Person-Specific Personality Network Dynamics as Predictors of Distal Outcomes

Adam T. Nissen[1], Simran K. Johal[2], & Emorie D. Beck[1]

[1]University of California, Davis

[2]University of Oregon

This is a manuscript that has not yet been peer-reviewed. This version may not reflect the final, published version of the manuscript.

Research Transparency Statement:

Since the hypotheses and methods in this study were not preregistered, we consider this study exploratory. All authors have previously used these *N*=1 personality network models for other papers (Johal & Rhemtulla, 2024; Nissen & Beck, 2025). However, the specific analyses in this study examining prospective associations have not been previously published. Deidentified data, codebooks, and analysis scripts are all publicly available on the study's Open Science Framework page (https://osf.io/j2sz6/?view_only=1a97fac25d3c40adac0a87c03bfb31b3). No artificial intelligence–assisted technologies were used in this research or the creation of this article.

Corresponding Author: Adam T. Nissen, Psychology Department, One Shields Ave, Davis, 95616; adamnissen97@gmail.com

Abstract

A primary goal of personality psychology is understanding the predictive power of personality in people's lives. Much work has linked personality traits to life outcomes, but little has linked person-specific personality dynamics to life outcomes to provide a more nuanced approach that tracks with daily behavior. Yet, previous studies linking personality dynamics to outcomes only examined these associations cross-sectionally, making it unclear whether person-specific dynamics also predict more distal outcomes. In this exploratory study, we investigated prospective associations between individual differences in person-specific dynamics, conceptualized as personality network parameters, with 13 life outcomes over two years. Our findings indicated that node and edge properties in the network were the most robust predictors of distal outcomes, hinting that the accumulation of specific node dynamics over time may link personality traits to outcomes. We discuss the implications of these findings for personality theory and for policy and intervention.

WC: 146 / 150

Keywords: personality dynamics, life outcomes, personality prediction, psychometric networks, idiographic

Statement of Relevance

There are notable, robust relationships between personality traits and life outcomes. Yet, it remains largely unclear why such links emerge and how to best use them to improve health and well-being. Bolstered by advancements in momentary measurement and network science, modern work on personality dynamics provides both opportunities to understand trait-outcome associations and more tangible targets to promote positive outcomes through policy and interventions. Despite this, little research has examined whether personality dynamics predict life outcomes in the long term. Thus, the present research examines the predictive power of dynamics to distal life outcomes across academic success, relationships, and well-being over two years. The dynamics of various nodes in people's personality networks were the most predictive of outcomes, which aligns with previous trait-life outcome associations (e.g., laziness with physical health). These findings provide insight into the mechanisms that are theorized (but previously ignored) in linking traits to prospective life outcomes.

WC: 150 / 150

Person-Specific Personality Network Dynamics as Predictors of Distal Outcomes

Personality is typically defined as a person's characteristic patterns of thoughts, feelings, and behaviors – that is, their personality traits (e.g., the Big Five; John & Srivatava, 1999). The validity of personality traits was established via robust, replicable links to consequential life outcomes (Beck & Jackson, 2022a; Ozer & Benet-Martínez, 2006; Soto, 2019). Yet, how and why personality traits predict outcomes remains relatively unclear, as traits emphasize broad patterns of differences that obscure the complex ways that personality manifests in everyday life (Stewart et al., 2022). Some recent scholarship instead defines personality as a dynamic system which traits emerge from (versus causing them, e.g., Baumert et al., 2017). A dynamics approach offers opportunities to understand the intraindividual structuring and processes of a person's thoughts, feelings, and behaviors that could inform between-person differences (Allport, 1960; Beck & Jackson, 2020; Nissen & Beck, 2025). An important step in establishing the validity of personality dynamics is to establish their predictive validity. The present study examined associations between personality dynamics (operationalized as N=1 person-specific personality network parameters) and life outcomes over up to two years.

Personality Prediction & Personality Dynamics

A core focus of personality is to understand which psychological differences predict something about a person's life (Mõttus et al., 2020). Most extant personality prediction research examines how single traits predict life outcomes (Beck & Jackson, 2022a; Ozer & Benet-Martínez, 2006; Soto, 2019). For instance, people who are higher in Conscientiousness (e.g., more responsible) and lower in Neuroticism (e.g., less frequent negative emotions) tend to live longer (Graham et al., 2017) and have better occupational success (Soto, 2019). People high in Extraversion (e.g., more sociable) and Agreeableness (e.g., more compassionate) report more

satisfying relationships and greater well-being (Ozer & Benet-Martínez, 2006; Soto, 2019). Yet translating this knowledge into policy or interventions is not straightforward because of a lack of attention to the underlying mechanisms linking traits to life outcomes (e.g., Beck et al., 2025).

Personality dynamics (i.e. the intraindividual patterning of thoughts, feelings, and behaviors across space and time; Baumert et al., 2017) may elucidate why traits are associated with outcomes. Personality dynamics highlight variation in momentary tendencies (Jayawickreme et al., 2021) rather than stable, aggregated tendencies. This offers more tangible targets for policy (Bleidorn et al., 2019) and intervention (Matz et al., 2024) by examining how individual differences in personality dynamics influence daily behaviors. These momentary dynamics (and within-person variations in how dynamics unfold across contexts) accumulate over time to have long-term consequences for people's livelihoods. In other words, the dynamic processes embedded within a person's intraindividual structuring of personality influence repeated behaviors that add up over time to ultimately lead to consequential life outcomes. Studying the links between personality dynamics and life outcomes therefore provides pathways to identify more potent and contextualized targets for policy and interventions to improve people's lives.

However, little is known about whether personality dynamics predict life outcomes. We believe the lack of research on the predictive power of personality dynamics exists for two reasons. First, most studies take a univariate approach, focusing on the underlying dynamics of one Big Five trait and its theoretically relevant situations or outcomes in a person's daily life (e.g., Extraversion and sociality across situations; Rauthmann et al., 2015). Such a focus neglects that psychological processes are largely multivariate and that the between-person organization of the Big Five rarely tracks within a single person (e.g., Lee & Beck, 2025). Neglecting the study

of multivariate personality dynamics may also explain why more personalized (i.e. idiographic) prediction does not fully track with the reported trait-life outcome associations for all people (Beck & Jackson, 2022d). Therefore, we aim to understand how the multiple components of personality dynamics are associated with outcomes.

Second, the data and modeling techniques needed to capture multivariate personality dynamics were largely unavailable until recently. Advancements in experience sampling methodologies (ESMs) and statistical models like psychometric networks offer ways for researchers to capture person-specific personality dynamics (Beck & Jackson, 2021). For instance, network models can parameterize the intraindividual dynamics of personality for a single person from ESM data, that is, N=1 idiographic personality networks (Beck & Jackson, 2021). Previous work showed that idiographic personality networks are relatively stable across time, with estimates comparable to the stability of personality traits (Beck & Jackson, 2020, 2022b, 2022c). Network parameters provide useful summaries of personality dynamics from individuals' personality networks, which have important theoretical implications for linking dynamics to consequential life outcomes (see Table 1 for an overview). Furthermore, these summaries can be used as individual difference metrics to capture between-person differences in dynamics that retain the unique structuring of each person's personality network.

While the use of personality networks is in its infancy, emerging research using personality networks suggests that person-specific personality dynamics play a role in trait change (Nissen & Beck, 2025) and in predicting life outcomes concurrently (Johal & Rhemtulla, 2024). Yet, the extent to which person-specific personality network dynamics predict *prospective* life outcomes is currently unknown. Examining the degree to which person-specific personality network parameters predict more distal life outcomes would 1) provide further evidence for the

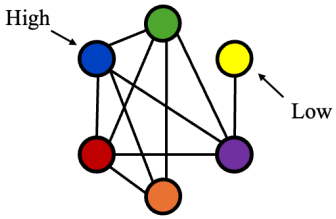
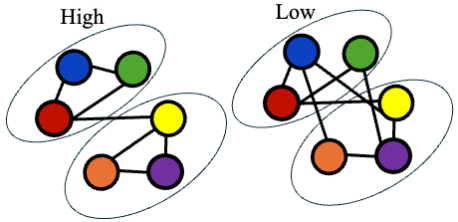
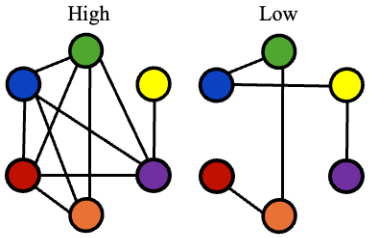
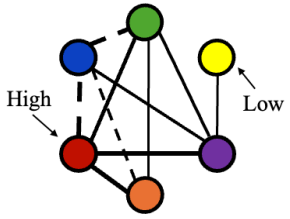
conceptualization of personality as a dynamic system and 2) highlight the utility of networks in studying consequential life outcomes within the field and psychology more broadly.

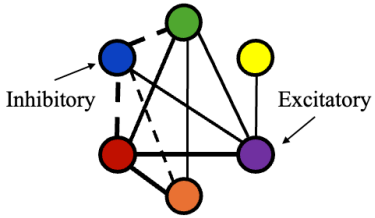
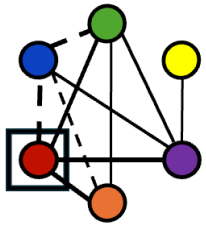
The Present Study

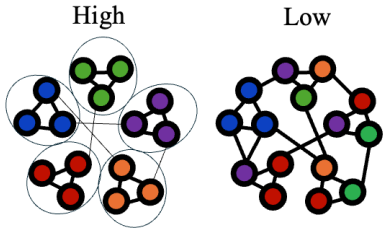
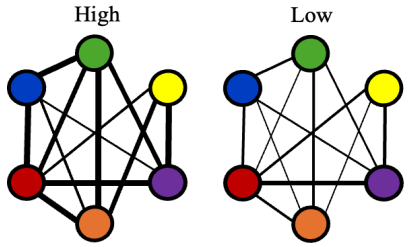
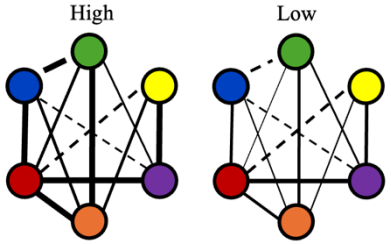
The present study examines whether idiographic personality dynamics predict prospective life outcomes over two years. We used data from a measurement burst study in the United States Midwest that used ESM data to capture personality dynamics and triannual assessments to assess life outcomes. We examined whether several theoretically important network parameters (see Table 1) were related to outcomes commonly studied in the trait-life outcome literature (Ozer & Benet-Martínez, 2006; Soto, 2019). Table 2 provides an overview of the 13 life outcomes we examined across academic and occupational success, physical health, relationships, self-esteem, and well-being. We treated this study as exploratory, given that it was not preregistered and the lack of research on the prospective association between personality dynamics and life outcomes.

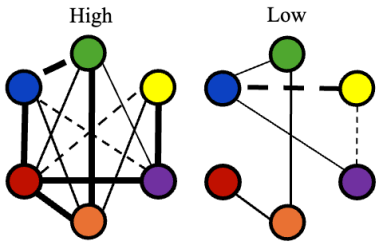
Table 1.

Relevant Parameters of Interest from Person-Specific Personality Networks and Their Theoretical Importance to Life Outcomes

Network Parameter	Definition	Graphical Depiction	Theoretical Implication for Predicting Outcomes
Topology – Density			
Clustering Coefficient	How interconnected each node's neighboring nodes are with other nodes (Saramäki et al., 2007). We used a global measure, which captures the average clustering coefficient across nodes.		Denser networks are more sensitive to other forces because the nodes are heavily interconnected. In other words, activation of one node can have cascading, downstream effects on the other nodes it is connected to. The activated neighboring nodes then influence the nodes that they are connected to, and so forth.
Modularity	The density of a local community (i.e. a cluster of nodes) within the network and how sparse interconnections are between communities (Newman, 2006).		Denser networks can reflect more volatile dynamics, such that perturbations have cascading effects to how a person is responding to the stimuli. The trickle-down effects can result in increased instability or could serve as a protective state to switch the system from one state to the other. In predicting outcomes, the vulnerability hypothesis (Cramer et al., 2016) would suggest that denser networks would predict negative life outcomes. Alternatively, denser networks may be protective by allowing pivots within the system to counteract perturbations that could otherwise accumulate over time to lead to negative life outcomes (Schueler et al., 2021).
Overall Network Density	The number of connections amongst nodes for an individual network divided by the overall possible number of connections of the network (Knoke & Kuklinski, 1982).		
Topology – Node and Edge Level Properties			
Strength Centrality	A value of the overall relative importance of a single node (i.e. item) based on the absolute sum of direct connections with other nodes in the network (Costantini et al., 2015).		The strength of a particular node reflects its influence over how other nodes are expressed and how people behave in the moment. Greater strength of nodes that reflect a particular Big Five trait should therefore be more strongly associated with previously established life outcomes associated with that trait.

Network Parameter	Definition	Graphical Depiction	Theoretical Implication for Predicting Outcomes
Edge Valence – Expected Node Influence	This parameter is similar to strength centrality but accounts for the sign of the edge (i.e. partial correlation between nodes) in calculating the overall influence as opposed to absolute value.		Accounting for the edge valence for nodes can help contextualize the overall influence of a node in a network (e.g., Nissen & Beck, 2025). A node with primarily positive edges would indicate a more excitatory role, while a node with predominantly negative edges suggests an inhibitory role. More activation or inhibition can have meaningful implications for how individuals navigate their world, explaining how people may approach the pursuit of life outcomes (Schueler et al., 2021).
Modal Central Node	The most influential (i.e. central) node with the largest strength centrality in the network that is shared across most people in a sample.		The most central node has the greatest amount of influence in the entire network. Perturbing or influencing the most central node can result in downstream, cascading effects for other nodes in the network. Therefore, activating this node can have consequential implications for how people navigate their life, select and respond to situations, and pursue goals in line with life outcomes. From a policy and intervention standpoint, central nodes that are shared across many people may point to potential targets of interest that can have the most amount of impact across people.

