

A Longitudinal Study of Dysfunctional Individuation As a Predictor of Depressive Symptoms

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Abstract

The relationship between dysfunctional individuation and depressive symptoms was assessed in a longitudinal study of 517 emerging adults (239 female, $M_{age} = 19.8$, $SD_{age} = 1.29$).

Dysfunctional individuation was measured with the Dysfunctional Individuation Scale, and depression was assessed through the Beck Depression Inventory II. In addition to these two main constructs, dispositional and situational factors such as neuroticism and perceived stress, as measured by the Big Five Inventory and the Perceived Stress Scale, were controlled for.

Results revealed that dysfunctional individuation is uniquely predictive of depressive symptoms over time after controlling for situational or dispositional factors. A robust pattern of convergent and discriminant validity was found for the DIS. However, results did not confirm our hypothesis that age and scores on the DIS will interact to predict depressive symptoms such that as individuals age, the DIS becomes a stronger predictor of depressive symptoms. This study was the first longitudinal study of dysfunctional individuation to date, adding to the literature on adolescent development psychology. Implications for possible clinical significance and directions for future research are suggested.

Interdependence is and ought to be as much the ideal of man as self-sufficiency.

- Mahatma Gandhi

The process of separation-individuation is widely considered to be an important developmental challenge facing adolescents and young adults (Lapsley, Rice, & Shadid, 1989). Separation-individuation refers to the person's attempt psychologically separate from parental identifications and establish the self on independent footing. Individuation, on the other hand, is the process by which the individual seeks to define new boundaries between oneself and other people, and it refers to the creation of the person's new sense of self with a distinct identity that is all his or her own (Lapsley, 2010; Mahler, Pine, & Bergman, 1975).

The success that an individual has when navigating separation-individuation has implications for both psychological wellbeing and the ways that relationships are formed for the rest of the lifespan (Lapsley and Edgerton, 2002). In order to form a healthy sense of one's identity, separation-individuation process must be completed successfully (Mahler, Pine, & Bergman, 1975). Furthermore, the process of separation-individuation occurs twice during a person's lifespan: once early in life during infancy, and then again after puberty throughout adolescence and emerging adulthood (Kins, Beyers, and Soenens, 2013).

The first phase of individuation occurs early in life as an infant begins to create a sense of self (Lapsley, 2010). When this separation individuation process is unsuccessful, manifestations of clinical disturbances may be observed (Pine, 1979). These problems can be characterized as higher-order or lower-order disturbances, based on the severity and kinds of problems with separation-individuation that a person experiences (Pine, 1979). Higher-order disturbances are manifested in problems in intimacy and relationships with others, such as needing to feel in control of others or having a crippling fear of being alone (Lapsley, Aalsma,

& Varshney, 2001). Lower-order disturbances involve problems with one's own identity becoming enmeshed with others or a loss of the sense of self entirely (Pine, 1979; Christenson & Wilson, 1985). From the existence of these higher and lower order disturbances, it seems that the challenges associated with pathological separation individuation fall under the broad categories of problems with the understanding of one's sense of self and problems with relationships that one attempts to form with other people (Christenson & Wilson, 1985).

The second phase of individuation then reoccurs in the second and third decades of life as one faces the transition to adolescence and into emerging adulthood (Blos, 1962; Josselson, 1980). This phase occurs at a time when the individual is once again seeking to define his or her identity. In childhood, identity is tied to the highly dependent relationships that the child has with the primary caregiver (Kroger, 1996). As the child becomes an adolescent, however, he or she must alter how the self is defined in relation to other people. The internalization and dependence upon caregivers gives way to more psychological independence, in which the adolescent can maintain a close relationship with the parents, but avoids enmeshment with them (Kins, Beyers, and Soenens, 2013). The goal during separation-individuation in adolescence is reaching a sort of balance, without excessive psychological dependence on or independence from other people (Lapsley and Stey, 2012).

However, this goal is not always achieved. There are two opposite outcomes that are the result of unsuccessful, or dysfunctional, individuation. In the first scenario, the adolescent remains enmeshed with his or her parents, failing to secure an independent identity for his or her self. The second is that the adolescent separates excessively from their relationships, finding themselves detached from others and in isolation (Kroger, 1996). Problems with separation-individuation are evidenced in the adolescent's tendency of splitting their views of the self and

others into strict categories of “good vs. bad” and in problems with being too enmeshed with or isolated from others (Christenson & Wilson, 1985).

