Is personality stable and symptoms fleeting? A longitudinal comparison in adolescence

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Abstract

Few investigations have directly compared personality and internalizing symptoms stability within the same sample and have not included personality facets. This study examined rank-order stability and mean-level change of Big Five domains, facets of neuroticism and extraversion, and internalizing symptoms in a sample of 550 adolescent females. Personality and symptoms were assessed every nine months for three years. Three year rank-order stability was higher for personality domains and facets compared to symptoms. Notable exceptions included lower stability of depressivity and positive emotionality facets. Facets and symptoms showed similar mean level change. Overall, we observed modest and variable temporal differences between symptoms and traits; symptoms exhibited high rank-order stability and low mean-level change, but domains and facets were generally more stable.

Keywords

Personality; traits; symptoms; facets; psychopathology; stability; longitudinal; test-retest; rank-order; mean level

[1]Spearman correlations were also examined and found to be very similar. For comparison to Figure 1, the average Spearman correlations for the Big 5 were .67, .64, .61, and .57 at T1-T2, T1-T3, T1-T4, and T1-T5, respectively. The average Spearman's correlation for IPIP facets were .66, .64, .59, and .56. The average Spearman's correlation for the IDAS were .47, .45, .39, and .36.

Introduction

The strong association between personality traits and internalizing psychopathology has given rise to many prominent theoretical models and has been the focus of a considerable amount of research for several decades (Clark & Watson, 1991; Griffith et al., 2010; Klein et al., 2011; Kotov et al., 2010; Ormel et al., 2013; Tackett, 2006; Watson et al., 2021). Personality and symptoms have typically been conceptualized as distinct domains. However, a new taxonomic system, the Hierarchical Taxonomy of Psychopathology (HiTOP), explicitly incorporates traits and symptoms together (Kotov et al., 2017). As a result, researchers are re-examining the distinction between traits and symptoms (DeYoung et al., 2020).

Personality is often thought to be broader in scope than symptom dimensions. However, personality can be assessed at narrower (i.e. facet) levels and facets have been found to map more directly onto specific forms of psychopathology (Bienvenu et al., 2004; Goldstein et al., 2018; Rector et al., 2012). Rather than scope, personality and symptoms scales may be more effectively distinguished by temporal stability (DeYoung et al., 2020; Ormel et al., 2012). Specifically, personality traits are thought to have higher rank-order stability over time than symptoms dimensions. However, traits also change over time, especially in adolescence (McCrae et al., 2003; Roberts & DelVecchio, 2000; Soto, et al., 2011), which corresponds to the same developmental period in which first incidence of internalizing disorders is especially high (Salk et al., 2017). Consequently, the question devolves to one of relative stability – how much more stable are traits than symptoms scales?

High rank-order stability of personality traits during adolescence is well established (De Fruyt et al., 2006; Hampson & Goldberg, 2006; McCrae et al., 2003; Roberts et al., 2001; Roberts & DelVecchio, 2000). For example, the mean one-year rank-order stability across Big Five traits is $r = .68$ at age 12 (Borghuis et al., 2017). Longer studies of adolescent females have found that the 4-year stabilities of neuroticism, agreeableness, extraversion, and conscientiousness are $r's = .30, .34, .45,$ and $.63$, respectively (McCrae et al., 2003).

Although frequently conceptualized as episodic and thought to be far more variable than traits, psychopathology also demonstrates relatively high rank-order stablity over time (Ormel et al., 2013). Many people who experience one episode of anxiety or depression go on to have additional episodes (Copeland et al., 2009; Finsaas et al., 2018) or a chronic course (Klein & Small, 2014; Woodward & Fergusson, 2001). Studies examining symptoms, rather than diagnoses, also find substantial stability (Cole et al., 1998, 2001; Duncan-Jones et al., 1990; Lovibond, 1998; Van Oort et al., 2009; Watson & O'Hara, 2017). Although studies vary, the two-year rank-order stability of anxiety and depressive symptoms is relatively high, ranging from $r = .59-.64$ in children (Cole et al., 1998) to $.33-.57$ in adolescents (Van Oort et al., 2009). Similarly, in young adults, Watson & O'Hara (2017) report four-year stability correlations ranging from $.28-.64$ across 10 anxiety and depression symptom scales (a median value of $.48$).

These data suggest that the rank-order stabilities of personality traits and internalizing symptoms may not differ as much as is commonly assumed. Additionally, the relative

stabilities of personality traits and symptoms scales may vary depending on which traits and symptoms scales are examined. Moreover, the degree to which the stabilities of traits and symptoms differ from one another may vary depending on the length of the follow-up intervals, with differences between stabilities increasing or diminishing over time. It is also possible that the degree to which measurement error contributes to unreliability might vary depending more so for some symptom dimensions than others. However, despite the extensive literatures on the stability of traits and symptoms, a review by Ormel and colleagues (2013) found surprisingly few studies that directly compared the stabilities of traits and symptoms in the same sample and over the same interval. Although some studies reported rank-order stabilities of personality and symptom scales, the vast majority of these studies did not formally test whether the stability of traits and symptoms differed significantly. Additionally, many prior studies used broad symptom measures such as psychological distress, which may show different levels of stability over time due to the broad breadth of content than more narrow constructs such as depression and specific forms of anxiety. One exception directly compared the rank-order stability of traits (i.e., neuroticism, extraversion) and symptoms (i.e., depression, anxiety) every year among emerging young adults between the ages of 17 to 20 (Prenoveau et al., 2011). They found one-year rank-order stabilities of $r = .46$ for depression, .59 for social anxiety, and .64 for specific phobia symptoms, compared to .75 and .76 for neuroticism and extraversion, respectively. Studies that directly compare the stability of traits and symptoms are needed to replicate and extend these findings to other ages.