Network Parameter	Definition	Graphical Depiction	Theoretical Implication for Predicting Outcomes
		Topology- Organization	
Normalized Mutual Information	A metric used to capture the degree to which one's network reflects an intended hierarchical structure (Lancichinetti et al., 2009).		If an individual's structure closely aligns with the Big Five, then we may see greater associations with life outcomes in particular. This is because if between-person structuring is used to predict life outcomes, we should likely also see relations between networks that are similar to the intended between-person structure. We would therefore expect that person-specific structures that are not reflective of the Big Five are not related to outcomes because the intended between-person patterns are not captured in the way they predict outcomes.
		Complexity	
Global Network Strength	The sum of the absolute value of all edges in the network (van Borkulo et al., 2023)		Similar to density, greater interconnectedness amongst nodes can have consequential trickle-down effects that can influence how reactive a network is to outside influences. However, since network complexity metrics consider the magnitude of the interconnections amongst nodes (rather than the particular number of connections), these parameters capture the overall associations amongst nodes in the network. Multiple strong pushes and pulls within the network can result in a system that is pivoting frequently and strongly. In other words, greater complexity can reflect how reactive a person's dynamics are to various forces. Complexity metrics
Total Correlation	The average of the absolute values of all the edges in the network (Golino et al., 2021)		

Network Parameter	Definition	Graphical Depiction	Theoretical Implication for Predicting Outcomes
Von Neumann's Entropy	A measure of the randomness in each network and how interdependent nodes are on one another (Golino et al., 2021)		may therefore map on to outcomes associated with reactivity.

Note. Nodes reflect the items inputted into the network and are represented by circles. Edges are associations between nodes and are represented by lines that connect nodes. Edges reflect the partial correlations between nodes, accounting for all other associations between nodes. Positive associations are indicated by solid lines, and negative associations are represented by dashed lines. Bolder edges indicate a stronger association between nodes, while lighter lines represent weaker associations. Finally, communities are groups of nodes that are strongly associated with each other and closer together in proximity. Communities in this table are encased in light ovals for relevant parameters. We selected these network parameters based on theoretical considerations and previous research linking network parameters to outcomes (see Johal & Rhemtulla, 2024; Nissen & Beck, 2025).

Methods

Data & Participants

We used data from the longitudinal Personality and Interpersonal Roles Study (PAIRS; Vazire et al., 2015). PAIRS was approved (IRB#201206090) by the Institutional Review Board at Washington University in St. Louis. PAIRS followed undergraduate students from Washington University in St. Louis who completed seven longitudinal surveys spaced four months apart and up to two waves of ESM surveys (~56 surveys/wave). Participants completed multiple questionnaires at each longitudinal assessment, including measures of personality and important life outcomes such as academic and occupational success, health, and well-being. At Wave 1 (Year 1), participants were provided with instructions about the ESM surveys. Participants received four emails per day with links to each ESM survey for two weeks. In this study, we focus on the ESM data from Wave 1 to estimate *N*=1 personality networks for each participant to predict outcomes between one to two years later (Year 2 = Waves 2-4 and Year 3 = 5-7).

All authors have previously used the PAIRS data in various research projects (Beck & Jackson, 2020; Johal & Rhemtulla, 2024; Nissen & Beck, 2025). While these person-specific *N*=1 networks using dynamic exploratory graph analysis (dynEGA) have been used to predict life satisfaction and GPA variables with modularity concurrently (Johal & Rhemtulla, 2024) and between-person Big Five trait change (Nissen & Beck, 2025), the specific analyses examining prospective associations between these network parameters and outcomes have not been previously published. Furthermore, we expand upon our previous work by combining the network parameters used and including several additional outcome variables.

We used all available data that was provided in PAIRS, which includes a total of 418 participants. Participants were excluded from this study if they did not have at least 20 ESM surveys from Wave 1 and/or did not provide data at any subsequent wave, which is consistent with prior studies (Beck & Jackson, 2020; Nissen & Beck, 2025). One hundred and seventy-three participants were removed following the exclusion criteria, resulting in a final sample of N = 241 participants (see Table S1 for sample sizes at each wave).

Demographic information about participants was collected at the baseline survey. The sample had an average age of 19.20 years (*SD* = 2.02 years). About 72.61% of participants identified as women, 26.97% as men, and 0.42% did not specify their gender. Participants also primarily identified as straight (83.40%), while 1.66% identified as gay/lesbian, 7.88% identified as bisexual, 6.64% identified as another sexual identity, and 0.42% did not specify their sexual identity. Regarding ethnicity, 6.64% of participants identified as Hispanic/Latine, 92.95% identified as non-Hispanic/Latine, and 0.41% did not specify their ethnicity. Lastly, 58.51% of participants were White, 23.24% were Asian or Asian American, 7.88% were Black or African American, 5.39% were mixed race, 1.66% were of another racial identity, and 2.49% did not specify their racial identity.

Measures

A codebook containing all study variables and measures can be found on the project's Open Science Framework (OSF) page (https://osf.io/j2sz6/?view_only=1a97fac25d3c40adac0a87c03bfb31b3).

Big Five Inventory – 44 (BFI-44)

Participants responded to questions about their situations, emotions, and behaviors in the last hour for each ESM survey. In each ESM survey, participants responded to nine personality

items adapted from the BFI-44 (John & Srivatava, 1999) to measure the Big Five personality states (e.g. "From 5-6 pm, how engaged were you?"). As noted by Wilson and colleagues (2017), "The shortened BFI scale was comprised of two items per construct taken from the original BFI-44, making sure that each item (a) made sense at the state level; (b) assessed a different facet of the respective Big Five construct; (c) avoided difficult vocabulary words, and (d) had a comparatively high item-total correlation" (p. 4). Participants rated each personality item on a 5-point scale from (1) "Not a lot" to (5) "Very." Extraversion was measured with the items "outgoing, sociable" and "quiet"; Agreeableness was measured with the items "rude" and "kind"; Conscientiousness was measured with the items "lazy" and "reliable"; and Neuroticism was measured with the items "relaxed," "depressed," and "worried." Items from the Openness to Experience domain were not included in the ESM surveys. Participants responded to all items at each measurement point except for the two Agreeableness items unless they indicated they were interacting with someone in the previous hour.

Life Outcomes

We examined 13 life outcomes across five domains: academic/occupational success, physical health, relationships, self-esteem, and well-being. Table 2 contains a list of all relevant life outcome variables in their domains, their corresponding items, and their scale, as well as descriptives and internal consistencies at each combined year (see Table S2 for descriptives at each wave separately). Intercorrelations between Year 2 and Year 3 composites and test-retest reliabilities for each life outcome variable can be found in Table S3.

Table 2. *Life Outcome Measures*

Outcome	Item(s)	Scale	Measure	Year 2		Year 3	
				Mean (SD)	ω	Mean (SD)	ω / *r**
Academic / Occupational Success							
Academic Motivation[a]	Average of the following items: 1. Are you motivated to do well academically? 2. Doing well in school is important to me. 3. I am willing to do whatever it takes to do well in school.	1 = Not at all / Strongly disagree 7 = Very much / Strongly agree	Ad hoc	5.74 (0.96)	.77	5.49 (0.95)	.80
GPA[a]	Cumulative Grade Point Average	0.00-4.00	-	3.50 (0.39)	-	3.59 (0.30)	.86
Paid Job[a]	Do you have a job for which you get paid?	1 = Yes 2 = No	-	56.94% Paid Job	-	60.29% Paid Job	.43
Physical Health							
Self-Rated Physical Health[a]	How would you rate your physical health?	1 = Extremely poor 7 = Extremely good	-	5.09 (1.32)	-	4.96 (1.31)	.65
Relationships							
Global Attachment: Anxious	Average of the following items: 1. It helps to turn to the important people in my life. (R) 2. I usually discuss my problems and concerns with the important people in my life. (R) 3. I talk things over with the important people in my life. (R) 4. I find it easy to depend on the important people in my life. (R) 5. I don't feel comfortable opening up to the important people in my life. 6. I prefer not to show the important people in my life how I feel deep down.	1 = Strongly disagree 7 = Strongly agree	ECR-RS (Fraley et al., 2011)	3.04 (1.70)	.93	3.02 (1.80)	.94

Global Attachment: Avoidance	Average of the following items: 1. I often worry that the important people in my life don't really care for me. 2. I'm afraid that the important people in my life may abandon me. 3. I worry that the important people in my life won't care about me as much as I care about them.	1 = Strongly disagree 7 = Strongly agree	ECR-RS (Fraley et al., 2011)	2.67 (1.20)	.93	2.52 (1.20)	.92
Relationship Satisfaction	Average of the following items: 1. How satisfied are you with your: family. 2. How satisfied are you with your: friends. 3. How satisfied are you with your: romantic relationships.	1 = Completely dissatisfied 15 = Completely satisfied	-	10.58 (2.36)	.63	10.63 (2.47)	.64
		Self-Esteem					
Self-Esteem	I am someone who has high self-esteem.	1 = Disagree strongly 8 = Neither agree nor disagree 15 = Agree strongly	Single Item Self-Esteem Scale (Robins et al., 2001)	9.91 (3.54)	-	9.86 (3.84)	.82
		Well-Being					
Depression[b]	Average of the following items: 1. I was bothered by things that usually don't bother me. 2. I felt that I could not shake off the blues even with help from my family or friends. 3. I felt I was just as good as other people. (R) 4. I had trouble keeping my mind on what I was doing. 5. I felt that everything I did was an effort. 6. I felt hopeful about the future. (R) 7. I thought my life had been a failure. 8. I felt fearful. 9. I felt lonely. 10. People were unfriendly.	1 = Rarely or none of the time (less than a 1 day) 2 = Some or a little of the time (1-2 days) 3 = Occasionally or a moderate amount of the time (3-4 days) 4 = Most or all of the time (5-7 days)	CES-D Short Form (Andresen et al., 1994)	1.85 (0.52)	.78	-	-

Happiness	I am someone who is happy.	1 = Disagree strongly 8 = Neither agree nor disagree 15 = Agree strongly	-	11.34 (2.82)	-	11.19 (3.25)	.86
Life Satisfaction	How satisfied are you with your: life?	1 = Disagree strongly 8 = Neither agree nor disagree 15 = Agree strongly	-	11.29 (2.72)	-	11.20 (2.92)	.81
Loneliness	I am someone who is lonely.	1 = Disagree strongly 8 = Neither agree nor disagree 15 = Agree strongly	-	6.92 (3.48)	-	6.84 (3.49)	.68
Meaning[a]	I am someone who feels a lack of personal meaning in life. (R)	1 = Disagree strongly 8 = Neither agree nor disagree 15 = Agree strongly	-	10..86 (3.89)	-	10.28 (3.93)	.73

Note. ω = Omega total for multi-item scales. *r** = Pearson's test-retest reliabilities between Year 2 and Year 3 for single-item outcomes. [a]Indicates items assessed only at Waves 4 (Year 2) and 7 (Year 3). [b]Indicates items assessed only at Wave 4 (Year 2).

Analyses

We conducted our analyses in R (Version 4.5.0; R Core Team, 2025). Data and scripts for all analyses can be found on the study's OSF page.

Networks & Network Parameters

We used the dynEGA function from the *EGAnet* package to model individual participants' person-specific personality networks (Version 2.0.6; Golino et al., 2023). The estimated networks from the ESM assessments at Wave 1 (Year 1) in this study are the same ones estimated in a previous project (Nissen & Beck, 2025), for consistency. Before estimating these networks, we used multiple imputation with the *Amelia* package (Version 1.8.2; Honaker et al., 2011) to impute missing values of the ESM data at Wave 1 as *Amelia* provides support for these nested time series (Beck & Jackson, 2022b, 2022c). For multiple imputation with the *Amelia* function, we specified 1 imputed dataset. Notably, no lags were specified, nor did we use the polytime or splinetime settings when imputing missing values.

To estimate the *N*=1 personality network models, we followed recommendations using generalized linear local approximation to estimate derivatives by setting the embedding dimension to four and including only first-order derivative estimates (Golino et al., 2023). We used the Louvain algorithm to detect clusters because it is a hierarchical, quickly estimated clustering algorithm that has been shown to perform well on personality data (e.g., Christensen et al., 2024). Each network consisted of the nine ESM items, which inform the nodes of the network (see Table 1). Importantly, the nodes in these dynEGA network models capture personality dynamics by estimating the change in each node over time (i.e., the first-order derivatives) (Golino et al., 2023). Associations amongst these nodes and how they change and influence one another are captured as edges. As shown in Table 1, edges are the connections

amongst nodes that reflect the partial correlation between nodes (i.e., the correlation between a pair of nodes accounting for all other nodes in the network). A higher partial correlation between two nodes indicates/reflects that a change in one node over time is strongly related to a change in another node over time. The influence and connections captured in the nodes and edges form the basis of the examined network parameters in this study. We used the *EGAnet*, *igraph* (Version 2.1.4), and *NetworkToolbox* (Version 1.4.2) packages (Christensen, 2018; Csardi & Nepusz, 2006; Golino et al., 2023) to estimate our network parameters of interest across network density, properties of nodes and edges, network organization, and network complexity (see Table 1). Table 3 provides the descriptives of all network parameters, including means, standard deviations, and minimum and maximum values.

Network Density. Network density parameters reflect the number of connections between nodes in the network. To examine network density, we estimated the global clustering coefficient, modularity, and overall network density of each participant's person-specific personality network. The global clustering coefficient is estimated by taking the average value of each node's clustering coefficient. The clustering coefficient of a node is equal to the number of edges of a neighboring node divided by the number of nodes in the network (Saramäki et al., 2007). Global clustering coefficient values close to 1 indicate greater clustering and connectivity amongst nodes within the network, whereas values close to 0 indicate less clustering of nodes.

Modularity reflects the degree of connectedness among nodes of a community (i.e. group of related nodes) and how few connections there are with nodes from other communities (Newman, 2006). Modularity is therefore reflective of the degree to which nodes within a community only affect each other, and not nodes from another community. In this case, values close to 1 indicate greater modularity, where there are sparse interconnections between nodes

Table 3.