This failure to successfully negotiate the important developmental task of adolescent separation-individuation has been proven related to a host of negative outcomes (Allen, Hauser, Bell, & O’Connor, 1994; Collins, 1990; Lapsley & Edgerton, 2002). For instance, failure to secure an adequate resolution of self-in-representation during the individuation process elevates the risk of other adjustment problems and decreased wellbeing. Dysfunctional individuation has even been linked with some forms of psychopathology (Dolan, Evans, & Norton, 1992).

One mental health problem that commonly results from troubles navigating the individuation process is the condition of depression or having depressive symptoms. Depression is characterized by feelings of sadness, hopelessness, lethargy, and a sudden loss of interest in things that were once enjoyed, among other manifestations (Beck, Steer, & Brown, 1996). A relationship has been found between dysfunctional individuation during adolescence and the manifestation of depressive symptoms (Stey, Hill, & Lapsley, in press); however, more research on this topic is needed in order to ascertain the nature of this relationship. Specifically, additional research is necessary to determine whether scores on measures of dysfunctional individuation and scores on measures of depression change together over time. Dysfunctional individuation is likely a good predictor of depressive symptoms later in life when adults should have navigated the individuation process already. Interestingly enough, there has not yet been a longitudinal study of dysfunctional individuation as a predictor of depression or other psychological problems. Therefore, there is a gap in the literature that needs to be filled.

Another construct that is related to depression is neuroticism, a broad personality domain from the Big Five Inventory (John, Donahue, & Kentle, 1991). Whereas dysfunctional

individuation is a developmental construct that is thought to change over time, neuroticism is considered to be a stable construct. It is characterized by negative mood, anxiety, and a tendency to worry (John, Donahue, & Kentle, 1991). It is the personality trait that is most consistently linked with negative life outcomes, trouble with the individuation process, and even psychopathology (Ormel, Rosmalen, & Farmer, 2004). For these reasons, it seems that neuroticism contributes simultaneously with dysfunctional individuation as a predictor of depression. It is currently unknown whether dysfunctional individuation scores have the ability to predict depressive symptoms and other negative outcomes when dispositional factors such as neuroticism are controlled for. Additional research is needed to clarify this connection and to determine that dysfunctional individuation is not a surrogate measure of neuroticism.

Measuring Dysfunctional Individuation

Given its centrality for understanding important development transitions and psychological outcomes, the ability to operationally define dysfunctional individuation is a high research priority with decided implications for counseling intervention (Lapsley and Stey, 2012). It is surprising, then, that there are relatively few assessments or ways of measuring separation-individuation. One such measure is the Psychological Separation Inventory (PSI), which measures the construct of psychological separation. It is an exceptionally long scale, with 69 items comprising four lengthy subscales (Hoffman, 1984). These subscales must be administered twice: once for mother and once for father. This makes it burdensome to administer; in addition, it has doubtful concurrent validity (Lapsley and Horton, 2002).

A more promising measure for measuring pathology of separation-individuation was reported by Christenson and Wilson (1985). These authors developed a one-factor, 39-item measure modeled on a clinical profile that was derived from Pine's higher and lower order

disturbances and Mahler's theory of individuation (Mahler, Pine, & Bergman, 1975).

Christenson and Wilson researched the clinical symptoms and problems that grow out of a troubled separation-individuation process, and hypothesized that the adult manifestations of pathology of separation-individuation were related to mental illness. They used these symptoms to develop a 65-item inventory that attempted to compare the manifestations of pathological separation-individuation with the symptoms of borderline personality disorder (Christenson & Wilson, 1985).

To test the effectiveness of the inventory, Christenson and Wilson created two groups of study participants: an experimental group and a control group. The experimental group was comprised of borderline personality disorder patients from three nearby hospitals. The second group was the control group, and it included staff members from the university that the study was conducted at. The 65-item inventory included items such as "*I find it relatively easy to make and keep commitments to other people,*" "*It is when people start getting emotionally close to someone that they are most likely to get hurt,*" and "*When I am by myself, I feel that something is missing.*" Christenson and Wilson administered this scale to both groups and asked participants to rate how much the statements applied to them personally. They found that 39 items out of the original 65 could differentiate between the borderline personality patients and the healthy control group (Christenson & Wilson, 1985). The authors finalized their scale measuring the pathology of the separation-individuation process as a single factor, 39-item scale with clinical significance.

