



Personality traits and mental health care utilization: Longitudinal findings from the MIDUS

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ABSTRACT

Underutilization of mental health services is prevalent in the U.S., and an understanding of utilization patterns can inform interventions to enhance treatment use. The current study investigated longitudinal associations between changes in mental health care utilization (MHCU) and Big Five personality traits. Data included three waves (4,658 adult participants) of the Midlife Development in the United States (MIDUS) study. 1,632 participants provided data at all three waves. Second-order latent growth curve models showed that MHCU level predicted an increase in emotional stability, and emotional stability level predicted a decrease in MHCU. Increases in emotional stability, extraversion, and conscientiousness predicted decreases in MHCU. These results indicate that personality is associated with MHCU over time and may inform interventions to increase MHCU.

1. Introduction

Most individuals with mental illness in the U.S. are undertreated. Of those with severe disorders, roughly one-third to one-half do not receive mental health services (SAMHSA, 2020; Wang et al., 2007; Wang et al., 2005). International data show similar trends. In a sample from 23 countries, only 27.4% of individuals with a 12-month mental disorder reported past-year mental health treatment use (Bruffaerts et al., 2015). On the other hand, in this same sample, only 52.4% of people in mental health treatment met criteria for a 12-month mental disorder (Bruffaerts et al., 2015). These trends are worrying not just for mental health outcomes, but also for healthcare costs; one meta-analysis found that psychological treatments given to individuals in need resulted in a 20% savings in overall medical costs (Chiles et al., 1999). However, it remains unclear exactly who uses mental health services, whether these patterns fluctuate over time, and whether there are individual differences in usage patterns. Identifying the individual factors that are associated with seeking or failing to seek mental health care services is essential for designing policy that can effectively reduce the service gap.

1.1. Big Five personality traits and physical and mental health

Personality is one individual difference factor that, independent of the presence or absence of mental health disorders (e.g., anxiety, depression), may help estimate the likelihood of mental health care utilization, or MHCU (Goodwin et al., 2002; McWilliams et al., 2006). The 'Big Five' trait model – emotional stability (low neuroticism), extraversion, openness to experience, conscientiousness, and agreeableness (Costa & McCrae, 1992; Digman, 1990; Goldberg, 1992) – is a widely used model of personality structure (Grucza & Goldberg, 2007). Some research has explored relationships between the Big Five personality traits and physical health outcomes and behaviors, including treatment utilization behaviors. Personality traits have been linked generally to physical health (Booth-Kewley & Friedman, 1987; Graham et al., 2017; Weston et al., 2015), health behaviors (Booth-Kewley & Vickers, 1994; Turiano et al., 2015; Turiano et al., 2012), and health care utilization (Friedman et al., 2013; Hajek et al., 2017; Nolan et al., 2019). Personality traits have been associated with health care utilization in both the U.S. (e.g., Friedman et al., 2013) and in countries with national health insurance such as Germany (Hajek et al., 2017) and Ireland (Nolan et al., 2019).

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The relationship between personality traits and mental health may resemble the relationship between traits and physical health. Personality traits have been found to be linked to general and specific mental health problems, particularly mood and anxiety disorders, partially mirroring the relationship of traits to physical health (Bienvenu et al., 2004; Dash et al., 2019; Goodwin & Friedman, 2006; Hengartner et al., 2016; Kotov et al., 2010; Lahey, 2009). Some work has also documented links between personality traits and MHCU, both in clinical samples of individuals with mental disorders (e.g., Miller et al., 2006; Park et al., 2017) and in community samples where the minority have a mental disorder (e.g., Goodwin et al., 2002, Jylhä & Isometsä, 2006). Though mental health care is often conceptualized as having curative goals aimed at people with mental disorders, the World Health Organization (2002) emphasizes that prevention and promotion should also be goals of MHCU. This perspective aligns with the Complete State Model of mental health, which proposes that mental health is not just the absence of mental disorders, but also the presence of mental flourishing (Keyes, 2005).

Past studies have established that emotional stability has the strongest and most consistent associations with MHCU, independent of the presence of mental disorders (Goodwin et al., 2002; Kessler et al., 1997; Miller et al., 2006). Low emotional stability (neuroticism) was associated with a greater likelihood of utilizing professional help, after controlling for mental illness (Goodwin et al., 2002; Park et al., 2017; ten Have et al., 2005). Perhaps highly neurotic people without diagnosable mental disorders have subthreshold disorders, motivating them to seek mental health services (Goodwin et al., 2002). They could also be motivated by the belief that they are especially vulnerable to mental illness, whether or not they have subthreshold disorders, leading them to be more vigilant about their health and express healthy neuroticism (e.g., Friedman, 2000). In fact, perceiving greater vulnerability is a predictor of preventive health behaviors in Rosenstock's (1974) Health Belief Model.

Conscientiousness and extraversion have also been linked to MHCU, though not as robustly or consistently as emotional stability (Goodwin et al., 2002; Langvik et al., 2019; Miller et al., 2006). Goodwin et al. (2002) found that higher conscientiousness was associated with decreased service use in three U.S. samples: in the community, among individuals with mental disorders, and among individuals without mental disorders. In a community sample of Norwegian musicians, conscientiousness was also negatively associated with MHCU (Langvik et al., 2019). Individuals higher in conscientiousness may believe that they should independently cope with psychological distress and that even admitting symptoms is a personal flaw (Goodwin et al., 2002). However, in a sample of German adults with major depressive disorder, conscientiousness was associated with greater MHCU (Schomerus et al., 2013). This finding is in line with associations between higher conscientiousness and positive physical health behaviors (e.g., Gale et al., 2015; Pandhi et al., 2016). Schomerus et al. (2013) speculated that conscientiousness may play a differential role in help seeking for different mental disorders, or in different cultures. Among individuals with and without mental disorders, extraversion has been associated with decreased service use (Goodwin et al., 2002; Miller et al., 2006). Individuals higher in extraversion often turn to social support systems and thus might be less likely to seek professional help (Goodwin et al., 2002). However, in a community sample of Norwegian musicians, extraversion was positively related to MHCU after controlling for physical but not mental health (Langvik et al., 2019). It was speculated that because extraversion was associated with increased valuing of professional psychological help (Ingram et al., 2016), extraverted adults might have fewer barriers to seeking MHC (Langvik et al., 2019).