Descriptives of Person-Specific Personality Network Parameters

Network Parameter	Mean (SD)	Minimum	Maximum
	Topology- Density		
Clustering Coefficient	0.35 (0.25)	0.00	0.79
Modularity	0.29 (0.14)	0.00	0.63
Overall Network Density	0.36 (0.22)	0.00	0.75
	Topology- Node/Edge Level Properties		
Depressed			
Strength Centrality	0.49 (0.41)	0.00	1.55
Expected Influence	0.00 (0.26)	-0.85	1.12
Kind			
Strength Centrality	0.50 (0.39)	0.00	1.52
Expected Influence	-0.01 (0.29)	-0.92	0.96
Lazy			
Strength Centrality	0.49 (0.40)	0.00	1.42
Expected Influence	-0.04 (0.28)	-0.90	0.82
Outgoing			
Strength Centrality	0.75 (0.41)	0.00	1.61
Expected Influence	-0.30 (0.31)	-1.17	0.78
Quiet			
Strength Centrality	0.67 (0.38)	0.00	1.53
Expected Influence	-0.47 (0.32)	-1.31	0.43
Relaxed			
Strength Centrality	0.60 (0.43)	0.00	1.66
Expected Influence	-0.15 (0.31)	-1.26	0.86
Reliable			
Strength Centrality	0.50 (0.41)	0.00	1.66
Expected Influence	-0.15 (0.33)	-1.37	0.73
Rude			
Strength Centrality	0.40 (0.36)	0.00	1.79
Expected Influence	-0.06 (0.30)	-1.03	1.37
Worried			
Strength Centrality	0.55 (0.40)	0.00	1.92
Expected Influence	-0.09 (0.30)	-0.94	0.89
	Topology- Organization		
Normalized Mutual Information	0.65 (0.23)	0.00	1.00
	Complexity		
Global Network Strength	2.47 (1.54)	0.00	5.75
Total Correlation	0.12 (0.12)	0.00	0.65
Von Neumann's Entropy	-1.23 (0.49)	-1.92	0.00

from different communities. Modularity values close to 0 instead suggest a much denser network, where multiple nodes are connected to nodes both within and outside their community.

Finally, we estimated overall network density by taking the total number of edge connections within the network and dividing by the total number of possible connections in the network (Knoke & Kuklinski, 1982). Similar to the clustering coefficient, denser networks would be indicated by values close to 1 (i.e., the number of connections in a person's network is close to the total possible number of connections), while values closer to 0 indicate few connections amongst nodes.

Node and Edge Level Properties. To capture information about the nodes and edges of the network, we examined the strength centrality and expected influence of each node. The strength centrality of a node is the sum of the absolute value of all its edges (Costantini et al., 2015). Larger values indicate a higher node position in the entire network, while smaller values indicate a lower node position. Strength centrality additionally allows for the identification of the most important nodes within a person's network, as these nodes have the most influence on how personality dynamics unfold in a person's daily life (Johal & Rhemtulla, 2024). From a bottom-up perspective, identifying the node(s) that are the most influential across people may point to evidence of a common node parameter that is shared and influential across the majority of people (i.e. a nomothetic indicator). Moreover, identifying these nodes can inform broader policy changes and interventions by identifying what should be targeted to have the most breadth in promoting positive life outcomes for most people. We therefore determined the modal central node by identifying the node with the highest strength centrality across participants. Finally, we examined the expected influence of each node. Similar to strength centrality, this metric is the sum of all the edges of the node but takes the actual value of each edge as opposed to the

absolute value. In other words, accounting for the signs of edges provides insight into the overall excitatory (positive values) or inhibitory (negative values) role of each node within the network (Nissen & Beck, 2025; Schueler et al., 2021).

Network Organization. We additionally examined the degree to which the organization of each person-specific network reflected the Big Five using Normalized Mutual Information (NMI). NMI is a metric of the degree of similarity between the structure of a person-specific network and another imposed structure (Lancichinetti et al., 2009). NMI values close to 1 indicate that a person's network is structurally similar to the Big Five (i.e. the number of clusters and contents of those clusters reflect the Big Five). Networks with NMI values closer to 0 indicate that the Big Five structure is not reflective of a person's network organization.

Network Complexity. Finally, we examined network complexity, which takes into account both the number and strength (i.e. magnitude) of those connections in the network. We used each person-specific network's overall network strength, total correlation, and entropy as our parameters of complexity. Overall network strength combines density and strength centrality as it captures the sum of the absolute values of all the edges in the network. In this case, network strength captures how perturbations in one node can have strong implications for multiple nodes, leading to further, large downstream effects (e.g., like tipping closely placed dominoes). Larger network strength values reflect greater overall strength of the network, while lower values of network strength instead suggest less complexity and minimal downstream consequences.

The total correlation of a network is the average of the absolute value of all the edges (i.e., partial correlations) amongst all the nodes. Values close to 1 indicate stronger associations between nodes in the network, while values closer to 0 reflect generally weak associations between nodes (Golino et al., 2021). In estimating the total correlation values, a small percentage

of people had very small negative values, which are outside the bounds of this parameter. In these cases, we set values lower than 0 to NA.

Lastly, entropy is a measure of randomness (i.e., uncertainty) in the network (Golino et al., 2021) and can be used as an estimate of the interdependence of the nodes on each other. We specifically used Von Neumann's entropy to estimate the entropy of the network, which uses the eigenvalues of the network to estimate the amount of randomness (Golino et al., 2021). Less negative entropy values indicate more interdependence of the nodes of the network with each other; therefore, these networks are more sensitive to perturbations (i.e., cascading effects). Larger, more negative values suggest that the nodes are more independent and have little overall influence on each other.

Bayesian Simple Linear Regressions

We used Bayesian simple linear regression models to examine the associations between person-specific personality network dynamics and life outcomes one and two years later (see Table 2). We used the *brms* package (Version 2.22.0; Bürkner, 2017) to run our regression models with *rstan* (Version 2.23.7; Stan Development Team, 2025) as the backend engine. We ran models for each network parameter (25) and life outcome (Year 2: 13; Year 3: 12) pair across composited years (2), resulting in 625 models (25 parameters x 12 life outcomes x 2 composites + 25 for CESD in Year 2 = 625 models). We used weak, regularizing priors to estimate the associations between network parameters and life outcomes. All models were run with 10,000 total iterations, including 3,000 warmup iterations. We specifically estimated all models with the following equation:

$$Y_i = b_0 + b_1 * Network\ Parameter_i + \varepsilon_i \quad (1)$$

In these models, $Network\ Parameter_i$ reflects person i's network parameter value and Y_i represents the resulting outcome value for person i. b_0 reflects the average level of the outcome in the sample, b_1 reflects the change in the outcome for every one-unit increase in each network parameter, and ε_i captures the residual variance unexplained of the outcome from the network parameter. In this study, we are interested in b_1 since this term captures the prospective association between each person-specific network parameter and life outcome pair. For the paid job outcome, we ran Bayesian logistic regressions since this outcome is a binary variable. Terms for this model instead reflect the increased or decreased odds of having a job for every unit increase of a network parameter value.

We considered effect sizes whose credible intervals did not contain zero as significant. All predictors and continuous outcome variables were standardized in these models to allow for interpretation akin to correlations. Notably, we collapsed across Waves 2-4 and Waves 5-7 to increase the sample size at each year (see Table S1 for sample sizes at each wave). Therefore, effects capture associations with distal life outcomes within one year (Year 2) and between one to two years later (Year 3), respectively. As sensitivity analyses, we reran all models for each of the six waves individually (see supplementary materials).

Results

We report all findings by network parameter domains. All standardized beta coefficients can be found in Tables 4-7. For the results at each wave separately for relevant variables, see Tables S4-S6 in the supplementary materials.

Network Density

We examined associations between distal outcomes and network density using each participant's personality network global clustering coefficient, modularity, and overall network

density. Of these parameters, we only found an association between the global clustering coefficient and self-esteem. Specifically, we found that lower clustering coefficients (b = -.14, 95% CI [-.26, -.01]) were prospectively associated with greater self-esteem at Year 2. In other words, greater interconnectedness between neighboring nodes was associated with lower levels of self-esteem one year later.

Node/Edge Level Properties

We next examined the influence of particular nodes based on their absolute influence (strength centrality), as well as their overall expected influence (excitatory vs inhibitory) on distal life outcomes. To showcase that both strength centrality and the expected influence of each node are distinct from reported personality states, we examined the Pearson correlations between these network parameters and the respective mean state across ESM surveys. All correlations were $r < |.2|$ between the average state with strength centrality and expected influence parameters (see Table S7), with most being nonsignificant (2/18 correlations significant). These findings indicate that strength centrality and expected influence capture unique properties separate from average personality state levels. We additionally identified the outgoing node (an Extraversion item) as the modal most central node across participants. However, the strength centrality and expected influence of the outgoing node were unrelated to all 13 life outcomes across years.

Table 4.

Prospective Associations between Network Parameters and Academic/Occupational Outcomes

	Academic Motivation *b* [95% CI]		GPA *b* [95% CI]		Paid Job *OR* [95% CI]	
Network Parameter	**Year 2**	**Year 3**	**Year 2**	**Year 3**	**Year 2**	**Year 3**
Topology - Density						
Clustering Coefficient	.02 [-.14, .19]	-.02 [-.27, .23]	-.03 [-.19, .14]	-.09 [-.33, .16]	.85 [.61, 1.17]	.96 [.59, 1.55]
Modularity	.02 [-.16, .20]	-.13 [-.39, .13]	.17 [-.01, .34]	.03 [-.23, .29]	1.28 [.90, 1.82]	1.29 [.78, 2.21]
Overall Network Density	.02 [-.14, .19]	-.01 [-.26, .24]	-.05 [-.22, .12]	-.16 [-.40, .08]	.93 [.67, 1.29]	1.10 [.67, 1.79]
Topology - Node/Edge Level Properties						
Depressed						
Strength Centrality	.004 [-.16, .17]	-.09 [-.33, .16]	-.001 [-.17, .17]	-.16 [-.40, .08]	.93 [.67, 1.28]	1.07 [.67, 1.74]
Expected Influence	-.01 [-.17, .16]	-.02 [-.27, .23]	-.02 [-.20, .14]	-.13 [-.38, .11]	1.02 [.73, 1.42]	.99 [.60, 1.63]
Kind						
Strength Centrality	.02 [-.15, .19]	-.04 [-.29, .21]	-.05 [-.22, .12]	-.08 [-.33, .16]	1.21 [.86, 1.69]	1.25 [.77, 2.04]
Expected Influence	.03 [-.14, .19]	.04 [-.21, .28]	.01 [-.15, .18]	.06 [-.19, .30]	.91 [.65, 1.26]	**.59 [.34, .98]**
Lazy						
Strength Centrality	.06 [-.11, .23]	.08 [-.16, .33]	-.03 [-.20, .13]	-.09 [-.33, .16]	.93 [.67, 1.30]	1.19 [.73, 1.94]
Expected Influence	-.08 [-.24, .09]	**-.25 [-.49, -.01]**	.04 [-.13, .21]	-.06 [-.30, .19]	.89 [.64, 1.25]	.83 [.50, 1.34]
Outgoing						
Strength Centrality	.06 [-.10, .22]	-.01 [-.26, .23]	-.08 [-.24, .09]	-.20 [-.44, .04]	.98 [.70, 1.37]	.84 [.51, 1.37]
Expected Influence	-.01 [-.17, .16]	-.004 [-.25, .24]	.003 [-.16, .17]	.08 [-.17, .33]	1.03 [.74, 1.43]	.73 [.44, 1.19]
Quiet						
Strength Centrality	.07 [-.10, .23]	.04 [-.20, .29]	-.05 [-.21, .12]	-.08 [-.32, .16]	.98 [.71, 1.36]	1.07 [.66, 1.74]
Expected Influence	-.03 [-.20, .13]	-.02 [-.27, .23]	-.03 [-.19, .14]	.18 [-.06, .43]	.80 [.57, 1.12]	.86 [.52, 1.39]
Relaxed						
Strength Centrality	.07 [-.10, .23]	.08 [-.17, .32]	.01 [-.16, .17]	-.07 [-.32, .17]	.94 [.67, 1.30]	1.28 [.79, 2.10]
Expected Influence	.02 [-.23, .26]	.01 [-.23, .26]	.13 [-.04, .30]	-.04 [-.28, .21]	1.04 [.75, 1.46]	1.15 [.71, 1.88]
Reliable						
Strength Centrality	-.02 [-.19, .14]	.01 [-.24, .25]	-.06 [-.22, .11]	-.08 [-.33, .16]	1.06 [.76, 1.47]	.94 [.58, 1.53]
Expected Influence	.12 [-.04, .29]	.001 [-.25, .25]	.03 [-.14, .20]	.14 [-.10, .39]	1.06 [.76, 1.48]	.81 [.48, 1.32]
Rude						
Strength Centrality	-.04 [-.21, .13]	-.08 [-.32, .17]	-.08 [-.24, .08]	-.22 [-.46, .01]	1.07 [.77, 1.49]	1.27 [.78, 2.11]
Expected Influence	.12 [-.05, .28]	.09 [-.16, .33]	-.03 [-.20, .13]	.03 [-.22, .28]	.79 [.55, 1.10]	.81 [.48, 1.32]
Worried						

Strength Centrality	.07 [-.10, .23]	.07 [-.18, .31]	-.08 [-.25, .08]	-.07 [-.31, .17]	.87 [.63, 1.22]	1.12 [.69, 1.83]
Expected Influence	.06 [-.11, .22]	.02 [-.22, .27]	.14 [-.03, .30]	.01 [-.24, .25]	1.40 [1.00, 1.99]	1.24 [.77, 2.04]
Topology - Organization						
Normalized Mutual Information	-.15 [-.31, .02]	-.02 [-.27, .23]	.06 [-.11, .23]	.24 [-.003, .47]	.99 [.70, 1.37]	1.46 [.89, 2.45]
Complexity						
Global Network Strength	.04 [-.13, .21]	.01 [-.24, .26]	-.05 [-.22, .12]	-.14 [-.38, .11]	.99 [.71, 1.38]	1.11 [.69, 1.82]
Total Correlation	**-.19 [-.36, -.02]**	-.06 [-.32, .20]	.13 [-.05, .31]	-.03 [-.29, .23]	1.04 [.73, 1.49]	1.35 [.79, 2.40]
Von Neumann's Entropy	.10 [-.07, .27]	-.05 [-.30, .21]	-.09 [-.26, .09]	.02 [-.24, .28]	.88 [.62, 1.25]	.78 [.46, 1.30]

Note. Grayed boxes with bolded values indicate associations whose credible intervals did not contain 0 and are therefore considered significant. CI = credible intervals. OR = Odds Ratio.

Table 5.