We are not aware of *any* studies that have compared the relative stability of personality facets to internalizing symptoms, such as depression and anxiety. Given recent suggestions that temporal stability and the time frame assessed (past two weeks vs. in general), rather than content scope, may be critical for distinguishing between traits and symptoms (DeYoung et al., 2020), comparing facets and symptoms dimensions may be the most relevant contrast given that their comparable breadth of content. Moreover, there are indications that facets may be somewhat less stable than broad trait domains. In adults assessed using the Revised NEO Personality Inventory (Costa & McCrae, 1992), some studies have shown that facets are less stable than traits (Bleidorn et al., 2009), although others have reported similar stabilities (Hopwood et al., 2013). For example, in a recent study of older children and early adolescents, the three-year rank-order stabilities of neuroticism and extraversion were $r = .69$ and .72, respectively, which are similar to the median stabilities of $r = .65$ and .64 for neuroticism and extraversion facets, respectively. (Brandes et al., 2020).

While the vast majority of studies report rank-order stability, an equally important component of stability is mean-level change (Roberts et al., 2006; Specht et al., 2011). Rank-order stability is informative for capturing the degree to which individuals remain in the same position on a trait/symptom relative to other individuals (e.g., those high on neuroticism stay high and those low on neuroticism stay low). In contrast, mean-level change focuses on whether there are increases and decreases in the values of the trait/symptom themselves (e.g., a sample became more neurotic over time). It is possible that a trait/symptom can have high rank-order stability, but exhibit low mean-level stability. For instance, from childhood to adolescence there is significant rise in depressive symptoms

(low mean-level stability), but those who are more symptomatic at one point in time, generally continue to be more symptomatic at later time points (high rank-order stability; Thapar et al., 2012). Therefore, in evaluating whether domains and facets are more stable than symptoms rank-order stability and mean-level change must both be considered, but most of the literature has not focused on mean-level change.

The current study sought to address these gaps and directly compare the stability of personality traits and internalizing psychopathology symptoms. Specifically, we examined rank-order stability and mean-level change of personality domains and facets and a variety of internalizing symptom dimensions in a sample of 550 adolescent females who were assessed every 9 months over a three-year period. To eliminate confounding method variance (i.e., self-reported traits/facets vs. interviewer-mediated assessments of symptoms via semi-structured interview), we examined self-report measures of symptoms and personality. We focused on facets of neuroticism and extraversion as these are the two domains that are most strongly implicated in emotional disorders (Klein et al., 2011; Watson et al., 2021). We hypothesized that personality traits, facets, and internalizing symptoms would exhibit moderate rank-order stability. However, based on previous research, we anticipated that both broad domains and facets would exhibit greater rank-order stability than symptoms, but the gap between facets and symptoms may be narrower since they are more comparable in terms of content breadth. Additionally, we hypothesized that most symptoms might also exhibit greater mean-level change as internalizing pathology, such as depression and some forms of anxiety (e.g., panic, social, generalized) often increase during adolescence (Zahn-Waxler et al., 2000). We also expected some mean-level decreases in neuroticism and increases in agreeableness, but minimal change of other traits as shown in previous research on adolescents (Klimstra et al., 2009).

Method

Participants and Procedure

Data for this project were drawn from a longitudinal study examining first onset depression in a sample of 550 adolescent females, which included 5 waves of personality and symptom assessments (Goldstein et al., 2019; Nelson et al., 2015). Adolescents were recruited via commercially available phone records, in-person recruitment in schools, community placed posters, and word-of-mouth. Inclusion criteria were being female, aged 13.5 – 15.5, fluent in English, and having at least one biological parent who was able to participate. Adolescents were excluded if they had a lifetime history of major depressive or dysthymic disorder, an intellectual disability, or difficulty reading or comprehending questionnaires. Approximately 2,210 families were contacted by phone or referred to the study by other methods (most of who were excluded for not having a female child within the age range), 3 were excluded due to medical reasons, 14 were excluded due to non-biological relationship to primary caregiver in the home, 12 were excluded due to English language difficulties, 8 due to learning difficulties, and only 41 were excluded due to depressive disorder history. Parents provided informed consent and adolescents provided assent. Procedures were Institutional Review Board approved.

At study entry, the sample was 14.38 years old on average (SD = 0.62). Participants were primarily Caucasian (87.6%), 5.8% identifying as Black, 2.9% Asian, 0.4% Native American, and 3.3% as other. Most identified as non-Hispanic (89.1%). Overall, 19.3% identified as a racial or ethnic minority. For 33.6% of the sample, both parents had a college degree.