Agreeableness and openness have less robust links to the utilization of various types of mental health care, including professional help and psychiatric medications (Goodwin et al., 2002; Miller et al., 2006; Park et al., 2017). Agreeableness and MHCU were positively associated in an American clinical sample (Miller et al., 2006) and negatively associated

in a Korean clinical sample (Park et al., 2017). Miller et al. (2006) hypothesized that the arrogance often found in less agreeable individuals might prevent them from believing their behavior is problematic and in need of change. On the other hand, Park et al. (2017) hypothesized that because more agreeable individuals engage in more impression management, the negative mental illness stigma in Korean culture might discourage them from seeking treatment out of fear they will appear negatively to others. As for openness, Park et al. (2017) found a positive association between openness and MHCU, which was not found in other studies looking at professional MHCU (e.g., Goodwin et al., 2002; Miller et al., 2006), though it was found in some studies looking at complementary and alternative medicine use for mental health (e.g., Honda & Jacobson, 2005). The authors suggested that perhaps the increased active coping style associated with openness helped people seek mental health care, especially in Korea where individuals were often expected to inhibit their feelings (Park et al., 2017).

Taken together, personality traits have been reported to be associated with MHCU in the U.S., which has generally had uneven health insurance coverage (e.g., Goodwin et al., 2002; McWilliams et al., 2006), as well as in countries with strong health safety nets like the Netherlands (ten Have et al., 2005) and South Korea (Park et al., 2017). This suggests that information about individual differences in MHCU might inform health policy even in countries with established national health insurance programs.

1.2. Personality and MHCU over time

While there is evidence that personality traits are associated with mental illnesses and mental health care utilization cross-sectionally, there is relatively little information regarding the association between personality change and MHCU change over time, or how these changes may be associated with one another. Regarding longitudinal changes in mental health, one study found that older adults, except for the oldest old above 70 years of age, were less likely to be mentally ill than younger adults (Westerhof & Keyes, 2010). Furthermore, MHCU was significantly related to being younger than 60 years of age (Wang et al., 2005). Finally, one study found that the enabling and need factors related to MHCU in a community sample of adults differed by developmental stage, suggesting that MHCU might vary in a population over time in response to factors other than mental disorder status (Huỳnh et al., 2016).

More is known regarding the trajectories of personality change across the lifespan. Although personality traits were long thought to be more stable than factors such as mental health, recent studies show that personality traits do change, albeit slowly and not for all individuals, in adulthood (Mroczek & Spiro, 2003; Roberts & Mroczek, 2008; Soto, John, Gosling, & Potter, 2011; Wagner, Ram, Smith, & Gerstorf, 2016; Graham, Weston, Gerstorf et al., 2020). For example, adults mature over time, as evidenced by increases in emotional stability, social dominance (a facet of extraversion), conscientiousness, and agreeableness (Roberts & Mroczek, 2008; Soto et al., 2011). Increases in these traits may be one reason for decreases in mental illnesses over time observed in many people (Westerhof & Keyes, 2010). As previous research has reported the co-development of personality and mental health, it is likely that trait changes are also associated with MHCU changes. For example, with an increase in conscientiousness over time, regardless of stability or change in mental health, a person might become more able to deal with a perceived problem alone, and therefore less likely to seek mental health care. As previous work has reported that the utilization of mental health care can be independent of mental illnesses (e.g., Goodwin et al., 2002), it is possible that changes in personality traits are associated with changes in MHCU in a pattern differing from that for changes in mental health. However, no study has examined how changes in personality traits are related to changes in MHCU over time.

Finally, MHCU may be one factor influencing the development of traits over time. While research has been preliminary, a recent *meta-*

analysis provides evidence that psychological interventions, both clinical and non-clinical, can lead to personality change in more than one trait domain (Roberts et al., 2017). The biggest changes were seen in increased emotional stability and extraversion (Roberts et al., 2017). The authors hypothesized that because these two traits are most strongly linked to affect, with low emotional stability linked to negative affect and high extraversion linked to positive affect (e.g., Leger et al., 2016), they are most amenable to change via interventions, which are often aimed at reducing negative affect and increasing positive affect (Roberts et al., 2017). However, it remains unknown whether changes in MHCU are linked to changes in personality traits.

As discussed above, seeking treatment occurs not only for curative purposes among individuals with mental disorders, but also for preventive and/or promotive purposes (e.g., increasing mental flourishing) among individuals without mental disorders. A majority of Americans do not have a diagnosable mental disorder, but a minority of these individuals are truly mentally healthy and flourishing (Keyes, 2007). Additionally, mental health issues and goals often unfold over long periods of time, and seeking treatment can take longer still. Finally, researchers have theorized that interventions to encourage treatment retention might incorporate ongoing, as opposed to pretreatment only, activities (Greene et al., 2016). Taken together, this implies that investigating MHCU patterns over time in the general population would valuably inform intervention efforts to increase service use and retention among those with the greatest need, whether for curative, preventive, or promotive reasons. Furthermore, conducting analyses using longitudinal data can partially address one of the major challenges of this topic, which is examining the relationship between changes in personality traits and changes in MHCU after taking people's mental health status into consideration. The current study sought to examine whether personality traits (level and change) were associated with mental health care utilization (level and change) over 20 years.

