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Personality, Self-Esteem, and Perceived Stress in Communal Residences Supporting Recovery

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Abstract

The current study examined the relationships between a personality metatrait (Stability consisting of conscientiousness, agreeableness, and neuroticism), self-esteem, and stress in an adult population of individuals with substance use disorders living in recovery homes. Adults ($N = 229$) residing in 42 residential recovery settings were interviewed as part of the first wave of a longitudinal study in three sites. Standard error of the mean analysis found significant effects for several demographic variables on Stability, and Stability was significantly related both directly and indirectly to stress. These findings suggest that individual differences at entry may influence recovery home effects and may be important to developing more effective aftercare systems.

Keywords

recovery; personality; stability; self-esteem; perceived stress; behavior; substance

Individuals entering substance abuse recovery homes often have prior experience in a variety of settings, including prisons, hospital-based treatment programs, and therapeutic communities. In addition to their past environments influencing the recovery paths of residents (Jason, Olson, & Foli, 2008), there exists individual-level differences upon entry that affect experiences within a recovery home environment have been less frequently studied. For example, personality traits may play a role in how one lives, copes, and socializes within a recovery setting. Behavioral patterns and traits could increase risk for substance use (e.g., sensation-seeking behaviors often associated with extraversion; Jackson & Matthews, 1988). Several studies have explored the relationship between personality and substance use (Kotov, Gamez, Schmidt, & Walton, 2010), but these studies have focused primarily on how personality trait profiles are risk factors for substance use disorders (SUDs) (Anderson, Tapert, Moadab, Crowley, & Brown, 2007; Ball, 2005), and not on how personality traits may affect individuals within recovery home settings and beyond.

Research supports the taxonomy of personality traits, or the “Big Five” dimensions (John & Srivastava, 2008) that include Openness to Experience, Conscientiousness, Extraversion,

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Agreeableness, and Neuroticism (Goldberg, 1981). These five factors were developed to capture the full spectrum of personality and the five-factor structure is generalizable and reliable across samples (Costa & McCrae, 1992; John, Goldberg, & Angleitner, 1984). The Big Five have been heavily studied in regard to their associations with clinical disorders, as well as their role as predictors for different clinical disorders. In a metaanalysis of 175 research articles relating the Big Three and Big Five models of personality with depressive, anxiety, and SUDs, Kotov et al. (2010) found that the personality profile of someone with an SUD is likely characterized by high disinhibition, low conscientiousness, and low agreeableness. When compared with the other mental health illnesses studied, SUD was the only one to show notable negative links with agreeableness. Similarly, Malouff, Thorsteinsson, Rooke, and Schutte (2007) found that alcohol involvement was associated with low conscientiousness, low agreeableness, and high neuroticism.

Recent investigations of the Big Five Factors of Personality show a stable higher order factor solution of the Big Five, comprised of two metatraits, known as Alpha (α) and Beta (β) (Digman, 1997), or Stability and Plasticity (DeYoung, 2006; Rushton & Irving, 2008). DeYoung (2006) suggests that Stability shares the variance of reverse-scored Neuroticism, Agreeableness, and Conscientiousness, and reflects a person's ability to maintain stability and avoid disruption. Olson (2005) describes Stability as self-control, whereas Digman (1997) describes it as being well socialized. On the other hand, Plasticity, the shared variance of Extraversion and Openness/Intellect, measures the ability to explore and engage with novelty (DeYoung, 2006).

Given that low Conscientiousness, low Agreeableness, and high Neuroticism have been extensively related to individuals with SUDs, it is theoretically possible that Stability is advantageous for inhabitants of an addiction recovery setting. For example, Stability in a recovery setting could be associated with lower stress, which is both predictive of drinking behaviors (Noone, Dua, & Markham, 1999), and positively correlated with relapse (Brown, Vik, Patterson, Grant, & Schuckit, 1995). The personality factor of Neuroticism is positively correlated with reactivity to stressful events, meaning that those high in Neuroticism are more likely to experience high levels of stress when faced with a difficult situation (Bolger & Schilling, 1991). It would be useful to determine whether Stability, a higher order factor, is also associated with less stress.