Lapsley and his colleagues were able to use a series of scale reduction studies to Christenson and Wilson's scale, which resulted in a reliable, 19-item single factor scale that shows a strong pattern of concurrent validity with pathological adult attachment, psychiatric

symptoms, and college adjustment problems (Lapsley, Aalsma, & Varshney, 2001). Even more recently, Stey, Hill, and Lapsley were able to shorten this 19-item scale successfully to just 10-items, allowing it to measure adjustment problems associated with dysfunctional individuation and to be administered with ease and efficiency (Stey, Hill, and Lapsley, in press).

The Current Study

This paper reports the first longitudinal study examining the relationship between dysfunctional individuation and depression while controlling for neuroticism. The present study has two primary goals. First, we analyzed the stability of dysfunctional individuation with a sample of college students over a period of one year. Our hypothesis was that since dysfunctional individuation is a developmental construct, we expect that participants' scores on the DIS will show change over time. Specifically, we expected that as participants age they will generally show fewer problems associated with individuation. Furthermore, we expected that age and scores on the DIS interact to predict depressive symptoms such that as individuals grow older, scores on the DIS and problems with separation-individuation will become a stronger predictor of depressive symptoms. This followed from the view that lingering problems of individuation are especially deleterious later in life when most other people have already successfully negotiated the individuation process. And second, we tested the extent to which dysfunctional individuation is uniquely predictive of depressive symptoms over time after controlling for the situational and dispositional factors of neuroticism and perceived stress. We expected to see that the results demonstrate that the DIS shows a robust pattern of convergent and discriminant validity, and that dysfunctional individuation is not a surrogate measure of the personality trait, neuroticism.

Method

Participants

The sample in this present longitudinal study was comprised of a random sample of 517 undergraduates (239 female, $M_{age} = 19.8$, $SD_{age} = 1.29$) from a midsized Catholic university in the American Midwest. The religious composition and ethno-racial makeup were comparable to that of the rest of the student body at the university. At Time 1, the participants were a mix of university freshmen, sophomores, juniors, and seniors. There were 517 participants who participated in the surveys at Time 1. At Time 2 and Time 3, the senior class from Time 1 had graduated and left the university. At Time 2, we had 345 participants, and at Time 3, we had 338 participants. Attrition is discussed in a later section of this paper.

Procedure

Participants responded to self-report questionnaires online that assessed dysfunctional individuation, depression, college adjustment, separation-individuation, perceived stress, and personality. They also responded to demographic information regarding their age, gender, class year at the university, romantic relationship status, level of intimacy, geographic location of their romantic partner (at school or long-distance), religion, first and second majors, and GPA. The Institutional Review Board (IRB) affiliated with the university that the participants attended approved all aspects of this study.

Recruitment

Data collection at Time 1 began in Spring 2013 when an initial random sample of 1000 undergraduates was invited to participate in the study via email. They were informed that they were being asked to participate in a project investigating personality and college adjustment involving completion of a 15-minute, online survey. There were 517 participants that took part

in the survey and were entitled to compensation of \$5 in cash, which was mailed to them within one week of survey completion. In order to maximize participation, two reminder emails were sent. Instructions were provided to the participants on how to contact the researcher if they had questions regarding the study.

Over the summer between Time 1 and Time 2, the Class of 2013 seniors were contacted in order to obtain their new address information so they could be contacted and compensated if they participated in Time 2 and Time 3. Time 2 was launched six months after Time 1 in Fall 2013. The undergraduates who participated in Time 1 were once again sent an email asking if they would again complete the surveys for \$5 compensation. In all, five reminder emails were sent to them. Time 3 began in Spring 2014, and there were also five reminder emails sent to encourage participation.

Instruments

Dysfunctional Individuation Scale. The Dysfunctional Individuation Scale (Lapsley, Aalsma, & Varshney, 2001; Stey, Hill, & Lapsley, in press) was created to measure the extent to which adolescents have had an unhealthy separation-individuation process. The DIS has recently been shortened from the 19-item version to a new 10-item version (Stey, Hill, & Lapsley, in press). For each item, participants respond to on a 7-point Likert scale from 1 (*strongly disagree*) to 7 (*strongly agree*). Sample items include the following: “*I need other people around me to not feel empty,*” “*often, when I am in a close relationship, I find that my sense of who I am gets lost,*” and “*I find it difficult to really know another person.*” The scores in this scale range from 10 to 70, with higher scores on this scale indicating greater dysfunctional individuation. At Time 1, internal consistency of the DIS was $\alpha = .84$.