1.3. Present study

For the current study, we first examined whether personality traits were associated with mental health care utilization by testing cross-sectional associations between personality traits and MHCU. Next, we examined whether personality traits were associated with longitudinal patterns of MHCU by testing associations between personality trait levels and change in MHCU over time. We then examined whether MHCU was associated with personality development over time by testing the associations between MHCU levels and change in traits over time. Finally, we examined whether there was an association between the longitudinal development of personality traits and of mental health treatment-seeking behaviors by testing associations between personality trait change and MHCU change over time. Despite some early work on personality change as a predictor of health outcomes (e.g., Magee et al., 2013; Mroczek & Spiro, 2007), there is a paucity of work on personality change and changes in mental health care utilization. Therefore, this study was exploratory and we did not make specific predictions.

2. Methods

2.1. Participants

Data were from waves 1 (1994–1996), 2 (2004–2006), and 3 (2013–2014) of the Midlife in the United States (MIDUS) study (Brim et al., 2004). Participants provided data via phone interviews and mail-in paper questionnaires. Participants were included in these analyses if they had completed the personality questionnaire and MHCU survey for at least one wave ($N = 6,424$). Among this sample of participants (53% female, 9% people of color), the average age at wave 1 was 46.85 ($SD = 12.95$), and 89% had at least a high school education. Additionally, 67% were married at wave 1, and 75% had some form of health insurance at wave 1. 7.2% met the criteria for 1 or more of 3 mental disorders (major

depressive disorder, generalized anxiety disorder, and panic disorder) at wave 1.

2.2. Personality

The MIDI (Midlife Development Inventory) personality scale was assessed at each time point (Lachman & Weaver, 1997). Scales for the five traits range from four to seven items, or sub-traits, per trait. Participants rated how well each sub-trait described them on a scale from 1 (not at all like me) to 4 (a lot like me). For emotional stability, the items are *moody* (reverse scored), *worrying* (reverse scored), *nervous* (reverse scored), and *calm* ($\alpha_1 = 0.75$, $\alpha_2 = 0.74$, $\alpha_3 = 0.71$). For conscientiousness, the items are *organized*, *responsible*, *hardworking*, and *careless* (reverse scored; $\alpha_1 = 0.56$, $\alpha_2 = 0.58$, $\alpha_3 = 0.56$). For extraversion, the items are *outgoing*, *friendly*, *lively*, *active*, and *talkative* ($\alpha_1 = 0.78$, $\alpha_2 = 0.76$, $\alpha_3 = 0.75$). For agreeableness, the items are *helpful*, *warm*, *caring*, *softhearted*, and *sympathetic* ($\alpha_1 = 0.81$, $\alpha_2 = 0.80$, $\alpha_3 = 0.77$). For openness, the items are *creative*, *imaginative*, *intelligent*, *curious*, *broadminded*, *sophisticated*, and *adventurous* ($\alpha_1 = 0.78$, $\alpha_2 = 0.77$, $\alpha_3 = 0.77$).

2.3. Measures of MHCU

We created a second-order MHCU variable which included three types of care: professional help, psychiatric medications, and self-help groups. For professional help, respondents indicated in the self-assessment questionnaire how many times they saw each of four categories of professionals in the past 12 months for problems with emotional or mental health (see Table 1). Response rates were low for all categories except medical doctors. Moreover, the categories of help were highly correlated, so we combined responses to all four types of professionals into one variable, 'professional help', by recoding these continuous variables into a single binary variable, where 1 = seeing a professional one or more times in the past 12 months, and 0 = not seeing a professional at all in the past 12 months. About 26% of participants who responded in wave 1 sought professional help, 30% sought help in wave 2 and 20% sought help in wave 3.

In wave 1, respondents indicated in the self-assessment questionnaire whether or not they had taken prescription medication for nerves, anxiety, or depression during the past 30 days at time of survey. In waves 2 and 3, participants reported the frequency at which they took prescription medication with response options daily, a few times a week, once a week, a few times a month, and once this month. Responses at waves 2 and 3 were recoded to match, as closely as possible, the binary response options in wave 1. Approximately 10% of participants used medication in wave 1, 20% in wave 2, and 22% in wave 3.

Finally, respondents indicated whether they had attended any of 10 categories of self-help groups (see Appendix A) in their lifetime, and how often they had attended in the past 12 months. If participants reported attending at least one group at least one time, they were coded as having sought self-help during that wave (wave 1 = 20%, wave 2 = 11%, wave 3 = 8%).

Table 1

Percentage of respondents using each type of professional help for problems with emotional/mental health at each time point.

	Psychiatrist	General practitioner or other medical doctor	Psychologist, professional counselor, marriage therapist, or social worker	Minister, priest, rabbi, or other spiritual adviser
Wave 1	4%	18%	8%	5%
Wave 2	4%	24%	6%	4%
Wave 3	3%	14%	6%	3%

As a sensitivity check, we ran each model not only with our combined latent MHCU outcome, but also three more times with each type of MHCU as a separate outcome: medication use (MU, binary), professional help (PH, continuous), and self-help groups (SH, continuous).