Participants were invited to complete 5 assessments at 9-month intervals over a 3-year period. The first, third, and fifth waves were in-person and the second and fourth were completed remotely. Attrition was low: 460 (83.6%) participants completed all 4 follow-ups, 52 (9.5%) completed 3 follow-ups, 11 (2.0%) 2 follow-ups, 17 (3.1%) only 1 follow-up, and 10 (1.8%) provided no follow-up data. Most participants (N = 382, 69.5%) had no missing data across all five assessments. To examine attrition, we compared those who provided data at all waves (N = 460) with those who missed at least one follow-up (N = 90) on race/ethnicity, parental education, and age. There were no significant differences on minority status, χ^2 (1, N = 550) = 0.60, p > .05, parental education, χ^2 (1, N = 526) = 1.69, p > .05, or age at baseline, t(548) = 0.54, p > .05. Personality domains, facets, and symptoms did not significantly differ for most scales; however, individuals missing at least one follow-up scored lower on agreeableness (t = −2.56, p = .010), conscientious (t = −2.81, p = .005), and well being (t = −2.39, p = .017) and higher on neuroticism (t = 2.17, p = .03), depressivity (t = 2.36, p = .019), and hostility (t = 1.98, p = .049).

Measures

Big Five Inventory (BFI; John & Srivastava, 1999).—The BFI is a self-report measure of the Big Five traits in which individual's rate whether a statement characterizes them. Items are rated on a 5-point scale with options from 1 (disagree strongly) to 5 (agree strongly). The number of items per scale are listed in parentheses as follows: agreeableness (9), extraversion (6), conscientiousness (9), neuroticism (8), and openness (9). The BFI has good internal consistency, test-retest reliability, and convergent and discriminant validity (John et al., 2008).

International Personality Item Pool (IPIP; Goldberg et al., 2006).—The IPIP is a large database of personality items that are freely available to the public and can be used to form facet scales related to the Big Five traits. We used facet scales based on Naragon-Gainey and Watson (2014). Participants rate how accurately a statement describes them on a 5-point scale with options ranging from 1 (Very Inaccurate) to 5 (Very Accurate). The number of items per scale are listed in parentheses as follows: depressivity (9), anxiousness (10), hostility (9), positive emotionality (9), assertiveness (10), sociability (10), and venturesomeness (10).

Inventory of Depression and Anxiety Symptoms (IDAS; Watson et al., 2007, 2012).—The IDAS is a self-report measure of depression, anxiety, and related symptoms occurring in the past 2 weeks. We used the original IDAS scales, with one exception (social anxiety), which was modified to improve its psychometric properties (see Watson et al., 2012). The scales include (with the number of items in parentheses): Dysphoria (10), Lassitude (6), Insomnia (6), Suicidality (6), Appetite Loss (3), Appetite Gain (3),

Well-Being (8), Panic (8), Ill Temper (5), Social Anxiety (6), and Traumatic Intrusion (4). Items were rated on a 5-point scale to indicate the extent to which participants experienced the symptom from 1 (Not at all) to 5 (Extremely).

In our sample, alphas were generally good for all scales across all time points. Supplemental Table 1 shows that alphas are quite similar for all personality and symptom scales. Descriptive statistics for all measures are shown in Table 1.

Data analytic plan

Test-retest correlations and mean-level changes are reported relative to the first assessment (e.g., from T1 to T2, T1 to Tn) – thus, change was assessed over intervals of 9-, 18-, 27-, and 36-months. We examined test-retest Pearson's correlations to determine rank-order stability.[1] We then used Fisher's r to z tests to examine rank-order stability; comparisons between all pairs of facets and symptoms were conducted. Paired t-tests and Cohen's d effect size estimates were used to determine the statistical significance and magnitude of mean-level change. For the purposes of comparing domains, facets, and symptoms, we took the absolute value of the Cohen's ds which indicates degree of change irrespective of direction (e.g., a $d = -.16$ indicates the same amount of change as a $d = 0.16$). We took the absolute value of the Cohen's ds and used z tests to compare all pairwise comparisons of facets and symptoms.

Results

Rank-order stability

Figure 1 depicts the rank-order stability coefficients for 9- (T1-T2), 18- (T1-T3), 27- (T1-T4) and 36- (T1-T5) month follow-up intervals. Rank-order stability was higher for domains and facets than symptom scales. Focusing on the longest interval, we used Fisher's r to z transformation and found that domains and facets were significantly more stable than symptoms (respectively, $Z = 4.12$ and 3.43, p's < .001); however, domains and facets did not significantly differ from each other ($Z = 0.69$, $p = 0.49$). Figure 1 also shows that rank-order stability generally decreased across time. However, it is notable that the drop-off in stability was larger for trait domains and facets relative to the drop-off for symptoms. For instance, the mean T1-T2 and T1-T5 stabilities for symptom scales was $r = .45$ and $.38$, respectively; however, over the same follow-up intervals the average stability of domains dropped from $r = .68$ to $.58$ and the stability of facets dropped from $r = .68$ to $.55$. However, a more nuanced view emerges when examining specific domains, facets, and symptoms. For instance, the stability of neuroticism dropped from .65 (T1-T2) to .51 (T1-T5), depressivity dropped even further from .72 to .49, whereas dysphoria showed a much smaller drop from .51 to .45. It is important to note that despite the larger drop in magnitude, domains and facets remain more stable than symptoms. Additional correlations are provided in Supplemental Table 2.

We directly compared differences in stability between specific facets and symptoms, using Fisher's *r* to *z* transformation. As was discussed in the Introduction, we focused on facets because they are similar in scope of content to symptoms. Figure 2 shows all possible pairwise comparisons of stability coefficients. The stabilities of dysphoria and social anxiety symptoms were comparable to the facets of positive emotionality and depressivity even over relatively modest follow up intervals (e.g., T1-T4). Indeed, the stabilities of depressivity and positive emotionality did not differ from several symptom domains. In contrast, the facets of hostility and sociability were almost always significantly more stable than symptoms and assertiveness, venturesomeness, and anxiousness were significantly more stable than symptoms at all intervals.