Beck Depression Inventory II. We used the Beck Depression Inventory-II in the present study to assess the severity of the participants' depressive symptoms (Beck, Steer, & Brown, 1996). This measure is comprised of 21 items, each of which is related to a different symptom of depression, such as hopelessness or feelings of guilt. The BDI-II instructs participants to read the groups of four statements provided for each symptom and choose the numbered response that best describes how they have felt in recent days (Beck, Steer, & Brown, 1996). Participants were asked to assess their feelings on a 4-point Likert scale (1 = *I do not feel sad*, 2 = *I feel sad much of the time*, 3 = *I am sad all the time*, and 4 = *I am so sad or unhappy that I can't stand it*). A higher summed score represented a more severe level of depression. Previous research has shown that this scale was able to demonstrate validity by distinguishing between minimal, mild, moderate, and severe depression (Beck, Steer, & Brown, 1996). At Time 1, internal consistency of the DIS was $\alpha = .91$.

College Adjustment Scales. The College Adjustment Scales were used to assess the adjustment problems that arise as emerging adults make the transition into college (Anton & Reed, 1991). It has 108 items, which are grouped within nine subscales. The present study used 36 items from the subscales dealing with Interpersonal Problems (12 items, $\alpha = .82$), Family Problems (12 items, $\alpha = .83$), and Self-Esteem Problems (12 items, $\alpha = .87$). For this measure, there was no total score encompassing all of the subscales; rather, scores were summed for each subscale individually. Participants responded to items on a 4-point Likert scale from 1 (*false or not at all true*) to 4 (*very true*). We used the Interpersonal Problems subscale to measure the extent to which the participants had issues relating to other students on their campus, and one sample item from this subscale is "*I'm tired of the way people treat me.*" We used the Family Problems subscale to understand the troubles that participants had in their relationships with

members of their immediate family. A sample item from this subscale is “*my family won’t let me grow up.*” Finally, we used the Self-Esteem Problems subscale to assess aspects of self-esteem and the extent to which the participants had trouble dealing with negative cognitions about themselves. An example of an item from this subscale was “*people say I lack confidence.*” The subscale score totals range from 12 to 48, with higher scores indicating a higher level of difficulty in the respective domain (Anton & Reed, 1991).

Perceived Stress Scale. The Perceived Stress Scale was the measure we used to assess the stress that participants felt as they navigated various everyday life events that happened to them (Cohen, Kamarck, & Mermelstein, 1983). The full-length PSS had fourteen items; however, Cohen and Williamson (1988) shortened this scale to four items with a only a modest decline in internal reliability ($r = .85$, $r = .60$, respectively) but with a dramatic increase in the efficiency of administering the scale (Warttig, Forshaw, South, & White, 2013). When used with a population from Great Britain instead of the United States population used in the Cohen and Williamson (1988) study, the scale demonstrated better psychometric properties and its reliability as a measure of perceived stress was confirmed (Warttig, Forshaw, South, & White, 2013). The present study used the PSS-4 to assess the ways that people understood their reactions to everyday stressors. Participants were asked to think back over the last month and assess each of the following four questions: (1) “*how often have you felt that you were unable to control the important things in your life,*” (2) “*how often have you felt confident about your ability to handle your personal problems,*” (3) “*how often have you felt that things were going your way,*” and (4) “*how often have you felt difficulties were piling up so high that you could not overcome them*” (Cohen, Kamarck, & Mermelstein, 1983). For each item, participants responded by on the following 5-point Likert scale: (1 = *never*, 2 = *almost never*, 3 = *sometimes*,

4 = *fairly often*, and 5 = *very often*). Scores were obtained by reverse coding the positive items 2 and 3 (e.g. 1=4, 2=3, 3=2, etc), and then summing across all 4 of the items. At Time 1, internal consistency of the DIS was $\alpha = .78$.

Separation-Individuation Test of Adolescence. The Separation-Individuation Test of Adolescence was administered only at Time 1 in order to address questions of construct validity with the DIS (Levine, Green, & Millon, 1986). SITA was comprised of the following six subscales designed to measure the key dimensions of the adolescent separation-individuation process: Nurturance-Symbiosis, Engulfment Anxiety, Need Denial, Separation Anxiety, Self-Centeredness, and Healthy Separation. In the present study, we chose to use three of these six: Engulfment Anxiety (7 items, $\alpha = .85$), Separation Anxiety (13 items, $\alpha = .74$), and Healthy Separation (7 items, $\alpha = .57$). Participants responded to each item on the following 5-point Likert scale: *strongly disagree* (1), *disagree a little* (2), *neither agree nor disagree* (3), *agree a little* (4), and *strongly agree* (5).