2.4. Mental health

Mental health was assessed using the Composite International Diagnostic Interview (CIDI) Short Form scales (Kessler et al., 1998). These scales are specific to different mental disorders, were developed from the CIDI questions in the National Comorbidity Survey, and were designed to reproduce the full CIDI as closely as possible with fewer items (Kessler et al., 1994). The current study used the CIDI Short Form scales available in the MIDUS for major depressive disorder, generalized anxiety disorder, and panic disorder. A time-varying binary covariate was created such that “presence of mental disorder(s)” captured anyone who qualified for one or more of those three disorders, and “absence of mental disorders” captured everyone else.

2.5. Analytic strategy

Second-order latent growth curves were used to estimate levels and trajectories of change of personality traits and mental health care utilization across three waves. Growth curves were modeled in MPlus 8.7 (Muthén, L.K., & Muthén, 1998–2017). In these models, trait adjectives and types of mental health care were used as observed items, which were then fit to latent estimates of wave 1, wave 2, and wave 3 personality or mental health care scores. These were then used to fit latent intercept and slope variables; latent time variables were equally loaded onto the latent intercept (i.e., all loadings fixed to 1) and progressively loaded onto the latent slope (i.e., loadings fixed to 0, 1, and 2, respectively). Matching items were constrained to have equal intercepts across waves and allowed to co-vary with each other. Latent time variable intercepts were constrained to 0. Intercepts and slopes were allowed to co-vary. Participant self-reported sex, race, education, and age at wave 1 were included as time-invariant covariates. Participant mental health, insurance status, and partnership status were included as time-varying covariates. Syntax and output for all analyses are posted on the Open Science Framework here: <https://osf.io/z3fqj/>.¹

3. Results

3.1. Univariate models

Prior to estimating bivariate second-order latent growth curve models, we used univariate models to check for mean level changes in personality traits and MHCU. Small mean level changes were found for all personality traits except conscientiousness, and for mental health care utilization (see Table 2 for details). On average, adults tended to increase in emotional stability (average slope = 0.08 [0.07, 0.09]) and MHCU (0.032 [0.027, 0.036]), and decrease in extraversion (−0.07 [−0.08, −0.06]), openness (−0.09 [−0.10, −0.08]), and agreeableness (−0.021 [−0.026, −0.016]) across the study.²

Additionally, in the present study there was significant variability in emotional stability change (estimated variance = 0.009, $p = .017$), extraversion change (estimated variance = 0.015, $p = .010$), openness change (estimated variance = 0.025, $p < .001$), agreeableness change (estimated variance = 0.006, $p = .002$), and MHCU change (estimated

variance = 0.007, $p < .001$). In other words, while on average people increased in emotional stability and MHCU, some increased more strongly, stayed the same, or decreased. While on average people decreased in extraversion, openness, and agreeableness, some decreased more strongly, stayed the same, or increased.

3.2. Bivariate models

After estimating univariate growth, we merged models to estimate bivariate growth with changes in mental health care utilization and personality. Separate models were estimated for each personality trait. These models include the same constraints described above. In addition, changes in personality and changes in MHCU were each regressed onto levels of personality and MHCU. Levels of personality and MHCU, as well as latent changes in personality and MHCU, were allowed to covary. We controlled for participant gender, race, baseline education, baseline age, mental health, insurance status, and marital status. As mentioned, we ran each model with combined MHCU as the outcome, and again three more times with each of the three types of MHCU – medication use (MU), professional help use (PH), and self-help group use (SH) – as the outcomes.

MHCU level was negatively associated with emotional stability level ($r_z = -0.41, p < .001$), which was replicated at levels of MU ($r_z = -0.35, p < .001$), PH ($r_z = -0.14, p < .001$), and SH ($r_z = -0.06, p < .001$). MHCU level was also negatively associated with extraversion level ($r_z = -0.13, p < .001$), replicated at levels of MU ($r_z = -0.12, p < .001$). Additionally, MHCU level was negatively associated with conscientiousness level ($r_z = -0.16, p < .001$), replicated at levels of MU ($r_z = -0.12, p < .001$), PH ($r_z = -0.14, p < .001$), and SH ($r_z = -0.11, p < .001$). Finally, self-help group utilization level was positively associated with openness level ($r_z = 0.08, p = .001$). See Table 3 for more details.

Changes in MHCU were negatively associated with emotional stability level ($\beta = -0.12, p = .034$). Looking at specific types of MHCU, changes in MU were negatively associated ($\beta = -0.13, p < .001$) and changes in PH were positively associated ($\beta = 0.07, p = .006$) with emotional stability level. That is, more emotionally stable adults tended to decrease their medication use and overall MHC use, but increase their professional help use, across the study. See Table 4 for more details.³ Furthermore, MHCU level was associated with increases in emotional stability ($\beta = 0.41, p < .001$). In other words, individuals who used mental health care experienced, on average, greater increases in emotional stability. This result was replicated for MU level ($\beta = 0.32, p < .001$) and PH level ($\beta = 0.22, p < .001$). See Table 4 for more details.

Changes in MHCU were negatively associated with changes in emotional stability ($r_z = -0.45, p = .014$). This result was replicated for changes in MU ($r_z = -0.21, p = .002$). That is, adults who tended to increase in emotional stability over time also tended to decrease their medication use and overall MHCU over time. Changes in MHCU were negatively associated with changes in extraversion ($r_z = -0.31, p = .024$). This result was replicated for changes in MU ($r_z = -0.16, p = .023$). In other words, adults who tended to increase in extraversion over time also tended to decrease their MHCU. Finally, changes in MHCU were negatively associated with changes in conscientiousness ($r_z = -0.30, p < .001$). This result was replicated for changes in MU ($r_z = -0.16, p < .001$). In other words, adults who tended to increase in conscientiousness over time also tended to decrease their MHCU. See

¹ The current analyses were not pre-registered. They were April 2022 updates to original analyses conducted in 2017, before pre-registration was integrated into our research practices. However, in order to maintain optimal transparency, we have posted all analytic scripts and outputs to OSF.