Mean-level change

Table 2 shows the mean-level change, presented as Cohen's d, for personality and symptoms from the baseline assessment to each follow-up wave. Table 2 also includes an average Cohen's *d* based on the absolute value of mean-level change for domains, facets, and symptoms at all follow-up waves. The domain scales exhibited relatively small mean-level change from T1 to any of the follow-ups (d's ranged from –0.17 to 0.22). There were statistically significant, but small, increases in neuroticism (d's range = 0.11 to 0.25) and decreases in extraversion (d's range = –0.11 to –0.17). Similarly, personality facets exhibited small changes (d's range = –0.24 to 0.23), although many of them were statistically significant. Most notable were statistically significant increases in depressivity (d's range = 0.14 to 0.23) and decreases in positive emotionality (d's range = –0.13 to –0.24) and sociability (d's range = –0.18 to –0.21) at each follow-up assessment relative to baseline (T1). Symptoms showed minimal changes initially (d's range = –0.24 to 0.09 by T2). However, by T5 we observed modest, but statistically significance decreases on all symptom scales, except suicidality (d's range = –0.42 to –0.04).

Figure 3 contains a heat plot that depicts the difference of the absolute values of Cohen's ds for all pairwise comparisons of neuroticism and extraversion facets with symptoms. As can be seen in the figure, over the entire three-year interval mean level changes in facets and symptoms were generally comparable (not statistically different, shaded light blue in the figure). However, there was a tendency for symptoms to change less than facets over short intervals, but more than facets over longer intervals. Two neuroticism facets, (depressivity and, to a lesser extent, anxiousness), and one extraversion facet (sociability), often exhibited greater mean level change than symptoms, but by longer intervals this pattern was either absent or reversed. Across all follow-up intervals, two symptom scales, appetite gain and well being, generally exhibited greater mean-level change than facets.

Within Personality Trait and Facet Comparisons

Figure 1 shows other interesting patterns. Focusing on the 3-year rank-order stability of the Big Five traits, extraversion was more stable than neuroticism ($Z = 3.34$, $p < .001$), agreeableness ($Z = 2.23$, $p < .05$), and openness ($Z = 2.46$, $p < .05$). At 3-years, conscientiousness was more stable than neuroticism ($Z = 2.81$, $p < .005$). Also the stability of some facets differed compared to their Big Five counterparts. Facets of neuroticism (3-year stability of $r = 0.49–0.55$) were about as stable as Big Five neuroticism ($r = 0.51$;

all Z test comparisons non-significant). However, some facets of extraversion (e.g., positive emotionality, $r = 0.51$, $Z = 3.34$, $p < .001$; sociability, $r = 0.54$, $Z = 2.69$, $p < .01$) were less stable than Big Five extraversion ($r = 0.65$).

Discussion

It is widely assumed that personality traits are highly stable and reflect enduring characteristics of an individual, while symptoms wax and wane over time. However, this is an oversimplification, obscuring how much traits and symptoms actually differ with regard to stability. Although personality and symptom stability estimates are often reported in the same studies, their stabilities have rarely been directly compared to one another within a sample. The current study fills this notable gap by examining rank-order stability and mean-level change of personality domains and facets and internalizing symptoms in a sample of adolescent females.

We found that personality traits are indeed more stable than symptoms when considering rank-order stability, but there were minimal differences in mean-level change for most facet and symptom comparisons. Facets often exhibited greater mean-level change than symptoms. Over longer follow-up intervals the difference in rank-order stability between personality traits and symptoms waned, primarily due to a sharper decrease in the stability of personality. However, the degree to which rank-order stability dropped varied depending on the particular scale, with some exhibiting a much more precipitous drop than others. While still significantly different from one another, the rank-order stability of traits, facets and symptoms began to converge at longer follow-ups (e.g., average stability at 9 months for facets = 0.68 vs. symptoms = 0.45, a $r = 0.23$; but average 3-year stability of facets = 0.55 vs. symptoms = 0.38, a $r = 0.17$). Nevertheless, personality domains and facets remained more stable than symptoms over three years. Overall, our results suggest that personality traits are indeed more stable than symptoms, but these differences are not as clear-cut or universal as commonly believed. Indeed, focusing on rank-order stability alone indicates greater personality stability, but this only reveals part of the story as mean-level change was often similar and in some cases personality facets had greater mean-level change than symptoms.

Several findings merit additional discussion. First, mean-level change was virtually indistinguishable between facets and symptoms for the majority of comparisons. Facets often exhibited more mean-level change than symptoms over shorter intervals, although this tended to reverse over longer intervals. This finding underscores the importance of considering mean-level change when evaluating the temporal differences of traits vs. symptoms. Second, symptoms exhibited consistently moderate rank-order stability across the follow-up period and the stability of symptoms decreased only slightly at longer compared to shorter follow-up periods.