Prospective Associations between Network Parameters with Physical Health and Self-Esteem Outcomes

	Self-Rated Physical Health *b* [95% CI]		Self-Esteem *b* [95% CI]	
Network Parameter	**Year 2**	**Year 3**	**Year 2**	**Year 3**
Topology - Density				
Clustering Coefficient	.02 [-.14, .17]	-.20 [-.43, .03]	**-.14 [-.26, -.01]**	-.13 [-.30, .04]
Modularity	.03 [-.14, .19]	.09 [-.16, .34]	-.004 [-.14, .13]	.13 [-.05, .30]
Overall Network Density	-.004 [-.16, .15]	-.22 [-.45, .01]	-.08 [-.21, .05]	-.09 [-.26, .08]
Topology – Node/Edge Level Properties				
Depressed				
Strength Centrality	-.04 [-.20, .12]	**-.23 [-.46, -.004]**	**-.15 [-.28, -.02]**	-.15 [-.32, .02]
Expected Influence	.02 [-.14, .18]	.07 [-.17, .30]	**.14 [.01, .26]**	.13 [-.03, .30]
Kind				
Strength Centrality	.10 [-.05, .26]	-.07 [-.30, .17]	.03 [-.10, .16]	-.01 [-.18, .15]
Expected Influence	-.12 [-.28, .03]	-.03 [-.27, .20]	.06 [-.07, .19]	.08 [-.09, .25]
Lazy				
Strength Centrality	-.02 [-.18, .14]	**-.27 [-.50, -.05]**	-.09 [-.22, .04]	-.13 [-.30, .04]
Expected Influence	.08 [-.08, .24]	-.08 [-.31, .15]	.11 [-.02, .24]	.08 [-.09, .25]
Outgoing				
Strength Centrality	-.01 [-.17, .15]	-.12 [-.36, .11]	-.02 [-.15, .11]	-.05 [-.22, .12]
Expected Influence	.04 [-.11, .21]	.10 [-.13, .33]	.11 [-.01, .24]	.13 [-.04, .30]
Quiet				
Strength Centrality	.04 [-.12, .20]	-.13 [-.36, .11]	.03 [-.10, .16]	-.02 [-.19, .15]
Expected Influence	-.02 [-.18, .14]	.03 [-.20, .26]	-.07 [-.20, .06]	-.06 [-.23, .11]
Relaxed				
Strength Centrality	-.02 [-.18, .14]	**-.29 [-.51, -.06]**	-.06 [-.19, .07]	-.07 [-.24, .10]
Expected Influence	-.01 [-.17, .15]	.05 [-.18, .28]	.04 [-.09, .17]	.06 [-.11, .23]
Reliable				
Strength Centrality	-.02 [-.18, .14]	-.17 [-.40, .06]	-.09 [-.22, .04]	-.15 [-.31, .02]
Expected Influence	.11 [-.05, .27]	.01 [-.23, .24]	.08 [-.05, .21]	.12 [-.05, .28]
Rude				
Strength Centrality	.04 [-.12, .19]	-.14 [-.37, .10]	-.05 [-.12, .24]	-.08 [-.24, .09]
Expected Influence	.02 [-.14, .17]	.02 [-.22, .25]	.02 [-.11, .15]	-.01 [-.17, .16]
Worried				

Strength Centrality	-.004 [-.16, .16]	-.21 [-.44, .01]	-.05 [-.18, .08]	-.09 [-.25, .09]
Expected Influence	.07 [-.09, .23]	.12 [-.12, .35]	.05 [-.08, .18]	.04 [-.13, .21]
Topology – Organization				
Normalized Mutual Information	.04 [-.12, .19]	.21 [-.02, .44]	-.10 [-.23, .03]	-.02 [-.18, .15]
Complexity				
Global Network Strength	.01 [-.15, .16]	-.21 [-.44, .02]	-.06 [-.19, .07]	-.10 [-.26, .07]
Total Correlation	.02 [-.15, .19]	.23 [-.01, .47]	-.05, -.18, .09]	.05 [-.12, .24]
Von Neumann's Entropy	.01 [-.15, .18]	.08 [-.16, .32]	.09 [-.04, .23]	.004 [-.17, .18]

Note. Grayed boxes with bolded values indicate associations whose credible intervals did not contain 0 and are therefore considered significant. CI = credible intervals.

Table 6.

Prospective Associations between Network Parameters and Relationship Outcomes

	Anxious Attachment *b* [95% CI]		Avoidant Attachment *b* [95% CI]		Relationship Satisfaction *b* [95% CI]	
Network Parameter	**Year 2**	**Year 3**	**Year 2**	**Year 3**	**Year 2**	**Year 3**
Topology - Density						
Clustering Coefficient	-.02 [-.15, .11]	.06 [-.11, .23]	.03 [-.10, .16]	.08 [-.09, .25]	-.06 [-.19, .07]	-.10 [-.27, .07]
Modularity	.08 [-.06, .22]	-.02 [-.20, .16]	-.13 [-.26, .09]	-.09 [-.26, .09]	.04 [-.10, .18]	.11 [-.07, .29]
Overall Network Density	-.04 [-.17, .09]	.05 [-.13, .21]	.01 [-.12, .14]	.08 [-.09, .24]	-.002 [-.13, .13]	-.04 [-.21, .13]
Topology - Node/Edge Level Properties						
Depressed						
Strength Centrality	.03 [-.10, .16]	.16 [-.01, .33]	.04 [-.09, .17]	.12 [-.05, .29]	-.04 [-.17, .09]	-.10 [-.26, .08]
Expected Influence	.02 [-.11, .15]	.002 [-.17, .17]	-.08 [-.20, .05]	-.10 [-.27, .07]	.01 [-.12, .14]	.08 [-.09, .25]
Kind						
Strength Centrality	-.08 [-.21, .05]	-.01 [-.18, .16]	-.06 [-.19, .07]	-.07 [-.24, .10]	.05 [-.08, .18]	.01 [-.16, .18]
Expected Influence	**.13 [.002, .26]**	.09 [-.08, .26]	-.02 [-.15, .11]	.03 [-.14, .20]	.01 [-.12, .14]	-.09 [-.26, .08]
Lazy						
Strength Centrality	.01 [-.13, .13]	.01 [-.16, .18]	.03 [-.10, .16]	.09 [-.08, .26]	-.05 [-.18, .08]	-.02 [-.19, .16]
Expected Influence	-.03 [-.16, .10]	-.03 [-.20, .14]	-.06 [-.19, .07]	-.11 [-.28, .06]	-.03 [-.16, .10]	-.09 [-.26, .08]
Outgoing						
Strength Centrality	-.09 [-.22, .04]	-.02 [-.19, .15]	-.03 [-.16, .11]	.08 [-.10, .25]	.07 [-.06, .20]	.001 [-.17, .17]
Expected Influence	.10 [-.03, .23]	.03 [-.14, .21]	.01 [-.12, .13]	-.08 [-.25, .09]	.04 [-.09, .17]	.03 [-.14, .20]
Quiet						
Strength Centrality	-.11 [-.24, .02]	-.04 [-.21, .13]	-.02 [-.15, .11]	.03 [-.14, .20]	.04 [-.09, .17]	-.03 [-.20, .14]
Expected Influence	.06 [-.07, .19]	.03 [-.14, .20]	.07 [-.10, .25]	-.04 [-.21, .13]	-.13 [-.26, .001]	-.03 [-.20, .14]
Relaxed						
Strength Centrality	-.01 [-.14, .12]	.06 [-.12, .23]	.06 [-.07, .19]	.07 [-.11, .24]	.07 [-.05, .20]	.01 [-.16, .18]
Expected Influence	.09 [-.05, .22]	-.06 [-.23, .12]	-.11 [-.24, .02]	-.16 [-.33, .01]	-.10 [-.23, .02]	-.03 [-.21, .14]
Reliable						
Strength Centrality	-.03 [-.16, .11]	.03 [-.14, .19]	.07 [-.06, .19]	.12 [-.05, .29]	-.08 [-.21, .05]	-.06 [-.22, .11]
Expected Influence	-.03 [-.16, .10]	-.08 [-.24, .09]	**-.14 [-.26, -.01]**	**-.20 [-.37, -.04]**	.08 [-.05, .21]	-.05 [-.22, .05]
Rude						
Strength Centrality	-.01 [-.14, .12]	.09 [-.08, .26]	.06 [-.07, .19]	.09 [-.08, .26]	-.02 [-.15, .11]	.02 [-.15, .19]
Expected Influence	**.14 [.01, .27]**	.06 [-.11, .23]	-.08 [-.21, .05]	.01 [-.17, .18]	.01 [-.12, .14]	-.14 [-.31, .02]
Worried						

Strength Centrality	-.08 [-.21, .05]	.04 [-.13, .21]	.03 [-.09, .16]	.07 [-.10, .24]	.06 [-.07, .19]	.05 [-.13, .21]
Expected Influence	.04 [-.09, .17]	.05 [-.12, .22]	-.08 [-.21, .05]	-.10 [-.27, .07]	-.12 [-.24, .01]	-.05 [-.22, .12]
Topology - Organization						
Normalized Mutual Information	**.14 [.01, .27]**	.11 [-.06, .28]	.12 [-.01, .25]	.04 [-.14, .21]	-.03 [-.16, .10]	-.02 [-.19, .15]
Complexity						
Global Network Strength	-.05 [-.18, .08]	.04 [-.13, .21]	.03 [-.11, .15]	.08 [-.09, .25]	.01 [-.12, .14]	-.02 [-.19, .15]
Total Correlation	.09 [-.05, .22]	-.05 [-.22, .13]	.06 [-.08, .19]	.002 [-.18. .18]	-.09 [-.23, .04]	-.02 [-.19, .16]
Von Neumann's Entropy	-.09 [-.23, .04]	.01 [-.17, .19]	-.10 [-.23, .03]	-.07 [-.24, .11]	.05 [-.09, .18]	-.002 [-.18, .18]

Note. Grayed boxes with bolded values indicate associations whose credible intervals did not contain 0 and are therefore considered significant. CI = credible intervals.

Table 7.

Prospective Associations between Network Parameters and Well-Being Outcomes

	Depression	**Happiness**		**Life Satisfaction**		**Loneliness**		**Meaning**	
	b [95% CI]	*b* [95% CI]		*b* [95% CI]		*b* [95% CI]		*b* [95% CI]	
Network Parameter	**Year 2**	**Year 2**	**Year 3**	**Year 2**	**Year 3**	**Year 2**	**Year 3**	**Year 2**	**Year 3**
Topology - Density									
Clustering Coefficient	.06 [-.10, .22]	-.06 [-.19, .07]	-.05 [-.22, .12]	-.02 [-.15, .11]	-.09 [-.26, .08]	.02 [-.11, .15]	.08 [-.09, .24]	.03 [-.13, .18]	.04 [-.19, .26]
Modularity	.05 [-.12, .21]	.10 [-.03, .24]	.12 [-.05, .30]	.06 [-.08, .19]	.07 [-.11, .24]	-.04 [-.18, .09]	-.08 [-.25, .10]	.06 [-.10, .23]	.15 [-.09, .39]
Overall Network Density	.04 [-.12, .19]	-.001 [-.13, .13]	-.01 [-.17, .16]	.01 [-.12, .14]	-.06 [-.23, .11]	.02 [-.11, .15]	.04 [-.13, .21]	.04 [-.12, .19]	.03 [-.20, .25]
Topology - Node/Edge Level Properties									
Depressed									
Strength Centrality	.13 [-.02, .29]	-.09 [-.22, .04]	-.09 [-.26, .08]	-.07 [-.20, .06]	-.14 [-.31, .03]	.06 [-.06, .19]	.13 [-.03, .30]	.01 [-.15, .16]	-.12 [-.35, .10]
Expected Influence	-.03 [-.19, .13]	.02 [-.11, .15]	.07 [-.10, .24]	-.01 [-.14, .12]	.09 [-.08, .26]	-.02 [-.15, .11]	-.02 [-.19, .15]	-.03 [-.18, .13]	.01 [-.22, .23]
Kind									
Strength Centrality	-.04 [-.19, .12]	.09 [-.04, .21]	.06 [-.10, .23]	.07 [-.06, .20]	.04 [-.12, .21]	-.05 [-.17, .08]	-.03 [-.20, .14]	.09 [-.07, .25]	-.01 [-.24, .21]
Expected Influence	-.004 [-.16, .15]	-.001 [-.13, .13]	-.05 [-.21, .12]	.00 [-.13, .13]	.03 [-.14, .19]	.01 [-.12, .14]	.04 [-.13, .21]	-.08 [-.23, .07]	-.11[-.34, .11]
Lazy									
Strength Centrality	.05 [-.11, .20]	-.04 [-.17, .09]	-.05 [-.22, .12]	-.04 [-.17, .09]	-.06 [-.23, .11]	.07 [-.06, .19]	.04 [-.13, .20]	-.001 [-.16, .16]	-.03 [-.26, .20]
Expected Influence	-.004 [-.16, .15]	.07 [-.06, .20]	.09 [-.08, .26]	-.004 [-.13, .13]	.02 [-.15, .19]	.02 [-.11, .15]	.004 [-.16, .17]	.07 [-.09, .22]	-.10 [-.32, .13]
Outgoing									
Strength Centrality	-.05 [-.21, .11]	.05 [-.08, .18]	.02 [-.15, .19]	.09 [-.04, .21]	-.02 [-.19, .15]	-.04 [-.17, .09]	-.03 [-.20, .14]	.07 [-.08, .23]	.08 [-.14, .31]
Expected Influence	-.03 [-.19, .13]	.05 [-.08, .18]	.04 [-.13, .20]	-.02 [-.15, .11]	.05 [-.12, .22]	.001 [-.13, .13]	.02 [-.15, .19]	-.05 [-.21, .10]	-.15 [-.37, .07]
Quiet									
Strength Centrality	-.05 [-.21, .11]	.09 [-.04, .22]	.04 [-.13, .21]	**.13 [.002, .26]**	.01 [-.16, .18]	-.07 [-.20, .06]	-.004 [-.17, .17]	.08 [-.08, .23]	.10 [-.12, .33]
Expected Influence	-.05 [-.21, .11]	**-.16 [-.29, -.03]**	**-.17 [-.34, -.01]**	**-.20 [-.33, -.08]**	-.12 [-.29, .04]	**.15 [.02, .28]**	.16 [-.01, .33]	-.06 [-.22, .09]	-.21 [-.43, .01]
Relaxed									
Strength Centrality	.02 [-.13, .18]	.03 [-.10, .16]	.02 [-.15, .19]	.03 [-.10, .16]	-.03 [-.10, .16]	-.01 [-.14, .12]	.00 [-.17, .17]	.01 [-.15, .16]	.02 [-.21, .24]
Expected Influence	-.02 [-.17, .14]	-.02 [-.15, .11]	.04 [-.13, .21]	-.05 [-.18, .08]	.05 [-.12, .22]	.03 [-.10, .16]	-.01 [-.14, .12]	.06 [-.10, .21]	.07 [-.15, .30]
Reliable									
Strength Centrality	.09 [-.07, .24]	-.06 [-.19, .07]	-.11 [-.28, .06]	-.06 [-.19, .07]	-.13 [-.30, .04]	.06 [-.07, .26]	.09 [-.07, .26]	-.06 [-.21, .09]	-.04 [-.27, .18]
Expected Influence	-.02 [-.17, .14]	.04 [-.09, .16]	.12 [-.05, .29]	.10 [-.03, .23]	.16 [-.01, .33]	-.08 [-.20, .05]	-.12 [-.28, .05]	-.06 [-.21, .09]	-.03 [-.26, .19]
Rude									