² Note that Graham, Weston, Gerstorff et al. (2020) used multilevel growth models on this data and found null effects for agreeableness.

³ Changes in MHCU were associated with higher extraversion levels for unstandardized results ($b = 0.01, p = .042$) but not standardized results ($\beta = 0.10, p = .050$). Prior to running analyses, we decided we would only report standardized results. See information about discrepancies between standardized and unstandardized results here: <https://www.statmodel.com/download/Unstandardized%20and%20standardized%20versions%20of%20estimated%20coefficients%20have%20different%20sampling%20distributions.pdf>.

Table 2
Means and variances of univariate second-order latent growth models.

	ES	E	O	C	A	MHCU
Intercept	0.00	0.00	0.00	0.00	0.00	0.00
Mean	[0.00, 0.00]	[0.00, 0.00]	[0.00, 0.00]	[0.00, 0.00]	[0.00, 0.00]	[0.00, 0.00]
Intercept	0.161	0.315	0.305	0.130	0.091	0.024
Variance	[0.146, 0.176]	[0.291, 0.338]	[0.281, 0.329]	[0.113, 0.148]	[0.083, 0.099]	[0.020, 0.027]
Slope	0.078	-0.072	-0.090	-0.004	-0.021	0.032
Mean	[0.071, 0.086]	[-0.080, -0.064]	[-0.098, -0.081]	[-0.012, 0.003]	[-0.026, -0.016]	[0.027, 0.036]
Slope	0.009	0.015	0.025	0.003	0.006	0.007
Variance	[0.003, 0.015]	[0.006, 0.025]	[0.015, 0.034]	[-0.004, 0.010]	[0.003, 0.009]	[0.005, 0.009]
N	6419	6428	6425	6424	6424	6428
RMSEA	0.041	0.049	0.051	0.145	0.047	0.053
CFI	0.966	0.943	0.907	0.929	0.961	0.884

Note: ES = emotional stability. E = extraversion. O = openness. C = conscientiousness. A = agreeableness.

Table 3
Standardized intercepts (correlations) of MHCU and personality: level with level, change with change. Bivariate second-order latent growth models.

	ES	E	O	C	A
		Personality	Level		
MHCU – level					
Intercept r_z	-0.41	-0.13	-0.02	-0.16	0.002
P	<0.001	<0.001	0.576	<0.001	0.950
Med Use – level					
Intercept r_z	-0.35	-0.12	-0.04	-0.12	0.000
P	<0.001	<0.001	0.080	<0.001	0.983
Prof Help – level					
Intercept r_z	-0.14	-0.06	0.03	-0.14	-0.02
P	<0.001	0.067	0.263	<0.001	0.590
Self Help – level					
Intercept r_z	-0.06	0.04	0.08	-0.11	-0.003
P	0.016	0.114	0.001	<0.001	0.905
		Personality	Change		
MHCU – change					
Intercept r_z	-0.45	-0.31	-0.10	-0.30	-0.04
P	0.014	0.024	0.184	<0.001	0.658
Med Use – change					
Intercept r_z	-0.21	-0.16	-0.08	-0.16	-0.03
P	0.002	0.023	0.070	<0.001	0.538
Prof Help – change					
Intercept r_z	-0.07	-0.38	-0.04	-0.24	-0.03
P	0.077	0.212	0.800	0.173	0.872
Self Help – change					
Intercept r_z	-0.28	-0.12	-0.04	-0.11	0.29
P	0.219	0.533	0.750	0.345	0.196

Note: ES = emotional stability. E = extraversion. O = openness. C = conscientiousness. A = agreeableness.

Table 3 for more details.⁴

Finally, as a sensitivity check, level-level correlations were also examined in bivariate no-growth models (see Table 5). Results of the no-growth models replicated results of the growth models.

4. Discussion

The current study examined the co-development of personality traits and mental health care utilization across 20 years of adulthood. We found a pattern of associations between most trait levels and MHCU

⁴ Changes in PH were negatively associated with changes in emotional stability for unstandardized results ($r = -0.002, p = .049$) but not standardized results ($r_z = -0.07, p = .077$). Changes in PH were negatively associated with changes in extraversion for unstandardized results ($r = -0.004, p = .045$) but not standardized results ($r_z = -0.38, p = .212$). Finally, changes in PH were negatively associated with changes in conscientiousness for unstandardized results ($r = -0.003, p = .038$) but not standardized results ($r_z = -0.24, p = .173$). See information about discrepancies between standardized and unstandardized results in the link in footnote 3.

Table 4
Standardized intercepts (regressions) of MHCU and personality: level on change, change on level. Bivariate second-order latent growth models.