Perhaps most critically, our results did not suggest a uniform pattern or degree by which each trait, facet, or symptom domain changed. In particular, these data support a nuanced view of the boundary between neuroticism and its facet of depressivity, as well as between extraversion and its facets of positive emotionality and, to a lesser extent, sociability. It may

be better to conceive of these scales as exiting in an intermediate space possessing both symptom-like and trait-like characteristics. Specifically, the rank-order stability of dysphoria symptoms did not statistically differ from the personality facets of depressivity, positive emotionality, and sociability over 27 and 36 month intervals. Additionally, dysphoria symptoms often showed less or similar mean-level changes compared to these facets. These results suggest that the depressivity facet alone, possibly in conjunction with the facet of positive emotionality, may be similar to the clinical construct of depressive personality disorder (Klein & Bessaha, 2009). Another way of thinking about these results is that dysphoria appeared to be just as trait-like as these facets, which is not entirely surprising, given that many individuals experiencing depression exhibit a chronic course or that once a depressive episode ends, they continue to experience significant residual symptoms (Klein, 2010; Klein & Allmann, 2014).

The direction of mean-level changes for personality and symptoms was unexpected and somewhat paradoxical. We observed small, but statistically significant mean-level increases for neuroticism and some of its facets and decreases for extraversion and some facets. This pattern is not surprising as it is well established in other studies with this age range (Borghuis et al., 2017; Laceulle et al., 2012; McCrae et al., 2003; Roberts et al., 2006; Soto et al., 2011). However, we would have expected that the pattern of personality change (e.g., more neuroticism, depressivity, less extraversion, positive emotionality, and sociability over time) would coincide with increases in symptoms as this personality profile is generally viewed as maladaptive. Instead, we generally observed decreases in symptoms. Symptom decreases are an often observed measurement artifact in community samples (Durham et al., 2002; Jorm et al., 1989). But, why symptom decreases are occurring at the same time as a maladaptive pattern of personality is increasing is unusual and requires further replication. One possible explanation is the scar or consequence model of personality and psychopathology in which personality is negatively impacted by the experience of symptoms. However, this model is inconsistently supported empirically (Klein et al., 2011; see also Ormel et al., 2020).

This paper makes an important contribution by directly comparing the rank-order and mean-level stabilities of an array of personality domains, facets, and internalizing symptom dimensions during adolescence. We believe it is one of a small handful of paper to compare the stability of personality domains, facets, and symptoms (e.g., Proveneau et al., 2011). However, it also has several limitations. First, we relied on self-report questionnaires; interviews or informant reports might produce a different results. However, using self-report assessments across domains, facets, and symptoms maximizes comparability and reduces method variance. Second, our sample is composed entirely of adolescent females, most of whom were white and from middle-class backgrounds, so the results cannot be generalized to other demographic groups. The fact that our sample is all female and that females are more likely to experience depression and have a chronic course suggests that there may be sex differences in stability that should be examined in future research. Third, our symptom scores were relatively low since we used a community sample and ruled out individuals with a history of lifetime MDD or dysthymia. Excluding those with depressive disorder histories might have decreased symptom variance and lead to lower stability estimates. Fourth, we did not separate sources of unreliability such as measurement error, which may obscure true

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score change. Finally, we focused on internalizing symptoms and corresponding facets of extraversion and neuroticism. Research is needed to examine facets of all Big Five domains and other forms of psychopathology (e.g., externalizing).

Overall, our findings support the widespread assumption that personality is generally more stable than symptoms, especially when considering rank-order stability. However, our results also show that internalizing symptoms exhibit greater rank-order and mean-level stability than is typically presumed, even when they are assessed with measures designed to cover very brief intervals (e.g., past two weeks), indicating the chronic, or trait-like, nature of much self-reported internalizing psychopathology. Moreover, these data provide a more nuanced view as the rank-order and mean-level stability of some personality facets (e.g., depressivity and positive emotionality) are quite similar to the more stable symptom dimensions such as dysphoria.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgement:

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- Personality traits are considered to be more stable than mental health symptoms.

- The degree that personality is more stable than symptoms is rarely tested.

- Mental health symptoms were found to be quite stable

- Personality domains and facets were more stable, but stability varied widely

- At longer follow-ups some aspects of personality were symptom-like

	T1 with T2	T1 with T3	T1 with T4	T1 with T5		Legend r strength
Domain Scales						
Extraversion	.74	.71	.67	.65		.75
Agreeableness	.67	.64	.59	.56		.70
Conscientiousness	.74	.72	.66	.63		.65
Neuroticism	.65	.59	.60	.51		.60
Openness	.61	.64	.58	.55		.55
Mean r	.68	.66	.62	.58		.50
Facets of E and N						.45
Depressivity	.72	.58	.54	.49		.40
Anxiousness	.68	.62	.62	.55		.35
Hostility	.67	.62	.60	.54		.30
Positive Emotionality	.61	.57	.48	.51		.25
Assertiveness	.75	.71	.67	.64		.20
Sociability	.69	.66	.59	.54		
Venturesomeness	.67	.68	.61	.60		
Mean r	.68	.63	.59	.55		
Symptoms						
Dysphoria	.51	.45	.52	.45		
Lassitude	.41	.43	.43	.35		
Insomnia	.42	.44	.43	.36		
Suicidality	.46	.24	.31	.33		
Appetite Loss	.43	.39	.40	.37		
Appetite Gain	.46	.42	.36	.32		
Well-Being	.44	.45	.31	.38		
Ill Temper	.51	.47	.38	.44		
Panic	.39	.30	.37	.43		
Social Anxiety	.55	.54	.50	.39		
Traumatic Intrusions	.37	.30	.32	.31		
Mean r	.45	.40	.39	.38		

Figure 1.