Big Five Inventory. The Big Five Inventory was a measure of the following broadband personality dimensions: Extroversion ($\alpha = .87$), Agreeableness ($\alpha = .80$), Conscientiousness ($\alpha = .85$), Neuroticism ($\alpha = .83$), and Openness ($\alpha = .71$). We used this scale in the present study in order to determine the incremental validity of the DIS over neuroticism for predicting depression (John, Donahue, & Kentle, 1991). The neuroticism subscale contained 8 items, and it measured the personality trait that is most characterized by worry and anxiety. Participants were instructed to reflect on their own personality and behavior and then “indicate the extent to which [they] agree or disagree” with each of the particular statements (John, Donahue, & Kentle, 1991). The 5-point Likert scale choices were as follows: *disagree strongly* (1), *disagree a little* (2), *neither agree nor disagree* (3), *agree a little* (4), and *agree strongly* (5). Some examples of

sample items for the neuroticism subscale include “*can be moody,*” “*gets nervous easily,*” and “*is depressed, blue.*”

Results

Attrition of Participants

Initially, a random sample of 1000 university students were contacted to participate in Spring 2013, and 517 of these people completed the initial survey instrument at Time 1. Before the second round of data collection in Fall 2013, the senior class of 2013 graduated and left the university. We requested that this class provide their new alumni email address before their university email account expired. Although there was attrition, we retained a large enough sample size to be able to assess the relationship between dysfunctional individuation and depression over time.

We had strong reason to believe that the mechanism of missingness was so-called missing at random (MAR; Rubin, 1976). The reason that people dropped out had to do with the logistics of their graduation rather than a construct measured in the study (Shafer, 2002). If they had dropped out of the study because they differed on a specific, measured construct in the study, this would have been “missing not at random” (MNAR) instead of missing at random (MAR; Shafer, 2002). If participants drop out of the study for reasons that have to do with the questions or nature of the study itself (“missing not at random”), this can bias parameter estimates (Shafer, 2002). They were not deterred from the study because they differed in scores of dysfunctional individuation, depression, or neuroticism. Therefore, we suspected that the mechanism of missingness is MAR; consequently, it did not have any serious effect on the results of this study (see Figure 1).

Missingness was handled as part of the estimation process using full maximum likelihood. This had the effect of using all the available data, even if there are some participants for whom we had only partial or minimal data. For Table 2, we report $N = 476$ because this is the number of usable observations that have data on at least one of the variables of included in that model.

Figure 1 illustrated missingness in the $N \times p$ matrix where N is the sample size, and p was the number of variables in the complete wide-format data set. The y-axis indexed participants, and the x-axis illustrated the list of variables that we investigated in our research questions for this study. Figure 1 was sorted by the variable age. The red cells represented a missing observation, while the black, white, and grayscale cells represented observed data, with darker shades denoting higher values. Results suggested that the older participants in this study had more missing data than the younger ones. There was more red in the upper half of the plot, especially for the Time 3 variables. This was even true of the thick red band, which described the people who gave us no data, was ignored. This supported our conjecture that attrition was related to participant age.

Stability of the DIS over Time

Our first research question was whether or not the DIS changes over time. We reported patterns of correlation in Table 1. The correlation between the DIS at Time 2 with the DIS at Time 1 was $r = .58$. Between Time 3 and Time 1, the correlation was $r = .56$. Between Time 3 and Time 2, $r = .70$.

Figure 2 shows the scores that all participants got at all three time points. From this figure, it is apparent that the DIS does not change over time with participant age. Rather, it appears to be a stable construct without much change over time. This does not provide evidence

to support our hypothesis that the DIS is a developmental construct that shows change over time.

We tested four separate models with the data. The results of each can be found in Table 2. The third model, M3, tested the extent to which age (or class) interacts with dysfunctional individuation, addressing the first hypothesis that as participants age they would show fewer problems associated with individuation. Furthermore, we had expected that age and scores on the DIS would interact to predict depressive symptoms such that as individuals age, the DIS would become a stronger predictor of depressive symptoms. The initial status intercept, $\gamma_{00} = 8.35$, was significant (0.29). The effect of time was $\gamma_{01} = -0.73$, which reached significance (0.19). For the DIS, $\gamma_{20} = 2.99$, which was significant with a standard error of 0.23. For the interaction of the DIS x time, $\gamma_{30} = -0.44$ (0.23), which was not significant. We did not have evidence from this study to support this hypothesis. Although the parameter estimate was non-significant, the trend was in fact, in the opposite direction of what we would have predicted. The older that the participants got, the less strongly the DIS predicted depression. The third model (M3) tested the extent to which the negative effect of dysfunctional individuation was impacted by time. These results were listed in full in Table 2.