	ES	E	O	C	A
		Personality	Level		
MHCU – change					
Intercept β	-0.12	0.10	0.04	0.04	0.04
P	0.034	0.050	0.439	0.466	0.402
Med Use – change					
Intercept β	-0.13	0.05	0.01	0.02	0.03
P	<0.001	0.106	0.687	0.541	0.381
Prof Help – change					
Intercept β	0.07	0.20	0.08	0.14	0.18
P	0.006	0.130	0.408	0.239	0.174
Self Help – change					
Intercept β	0.06	-0.03	-0.15	0.09	-0.01
P	0.495	0.679	0.123	0.304	0.887
		Personality	Change		
MHCU – level					
Intercept β	0.41	0.13	-0.001	0.04	0.04
P	<0.001	0.105	0.992	0.415	0.560
Med Use – level					
Intercept β	0.32	0.09	-0.004	0.02	0.03
P	<0.001	0.179	0.938	0.547	0.618
Prof Help – level					
Intercept β	0.22	0.05	-0.06	-0.01	0.02
P	<0.001	0.571	0.376	0.918	0.804
Self Help – level					
Intercept β	0.12	0.05	0.01	0.01	-0.09
P	0.099	0.517	0.857	0.864	0.175

Note: ES = emotional stability. E = extraversion. O = openness. C = conscientiousness. A = agreeableness.

Table 5
Standardized intercepts (correlations) of MHCU level and personality level. No-growth models.

	ES	E	O	C	A
		Personality	Level		
MHCU – level					
Intercept r_z	-0.45	-0.12	-0.01	-0.21	0.02
P	<0.001	<0.001	0.582	<0.001	0.523
Med Use – level					
Intercept r_z	-0.41	-0.12	-0.04	-0.13	0.01
P	<0.001	<0.001	0.055	<0.001	0.537
Prof Help – level					
Intercept r_z	-0.23	-0.02	0.04	-0.16	0.02
P	<0.001	0.340	0.090	<0.001	0.357
Self Help – level					
Intercept r_z	-0.05	0.03	0.06	-0.11	-0.01
P	0.042	0.097	0.008	<0.001	0.596

Note: ES = emotional stability. E = extraversion. O = openness. C = conscientiousness. A = agreeableness.

levels that is consistent with prior cross-sectional associations (e.g., Goodwin et al., 2002; Kessler et al., 1997; Miller et al., 2006). We also found that MHCU level was unrelated to changes in personality, with the exception of emotional stability, indicating that individuals who tended to use mental health services became more emotionally stable over time. Personality trait levels were unrelated to changes in MHCU, with the exception of emotional stability, indicating that more emotionally stable adults decreased their use of mental health services, on average, across the study. Changes in MHCU were negatively associated with changes in emotional stability, extraversion, and conscientiousness, indicating that individuals who became more emotionally stable, extraverted, and/or conscientious over time tended to decrease their use of mental health services over time. In all these analyses, the estimated effect sizes of the changes are very small. The significance of these effects is likely due to the small amount of variability around the slope estimates of personality and MHCU, and to the large sample size. In other words, there was a relatively small amount of change taking place over the follow-up period, and very little evidence for individual differences in these changes. Though small changes can have large implications – e.g., an individual's marginal increase in emotional stability might correspond to noticeably improved well-being – the change-change correlations and level-change regressions, and the following discussion of them, should be interpreted with caution. Furthermore, replication is needed before we can draw reliable conclusions.

We found that, after controlling for mental illnesses, a higher MHCU level was associated with an increase in emotional stability, but not with changes in any other personality traits. This result held true when looking at medication use level and professional help use level, but not when looking at self-help use level. Perhaps interventions involving trained mental health professionals (i.e., medication and professional help) lead to personality trait change, whereas interventions without professionals (i.e., self-help groups) may benefit individuals in other ways – e.g., improving well-being, modifying behavior – without changing personality. These findings somewhat align with a recent meta-analysis suggesting that psychological interventions, both clinical and non-clinical, can lead to changes in different personality trait domains, with the largest effects found for emotional stability followed by extraversion (Roberts et al., 2017). While the current study was designed to test associations, not causation, and most people in the sample did not use mental health care, it is still encouraging that multiple pieces of evidence suggest that the utilization of mental health care might increase emotional stability. Of all the Big Five traits, emotional stability has been found to be most strongly associated with mental health (e.g., Barlow et al., 2014). Low emotional stability is characterized by negative emotionality and includes an elevated focus on criticism, either from the self or others, that feeds perceptions of inadequacy and inefficacy (e.g., Barlow et al., 2014). Variations on criticism (including self-criticism) are a primary target of many therapeutic techniques and orientations, from cognitive restructuring in Cognitive Behavioral Therapy (e.g., Clark, 2013) to self- and other-restructuring in Affect Phobia Therapy (e.g., McCullough et al., 2003). One pathway by which MHCU might be associated with increased emotional stability is through specific therapeutic techniques – used most often in professional help but potentially in medication management sessions as well – aimed at decreasing the elevated focus on criticism and threat that is a hallmark of low emotional stability.

If mental health services had a truly meaningful impact on personality, we might expect to see MHCU lead to increases in other traits that are also associated with greater mental health, such as extraversion and conscientiousness (Bienvenu et al., 2004; Goodwin & Friedman, 2006; Jylhä & Isometsä, 2006; Kotov et al., 2010). On the other hand, Roberts et al. (2017) viewed the lack of systematic change across all Big Five traits in their study as a positive signal that MHCU does not lead to increased self-presentation of global improvement, and instead is tailored to successfully address narrow traits within trait domains. They hypothesized that MHCU would lead to bigger changes in the traits most

strongly linked to affect – emotional stability and extraversion – which was confirmed by their results (Roberts et al., 2017). In the current study, perhaps changes in extraversion would have been observed without the limited measures of personality and MHCU, as discussed more below. Extraversion changes might also be observed in a sample where the majority is accessing mental health services, unlike the MIDUS sample where a minority was accessing them. Furthermore, personality is relatively stable in midlife (e.g., ages 45 to 55), which is the developmental stage tracked by this study; most mean-level personality trait change occurs between the ages of 20 and 40 (Roberts & Mroczek, 2008). Maybe we would have observed different results in a developmental stage of greater change, such as young adulthood or older adulthood. This could also be a reason why we did not see larger effect sizes in the associations between personality change and MHCU change.