Strength Centrality	-.02 [-.18, .13]	.01 [-.12, .13]	.001 [-.17, .17]	-.01 [-.14, .12]	-.03 [-.20, .14]	.05 [-.08, .18]	.02 [-.15, .19]	.06 [-.09, .21]	.03 [-.19, .26]
Expected Influence	.05 [-.11, .21]	-.002 [-.13, .13]	-.01 [-.18, .16]	.02 [-.12, .14]	-.02 [-.19, .14]	.04 [-.09, .17]	.09 [-.08, .26]	.02 [-.14, .18]	-.01 [-.24, .21]
Worried									
Strength Centrality	.01 [-.15, .17]	-.004 [-.13, .13]	-.01 [-.17, .16]	-.01 [-.14, .12]	-.02 [-.19, .15]	.08 [-.05, .21]	.11 [-.05, .28]	.04 [-.11, .19]	-.02 [-.25, .21]
Expected Influence	-.04 [-.20, .12]	-.06 [-.19, .07]	-.04 [-.21, .13]	-.05 [-1.7, .09]	.05 [-.12, .22]	-.02 [-.15, .11]	-.03 [-.20, .14]	.02 [-.13, .18]	-.04 [-.26, .19]
Topology - Organization									
Normalized Mutual Information	.09 [-.07, .24]	**-.16 [-.29, -.03]**	-.06 [-.22, .11]	**-.16 [-.28, -.03]**	-.05 [-.22, .12]	.09 [-.04, .22]	.05 [-.11, .22]	-.09 [-.24, .07]	-.06 [-.28, .17]
Complexity									
Global Network Strength	.02 [-.14, .18]	.01 [-.12, .14]	-.02 [-.19, .15]	.02 [-.11, .15]	-.05 [-.22, .12]	.01 [-.12, .14]	.03 [-.14, .19]	.04 [-.12, .19]	.00 [-.23, .23]
Total Correlation	.04 [-.12, .21]	-.09 [-.22, .04]	.06 [-.12, .24]	**-.15 [-.28, -.01]**	.01 [-.16, .19]	.10 [-.03, .24]	.06 [-.11, .23]	-.003 [-.17, .16]	.04 [-.20, .27]
Von Neumann's Entropy	-.08 [-.25, .08]	.04 [-.10, .18]	-.04 [-.22, .14]	.07 [-.07, .20]	.02 [-.16, .20]	-.09 [-.22, .05]	-.06 [-.24, .12]	-.02 [-.18, .14]	-.11 [-.34, .13]

Note. Grayed boxes with bolded values indicate associations whose credible intervals did not contain 0 and are therefore considered significant. CI = credible intervals.

Conversely, we found multiple associations between the strength centrality and expected influence of different nodes with life outcomes across years. Regarding associations with outcomes at the end of Year 2 (Waves 2-4), a more excitatory role of kindness in people's personality networks was related to more feelings of anxiety across their relationships (b = .13, 95% CI [.002, .26]) later. A more excitatory role of the reliable node, however, was prospectively related to less avoidance in one's relationships (b = -.14, 95% CI [-.26, -.01]). For self-esteem, lower strength of the depressed node (b = -.15, 95% [-.28, -.02]) and a more excitatory role of the depressed node (b = .14, 95% CI [.01, .26]) were prospectively associated with greater self-esteem. There were also several associations with well-being and the quiet node. For instance, a greater inhibitory role of the quiet node was prospectively related to higher reported happiness (b = -.16, 95% CI [-.29, -.03]). A greater inhibitory role of the quiet node (b = -.20, 95% CI [-.33, -.08]) and greater strength centrality of the quiet node (b = .13, 95% CI [.002, .26]) were also prospectively related to higher life satisfaction. Finally, a more excitatory role of the quiet node was prospectively related to greater feelings of loneliness (b = .15, 95% CI [.02, .28]) one year later.

There were also multiple prospective associations within the second year (Waves 5-7; Year 3). Regarding academic outcomes, a more inhibitory role of the lazy node was prospectively related to higher academic motivation two years later (b = -.25, 95% CI [-.49, -.01]). For career outcomes, a more excitatory role of the kind node was prospectively related to lower odds of having a paid job (OR = .59, 95% CI [.34, .98]) in the second year. For physical health, greater strength centrality of the depressed (b = -.23, 95% CI [-.46, -.004]), lazy (b = -.27, 95% CI [-.50, -.05]), and relaxed (b = -.29, 95% CI [-.51, -.06]) nodes was prospectively associated with lower self-reported physical health in the second year. For the relationship

domain, a more inhibitory role of the reliable node was prospectively related to higher avoidant attachment (b = -.20, 95% CI [-.37, -.04]). Finally, a greater inhibitory role of the quiet node was prospectively related to higher reported happiness within the second year (b = -.17, 95% CI [-.34, -.01]).

Network Organization

We captured the extent to which participants' personality network was reflective of the Big Five model using Normalized Mutual Information (NMI). Within the first year, a network organization similar to the Big Five (e.g., higher NMI) was prospectively related to more anxiety in one's relationships (b = .14, 95% CI [.02, .27]). Additionally, a Big Five-like personality network was prospectively related to lower happiness (b = -.16, 95% CI [-.29, -.03]) and lower life satisfaction (b = -.16, 95% CI [-.28, -.03]). There were no associations between NMI and life outcomes two years later.

Network Complexity

Finally, we examined the association between network complexity and life outcomes with the network parameters global network strength, total correlation, and entropy. Results indicated only associations with total correlation and life outcomes. Specifically, we found that greater total correlation values (e.g., a more complex network) were prospectively associated with lower academic motivation (b = -.19, 95% CI [-.36, -.02]) and lower life satisfaction (b = -.15, 95% CI [-.28, -.01]) within the first year (Year 2).

Discussion

The present study investigated prospective associations between person-specific personality network dynamics and life outcomes up to two years later. Several prospective associations emerged, providing further evidence for personality as a dynamic system and a more

nuanced understanding of potential targets for policy and interventions that promote positive life outcomes (for a summary, see Table 8).

Personality Dynamics as Predictors of Life Outcomes

Personality dynamics research examines how intraindividual variations in momentary tendencies influence behavior. Our study highlights the utility of using personality network parameters to capture these dynamics. Our findings also add to a growing body of literature suggesting that personality reflects a dynamic system that captures how unique endogenous and exogenous forces influence behavior that ultimately leads to consequential life outcomes later on (Baumert et al., 2017). Furthermore, our findings provide insight into how dynamics-outcomes associations (1) explain why traits predict outcomes through emergence, and (2) the unique predictive power of personality dynamics that map more directly onto behavior. We broadly discuss our findings and implications for personality theory below.

First, network parameters that capture the number (density) or strength (complexity) of connections in a person's personality network were prospectively associated with self-esteem and life satisfaction one year later, respectively. These parameters are proxies of volatile personality dynamics. A denser network is more sensitive to outside forces, as perturbations to one node have large cascading effects on the entire personality network through increased interconnectedness or stronger associations between nodes. Such instability is characteristic of psychopathology, including depression and low self-esteem (e.g., Cramer et al., 2016). Similarly, complexity is associated with strong pushing and pulling in the system, which could impact life satisfaction via greater instability in how satisfied people may be across the domains of their lives (Beck et al., 2025). These findings could speak to high Neuroticism as emergent from

Table 8.

Summary of Study Findings

	Outcomes																								
	Year 2												**Year 3**												
	Academic/ Work			**Relationship**				**Well-Being**					**Academic/ Work**			**Relationship**				**Well-Being**				
Network Parameter	**AM**	**GPA**	**Paid Job**	**Phys Health**	**Anxious**	**Avoid**	**Rel. Sat.**	**Self-Esteem**	**Dep.**	**Happy**	**Life Sat.**	**Lonely**	**Meaning**	**AM**	**GPA**	**Paid Job**	**Phys Health**	**Anxious**	**Avoid**	**Rel. Sat.**	**Self-Esteem**	**Dep.**	**Happy**	**Life Sat.**	**Lonely**	**Meaning**
Topology – Density																									
Clustering Coefficient								**X**																		
Modularity																									
Overall Network Density																									
Topology – Node and Edge Level Properties																									
Strength Centrality								**1/9**			**1/9**						**3/9**								
Edge Valence – Expected Node Influence					**2/9**	**1/9**		**1/9**		**1/9**	**1/9**	**1/9**			**1/9**				**1/9**				**1/9**		
Modal Central Node (Outgoing)																									
Topology- Organization																									
Normalized Mutual Information					**X**					**X**	**X**														
Complexity																									
Global Network Strength																									
Total Correlation	**X**										**X**														
Von Neuman's Entropy																									

Note. Rel. Sat. = Relationship Satisfaction. Dep. = Depressed. Life Sat. = Life Satisfaction. X = effect found. For node and edge level properties, the values represent the number of effects that emerged across the 9 nodes.

(un)stable personality dynamics (Baumert et al., 2017), as it is associated with such negative outcomes (e.g., Ozer & Benet-Martínez, 2006).

Second, prospective associations between the similarity of a person's personality network to the Big Five and greater feelings of anxiety in relationships and lower happiness and life satisfaction could speak to the ecological fallacy of the Big Five. The Big Five traits are framed in socially desirable ways and are used to describe trait profiles of people who experience more positive life outcomes compared to others (e.g., Bleidorn et al., 2020). Yet, we found that within a person, a Big Five-like dynamic structure may not be socially desirable and lead to worse outcomes. Furthermore, these conflicting findings also highlight Simpson's paradox, where using the between-person Big Five trait structure to make inferences about promoting positive life outcomes for a single person results in the reverse effect (Kievit et al., 2013). For a single person, cross-trait contingencies may therefore be more important for promoting positive life outcomes rather than using between-person trait models as a guide. However, further confirmatory work is needed to test this hypothesis.

Importantly, the prospective associations reviewed thus far were one year later. This may be for a few reasons. First, the consequences of these personality dynamics may occur only over shorter periods. Second, and alternatively, our observation period may have been too short, such that these particular dynamics need more time to accumulate to influence consequential life outcomes later on. Third, although relatively stable (e.g., Beck & Jackson, 2022c), changes in dynamics may mask how they predict life outcomes over longer periods. Finally, other parameters (like node and edge properties) may speak more to the long-term impacts of what happens in people's lives.

Consistent with some of our previous work, the most predominant predictors in our study across years were node and edge properties. In most cases, our findings with these nodes aligned with previous research on trait-life outcomes association pairs (e.g., quiet with loneliness and happiness; Ozer & Benet-Martínez, 2006). The dynamics of particular nodes provide potential for a more nuanced understanding of how personality predicts life outcomes that can point to tangible targets for policy and targeted interventions. For instance, we found that people with more excitatory dynamics of the kind node reported feeling more anxious in their relationships. At a trait level, previous research suggests that greater levels of kindness (Agreeableness) are associated with positive relationship outcomes (Beck & Jackson, 2022a; Ozer & Benet-Martínez, 2006; Soto, 2019). Yet, the personality dynamics of kindness are masked at the trait level, and we therefore miss the ways momentary changes in kindness may lead to worse outcomes (i.e., heightened anxiety). In this case, the excitatory processes of kindness could result in people-pleasing behaviors that reinforce downplaying someone's real feelings to maintain a sense of security in their relationships (Fraley et al., 2011). Our findings, therefore, highlight the importance of understanding personality dynamics for interventions. Interventions could identify and target these types of kindness dynamics to improve relationship outcomes, as opposed to targeting general trait kindness that may inadvertently lead people to develop such kindness dynamics.

Interestingly, there were several unique associations between node and edge properties and life outcomes two years later. These prospective associations may speak to the assumption that traits predict life outcomes due to the accumulation of dynamics that influence behaviors over time (Beck & Jackson, 2022a). The cascading influence of particular nodes on the personality system can result in differential degrees of impact across people via feedback loops

that, over time, lead to negative outcomes (Yang et al., 2018). For instance, traits are thought to influence health via accumulating health behaviors (Graham et al., 2017). We found that greater strength centrality of laziness, depressed mood, and feeling relaxed was associated with health at Year 3. Our findings could point to how systems with strong, cascading dynamics for these nodes could result in behaviors that promote worse health (e.g., skipping the gym, a poor diet) and engaging in unhealthy coping mechanisms (e.g., drug use, risky activities) when momentary changes in these personality states occur. Moreover, the feedback loops in these personality dynamics could reinforce the repetition of these behaviors, which can add up to negatively impact health in the long-term. However, more research is needed to test these accumulation hypotheses.

Limitations and Constraints on Generalizability

While this study had its strengths, including a multi-method approach and use of prospective assessments over two years, it was not without its limitations. First, there was substantial attrition at assessments past the one-year mark, which limited our ability to detect small effects. We attempted to circumvent this issue by collapsing across waves, which may mask more time-specific processes that provide insights as to when these associations might occur. We therefore also ran our models at each wave to see whether these effects emerged across relevant waves (see supplementary materials). Second, Openness items were not included in the ESM portion of the study, limiting our understanding of how particular dynamics of these openness components may also predict life outcomes prospectively. Third, our findings only generalize to college students in the United States Midwest, and more studies are needed with representative samples to see the extent to which findings replicate or are more context specific.

