ayaz, H., & Fournier, M.A. (2016). Basic psychological needs and neurophysiological responsiveness to decisional conflict: An event-related potential study of integrative self processes. *Cognitive, Affective, and Behavioral Neuroscience*, *16*, 848–865. https://doi.org/10.3758/s13415-016-0436-1

Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction With Life Scale. *Journal of Personality Assessment*, *49*, 71–75. https://doi.org/10.1207/s15327752jpa4901_13

Diener, E., Wirtz, D., Tov, W., Kim-Prieto, C., Choi. D., Oishi, S., & Biswas-Diener, R. (2010). New well-being measures: Short scales to assess flourishing and positive and negative feelings. *Social Indicators Research*, *97*, 143–156. https://doi.org/10.1007/s11205-009-9493-y

Dunlop, W. L., Walker, L. J., & Wiens, T. K. (2013). What do we know when we know a person *across contexts*? Examining self-concept differentiation at the three levels of personality. *Journal of Personality*, *81*, 376–389. https://doi.org/10.1111/jopy.12018

Emmons, R. A., & King, L. A. (1988). Conflict among personal strivings: Immediate and long-term implications for psychological and physical well-being. *Journal of Personality and Social Psychology*, *54*, 1040–1048. https://doi.org/10.1037//0022-3514.54.6.1040

Fajkowska, M. (2013). *Personality coherence and incoherence: A perspective on anxiety and depression*. Eliot Werner Publications.

Fajkowska, M. (2015). The complex-system approach to personality: Main theoretical assumptions. *Journal of Research in Personality*, *56*, 15–32. https://doi.org/10.1016/j.jrp.2014.09.003

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*, 1011–1027. https://doi.org/10.1037/0022-3514.80.6.1011

Fleeson, W., & Gallagher, P. (2009). The implications of Big Five standing for the distribution of trait manifestation in behavior: Fifteen experience-sampling studies and a meta-analysis. *Journal of Personality and Social Psychology*, *97*, 1097–1114. https://doi.org/10.1037/a0016786

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

Fournier, M. A. (2021). Integrative processes and personality coherence across levels of functioning. In J. F. Rauthmann (Ed.), *Handbook of personality dynamics and processes* (pp. 405–423). Academic Press.

Fournier, M. A., & Di Domenico, S. I. (2016). Coherence of personality. In V. Zeigler-Hill & T. K. Shackelford (Eds.), *The encyclopedia of personality and individual differences* (pp. 1–11). Springer. https://doi.org/10.1007/978-3-319-28099-8_1122-1

Fournier, M. A., Di Domenico, S. I., Weststrate, N. M., Quitasol, M. N., & Dong, M. (2015). Toward a unified science of personality coherence. *Canadian Psychology*, *56*, 253–262. https://doi.org/10.1037/cap0000022

Fournier, M. A., Dong, M., Quitasol, M. N., Weststrate, N. M., & Di Domenico, S. I. (2018). The signs and significance of personality coherence in personal stories and strivings. *Personality and Social Psychology Bulletin*, *44*, 1228–1241. https://doi.org/10.1177/0146167218764659

Fournier, M. A., Moskowitz, D. S., & Zuroff, D. C. (2011). Origins and applications of the interpersonal circumplex. In L. M. Horowitz & S. Strack (Eds.), Handbook of interpersonal psychology: Theory, research, assessment, and therapeutic interventions (pp. 57–73). John Wiley.

Freund, A. M., & Riediger, M. (2006). Goals as building blocks of personality and development in adulthood. In D. K. Mroczek & T. D. Little (Eds.), Handbook of personality development (pp. 353–372). Lawrence Erlbaum Associates.

Goldberg, L. R. (1993). The structure of phenotypic personality traits. *American Psychologist*, 48, 26–34. https://doi.org/10.1037/0003-066X.48.1.26

Gray, J. S., Ozer, D. J., & Rosenthal, R. (2017). Goal conflict and psychological well-being: A meta-analysis. *Journal of Research in Personality*, 66, 27–37. https://doi.org/10.1016/j.jrp.2016.12.003

Guttman, L. (1954). A new approach to factor analysis: The radex. In P. F. Lazarsfeld (Ed.), Mathematical thinking in the social sciences (pp. 258–348). Free Press.