This study also provides evidence that initial levels of emotional stability are associated with changes in MHCU. That is, more emotionally stable adults decreased their use of overall mental health services and medication, and increased their professional help use, across the study. To put it differently, less emotionally stable adults increased their use of overall mental health care and medication, and decreased their professional help use, across the study. One explanation for the MHCU and medication use findings could be Rosenstock's (1974) Health Belief Model. In this theory, perceiving greater vulnerability to mental and physical illness, which is characteristic of low emotional stability (i.e., high neuroticism), predicts preventive health behaviors. By the same token, individuals high in emotional stability might worry less about their mental health and thus lack the motivation to use MHC. Rosenstock's model aligns with the healthy neuroticism hypothesis – that anxiety-provoked vigilance leads to positive health behaviors – though recent research provides mixed support for healthy neuroticism (e.g., Graham, Weston, Turiano et al., 2020; Turiano et al., 2020; Weston et al., 2020).

The finding that emotional stability level predicts *increased* PH use over time contradicts the results for MHCU and MU. One explanation for the PH result might be the self-regulation resource perspective (SRRP) on personality and health behaviors (Sirois & Hirsch, 2015). According to the SRRP, certain Big Five traits may promote health behaviors via their association with self-regulation resources, including positive affect (Sirois & Hirsch, 2015). Because high emotional stability is related to positive affect, emotionally stable adults in the current study may be more likely to self-regulate to the degree that they can maintain focus on the long-term benefits of positive health behaviors like MHCU, especially when used for promotive purposes such as increasing mental flourishing, not just curative purposes such as alleviating mental distress (e.g., Keyes, 2007). These individuals might be less likely to give into the temptation of avoiding the short-term irritation of MHC, such as emotional discomfort caused by affect experiencing and other psychotherapeutic techniques (e.g., McCullough et al., 2003). Perhaps this trend exists for professional help, not medication and overall mental health care, because professional help is more flexible than medication to go beyond symptom alleviation and promote positive mental health. Additionally, though medication can also cause discomfort (e.g., side effects), it is normally used for short-term curative purposes (e.g., relief of immediate distress), requiring less long-term self-regulation than psychotherapy for promotive purposes. In sum, perhaps the anxiety-induced vigilance of low emotional stability leads to positive health behaviors when the goals are preventive or curative, whereas the positive affect of high emotional stability leads to positive health behaviors when the goals are promotive. However, these patterns in the current study must be interpreted with caution, and more work needs to be done to examine the associations between emotional stability level and MHCU change.

This study also found that changes in MHCU and medication use were negatively associated with changes in emotional stability, extraversion, and conscientiousness. One interpretation of this finding is that

adults who increased their medication use and overall MHCU over time tended to decrease in emotional stability, extraversion, and conscientiousness over time. On the surface this contradicts the current study's finding that MHCU level predicted increased emotional stability over time. It also contradicts the hope that MHCU would lead to personality trait levels associated with better mental health, such as high levels of emotional stability, extraversion, and conscientiousness (e.g., [Bienvenu et al., 2004](#); [Goodwin & Friedman, 2006](#); [Jylhä & Isometsä, 2006](#); [Kotov et al., 2010](#)). A potential explanation to resolve this contradiction is that MHCU level is different from MHCU change over time, especially when the three time periods span almost two decades. While shorter-term MHCU might include significant service use among relatively healthy adults for preventive or promotive purposes, perhaps increased MHCU over one or two decades is rare except in cases where low emotional stability, extraversion, and/or conscientiousness have intensified. That is, increased MHCU over time might be most common among the least mentally healthy, who need MHCU for curative purposes. The fact that over the course of this study, increases in MHCU did not correspond to increases in trait levels associated with better mental health does not mean that mental health services had no benefits to the individuals utilizing them. Perhaps MHCU was reducing emotional distress, improving behavior and/or interpersonal functioning, or having any other number of positive effects without changing personality. The least mentally healthy might be the least amenable to personality change, but future research is needed to investigate this possibility.

On the other hand, this same negative association between MHCU change and changes in emotional stability, extraversion, and conscientiousness could be interpreted to mean that adults who tended to increase in emotional stability, extraversion, and/or conscientiousness over time also tended to decrease their medication use and overall MHCU use over time. This interpretation is more in line with the current study's finding that emotional stability level predicted a decrease in MHCU over time. With increasing levels of emotional stability, extraversion, and/or conscientiousness, independent of the presence or absence of mental disorders, individuals might experience decreasing levels of the negative affect that caused them distress and motivated them to seek MHC. Individuals with increasing emotional stability might also experience decreasing levels of the worry and perceived vulnerability that motivates MHCU according to the Health Belief Model ([Rosenstock, 1974](#)). Those with increasing extraversion might experience more social support, which has been associated with decreased MHCU (e.g., [Maulik et al., 2009](#)). Finally, those with increasing conscientiousness might feel they should cope with mental health on their own (e.g., [Goodwin et al., 2002](#)).

4.1. Limitations and future directions

One limitation of the current study is the suboptimal measurements of the Big Five personality traits in the MIDUS, evidenced by the internal reliabilities and overly large covariances. However, high internal consistency in this case (i.e., a brief measure indexing a broad content space) might not be desirable, since it might indicate the measure is too narrowly focused and lacks high validity ([Hobbs et al., 2021](#); [Kline, 1979](#); [Kline, 1986](#)). Additionally, there is substantial literature that personality traits in the MIDUS predict important outcomes in ways similar to other samples with more robust personality measures (e.g., [Strickhouser et al., 2017](#)).