Personality Traits and Facets and Psychopathology Symptom Correlations Over Time

		Dysphoria	Lassitude	Insomnia	Suicidality	Appetite Loss	Appetite Gain	Well-Being	Ill Temper	Panic	Social Anxiety	Traumatic Intrusion
Depressivity	9 mo	0.20	0.30	0.30	0.25	0.29	0.26	0.27	0.21	0.33	0.17	0.35
	18 mo	0.14	0.15	0.15	0.34	0.19	0.16	0.14	0.11	0.28	0.04	0.28
	27 mo	0.02	0.11	0.11	0.23	0.14	0.18	0.23	0.16	0.17	0.04	0.23
	36 mo	0.04	0.14	0.13	0.16	0.12	0.17	0.11	0.05	0.06	0.10	0.18
Anxiousness	9 mo	0.16	0.27	0.26	0.22	0.25	0.22	0.24	0.17	0.29	0.13	0.31
	18 mo	0.18	0.20	0.19	0.38	0.23	0.21	0.18	0.15	0.32	0.09	0.32
	27 mo	0.11	0.19	0.19	0.31	0.22	0.26	0.31	0.24	0.25	0.12	0.31
	36 mo	0.10	0.20	0.19	0.22	0.17	0.23	0.17	0.11	0.11	0.15	0.23
Hostility	9 mo	0.15	0.26	0.25	0.20	0.24	0.21	0.23	0.16	0.28	0.12	0.30
	18 mo	0.22	0.24	0.23	0.42	0.28	0.25	0.22	0.19	0.36	0.13	0.36
	27 mo	0.10	0.19	0.19	0.31	0.22	0.26	0.31	0.24	0.25	0.12	0.30
	36 mo	0.09	0.18	0.18	0.21	0.16	0.22	0.16	0.10	0.10	0.14	0.22
Positive Emotionality	9 mo	0.09	0.19	0.19	0.14	0.18	0.15	0.16	0.10	0.22	0.06	0.24
	18 mo	0.12	0.14	0.14	0.33	0.18	0.15	0.13	0.10	0.27	0.03	0.27
	27 mo	-0.03	0.05	0.05	0.17	0.08	0.12	0.17	0.10	0.11	-0.01	0.17
	36 mo	0.06	0.15	0.15	0.18	0.13	0.19	0.13	0.07	0.07	0.11	0.19
Assertiveness	9 mo	0.24	0.34	0.33	0.29	0.32	0.29	0.31	0.24	0.36	0.20	0.38
	18 mo	0.26	0.28	0.27	0.46	0.32	0.29	0.26	0.23	0.40	0.17	0.41
	27 mo	0.16	0.24	0.24	0.36	0.27	0.31	0.36	0.29	0.30	0.18	0.36
	36 mo	0.19	0.29	0.28	0.31	0.27	0.32	0.26	0.20	0.21	0.25	0.33
Sociability	9 mo	0.18	0.28	0.27	0.23	0.26	0.23	0.25	0.18	0.30	0.14	0.32
	18 mo	0.21	0.23	0.22	0.41	0.27	0.24	0.21	0.18	0.35	0.12	0.36
	27 mo	0.07	0.16	0.16	0.28	0.18	0.22	0.27	0.20	0.21	0.09	0.27
	36 mo	0.09	0.19	0.18	0.21	0.17	0.22	0.16	0.10	0.11	0.15	0.23
Venturesomeness	9 mo	0.20	0.30	0.30	0.25	0.29	0.26	0.27	0.21	0.33	0.17	0.35
	18 mo	0.14	0.15	0.15	0.34	0.19	0.16	0.14	0.11	0.28	0.04	0.28
	27 mo	0.02	0.11	0.11	0.23	0.14	0.18	0.23	0.16	0.17	0.04	0.23
	36 mo	0.04	0.14	0.13	0.16	0.12	0.17	0.11	0.05	0.06	0.10	0.18

P values
> .10
.10 - .05
.05 - .01
.01 - .001
.001 - .0001
.0001 - .00001
<.00001

Figure 2. Difference in Stability coefficients of facets and symptoms

Note. Each cell contains the difference in the stability correlations (*r* facet – *r* symptom), values closer to zero indicate similar stability.