Habermas, T. (Ed.). (2011). *The development of autobiographical reasoning in adolescence and beyond: New directions in child and adolescent development*. Jossey-Bass.

Habermas, T., & Bluck, S. (2000). Getting a life: The emergence of the life story in adolescence. *Psychological Bulletin*, 126, 748–769. https://doi.org/10.1037//0033-2909.126.5.748

Hemphill, J. F. (2003). Interpreting the magnitudes of correlation coefficients. *American Psychologist*, 58, 78–79. https://doi.org/10.1037/0003-066X.58.1.78

Hennecke, M., Bleidorn, W., Denissen, J. J. A., & Wood, D. (2014). A three–part framework for self–regulated personality development across adulthood. *European Journal of Personality*, 28, 289–299. https://doi.org/10.1002/per.1945

Holm, S. (1979). A simple sequentially rejective multiple test procedure. *Scandinavian Journal of Statistics*, 6, 65–70.

Human, L. J., & Biesanz, J. C. (2013). Targeting the good target: An integrative review of the characteristics and consequences of being accurately perceived. *Personality and Social Psychology Review*, 17, 248–272. https://doi.org/10.1177/1088868313495593.

Human, L. J., Biesanz, J. C., Finseth, S. M., Pierce, B., & Le, M. (2014). To thine own self be true: Psychological adjustment promotes judgeability via personality-behavior congruence. *Journal of Personality and Social Psychology*, 106, 286–303. https://doi.org/10.1037/a0034860

Human, L. J., Mignault, M.-C., Biesanz, J. C., & Rogers, K. H. (2019). Why are well-adjusted people seen more accurately? The role of personality-behavior congruence in naturalistic social settings. *Journal of Personality and Social Psychology*, 117, 465–482. https://doi.org/10.1037/pspp0000193

Hy, L. X., & Loevinger, J. (1996). *The LEA series in personality and clinical psychology. Measuring ego development* (2nd ed.). Lawrence Erlbaum Associates.

John, O. P., Naumann, L. P., & Soto, C. J. (2008). Paradigm shift to the integrative Big Five trait taxonomy: History, measurement, and conceptual issues. In O. P. John, R. W. Robins, & L. A. Pervin (Eds.), Handbook of personality: Theory and research (pp. 114–158). Guilford Press.

Letzring, T. D. (2008). The good judge of personality: Characteristics, behaviors, and observer accuracy. *Journal of Research in Personality*, 42, 914–932. https://doi.org/10.1016/j.jrp.2007.12.003

Lilgendahl, J. P., Helson, R., & John, O. (2013). Does ego development increase during midlife? The effects of openness and accommodative processing of difficult events. *Journal of Personality*, 81, 403–416. https://doi.org/10.1111/jopy.12009

Locke, K. D. (2000). Circumplex scales of interpersonal values: Reliability, validity, and applicability to interpersonal problems and personality disorders. *Journal of Personality Assessment*, 75, 249–267. https://doi.org/10.1207/S15327752JPA7502_6

Lodi-Smith, J., Geise, A. C., Roberts, B. W., & Robins, R. W. (2009). Narrating personality change. *Journal of Personality and Social Psychology*, 96, 679–689. https://doi.org/10.1037/a0014611

Loevinger, J. (1976). *Ego development: Conceptions and theories*. Jossey-Bass.

Loevinger, J., & Wessler, R. (1970). *Measuring ego development: Vol 1. Construction and use of a sentence completion test*. Jossey-Bass.

Markey, P. M., & Markey, C. N. (2009). A brief assessment of the interpersonal circumplex: The IPIP-IPC. *Assessment*, 16, 352–361. https://doi.org/10.1177/1073191109340382

McAdams, D. P. (1995). What do we know when we know a person? *Journal of Personality*, 63, 365–396. https://doi.org/10.1111/j.1467-6494.1995.tb00500.x

McAdams, D. P. (1999). Personal narratives and the life story. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (pp. 478–500). Guilford Press.