Conclusion

Understanding the predictive power of personality dynamics offers promising avenues to developing and tailoring policy and interventions that can promote positive life outcomes. Our exploratory study provides further evidence for personality as a dynamic system whose properties play an important role in later life outcomes. Moreover, this study adds to a growing literature on how person-specific personality networks can be useful in capturing personality dynamics as individual difference variables. Overall, this study lays the groundwork for ways to conceptualize, consider, and study the associations between personality dynamics and prospective life outcomes.

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Supplemental Materials

Table S1.
Sample size at each wave and by year composite.

Wave	*n*
W2	241
W3	191
W4	168
W5	109
W6	124
W7	88
Year 2 Composite	238
Year 3 Composite	142

Table S2.

Means and Standard Deviations of Outcomes at Each Wave

	Mean (SD)					
Outcome	W2	W3	W4	W5	W6	W7
Academic / Occupational						
Academic Motivation	-	-	5.74 (0.96)	-	-	5.49 (0.95)
GPA	-	-	3.50 (0.39)	-	-	3.59 (0.30)
Paid Job	-	-	56.94% Paid Job	-	-	60.29% Paid Job
Physical Health						
Self-Rated Physical Health	-	-	5.09 (1.32)	-	-	4.96 (1.31)
Relationships						
Anxious Attachment	3.09 (1.79)	3.03 (1.78)	3.17 (1.95)	2.84 (1.84)	3.09 (1.92)	3.33 (1.86)
Avoidant Attachment	2.65 (1.33)	2.62 (1.30)	2.78 (1.28)	2.57 (1.29)	2.59 (1.32)	2.59 (1.25)
Relationship Satisfaction	10.41 (2.56)	10.58 (2.81)	10.67 (2.43)	10.43 (2.79)	10.85 (2.64)	10.65 (2.65)
Self-Esteem						
Self-Esteem	9.79 (3.81)	10.36 (3.68)	9.49 (3.95)	9.92 (3.70)	10.31 (3.72)	9.74 (4.07)
Well-Being						
Depression	-	-	1.85 (0.52)	-	-	-
Happiness	11.36 (3.04)	11.53 (2.88)	10.90 (3.14)	11.43 (3.16)	11.31 (3.10)	10.95 (3.16)
Life Satisfaction	11.24 (3.00)	11.37 (2.95)	11.13 (3.05)	11.03 (3.21)	11.37 (2.90)	11.08 (3.17)
Loneliness	7.14 (3.76)	6.71 93.75)	7.05 (4.17)	7.17 (3.86)	6.63 (3.78)	7.29 (3.82)
Meaning	-	-	10..86 (3.89)	-	-	10.28 (3.93)

Table S3.

Intercorrelations between study variables at Year 2 and Year 3.

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Academic Motivation	**.63*** **	.11	.19	.05	-.07	-.23	.19	.16	-	.20	**.25***	-.11	**.38****
2. GPA	**.36*** **	**.86*** **	-.22	.05	.13	.06	.02	-.12	-	-.17	-.04	.10	**-.27***
3. Paid Job	.02	-.04	**.43****	.01	-.06	-.18	.21	.13	-	.15	.12	-.07	.22
4. Self-Rated Physical Health	.10	.13	.08	**.65*** **	**-.29***	**-.24***	**.39****	**.41*** **	-	**.42*** **	**.50*** **	**-.30****	.19
5. Anxious Attachment	.01	.06	.10	**-.34*** **	**.76*** **	**.42*** **	**-.33*** **	**-.54*** **	-	**-.51*** **	**-.51*** **	**.49*** **	**-.55*** **
6. Avoidant Attachment	**-.16***	-.16	-.06	**-.24****	**.31*** **	**.81*** **	**-.28****	**-.36*** **	-	**-.46*** **	**-.44*** **	**.39*** **	**-.48*** **
7. Relationship Satisfaction	**.22****	.07	.00	**.28*** **	**-.40*** **	**-.35*** **	**.78*** **	**.50*** **	-	**.59*** **	**.68*** **	**-.67*** **	**.41*** **
8. Self-Esteem	.07	-.07	.06	**.31*** **	**-.50*** **	**-.29*** **	**.50*** **	**.82*** **	-	**.82*** **	**.77*** **	**-.58*** **	**.47*** **
9. Depression	**-.16***	-.11	-.02	**-.33*** **	**.43*** **	**.36*** **	**-.53*** **	**-.50*** **	-	-	-	-	-
10. Happiness	.12	.00	.04	**.34*** **	**-.45*** **	**-.43*** **	**.56*** **	**.68*** **	**-.58*** **	**.86*** **	**.87*** **	**-.68*** **	**.52*** **
11. Life Satisfaction	**.28****	.10	.02	**.38*** **	**-.44*** **	**-.43*** **	**.70*** **	**.63*** **	**-.61*** **	**.80*** **	**.81*** **	**-.66*** **	**.52*** **
12. Loneliness	-.04	-.01	.00	**-.18***	**.53*** **	**.40*** **	**-.61*** **	**-.55*** **	**.55*** **	**-.62*** **	**-.64*** **	**.68*** **	**-.55*** **
13. Meaning	**.21***	**.18***	.03	**.27****	**-.26****	**-.40*** **	**.42*** **	**.35*** **	**-.48*** **	**.52*** **	**.56*** **	**-.43*** **	**.73*** **

Note. Grayed diagonal represents test-retest correlations between Year 2 and Year 3. Effect sizes to the left of the diagonal are intercorrelations at Year 2. Effect sizes to the right of the diagonal are intercorrelations at Year 3. Depression was only assessed during Year 2. *p<.05, **p<.01, ***p<.001.

Table S4.

Prospective Associations between Network Parameters and Relationship Outcomes by Wave

Network Parameter	Anxious Attachment *b* [95% CI] W2	W3	W4	W5	W6	W7	Avoidant Attachment *b* [95% CI] W2	W3	W4	W5	W6	W7	Relationship Satisfaction *b* [95% CI] W2	W3	W4	W5	W6	W7
Topology - Density																		
Clustering Coefficient	-.03 [-.16, .11]	.04 [-.11, .19]	.02 [-.14, .17]	.11 [-.10, .33]	.06 [-.12, .25]	.02 [-.21, .25]	.01 [-.12, .14]	-.01 [-.12, .14]	.10 [-.05, .26]	-.04 [-.26, .19]	.08 [-.11, .27]	.07 [-.17, .30]	-.12 [-.26, .01]	-.11 [-.26, .04]	-.05 [-.20, .11]	-.15 [-.36, .07]	-.10 [-.28, .09]	-.05 [-.28, .18]
Modularity	.06 [-.08, .20]	.09 [-.06, .25]	.07 [-.09, .24]	-.10 [-.33, .13]	.05 [-.14, .25]	-.16 [-.40, .09]	-.08 [-.22, .06]	**-.16 [-.32, -.01]**	-.05 [-.21, .12]	.004 [-.22, .23]	-.09 [-.28, .11]	-.12 [-.37, .13]	.11 [-.03, .25]	-.01 [-.17, .16]	-.07 [-.24, .09]	.12 [-.10, .35]	.11 [-.08, .30]	.09 [-.16, .33]
Overall Network Density	-.04 [-.18, .09]	.02 [-.13, .17]	.03 [-.12, .19]	.11 [-.10, .33]	.06 [-.13, .25]	.01 [-.22, .24]	-.03 [-.16, .10]	-.02 [-.17, .13]	.12 [-.03, .28]	.003 [-.22, .22]	.06 [-.13, .25]	.10 [-.13, .33]	-.05 [-.18, .09]	-.06 [-.21, .09]	-.03 [-.19, .13]	-.09 [-.30, .13]	.00 [-.19, .19]	-.02 [-.26, .21]
Topology - Node/Edge Level Properties																		
Depressed																		
Strength	.02	.12	.08	.18	.16	.10	-.02	.02	.13	.02	.09	.17	-.07	-.14	-.06	-.14	-.06	-.07
Centrality	[-.12, .15]	[-.03, .27]	[-.08, .24]	[-.03, .40]	[-.02, .35]	[-.14, .33]	[-.15, .11]	[-.13, .18]	[-.02, .29]	[-.20, .24]	[-.10, .28]	[-.06, .41]	[-.20, .06]	[-.29, .01]	[-.22, .10]	[-.35, .08]	[-.25, .12]	[-.30, .17]
Expected Influence	.01 [-.12, .14]	-.09 [-.24, .06]	-.07 [-.23, .08]	-.07 [-.29, .15]	.01 [-.17, .20]	-.03 [-.26, .21]	-.09 [-.22, .05]	-.09 [-.24, .06]	-.13 [-.29, .02]	-.12 [-.34, .10]	-.04 [-.23, .15]	-.11 [-.34, .13]	-.04 [-.17, .10]	**.17 [.02, .32]**	-.003 [-.16, .15]	.06 [-.16, .28]	**.19 [.004, .37]**	.03 [-.20, .26]
Kind																		
Strength	-.07	-.03	-.04	.04	.03	.02	-.07	-.12	.03	-.14	.04	.03	.01	.002	.01	-.06	.04	.03
Centrality	[-.20, .06]	[-.18, .12]	[-.19, .12]	[-.17, .26]	[-.16, .22]	[-.22, .25]	[-.20, .07]	[-.27, .03]	[-.13, .19]	[-.36, .07]	[-.23, .15]	[-.20, .27]	[-.12, .14]	[-.15, .15]	[-.15, .16]	[-.27, .16]	[-.15, .22]	[-20, .26]
Expected Influence	.09 [-.04, .22]	.15 [-.00, .30]	**.21 [.06, .36]**	.07 [-.14, .29]	.08 [-.10, .27]	.22 [-.001, .45]	-.01 [-.14, .12]	.08 [-.07, .23]	.00 [-.16, .16]	.03 [-.19, .25]	.06 [-.13, .24]	.06 [-.17, .30]	.04 [-.10, .17]	-.01 [-.16, .14]	-.09 [-.25, .06]	-.14 [-.35, .07]	-.07 [-.25, .12]	-.001 [-.24, .23]
Lazy																		
Strength	.02	-.01	.04	.13	.03	.003	.02	-.002	.08	.06	.11	.16	-.09	-.04	-.04	-.09	.06	-.04
Centrality	[-.11, .15]	[-.16, .15]	[-.11, .20]	[-.09, .34]	[-.15, .22]	[-.23, .24]	[-.12, .15]	[-.15, .15]	[-.07, .24]	[-.15, .28]	[-.08, .29]	[-.07, .39]	[-.22, .05]	[-.19, .11]	[-.19, .12]	[-.30, .13]	[-.13, .25]	[-.28, .19]
Expected Influence	-.04 [-.18, .09]	-.06 [-.21, .09]	-.09 [-.25, .07]	.02 [-.20, .24]	-.01 [-.20, .18]	-.07 [-.30, .16]	-.10 [-.24, .03]	-.07 [-.23, .08]	-.06 [-.21, .10]	-.05 [-.27, .16]	-.11 [-.30, .08]	-.13 [-.36, .10]	-.05 [-.18, .08]	-.04 [-.19, .11]	-.05 [-.21, .11]	-.12 [-.34, .09]	-.01 [-.20, .18]	-.14 [-.37, .09]
Outgoing																		
Strength	-.12	-.03	-.03	.06	-.03	-.07	-.09	-.02	.10	.05	.06	.11	.05	-.01	-.02	-.07	.08	.04
Centrality	[-.25, .01]	[-.19, .12]	[-.18, .12]	[-.16, .27]	[-.22, .16]	[-.30, .16]	[-.22, .04]	[-.18, .13]	[-.06, .25]	[-.17, .27]	[-.13, .25]	[-.12, .35]	[-.08, .18]	[-.16, .14]	[-.18, .14]	[-.29, .14]	[-.11, .26]	[-.19, .27]
Expected Influence	.09 [-.04, .23]	.09 [-.06, .24]	.10 [-.05, .26]	.07 [-.14, .29]	.01 [-.18, .20]	.18 [-.04, .41]	.03 [-.10, .17]	.01 [-.15, .16]	-.05 [-.20, .11]	-.08 [-.29, .14]	-.10 [-.29, .14]	.16 [-.07, .39]	.04 [-.10, 17]	.08 [-.08, .23]	.06 [-.10, .21]	.14 [-.08, .35]	.08 [-.10, .27]	.11 [-.12, .34]
Quiet																		
Strength	-.10	-.03	-.06	.07	-.03	-.14	-.05	-.08	.07	-.03	.05	-.01	-.01	.004	-.02	-.13	-.001	-.01
Centrality	[-.24, .03]	[-.18, .12]	[-.22, .10]	[-.15, .28]	[-.22, .16]	[-.37, .09]	[-.18, .09]	[-.22, .08]	[-.08, .23]	[-.25, .19]	[-.13, .25]	[-.24, .23]	[-.14, .13]	[-.15, .16]	[-.18, .14]	[-.35, .08]	[-.19, .19]	[-.24, .22]
Expected Influence	.05 [-.09, .18]	-.05 [-.20, .10]	.05 [-.11, .21]	.01 [-.21, .22]	.09 [-.10, .28]	**.31 [.09, .53]**	.06 [-.07, .20]	.09 [-.06, .24]	-.01 [-.16, .15]	-.02 [-.23, .20]	-.06 [-.25, .13]	.19 [-.05, .42]	-.10 [-.23, .03]	-.08 [-.23, .07]	-.03 [-.19, .13]	.01 [-.21, .22]	-.04 [-.23, .15	-.06 [-.29, .17]
Relaxed																		
Strength	-.01	.05	.08	.18	.06	-.01	.04	.02	.15 [-.004, .31]	-.05	.12	.11	.07	-.03	.01	-.01	.01	.02
Centrality	[-.14, .13]	[-.10, .20]	[-.07, .24]	[-.03, .39]	[-.13, .24]	[-.24, .22]	[-.10, .17]	[-.14, .17]		[-.27, .17]	[-.07, .30]	[-.13, .34]	[-.06, .20]	[-.18, .13]	[-.15, .17]	[-.23, .20]	[-.18, .20]	[-.22, .25]
Expected Influence	.05 [-.08, .18]	.002 [-.15, .15]	.10 [-.06, .25]	.04 [-.18, .25]	-.02 [-.21, .17]	-.18 [-.40, .05]	-.12 [-.25, .01]	-.11 [-.26, .04]	-.11 [-.26, .04]	-.08 [-.30, .13]	-.14 [-.33, .04]	-.15 [-.38, .09]	-.08 [-.21, .06]	-.001 [-.15, .15]	-.12 [-.28, .03]	-.15 [-.36, .06]	.05 [-.13, .24]	-.15 [-.38, .08]
Reliable																		