		Dysphoria	Lassitude	Insomnia	Suicidality	Appetite Loss	Appetite Gain	Well-Being	Ill Temper	Panic	Social Anxiety	Traumatic Intrusion		Cohen's d size diff.
Depressivity	9 mo	0.20***	0.14*	0.15**	0.16**	0.23***	0.18***	-0.02	0.16**	0.15**	0.20***	0.22***		0.25
	18 mo	0.05	0.11	0.04	0.13	0.1	-0.08	-0.18***	0.05	0.08	0	-0.03		0.20
	27 mo	0.14*	0.18**	0.17**	0.19**	0.15*	-0.09	-0.20***	0.14*	0.16*	0.03	0.03		0.15
	36 mo	-0.02	0.01	0	0.13	0.01	-0.21***	-0.24***	-0.07	0.03	-0.25***	-0.03		0.10
Anxiousness	9 mo	0.15**	0.09	0.1	0.11	0.18***	0.13*	-0.07	0.11	0.1	0.15*	0.17**		0.05
	18 mo	-0.04	0.02	-0.06	0.03	0	-0.18***	-0.28***	-0.05	-0.02	-0.1	-0.13		0.00
	27 mo	0.07	0.11	0.1	0.12	0.08	-0.16**	-0.27***	0.07	0.09	-0.04	-0.04		-0.05
	36 mo	-0.19***	-0.15*	-0.17**	-0.03	-0.16*	-0.37***	-0.40***	-0.23***	-0.13	-0.42***	-0.20***		-0.10
Hostility	9 mo	0.12*	0.05	0.06	0.07	0.14*	0.09	-0.1	0.07	0.06	0.11	0.13*		-0.15
	18 mo	-0.06	0	-0.08	0.02	-0.01	-0.20***	-0.30***	-0.07	-0.04	-0.12*	-0.14*		-0.20
	27 mo	-0.02	0.02	0.01	0.04	-0.01	-0.25***	-0.36***	-0.02	0	-0.13*	-0.12		-0.25
	36 mo	-0.14*	-0.11	-0.12	0.01	-0.11	-0.33***	-0.36***	-0.19***	-0.09	-0.37***	-0.15*		-0.30
Positive Emotionality	9 mo	0.1	0.04	0.05	0.06	0.13*	0.08	-0.12	0.06	0.05	0.1	0.12		-0.35
	18 mo	0.08	0.14*	0.07	0.16*	0.13*	-0.05	-0.15*	0.08	0.11	0.03	0		
	27 mo	0.16**	0.21***	0.20***	0.22***	0.18**	-0.07	-0.18**	0.17**	0.19**	0.06	0.06		
	36 mo	0.02	0.05	0.04	0.17	0.05	-0.17*	-0.20***	-0.03	0.07	-0.21***	0.01		
Assertiveness	9 mo	0.05	-0.02	-0.01	0	0.07	0.02	-0.17***	0	-0.01	0.04	0.06		
	18 mo	-0.04	0.02	-0.06	0.04	0.01	-0.17***	-0.27***	-0.05	-0.02	-0.09	-0.12*		
	27 mo	-0.02	0.02	0.02	0.04	-0.01	-0.25***	-0.36***	-0.02	0	-0.13*	-0.12		
	36 mo	-0.12*	-0.09	-0.1	0.03	-0.09	-0.31***	-0.34***	-0.17**	-0.07	-0.35***	-0.13*		
Sociability	9 mo	0.19***	0.12*	0.13*	0.14*	0.21***	0.16***	-0.03	0.14**	0.13	0.18***	0.20***		
	18 mo	0.1	0.15**	0.08	0.17**	0.14*	-0.04	-0.14	0.09	0.12	0.04	0.01		
	27 mo	0.13*	0.17**	0.16**	0.18**	0.14*	-0.11	-0.22***	0.13*	0.15	0.02	0.02		
	36 mo	-0.01	0.02	0.01	0.14	0.02	-0.20**	-0.23***	-0.05	0.04	-0.24***	-0.02		
Venturesomeness	9 mo	-0.01	-0.07	-0.06	-0.05	0.02	-0.03	-0.23***	-0.05	-0.06	-0.01	0.01		
	18 mo	-0.05	0.01	-0.07	0.03	-0.01	-0.19***	-0.29***	-0.06	-0.03	-0.11	-0.13*		
	27 mo	-0.04	0.01	0	0.02	-0.02	-0.27***	-0.38***	-0.03	-0.02	-0.15*	-0.14*		
	36 mo	-0.11	-0.07	-0.09	0.05	-0.08	-0.29***	-0.32***	-0.15*	-0.05	-0.34***	-0.12		

Figure 3. Difference in Mean-level change as Cohen's d for facets and symptoms
Note. Each cell contains the difference of the Cohen's d as a standardized measure of mean level change (d facet – d symptom), positive values (purple) indicate greater change in the facet relative to the symptom and negative values (blues) indicate less change in the facet relative to symptom. Values closer to zero indicate similar stability and values further from zero indicate greater differences in stability between measures.* <.05. ** < .01. *** < .001

Table 1.

Descriptive Statistics for Traits, Facets, and Symptoms.