McAdams, D. P. (2001). The psychology of life stories. *Review of General Psychology*, 5, 100–122. https://doi.org/10.1037//I089-2680.5.2.100

McAdams, D. P. (2006). The problem of narrative coherence. *Journal of Constructivist Psychology*, 19, 109–125. https://doi.org/10.1080/10720530500508720

McAdams, D. P. (2008). *The life story interview*. http://www.sesp.northwestern.edu/docs/LifeStoryInterview.pdf

McAdams, D. P. (2013). The psychological self as actor, agent, and author. *Perspectives in Psychological Science*, 8, 272–295. https://doi.org/10.1177/1745691612464657

McAdams, D. P., Anyidoho, N. A., Brown, C., Huang, Y. T., Kaplan, B., & Machado, M. A. (2004). Traits and stories: Links between dispositional and narrative features of personality. *Journal of Personality*, 72, 761–784. https://doi.org/10.1111/j.0022-3506.2004.00279.x

McAdams, D. P., & Manczak, E. (2011). What is a "level" of personality? *Psychological Inquiry*, 22, 40–44. https://doi.org/10.1080/1047840X.2011.544026

McAdams, D. P., & Olson, B. D. (2010). Personality development: Continuity and change over the life course. *Annual Review of Psychology*, 61, 517–542. https://doi.org/10.1146/annurev.psych.093008.100507

McCabe, K. O., & Fleeson, W. (2016). Are traits useful? Explaining trait manifestations as tools in the pursuit of goals. *Journal of Personality and Social Psychology*, 110, 287–301. https://doi.org/ 10.1037/a0039490

McLean, K. C., & Fournier, M. A. (2008). The content and processes of autobiographical reasoning in narrative identity. *Journal of Research in Personality*, *42*, 527–545. https://doi.org/10.1016/j.jrp.2007.08.003

McNeish D. (2017). Thanks coefficient alpha, we'll take it from here. *Psychological Methods*, *23*, 412–433. https://doi.org/10.1037/met0000144

Ozer, D. J., & Benet-Martínez, V. (2006). Personality and the prediction of consequential outcomes. *Annual Review of Psychology*, *57*, 401–421. https://doi.org/ 10.1146/annurev.psych.57.102904.190127

Pals, J. L. (2006). Narrative identity processing of difficult life experiences: Pathways of personality development and positive self-transformation in adulthood. *Journal of Personality*, *74*, 1079–1110. https://doi.org/10.1111/j.1467-6494.2006.00403.x

Pasupathi, M. (2001). The social construction of the personal past and its implications for adult development. *Psychological Bulletin*, *127*, 651–672. https://doi.org/10.1037//0O33-29O9.127.5.651

Pasupathi, M., & Mansour, E. (2006). Adult age differences in autobiographical reasoning in narratives. *Developmental Psychology*, *42*, 798–808. https://doi.org/10.1037/0012-1649.42.5.798

R Core Team. (2016). *R: A Language and Environment for Statistical Computing*. R Foundation for Statistical Computing. https://www.R-project.org/

Reese, E., Haden, C. A., Baker-ward, L., Bauer, P., Fivush, R., & Ornstein, P. A. (2011). Coherence of personal narratives across the lifespan: A multidimensional model and coding method. *Journal of Cognition and Development*, *12*, 424–462. https://doi.org/10.1080/15248372.2011.587854

Revelle, W. (2017). *psych: Procedures for Personality and Psychological Research*. https://cran.r-project.org/package=psych

Riediger, M., & Freund, A. M. (2008). Me against myself: Motivational conflicts and emotional development in adulthood. *Psychology and Aging*, *23*, 479–494. https://doi.org/10.1037/a0013302

Roberts, B. W. (2018). A revised sociogenomic model of personality traits. *Journal of Personality*, *86*, 23–35. https://doi.org/10.1111/jopy.12323

Roberts, B. W., & DelVecchio, W. F. (2000). The rank-order consistency of personality traits from childhood to old age: A quantitative review of longitudinal studies. *Psychological Bulletin*, *126*, 3–25. https://doi.org/10.1037/0033-2909.126.1.3

Roberts, B. W., & Jackson, J. J. (2008). Sociogenomic personality psychology. *Journal of Personality*, *76*, 1523–1544. https://doi.org/10.1111/j.1467-6494.2008.00530.x

Roberts, B. W., Kuncel, N. R., Shiner, R., Caspi, A., & Goldberg, L. R. (2007). The power of personality: The comparative validity of personality traits, socioeconomic status, and cognitive ability for predicting important life outcomes. *Perspectives on Psychological Science*, *2*, 313–345. https://doi.org/10.1111/j.1745-6916.2007.00047.x