Stability among recovery home residents might also be related to self-esteem, which is also an important attribute for those in recovery. Self-esteem, the way one values his or her self-worth, predicts a variety of important life outcomes, such as physical and mental health (Donnellan, Trzesniewski, Robins, Moffitt, & Caspi, 2005). Major life events that occur when treating SUDs can trigger changes in self-esteem, because these changes also often require new habits and behaviors; these developmental turning points may alter behavior, affect, cognition, or context (Orth & Robins, 2014). Within self-help recovery homes (Jason et al., 2008), individuals undergo adjustment and life changes that are accompanied by emotional and biological responses to sobriety. These circumstances may induce stress; however, as self-esteem has shown to be a positive resource for individuals in recovery, an individual can utilize self-esteem as a cognitive resource with which to help actively cope and problem solve (Ferrari, Stevens, Legler, & Jason, 2012). Previous research has

connected the Big Five personality factors with self-esteem (Erdle, Irwing, Rushton, & Park, 2010), showing that these personality traits account for a large portion of the variance in self-esteem, thus arguing that recovery research that incorporates self-esteem as a predictor of recovery may be measuring individual personality differences.

The current study investigated Stability, an individual difference in personality, and its relationship with constant characteristics such as sex or race/ethnicity, and whether personality differences would have a significant association with measures used in recovery research such as perceived stress and self-esteem. Given the paucity of research on personality within recovery settings, this study was exploratory. Given that higher Stability (i.e., low in Neuroticism, and high in both Agreeableness and Conscientiousness) may help those in recovery be more resilient in their emotional, social and motivational domains, we hypothesized that those higher in Stability would evidence higher self-esteem and lower stress.

Method

Participants

The participants were 229 Oxford House residents (55% men, 44.5% women, 0.4% other), living in a total of 42 homes across three geographic regions (North Carolina, Texas, and Oregon) that were part of a larger, longitudinal Oxford House study. At present, there are more than 2,000 Oxford Houses operating across the United States. Each Oxford House is a communal residence that is a rented, single-family house for people recovering from substance abuse (Jason et al., 2008). The houses are resident funded and democratically governed, without restrictions on length of stay, and they operate with minimal rules alongside with economic sufficiency and a zero tolerance for substance use (Jason, Olson, Ferrari, & Lo Sasso, 2006). Permission to do this study was granted by the DePaul Institutional Review Board.

Mean age of participants was 38.4 years (standard deviation [*SD*] = 10.8), and 82.1% were European-American, 9.2% were African American, 6.5% were Hispanic, 1.3% were American Indians, 0.4% were Alaskan Native and 0.4% were Pacific Islander. Most participants had attended or graduated college (53.3%), or received a high school diploma (18.3%) or a general equivalency diploma (18.8%). Oxford House respondents' employment status ranged from employed full time (67.7%), employed part time (11.3%), or unemployed (10.9%).

Procedure

Participants were recruited by field research staff in face-to-face meetings. Individuals were informed about the purpose, objectives, and methodology of the study and were advised of the voluntary nature of the study before signing and returning a consent form. Interviews were scheduled and conducted and included self-report measures of personality, self-esteem, and stress, as well as demographic information. Participants were compensated \$20 for their time.

Measures

Big Five Inventory-10.—All participants completed the Big Five Inventory-10 (BFI-10; Rammstedt & John, 2007), a 10-item measure used to capture the core aspects of the Big Five Personality dimensions. Two BFI items were selected for each Big Five dimension, as to represent the high and low pole of each factor. Openness captures whether an individual has either “few artistic interests” or an “active imagination.” Extraversion assesses being “reserved” to being “outgoing/sociable.” Conscientiousness taps if one has the tendency to be “lazy” or if one “does a thorough job.” Agreeableness measures if one tends to “find fault with others” or if the individual is “generally trusting.” Finally, Neuroticism focuses on whether an individual is usually “relaxed” and “handles stress” or if the individual “gets nervous easily” (Rammstedt & John, 2007, p. 210). Emotional Stability is at the low end of the Neuroticism spectrum (DeYoung, Peterson, & Higgins, 2002; Digman, 1997). Although the BFI-10 scales include less than 25% of the full BFI-44 scales, they predict almost 70% of the variance of the full scales (Rammstedt & John, 2007). The present sample’s measures of 2-item correlations were materially lower than those realized in the BFI-10 development process—Extraversion (0.25), Neuroticism (0.28), Conscientiousness (0.35), Agreeableness (0.25), and Openness (–0.01). These correlations ruled out analysis on the five-factor subscale level and precluded use of the Plasticity factor in the two-factor model (Rushton & Irwing, 2008; Van Der Linden, Te Nijenhuis, & Bakker, 2010), and this was because of the –0.01 correlation between Openness items. However, adequate correlations were found for the Stability construct, which was the main focus of the current study.