| | Descriptive Statistics | | | | | | | | | | | | | | |
| | Tl | | | T2 | | | T3 | | | T4 | | | T5 | | |
	N	M	SD	N	M	SD	N	M	SD	N	M	SD	N	M	SD
Traits															
Extraversion	550	3.76	0.73	526	3.63	0.33	514	3.66	0.36	495	3.61	0.37	497	3.64	0.37
Agreeableness	547	4.05	0.62	519	4.01	0.65	511	4.05	0.67	495	4.03	0.63	497	4.03	0.60
Conscientiousness	550	3.66	0.66	522	3.62	0.72	512	3.66	0.72	495	3.66	0.63	497	3.71	0.63
Neuroticism	543	2.75	0.81	524	2.92	0.31	511	2.34	0.35	495	2.93	0.35	497	2.34	0.37
Openness	543	3.35	0.60	517	3.33	0.53	503	3.37	0.59	493	3.36	0.61	496	3.39	0.63
Facets of E and N															
Depressivity	547	1.94	0.35	505	2.12	0.91	510	2.06	0.39	433	2.11	0.91	497	2.06	0.90
Anxiousness	543	2.63	0.79	510	2.33	0.31	503	2.72	0.34	439	2.30	0.35	497	2.63	0.36
Hostility	543	2.53	0.35	512	2.63	0.37	510	2.59	0.37	439	2.62	0.33	497	2.52	0.37
Positive Emotionality	543	4.13	0.54	503	4.11	0.61	507	4.03	0.62	439	4.03	0.63	497	4.06	0.61
Assertiveness	547	3.57	0.73	510	3.51	0.74	503	3.54	0.76	433	3.51	0.76	497	3.52	0.73
Sociability	543	3.99	0.69	510	3.34	0.73	504	3.35	0.79	439	3.32	0.79	497	3.36	0.75
Venturesomeness	549	3.53	0.67	503	3.57	0.70	507	3.56	0.72	433	3.53	0.70	497	3.52	0.67
Symptoms															
Dysphoria	547	1.64	0.71	493	1.66	0.74	510	1.60	0.71	437	1.61	0.72	495	1.52	0.70
Lassitude	543	1.93	0.90	511	2.07	0.93	515	1.93	0.39	436	1.96	0.91	496	1.85	0.35
Insomnia	546	1.69	0.30	510	1.76	0.34	515	1.64	0.77	439	1.63	0.73	494	1.57	0.71
Suicidality	547	1.13	0.47	509	1.16	0.52	510	1.13	0.45	433	1.11	0.41	493	1.10	0.40
Appetite Loss	547	1.53	0.35	503	1.53	0.34	507	1.53	0.92	439	1.54	0.36	496	1.46	0.73
Appetite Gain	549	1.96	0.93	505	1.91	0.93	514	1.77	0.37	439	1.69	0.36	495	1.62	0.33
Well-Being	543	3.50	0.30	503	3.31	0.90	512	3.24	0.33	437	3.17	0.93	496	3.13	0.94
Ill Temper	547	1.52	0.76	510	1.57	0.32	514	1.46	0.75	433	1.47	0.75	496	1.36	0.61
Panic	543	1.34	0.54	503	1.33	0.60	513	1.31	0.52	439	1.31	0.53	496	1.26	0.49
Social Anxiety	545	1.76	0.37	503	1.74	0.34	514	1.67	0.32	436	1.62	0.30	495	1.44	0.67
Traumatic Intrusions	547	1.40	0.69	510	1.39	0.71	514	1.31	0.57	433	1.23	0.57	496	1.27	0.53

Table 2.

Cohen's d for Mean-Level Changes in Traits, Facets, and Symptoms.

	Cohen's d for Changes							
	T1 – T2 (9 mo)		TI – T3 (18 mo)		T1 – T4 (27 mo)		T1 – T5 (36 mo)	
	N	Cohen's d	N	Cohen's d	N	Cohen's d	N	Cohen's d
Traits								
Extraversion	526	–0.11[**]	514	–0.13[***]	495	–0.17[***]	497	–0.16[***]
Agreeableness	518	–0.08[*]	510	–0.02	494	–0.06	496	0.00
Conscientiousness	522	–0.09[**]	512	0.00	495	–0.02	497	0.05
Neurotieism	523	0.22[***]	511	0.11[**]	495	0.25[***]	497	0.14[**]
Openness	515	0.06	501	0.05	491	0.03	494	0.06
Absolute value average d		*0.11*		*0.06*		*0.1/*		*O.OS*
Facets of E and N								
Depressivity	503	0.23[***]	507	0.14[***]	485	0.22[***]	494	0.17[***]
Anxiousness	509	0.18[***]	507	0.04	488	0.15[***]	496	0.00
Hostility	511	0.14[***]	508	0.02	488	0.06	496	–0.05
Positive Emotionality	506	–0.13[***]	506	–0.17[***]	488	–0.24[***]	496	–0.21[***]
Assertiveness	509	—0.07[*]	507	–0.05	488	–0.06	497	–0.07
Sociability	509	–0.21[***]	502	–0.18[***]	488	–0.21[***]	496	–0.18[***]
Venturesomeness	507	–0.02	506	–0.03	488	–0.04	497	–0.09[*]
Absolute value average d		*0.11*		*0.09*		*0.12*		*0.12*
Symptoms								
Dysphoria	497	0.02	507	–0.08	484	–0.08	493	–0.19[***]
Lassitude	509	0.09	513	–0.03	484	–0.04	494	–0.16[**]
Insomnia	508	0.08	512	–0.10[*]	486	–0.04	491	–0.17[**]
Suicidality	506	0.07	507	0.01	480	–0.02	491	–0.04
Appetite Loss	503	0.00	505	–0.04	487	–0.07	494	–0.16[**]
Appetite Gain	504	–0.05	513	–0.22[***]	488	–0.31[***]	494	–0.38[***]
Well-Being	506	–0.24[***]	510	–0.32[***]	485	–0.42[***]	494	–0.41[***]
111 Temper	508	0.07	511	–0.09[*]	485	–0.08	493	–0.23[***]
Panic	506	0.08	511	–0.06	487	–0.06	494	–0.14[**]
Social Anxiety	504	–0.03	510	–0.14[**]	482	–0.19[***]	491	–0.42[***]
Traumatic Intrusions	507	–0.01	511	–0.17[**]	485	–0.18[**]	493	–0.20[***]
Absolute value average d		*0.09*		*0.16*		*0.18*		*0.2S*

Note.

[*]
<0.05.

[**]
<0.01.

*** <0.001.

Significant results are for paired t-tests.