Strength Centrality	-.03 [-.16, .10]	.02 [-.13, .17]	.04 [-.11, .20]	.08 [-.14, .30]	.06 [-.12, .25]	.05 [-.18, .29]	.06 [-.08, .19]	.03 [-.12, .18]	**.19 [-.03, .34]**	.05 [-.17, .27]	.11 [-.08, .30]	.16 [-.06, .40]	-.10 [-.23, .03]	-.13 [-.28, .02]	-.05 [-.21, .11]	-.07 [-.29, .15]	-.04 [-.23, .15]	-.01 [-.24, .22]
Expected Influence	-.09 [-.23, .04]	-.03 [-.18, .12]	-.06 [-.22, .09]	-.05 [-.26, .17]	-.05 [-.23, .14]	.01 [-.22, .24]	**-.16 [-.29, -.02]**	-.13 [-.28, .02]	-.14 [-.29, .01]	**-.29 [-.50, -.08]**	-.18 [-.36, .01]	-.17 [-.40, .06]	**.14 [.004, .27]**	.07 [-.09, .22]	-.08 [-.24, .08]	-.03 [-.24, .19]	.03 [-.16, .21]	-.20 [-.43, .03]
Rude																		
Strength Centrality	-.002 [-.14, .13]	.04 [-.12, .19]	-.001 [-.16, .16]	.16 [-.05, .37]	.11 [-.07, .30]	.10 [-.13, .33]	-.002 [-.14, .13]	.06 [-.09, .21]	.14 [-.01, .30]	.05 [-.17, .26]	.09 [-.10, .28]	.15 [-.09, .38]	-.08 [-.21, .06]	-.06 [-.21, .09]	-.01 [-.17, .14]	-.06 [-.27, .16]	.05 [-.14, .24]	-.02 [-.25, .21]
Expected Influence	.13 [-.004, .26]	.11 [-.04, .26]	.11 [-.05, .26]	.08 [-.13, .30]	.06 [-.13, .25]	.06 [-.18, .29]	-.05 [-.19, .08]	-.03 [-.18, .12]	.13 [-.29, .03]	.10 [-.12, .32]	.07 [-.12, .25]	-.21 [-.44, .03]	-.02 [-.15, .12]	.06 [-.09, .21]	-.06 [-.22, .10]	-.11 [-.33, .11]	-.17 [-.35, .02]	-.09 [-.32, .15]
Worried																		
Strength Centrality	-.10 [-.23, .03]	-.05 [-.20, .10]	-.05 [-.20, .11]	.07 [-.15, .29]	.05 [-.14, .23]	.04 [-.19, .27]	-.01 [-.14, .12]	.01 [-.14, .16]	.13 [-.03, .28]	-.01 [-.23, .20]	.06 [-.13, .24]	.10 [-.13, .34]	.01 [-.12, .14]	-.02 [-.17, .13]	.05 [-.11, .21]	.07 [-.15, .28]	.06 [-.13, .25]	.06 [-.17, .29]
Expected Influence	.003 [-.13, .14]	.04 [-.11, .19]	.04 [-.12, .19]	.09 [-.12, .31]	.11 [-.08, .30]	.02 [-.21, .25]	-.10 [-.23, .03]	-.07 [-.22, .25]	-.10 ‘-.25, .06]	.02 [-20, .23]	-.13 [-.31, .06]	-.04 [-.27, .20]	-.08 [-.21, .05]	-.05 [-20, .10]	**-.20 [-.35, -.05]**	**-.21 [-.42, -.004]**	.04 [-.15, .23]	-.05 [-.28, .18]
Topology - Organization																		
Normalized Mutual Information	**.15 [.02, .29]**	.08 [-.07, .23]	.07 [-.08, .23]	.09 [-.13, .30]	.12 [-.07, .30]	.16 [-.07, .38]	.13 [-.003, .26]	.12 [-.03, .27]	.08 [-.08, .23]	.10 [-.13, .32]	.06 [-.12, .25]	-.05 [-.28, .19]	-.01 [-.14, .13]	.01 [-.14, .16]	.06 [-.10, .22]	.09 [-.13, .30]	-.07 [-.26, .13]	.07 [-.17, .30]
Complexity																		
Global Network Strength	-.05 [-.18, .08]	.01 [-.14, .16]	.01 [-.15, .17]	.13 [-.09, .34]	.06 [-.13, .25]	.01 [-.22, .24]	-.01 [-.15, .12]	-.01 [-.16, .14]	.13 [-.02, .29]	.001 [-.22, .22]	.08 [-.11, .27]	.13 [-.11, .36]	-.03 [-.16, .11]	-.05 [-.21, .10]	-.02 [-.17, .14]	-.07 [-.29, .14]	.02 [-.17, .21]	.00 [-.24, .23]
Total Correlation	.06 [-.08, .20]	.11 [-.05, .27]	.11 [-.05, .28]	.12 [-.11, .34]	-.01 [-.21, .19]	-.06 [-.30, .19]	.05 [-.09, .19]	.10 [-.06, .26]	.04 [-.13, .21]	**.27 [.05, .49]**	-.07 [-.26, .13]	-.06 [-.31, .19]	-.09 [-.23, .05]	-.08 [-.24, .08]	-.09 [-.26, .08]	**-.24 [-.46, -.01]**	.00 [-.20, .20]	.12 [-.12, .36]
Von Neumann’s Entropy	-.05 [-.19, .09]	-.10 [-.26, .05]	-.14 [-.31, .02]	-.05 [-.28, .18]	-.08 [-.27, .12]	.04 [-.20, .29]	-.07 [-.21, .07]	-.08 [-.24, .08]	**-.21 [-.37, -.05]**	-.15 [-.38, .07]	-.06 [-.26, .14]	.01 [-.24, .27]	.04 [-.10, .18]	.10 [-.07, .26]	.09 [-.08, .25]	-.01 [-.24, .22]	-.001 [-.20, .19]	-.11 [-.35, .13]

Note. Grayed boxes with bolded values indicate associations whose credible intervals did not contain 0 and are therefore considered significant. CI = credible intervals.

Table S5.

Prospective Associations between Network Parameters and Self-Esteem by Wave

			b [95% CI]			
Network Parameter	W2	W3	W4	W5	W6	W7
			Topology - Density			
Clustering Coefficient	-.12 [-.25, .02]	**-.15 [-.30, -.01]**	**-.16 [-.31, -.01]**	-.20 [-.40, .003]	-.14 [-.32, .04]	-.08 [-.31, .15]
Modularity	-.02 [-.16, .12]	-.01 [-.16, .15]	-02 [-.19, .14]	.01 [-.21, .23]	.08 [-.11, .28]	-.04 [-.04, .43]
Overall Network Density	-.07 [-.20, .06]	-.10 [-.25, .05]	-.11 [-.26, .05]	-.15 [-.36, .06]	-.10 [-.28, .09]	-.09 [-.31, .14]
			Topology – Node/Edge Level Properties			
Depressed						
Strength Centrality	**-.14 [-.27, -.01]**	**-.17 [-.31, -.02]**	**-.15 [-.31, -.004]**	-.20 [-.41, .003]	-.10 [-.29, .09]	-.17 [-.39, .06]
Expected Influence	.12 [-.01, .25]	**.23 [.09, .37]**	**.21 [.05, .36]**	.11 [-.10, .32]	.18 [-.01, .36]	.12 [-.11, .34]
Kind						
Strength Centrality	.04 [-.09, .17]	.01 [-.14, .16]	-.02 [-.18, .14]	-.12 [-.32, .10]	.03 [-.16, .22]	-.03 [--.25, .19]
Expected Influence	.07 [-.06, .21]	.06 [-.09, .20]	.00 [-.16, .16]	.15 [-.06, .35]	.001 [-.18, .19]	.04 [-.19, .27]
Lazy						
Strength Centrality	-.10 [-.23, .03]	-.07 [-.22, .08]	-.14 [-.29, .01]	-.15 [-.35, .06]	-.13 [-.32, .05]	-.21 [-.43, .01]
Expected Influence	.10 [-.03, .24]	.11 [-.04, .25]	**.19 [-.03, .34]**	.02 [-.19, .22]	.10 [-.09, .29]	.08 [-.14, .30]
Outgoing						
Strength Centrality	.02 [-.12, .15]	-.03 [-.18, .12]	-.06 [-.21, .10]	-.16 [-.36, .05]	-.02 [-.20, .17]	-.07 [-.29, .16]
Expected Influence	**.17 [.03, .30]**	.05 [-.09, .20]	.06 [-.10, .21]	**.22 [.01, .42]**	.11 [-.07, .30]	.05 [-.17, .28]

Quiet						
Strength Centrality	.02 [-.12, .15]	.01 [-.14, .16]	.01 [-.15, .16]	-.11 [-.32, .10]	.002 [-.18, .19]	.07 [-.16, .29]
Expected Influence	-.06 [-.19, .35]	-.02 [-.17, .12]	-.05 [-.20, .11]	.10 [-.11, .31]	-.14 [-.33, .05]	-.24 [-.46, -.02]
Relaxed						
Strength Centrality	-.03 [-.16, .11]	-.11 [-.26, .04]	-.11 [-.26, .05]	-.14 [-.35, .06]	-.07 [-.26, .11]	-.10 [-.32, .12]
Expected Influence	.06 [-.07, .19]	.12 [-.03, .27]	-.01 [-.22, .20]	.09 [-.14, .32]	.07 [-.12, .26]	-.02 [-.15, .11]
Reliable						
Strength Centrality	-.08 [-.22, .05]	-.11 [-.25, .04]	**-.19 [-.34, -.04]**	-.13 [-.34, .08]	-.16 [-.35, .03]	-.17 [-.39, .05]
Expected Influence	.08 [-.05, .21]	.08 [-.07. .23]	.13 [-.03, .28]	.07 [-.14, .28]	.13 [-.05, .32]	-.01 [-.24, .21]
Rude						
Strength Centrality	-.01 [-.14, .12]	-.08 [-.23, .07]	-.09 [-.24, .07]	-.10 [-.30, .11]	-.06 [-.25, .13]	-.16 [-.38, .07]
Expected Influence	-.01 [-.14, .13]	.07 [-.08, .22]	-.01 [-.17, .14]	-.02 [-.23, .18]	-.15 [-.33, .04]	.13 [-.10, .36]
Worried						
Strength Centrality	-.05 [-.18, .08]	-.08 [-.23, .07]	-.06 [-.21, .10]	-.09 [-.30, .12]	-.11 [-.29, .08]	-.11 [-.33, .12]
Expected Influence	.05 [-.08, .19]	.02 [-.13, .16]	.04 [-.11, .19]	.04 [-.18, .25]	.05 [-.13, .24]	.04 [-.19, .27]
Topology – Organization						
Normalized Mutual Information	-.12 [-.25, .02]	-.09 [-.24, .06]	.01 [-.14, .17]	.04 [-.18, .25]	-.08 [-.27, .10]	.03 [-.20, .25]
Complexity						
Global Network Strength	-.05 [-.18, .09]	-.09 [-.23, .07]	-.11 [-.26, .05]	-.16 [-.36, .05]	-.08 [-.27, .10]	-.12 [-.35, .10]
Total Correlation	-.12 [-.26, .02]	-.04 [-.20, .12]	.03 [-.13, .19]	-.06 [-.28, .16]	-.02 [-.22, .18]	.02 [-.22, .25]

Von Neumann's Entropy	.07 [-.07, .21]	.12 [-.03, .28]	.08 [-.08, .24]	.06 [-.16, .28]	.08 [-.12, .27]	-.06 [-.29, .19]

Note. Grayed boxes with bolded values indicate associations whose credible intervals did not contain 0 and are therefore considered significant. CI = credible intervals.

Table S6.