Rosenberg Self-Esteem Scale.—The Rosenberg (1965) Self-Esteem Scale is a 10-item, unidimensional scale that measures global self-worth by measuring both positive and negative feelings about the self. This scale has been used in previous recovery research to capture individual change (Fukui, Davidson, Holter, & Rapp, 2010). The items are answered using a 4-point Likert (1 = *strongly disagree* to 4 = *strongly agree*). Cronbach’s alpha for the current sample is 0.89, $F(223, 2007) = 9.47, p < .001$.

Perceived Stress Scale.—The short version, Perceived Stress Scale-4 (PSS-4), measures the degree to which situations in one’s life are appraised as stressful, examining perceived stress related to current, objective events. The PSS-4 poses general queries about relatively current levels of stress experienced. All items begin with the same phrase: “In the past month, how often have you felt ____?” Questions are general in nature and are not directed at any subpopulation group. PSS-4 scores are obtained by summing across all four items (two items are reverse scored). Responses are measured on a 5-point scale (0 = *never* to 4 = *very often*). The higher the score, the more the perceived stress. Use of this abbreviated version with a diverse population yields reliable results (Cohen, Kamarck, & Mermelstein, 1983; Cohen & Williamson, 1988). Leung, Lam, and Chan (2010) provide further validation of this 4-item instrument. Cronbach’s alpha for this 4-item scale with the present sample was 0.77.

Results

Because of the independence of several items such as those for Openness, we did not explore the higher order construct, Plasticity. However, we performed a confirmatory factor analysis on the three subscales representing Stability (Table 1), and found it had adequate psychometric properties to be included in the current study.

A multilevel path model (Figure 1) was developed to test the relationships between demographic characteristics and Stability, and Stability with Perceived Stress and Self-Esteem. Only Perceived Stress exhibited house-clustering effects (intraclass correlation coefficient [ICC] = 0.168, $p < .05$) while Stability (ICC = 0.007) and Self-Esteem (ICC = .036) were independent of house effects. The fit statistics for the 6-item, one-factor confirmatory factor analysis ranged from good to excellent (root mean square error of approximation = 0.022, confirmatory factor index = 0.992, Tucker–Lewis Index = 0.987, standardized Root Mean Square Residual = 0.025).

With respect to demographic variables, European-Americans were represented by the intercept and provided contrast to African Americans, Hispanics, and Other. Hispanics scored significantly higher on Stability (Table 2) and were the only significant race/ethnicity effect. No significant sex differences were identified. Age was significant, and its effect size was positive and moderate in strength thus predicting increasing Stability with increasing age. Overall, individual differences in Stability were partially explained by these demographic associations ($r^2 = .16$, $p < .01$).

The direct regression paths of Self-Esteem and Stress on Stability were both significant (Table 2), and the relationship between Self-Esteem and Stability had a large effect size. The indirect association of Stability and Stress via Self-Esteem was also significant and comparable in magnitude with the direct effect. Overall, these associations with Stability (Figure 1) result in large proportions of shared variance (Stress $r^2 = .34$, $p < .001$; Self-Esteem $r^2 = .31$, $p < .001$). These findings reveal a pattern of association between a trait-like individual difference characteristic and levels of more state-based individual constructs. That is, for this sample population, individuals with higher levels of Stability generally tend to have higher scores on Self-Esteem and lower levels of Perceived Stress.

Discussion

Our study found empirical support for Stability as a metatrait in personality, and individuals with higher levels of Stability tend to have higher scores on Self-Esteem and lower levels of Perceived Stress. Stability may also be foundational to the development of Self-Esteem and the associated constructs of self-liking and self-competency, which would be consistent with a negative relationship with Perceived Stress. Overall, the core attributes of Agreeableness, Conscientiousness, and low Neuroticism may be antecedent predictors of social inclusion within communal recovery home settings. While addiction recovery research often focuses on systems that improve the likelihood of sobriety and well-being, this research suggests that, perhaps, some basic psychological traits may be important in evaluating optimal aftercare. Our research suggests that it is important to investigate structural individual

differences for those in recovery. Given that a supportive, cohesive setting following addiction treatment is known to improve outcomes (Moos & Moos, 2006), adaptive personalities may be best suited for living in communal recovery settings.

While the question has arisen as to whether self-esteem and neuroticism/emotional stability are similar constructs, or both indicators of a construct of higher order core self-evaluations (Judge, Erez, Bono, & Thoresen, 2002; Watson, Suls, & Haig, 2002), self-esteem has been used in previous recovery research to capture individual change (Fukui et al., 2010). In fact, as individuals in recovery have been shown to undergo personal changes through the recovery process, this sample may provide more insight into this idea of a higher order self-evaluation construct.