The current study also relied on self-reports of MHCU, which may be biased. However, seeking mental health services is often emotionally laden and therefore less likely to be misremembered, and electronic health records or other official statements are unlikely to capture all the services sampled in the current study. That being said, future research should seek to assess MHCU with greater consistency and for long periods of time, which will be facilitated by objective records. A further limitation of the latent MHCU measure is that the three manifest indicators of it were coded as binary. To begin to address this limitation,

models were run not only on overall MHCU but also on the three disaggregated outcomes, where the original continuous nature of two could be restored: medication use (binary), professional help use (continuous), and self-help group use (continuous). Future research should ensure all MHCU variables are continuous and keep in mind minimally adequate definitions of mental health treatment (e.g., for professional help use, at least eight visits lasting on average 30 or more minutes, as defined by [Wang et al., 2005](#)).

Additionally, the current study included three different time periods for the measurement of MHCU (the past 30 days for psychiatric medications, the past 12 months for professional help, and one's life up to time of survey for self-help groups). This discrepancy might be a bigger concern if research suggested that MHCU leads to short-term personality changes that fade after days or months (e.g., changes in states rather than traits), or that MHCU has a delayed association with personality change. Instead, [Roberts et al. \(2017\)](#) found that most gains in personality change happen within the first month of therapy, and there is no evidence that these effects fade with time. Nevertheless, future studies should use a consistent time period for MHCU reporting (e.g., use in the past two years).

The current findings are also limited by the higher proportion of help-seekers in the MIDUS sample than in the U.S. adult population ([Kessler et al., 1997](#)), and the higher proportion of white people (>90%) than in the U.S. population (~77%; [U.S. Census Bureau, 2016](#)). Furthermore, the MIDUS sample is largely WEIRD (i.e., Westernized, Educated, Industrialized, Rich, and Democratic; [Henrich et al., 2010](#)). Therefore, our results may not generalize to Eastern cultures or lower income countries, or even to the entire U.S. population. Future studies should seek a more representative sample of the global population. Evidence of cultural differences in the relationship between personality traits and MHCU (e.g., agreeableness and MHCU were positively associated in an American sample ([Miller et al., 2006](#)) and negatively associated in a Korean sample ([Park et al., 2017](#))) suggest that personality-informed interventions to increase MHCU should be sensitive to cultural factors such as mental illness stigma. There is evidence that stigma associated with mental health care in the U.S. decreased from the early 1990s to the early 2000s ([Mojtabi, 2007](#)), but more recent data are needed. Updated empirical evidence of attitudes, stigmatization or otherwise, towards mental illnesses and specific types of mental health care would assist in interpreting the current study's results. Finally, future studies should build on the work of researchers such as [Park et al. \(2017\)](#) to continue exploring how cultural differences in mental illness stigma (e.g., more negative attitudes toward mental illnesses in Asian countries) may impact the relationship between personality traits and MHCU.

Despite these limitations, this study addresses a gap in the literature, providing evidence that personality change is associated with MHCU change over time. The main value of this research topic remains its potential for informing effective interventions to increase MHCU among those who need it most. Interventions to promote mental health help-seeking and increase retention in services are most effective when they address multiple targets, including mental health knowledge, attitudes (e.g., perceived need), stigma, and more (e.g., [Greene et al. 2016](#); [Xu et al., 2018](#)). It is also crucial to consider factors such as income, health insurance, and access to transportation (e.g., [Schomerus et al., 2013](#)). To this end, multilevel models such as Andersen's behavioral model of health service use can situate individual-level interventions within the context of social- and system-level factors (e.g., [Andersen, 1995](#)). The current study's results suggest personality traits may be one promising target of individual-level interventions to increase MHCU. Since personality traits do not exist in isolation but rather interact within individuals, the attitude-based component of interventions could be tailored to individuals based on their personality profiles. For example, individuals high in emotional stability might benefit from interventions to increase perceived need. If they are also high in conscientiousness, they might be most receptive to a message clarifying that increased need

for mental health care does not imply personal or moral failure. Thoughts of failure can stem not only from the dutifulness aspect of conscientiousness (which potentially relates to moral values; e.g., Eisenberg et al., 2014), but also from the self-criticism and self-consciousness components of low emotional stability (e.g., Barlow et al., 2014). Thus future research on personality and MHCU, as well as on interventions to increase MHCU, would benefit from considering individual facets of the Big Five traits and unique aspects, often culture-specific, of mental disorder stigma (such as believing mental illness is a sign of moral failure or character weakness; e.g., Jorm et al., 2005).

Overall, this study can be used to inform the public about cross-sectional and longitudinal associations between personality and MHCU. As noted, longitudinal data is especially relevant because seeking mental health care can take a long time, and interventions to increase retention should be ongoing, not pretreatment only (e.g., Greene et al., 2016). Given the underutilization of mental health care, especially among those with mental disorders, greater awareness of personality-driven trends in MHCU can lead people to re-examine their treatment-seeking behaviors – not only in a given moment, but also over time – and more consciously try to overcome potential personality-related barriers to service use and retention. Furthermore, this research can help mental health professionals recognize what motivates people to use or not use mental health care, and then draw on that knowledge to increase MHCU among people who need it most.

Open practices

The research in this article earned Open Materials and Open Data badges for transparent practices. Materials and data are available at <https://osf.io/z3fqj/>.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.jrp.2022.104260>.

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