Roberts, B. W., Walton, K. E., & Viechtbauer, W. (2006). Patterns of mean-level change in personality traits across the life course: A meta-analysis of longitudinal studies. *Psychological Bulletin*, *132*, 1–25. https://doi.org/10.1037/0033-2909.132.1.1

Ryan, R. M. (1995). Psychological needs and the facilitation of integrative processes. *Journal of Personality*, *63*, 397–427. https://doi.org/10.1111/j.1467-6494.1995.tb00501.x

Ryan, R. M., & Deci, E. L. (2001). On happiness and human potentials: A review of research on hedonic and eudaimonic well-being. *Annual Review of Psychology*, *52*, 141–166. https://doi.org/10.1146/annurev.psych.52.1.141

Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. Guilford Press.

Sheldon, K. M., & Kasser, T. (1995). Coherence and congruence: Two aspects of personality integration. *Journal of Personality and Social Psychology*, *68*, 531–543. https://doi.org/10.1037//0022-3514.68.3.531

Sheldon, K. M., Kasser, T., Smith, K., & Share, T. (2002). Personal goals and psychological growth: Testing an intervention to enhance goal attainment and personality integration. *Journal of Personality*, *70*, 5–31. https://doi.org/10.1111/1467-6494.00176

Sherman, R. A., Nave, C. S., & Funder, D. C. (2010). Situational similarity and personality predict behavioral consistency. *Journal of Personality and Social Psychology*, *99*, 330–343. https://doi.org/10.1037/a0019796

Sherman, R. A., Nave, C. S., & Funder, D. C. (2012). Properties of persons and situations related to overall and distinctive personality-behavior congruence. *Journal of Research in Personality*, *46*, 87–101. https://doi.org/10.1016/j.jrp.2011.12.006

Shiner, R. L. (2006). Temperament and personality in childhood. In D. K. Mroczek & T. D. Little (Eds.), Handbook of personality development (pp. 213–230). Lawrence Erlbaum Associates.

Soto, C. J., & John, O. P (2017). The next Big Five Inventory (BFI-2): Developing and assessing a hierarchical model with 15 facets to enhance bandwidth, fidelity, and predictive power. *Journal of Personality and Social Psychology*, *113*, 117–143. https://doi.org/10.1037/pspp0000096

Syed, M., & Nelson, S. C. (2015). Guidelines for establishing reliability when coding narrative data. *Emerging Adulthood*, *3*, 375–387. https://doi.org/10.1177/2167696815587648

Weinstein, N., Przybylski, A. K., & Ryan, R. M. (2012). The index of autonomous functioning: Development of a scale of human autonomy. *Journal of Research in Personality*, *46*, 397–413. https://doi.org/10.1016/j.jrp.2012.03.007

Weststrate, N. M., Ferrari, M., Fournier, M. A., & McLean, K. C. (2018). "It was the best worst day of my life": Narrative content, structure, and process in wisdom-fostering life event memories. *The Journals of Gerontology: Series B: Psychological Sciences and Social Sciences*, *73*, 1359–1373. https://doi.org/10.1093/geronb/gby005

Wickham, H. (2020). *reshape2: Flexibly reshape data: A reboot of the reshape package*. https://cran.r-project.org/web/packages/reshape2/reshape2.pdf

Winter, D. G., John, O. P., Stewart, A. J., Klohnen, E. C., & Duncan, L. E. (1998). Traits and motives: Toward an

integration of two traditions in personality research. *Psychological Review*, *105*, 230–250. https://doi.org/10.1037/0033-295X.105.2.230

Wood, D., Gosling, S. D., & Potter, J. (2007). Normality evaluations and their relation to personality traits and well-being. *Journal of Personality and Social Psychology*, *93*, 861–879. https://doi.org/10.1037/0022-3514.93.5.861

Wrzus, C. (2021). Processes of personality development: An update of the TESSERA framework. In J. F. Rauthmann (Ed.), Handbook of personality dynamics and processes (pp. 101–123). Academic Press.

Wrzus, C., & Roberts, B. W. (2017). Processes of personality development in adulthood: The TESSERA framework. *Personality and Social Psychology Review*, *21*, 253–277. https://doi.org/10.1177/1088868316652279