These findings have implications for both system and individual supports designed to improve the likelihood of an individual's recovery. At the system level, a recognition of important individual differences may provide both a more targeted variety of recovery systems and better patient-centered decision information. For the individual supports, both the variety and tailoring of interventions may be improved by considering an individual's personality characteristics.

Several demographic variables had important relationships with Stability. For example, the positive relationship between age and Stability may be partial support for the observation that many "age" out of addiction. Progression or development of Stability over time may be one mechanism underlying this process. In addition, we found that Latinos/Latinas had higher levels of Stability than other demographic groups. Previous research on Latinos and Latinas residing in an Oxford House highlights that this subpopulation has had positive experiences living in an Oxford House (Alvarez, Jason, Davis, Ferrari, & Olson, 2005); perhaps a portion of this success is attributed to Stability. This subpopulation may have the tendency to be adaptable and live well in a communal recovery home.

This research has several limitations including its cross-sectional design, which excludes within person analysis, and convenience sampling. This sample of adults in substance use recovery also provided lower interitem correlations on the BFI-10, precluding CFA of the meta-trait plasticity or the reliable use of individual Big Five traits as predictors. Future research should include more comprehensive trait measurement instrumentation both to expand investigated domains such as examining individual factors, for example, neuroticism, and to increase reliability. However, as the measures assessed in the current study are a part of a larger battery of measures in a longitudinal study, the use of a short personality measure was necessary in order to avoid participant fatigue and keep the overall survey time around an hour (given that participants are expected to participate eight times over 2 years). In addition, 2-item measures per construct in short measures of personality have been shown to significantly decrease Type I and Type II error when compared with 1-item measures (Credé, Harms, Niehorster, & Gaye-Valentine, 2012). Others have created and validated 10-item measures of personality (Ehrhart et al., 2009; Gosling, Rentfrow, & Swann, 2003), which may be better suited for this population, but the inherent weakness of 2-item subscales can only be overcome by utilizing a longer instrument.

In addition, longitudinal research designs should also be implemented not only to establish causal arguments but also to measure the dynamics of trait or metatrait with context over time. Stability may be predictive of how well someone may fit into the Oxford House environment, but also, Oxford House engagement may affect an individual's priorities and mitigate trait weaknesses. As an example, a secondary finding was the low measured house level variances for Stability and Self-Esteem, and this is consistent with these measures representing individual differences. Longitudinal research would better be able to answer whether it may be prudent to screen new potential Oxford House members or if simply informing new residents on the potential benefits of Agreeableness, Conscientiousness and Emotional Stability and how these may lead to more successful sustained recoveries in Oxford Houses. Given that Stability positively correlates with age, Stability may be a teachable trait. Oxford House environments may even foster these traits or they may increase the likelihood of relapse for some individuals. Future longitudinal designs, capturing within person effects, as well as an investigation of longer term recovery outcomes, may further inform ties to both state predictors (e.g., stress) and more stable predictors (e.g., self-esteem). Further study could also explore why the Latino and Latina groups scored high in Stability, and this could be a cultural attribute. It could also be beneficial to explore causes of stress at the house level, in order to further understand the variance found within our sample.

Social-cognitive theory (Bandura, 1999) supports the idea that individuals develop their personality traits through dynamic, transactional interactions with their environments (Caspi, 1998; Caspi & Bem, 1990). While some trait theorists may be at odds with this view, social-cognitive theory informs trait theory by helping explain variance in individual behaviors, and how to use this information for behavioral change (Bandura, 1999). Within a sober living environment, for example, residents likely model their behaviors off the behaviors of others. This not only helps a home maintain sobriety, but also may foster community and friendship building within the home. Personality traits may be "learnable" through this process as well. This idea suggests that those high in Stability in the house are necessary for others to learn from; it is likely that personality traits can also be learned in the opposite direction when individuals are all low in agreeableness, conscientiousness, and high in neuroticism. Oxford Houses have members with various length of stays within each home, and these more senior members who have succeeded at both sobriety maintenance and group living may act as the agents through which newer members model behaviors. In fact, since low conscientiousness, low agreeableness, and high neuroticism are significantly associated with SUDs, it is possible that individuals in recovery settings must undergo a sort personal change in order to both remain sober and remain within a recovery setting.

The parallel continuities hypothesis relates to personality traits in that "individual characteristics will be stable when there is stability in the supportive environment, but when the environment is changing, personality tends to change in the same direction, and vice versa" (Branje, Van Lieshout, & Van Aken, 2004, p. 615). Communal recovery settings, such as Oxford House, may be sensitive to the introduction of different personality types and should be aware of how these may alter house dynamics.