Prospective Associations between Network Parameters and Well-Being Outcomes by Wave

Network Parameter	Happiness *b* [95% CI] W2	W3	W4	W5	W6	W7	Life Satisfaction *b* [95% CI] W2	W3	W4	W5	W6	W7	Loneliness *b* [95% CI] W2	W3	W4	W5	W6	W7
Topology - Density																		
Clustering Coefficient	-.03 [-.16, -.10]	-.11 [-.26, .03]	-.11 [-.26, .05]	-.08 [-.29, .13]	-.05 [-.23, .14]	-.06 [-.29, .16]	-.07 [-.20, .07]	-.02 [-.17, .13]	-.08 [-.24, .08]	-.10 [-.31, .11]	-.10 [-.28, .08]	-.14 [-.37, .09]	.06 [-.07, .19]	.12 [-.03, .27]	-.01 [-.16, .15]	.003 [-.21, .21]	.15 [-.04, .33]	.02 [-.21, .24]
Modularity	.08 [-.06, .22]	.08 [-.07, .24]	.05 [-.12, .21]	.02 [-.20, .25]	.07 [-.13, .27]	.23 [-.001, .46]	.09 [-.05, .23]	-.05 [-.21, .11]	-.003 [-.17, .17]	.01 [-.21, .23]	.08 [-.11, .28]	.07 [-.18, .32]	-.06 [-.20, .08]	.04 [-.12, .20]	-.01 [-.18, .15]	-.03 [-.25, .19]	-.03 [-.23, .17]	-.11 [-.34, .13]
Overall Network Density	.04 [-.09, .17]	-.07 [-.22, .08]	-.05 [-.21, .11]	-.02 [-.23, .20]	.02 [-.17, .20]	-.05 [-.28, .17]	-.04 [-.17, .10]	-.01 [-.16, .14]	-.06 [-.22, .10]	-.05 [-.27, .16]	-.05 [-.24, .14]	-.18 [-.40, .05]	.05 [-.09, .18]	.10 [-.05, .25]	-.02 [-.17, .14]	-.04 [-.25, .17]	.07 [-.12, .26]	.08 [-.15, .30]
Topology - Node/Edge Level Properties																		
Depressed																		
Strength	-.03	-.13	-.09	-.10	-.01	-.13	-.10	-.09	-.09	-.10	-.10	**-.24**	.05	**.19**	.03	.12	.17	.08
Centrality	[-.16, .10]	[-.27, .02]	[-.25, .06]	[-.31, .12]	[-.19, .18]	[-.36, .09]	[-.23, .04]	[-.24, .06]	[-.24, .07]	[-.32, .11]	[-.28, .09]	**[-.46, -.01]**	[-.08, .18]	**[.04, .34]**	[-.13, .18]	[-.09, .32]	[-.01, .35]	[-.14, .31]
Expected	-.01	.14	.06	.04	.12	.09	-.01	.12	-.03	.08	.13	.14	-.004	**-.16**	.01	-.01	-.05	-.04
Influence	[-.14, .13]	[-.01, .29]	[-.10, .21]	[-.17, .25]	[-.07, .30]	[-.13, .32]	[-.14, .13]	[-.03, .27]	[-.19, .13]	[-.13, .29]	[-.06, .32]	[-.06, .32]	[-.14, .13]	**[-.31, -.02]**	[-.15, .16]	[-.21, .20]	[-.23, .14]	[-.26, .19]
Kind																		
Strength	.13	-.03	.03	.05	.09	-.05	.01	.07	.04	.07	.05	-.13	-.02	.05	-.06	-.06	.01	.01
Centrality	[-.001, .26]	[-.18, .12]	[-.12, .19]	[-.16, .25]	[-.10, .27]	[-.28, .18]	[-.12, .15]	[-.08, .22]	[-.12, .20]	[-.15, .28]	[-.14, .23]	[-.36, .10]	[-.15, .11]	[-.09, .20]	[-.27, .15]	[-.27, .15]	[-.18, .20]	[-.21, .24]
Expected	-.03	-.05	-.03	-.04	-.06	-.08	.03	-.01	-.10	.01	.02	.09	.02	.03	.01	.03	.05	.03
Influence	[-.16, .10]	[-.20, .10]	[-.19, .12]	[-.25, .17]	[-.25, .12]	-.31, .15]	[-.10, .16]	[-.16, .14]	[-.25, .06]	[-.21, .22]	[-.17, .20]	[-.14, .32]	[-.11, .15]	[-.12, .18]	[-.14, .17]	[-.18, .23]	[-.14, .24]	[-.20, .25]
Lazy																		
Strength	.01	-.10	-.11	-.05	.00	-.18	-.07	-.03	-.08	-.06	-.03	**-.25**	.09	.13	.04	.06	.09	.08
Centrality	[-.12, .14]	[-.25, .04]	[-.27, .04]	[-.26, .16]	[-.19, .19]	[-.40, .04]	[-.20, .06]	[-.18, .12]	[-.24, .08]	[-.27, .15]	[-.22, .16]	**[-.47, -.02]**	[-.05, .22]	[-.02, .27]	[-.12, .19]	[-.15, .27]	[-.10, .27]	[-.14, .31]
Expected	.06	.11	.13	.01	.03	.16	.05	-.02	.01	-.06	.02	.10	.07	-.11	-.06	.03	-.001	-.06
Influence	[-.07, .19]	[-.04, .26]	[-.02, .29]	[-.20, .22]	[-.16, .22]	[-.07, .38]	[-.08, .18]	[-.16, .14]	[-.15, .16]	[-.27, .16]	[-.17, .20]	[-.13, .33]	[-.06, .20]	[-.26, .03]	[-.22, .09]	[-.18, .24]	[-.19, .18]	[-.29, .17]
Outgoing																		
Strength	.10	-.02	-.02	-.06	.09	-.06	.06	.05	-.04	-.07	.03	-.12	-.02	.02	-.03	-.05	-.02	-.03
Centrality	[-.03, .24]	[-.17, .13]	[-.17, .14]	[-.27, .15]	[-.10, .28]	[-.28, .17]	[-.07, .20]	[-.10, .21]	[-.19, .12]	[-.28, .14]	[-.15, .22]	[-.35, .11]	[-.15, .12]	[-.13, .17]	[-.18, .12]	[-.26, .17]	[-.20, .17]	[-.25, .20]
Expected	.05	.04	.04	.03	.03	.01	-.03	.04	.01	.08	.07	.03	.02	-.01	-.03	-.04	.03	.02
Influence	[-.08, .19]	[-.11, .19]	[-.11, .20]	[-.18, .24]	[-.16, .22]	[-.22, .24]	[-.16, .11]	[-.11, .19]	[-.15, .17]	[-.14, .29]	[-.12, .26]	[-.20, .26]	[-.11, .15]	[-.15, .14]	[-.18, .13]	[-.25, .17]	[-.15, .22]	[-.21, .25]
Quiet																		
Strength	.12	.03	-.03	-.02	.10	.04	.09	.11	-.002	-.04	.04	-.04	-.01	-.04	-.05	-.04	.03	-.02
Centrality	[-.01, .25]	[-.12, .18]	[-.19, .12]	[-.23, .19]	[-.09, .28]	[-.18, .27]	[-.04, .22]	[-.04, .26]	[-.16, .16]	[-.26, .17]	[-.26, .17]	[-.27, .19]	[-.15, .12]	[-.19, .11]	[-.21, .10]	[-.25, .17]	[-.16, .22]	[-.24, .21]
Expected	**-.21**	-.09	-.04	-.09	**-.22**	**-.24**	**-.16**	-.14	-.10	-.06	-.17	-.17	**.16**	.10	.06	.11	.17	**.23**
Influence	**[-.34, -.08]**	[-.24, .06]	[-.20, .11]	[-.30, .12]	**[-.40, -.04]**	**[-.45, -.02]**	**[-.27, -.03]**	[-.28, .01]	[-.25, .05]	[-.27, .16]	[-.36, .01]	[-.39, .06]	**[.03, .29]**	[-.05, .24]	[-.10, .21]	[-.10, .32]	[-.02, .35]	**[.01, .45]**
Relaxed																		
Strength	.10	-.08	-.05	-.003	.01	-.04	.02	-.02	-.06	-.04	-.03	-.14	-.02	.13	-.05	-.01	.07	-.06
Centrality	[-.03, .23]	[-.23, .07]	[-.20, .11]	[-.21, .21]	[-.18, .20]	[-.26, .18]	[-.11, .15]	[-.11, .14]	[-.21, .10]	[-.25, .17]	[-.22, .15]	[-.36, .09]	[-.15, .11]	[-.02, .28]	[-.20, .11]	[-.23, .20]	[-.12, .26]	[-.29, .16]
Expected	-.01	-.05	.05	-.08	.03	.04	.00	-.02	-.05	.00	.06	.03	.04	-.08	.08	.07	-.08	.16
Influence	[-.14, .12]	[-.20, .10]	[-.11, .20]	[-.29, .13]	[-.16, .21]	[-.18, .27]	[-.13, .13]	[-.17, .13]	[-.20, .11]	[-.21, .22]	[-.13, .25]	[-.21, .26]	[-.09, .17]	[-.23, .07]	[-.07, .24]	[-.15, .28]	[-.27, .10]	[-.07, .38]
Reliable																		

Strength Centrality	-.02 [-.15, .11]	-.12 [-.27, .03]	-.13 [-.29, .02]	-.08 [-.29, .13]	-.07 [-.25, .12]	-.19 [-.41, .03]	-.10 [-.23, .03]	-.07 [-.22, .09]	**-.16 [-.32, -.003]**	-.10 [-.31, .12]	-.11 [-.29, .08]	**-.24 [-.46, -.01]**	.08 [-.05, .21]	**.16 [.01, .31]**	.06 [-.10, .21]	.04 [-.18, .24]	.14 [-.04, .32]	.08 [-.15, .30]
Expected Influence	.02 [-.11, .15]	.06 [-.09, .21]	.07 [-.08, .22]	.08 [-.12, .29]	.04 [-.15, .23]	.04 [-.18, .27]	**.13 [.003, .27]**	.10 [-.05, .25]	.09 [-.06, .25]	.14 [-.07, .35]	.15 [-.03, .34]	.05 [-.19, .27]	-.10 [-.23, .04]	**-.15 [-.30, -.004]**	-.04 [-.20, .11]	-.11 [-.31, .10]	-.12 [-.30, .07]	-.05 [-.28, .17]
Rude																		
Strength Centrality	.07 [-.06, .20]	-.06 [-.22, .08]	-.03 [-.18, .13]	-.02 [-.23, .19]	.05 [-.14, .25]	-.11 [-.33, .12]	-.06 [-.19, .08]	-.02 [-.17, .14]	-.01 [-.16, .15]	-.07 [-.28, .14]	.04 [-.15, .23]	-.21 [-.44, .01]	.08 [-.05, .21]	.09 [-.06, .23]	.01 [-.15, .16]	.05 [-.16, .25]	.05 [-.14, .23]	.06 [-.17, .28]
Expected Influence	-.02 [-.16, .11]	.06 [-.09, .21]	-.02 [-.18, .13]	-.05 [-.26, .16]	-.13 [-.32, .05]	.10 [-.13, .32]	-.01 [-.14, .13]	.11 [-.04, .26]	-.05 [-.21, .11]	-.05 [-.27, .16]	-.13 [-.32, .06]	.20 [-.04, .42]	.03 [-.11, .16]	.02 [-.14, .16]	.07 [-.09, .22]	.07 [-.14, .28]	.09 [-.09, .28]	.20 [-.02, .43]
Worried																		
Strength Centrality	.05 [-.08, .18]	-.03 [-.19, .11]	-.03 [-.18, .13]	.04 [-.18, .23]	.02 [-.17, .20]	-.07 [-.30, .15]	-.02 [-.15, .11]	-.03 [-.18, .12]	-.07 [-.22, .09]	.02 [-.20, .23]	-.05 [-.23, .14]	-.12 [-.35, .12]	.03 [-.10, .16]	.06 [-.09, .21]	-.08 [-.24, .08]	-.13 [-.34, .08]	.004 [-.18, .19]	.002 [-.22, .23]
Expected Influence	-.05 [-.19, .08]	-.09 [-.23, .06]	-.01 [-.17, .14]	-.15 [-.36, .05]	.08 [-.11, .26]	-.07 [-.30, .15]	-.03 [-.16, .10]	-.07 [-.22, .08]	-.05 [-.21, .11]	-.004 [-.22, .21]	.15 [-.04, .33]	-.02 [-.26, .21]	.04 [-.09, .18]	.03 [-.12, .18]	**.16 [.01, .32]**	.17 [-.04, .38]	.06 [-.13, .24]	.20 [-.02, .42]
Topology - Organization																		
Normalized Mutual Information	**-.16 [-.29, -.03]**	-.07 [-.22, .08]	-.02 [-.17, .14]	-.06 [-.27, .15]	-.13 [-.31, .06]	.03 [-.20, .26]	**-.14 [-.27, -.003]**	-.07 [-.18, .14]	-.02 [-.18, .14]	-.07 [-.28, .15]	-.12 [-.31, .06]	.05 [-.19, .28]	.04 [-.10, .17]	.09 [-.06, .24]	.02 [-.14, .17]	.05 [-.16, .26]	.17 [-.02, .35]	.01 [-.22, .23]
Complexity																		
Global Network Strength	.07 [-.06, .20]	-.07 [-.22, .08]	-.06 [-.21, .10]	-.03 [-.24, .17]	.03 [-.16, .22]	-.10 [-.33, .12]	-.02 [-.15, .12]	-.002 [-.15, .15]	-.06 [-.22, .10]	-.05 [-.27, .16]	-.02 [-.21, .17]	-.19 [-.42, .03]	.03 [-.10, .17]	.10 [-.04, .25]	-.02 [-.17, .14]	-.004 [-.21, .21]	.07 [-.12, .26]	.03 [-.20, .25]
Total Correlation	-.13 [-.27, .01]	-.04 [-.20, .12]	.002 [-.16, .16]	-.14 [-.36, .08]	.06 [-.14, .25]	.06 [-.18, .30]	-.12 [-.26, .02]	-.14 [-.29, .02]	-.11 [-.28, 06]	-.17 [-.39, .05]	-.01 [-.20, .19]	.03 [-.21, .28]	.09 [-.05, .23]	.11 [-.05, .26]	.03 [-.09, .35]	.13 [-.09, .35]	.07 [-.12, .27]	.16 [-.07, .40]
Von Neumann's Entropy	.01 [-.13, .15]	.06 [-.10, .21]	.05 [-.12, .21]	-.03 [-.25, .19]	.04 [-.16, .23]	-.10 [-.34, .15]	.05 [-.09, .19]	.10 [-.06, .26]	.09 [-.08, .26]	-.02 [-.24, .24]	.05 [-.14, .24]	.03 [-.22, .28]	-.06 [-.20, .08]	**-.17 [-.33, -.02]**	-.04 [-.20, .13]	.07 [-.16, .29]	-.18 [-.38, .01]	-.06 [-.30, .18]

Note. Grayed boxes with bolded values indicate associations whose credible intervals did not contain 0 and are therefore considered significant. Depression and meaning were only assessed at Wave 4 (1 year post-baseline) and Wave 7 (2 years post-baseline). Therefore, effect sizes presented in Table 7 for depression and meaning reflect the effect sizes for these waves (Year 2 = Wave 4; Year 3 = Wave 7). CI = credible intervals.

Table S7.

Zero-order Pearson's Correlations between Average Big Five States and Node/Edge Properties

State	Strength Centrality *r* [95% CI]	Expected Influence *r* [95% CI]
Depressed	**.18 [.06, .30]**	-.09 [-.21, .03]
Kind	**.19 [.09, 30]**	-.05 [-.17, .07]
Lazy	.03 [-.09, .15]	-.03 [-.15, .08]
Outgoing	.08 [-.04, .20]	.08 [-.03, .20]
Quiet	.04 [-.08, .16]	-.05 [-.17, .07]
Relaxed	-.05 [-.17, .07]	.03 [-.09, .15]
Reliable	.00 [-.12, .12]	.02 [-.10, .14]
Rude	.01 [-.11, .13]	-.07 [-.19, .05]
Worried	.04 [-.08, .16]	-.05 [-.17, .07]

Note. Bolded values indicate effect sizes whose confidence intervals did not contain 0. CI = confidence intervals.