In summary, the BFI-10 provided sufficient information for the construction of Stability; however, the scale demonstrated an inability to measure the metatrait Plasticity. In general, the interitem correlations were significantly attenuated relative to those derived in the scale construction, which resulted in an inability to test any five-factor models of personality (Rammstedt & John, 2007). Despite the less than optimal measurement performance of the BFI-10, the magnitude and significance of the relationships of Stability with self-esteem and stress would suggest individual trait-like characteristics may be important predictors of recovery.

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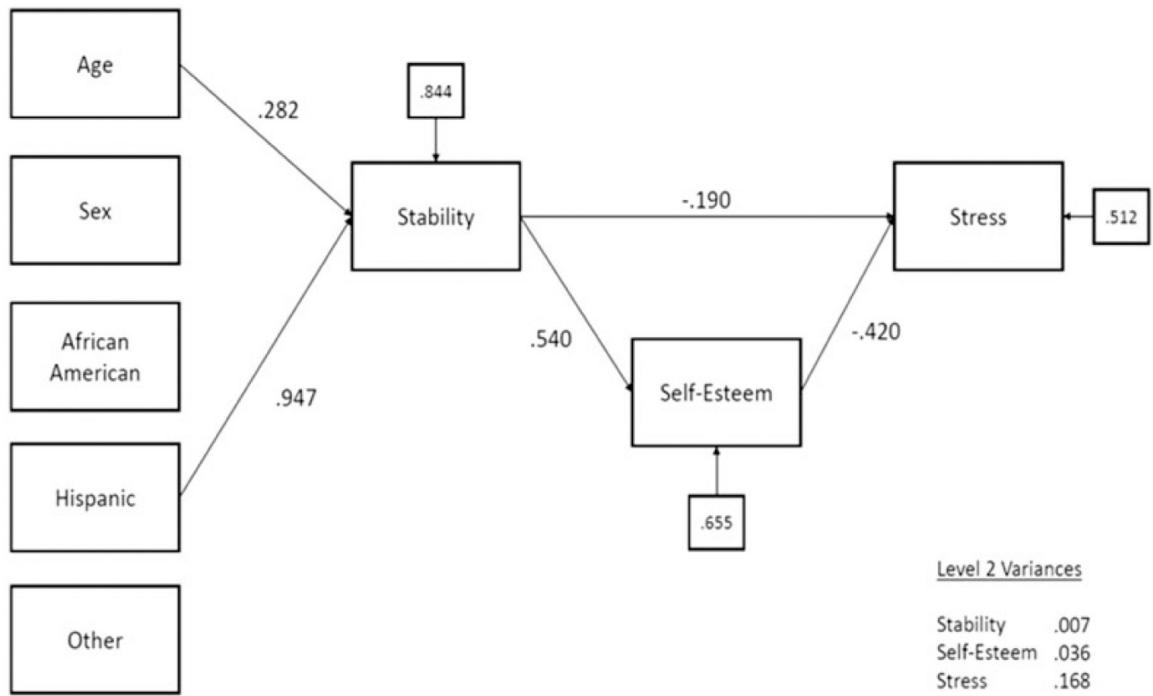


Figure 1. Model for path analysis of stability’s relation to self-esteem and stress.

Table 1.

Standardized Coefficients for Latent Stability Factor and Conscientiousness, Emotional Stability, and Agreeableness Subscales.

Stability BY	Est.	SE	Est/SE	Sig.	Van Der Linden et al. (2010) Est.	Rushton and Irwing (2008) Est.
Conscientiousness	.496	.123	4.03	.000	.68	.61
Emotional stability	.708	.163	4.34	.000	.63	.72
Agreeableness	.292	.090	3.26	.001	.60	.56

Note. *SE* = standard error.

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Table 2.Summary of Path Analysis Results for Stability's Relation to Self-Esteem and Stress.^a

Significant parameters estimates	Est. β	SE	Est./SE	P
Stability on age	.282	.064	4.418	.000
Stability on Hispanic	.947	.258	3.670	.000
Self-esteem on stability	.540	.059	9.180	.000
Stress on stability	-.190	.063	-3.029	.002
Stress on self-esteem	-.420	.066	-6.398	.000
Stress on stability via self-esteem	-.227	.042	-5.405	.000

Note. SE = standard error.

^aTwo-level random intercepts—42 Houses and an average of 5.1 observations per cluster.