For the multi-level models, the Level 1 within-person variance was $\sigma_e^2 = 13.8$. At Level 2, the intercept was $\sigma_0^2 = 16.05$, and the rate of change was $\sigma_1^2 = 2.31$. The variance with the DIS was $\sigma_2^2 = 21.53$, and the variance for the DIS x time interaction was $\sigma_3^2 = 4.46$. Because this model was not significant, M2 showed a more parsimonious fit.

Dysfunctional Individuation as Uniquely Predictive of Depressive Symptoms

Our second research question focused on determining the incremental validity of the DIS over neuroticism for predicting depression. We began by looking at the participants'

longitudinal scores on the BDI-II. From this, we concluded that the BDI scores were, like the DIS scores, quite stable over time.

Next, we looked at the multilevel models from Table 2. The first model (M1) was the unconditional model, including time as the only variable. It was included as a reference, as it was not particularly informative in terms of the research questions. The Model M1 showed a negative effect of time. This indicated that depression decreased slightly over time.

The second model, M2, had two variables: the DIS and time. For M2, the initial status intercept was significant at $\gamma_{00} = 8.36$ (0.30). The rate of change is $\gamma_{01} = -.76$, which was also significant (0.17). The effect of the DIS was significant at $\gamma_{20} = 2.56$ (0.23). For the multi-level models, the Level 1 within-person variance was $\sigma_e^2 = 17.39$. At Level 2, the intercept was $\sigma_0^2 = 23.73$, and the change over time was $\sigma_1^2 = 0.79$. The within-person variance for the DIS was $\sigma_2^2 = 5.16$. This model had a less good fit than Model M4 did.

The fourth model (M4) tested the effect of both dysfunctional individuation and neuroticism on depression over time. We had predicted that the results would demonstrate that the DIS shows a robust pattern of convergent, discriminant validity, and that dysfunctional individuation was not a surrogate measure of the personality trait, neuroticism. The rate of change was $\gamma_{01} = -0.73$ (0.15), which was significant. For the DIS, $\gamma_{20} = 1.41$ (0.20), which reached significance. For the effect of neuroticism, $\gamma_{30} = 3.36$ (0.28), which was significant. For the multi-level models, the Level 1 within-person variance was $\sigma_e^2 = 13.32$. At Level 2, the intercept was $\sigma_0^2 = 29.03$, and the rate of change was $\sigma_1^2 = 0.22$. The variance with the DIS was $\sigma_2^2 = 2.47$, and the variance for neuroticism interaction was $\sigma_3^2 = 9.18$. This model had the best fit out of the four, with deviance at 6284.70, AIC = 6314.70, and BIC = 6388.92. This confirmed that both dysfunctional individuation and neuroticism are strong predictors of

depression over time. This showed that the effect of dysfunctional individuation over time was not simply explained by the trait neuroticism.

As Table 1 illustrated, there were positive, and significant correlations between the DIS scores and the BDI-II scores at all three time points of data collection. For example, at Time 1 of the BDI-II, correlation with the DIS at Time 1 was positive, $r = .49, p < .05$. More interestingly, the summary of Pearson correlations that we obtained for the DIS, BDI-II, BFI neuroticism, and perceived stress across all time points allowed us to see that dysfunctional individuation is distinct from neuroticism. As seen in Table 1, the correlations between neuroticism and the DIS at Time 1 were .40, .30, and .33 respectively, $p < .05$. At Time 2, the correlations were .36, .42, and .35, $p < .05$. Finally, at Time 3, the correlations were .34, .35, and .46, $p < .05$. These correlations were all significant at $p < .05$. The same was true for the situational factor of perceived stress, as measured by the PSS. The correlations between the DIS and perceived stress at Time 1 were $r = .43, r = .34, \text{ and } r = .35, p < .05$. At Time 2, they were $r = .40, r = .43, \text{ and } r = .34, p < .05$. For Time 3, the correlations were $r = .42, r = .42, \text{ and } r = .52, p < .05$. These were significant, and positive correlations that are also less than those correlations between the BDI and the DIS. These correlations confirmed our final hypothesis, which stated that we expected to see a pattern of discriminant validity for the DIS over time beyond neuroticism and that although neuroticism and dysfunctional individuation were related, dysfunctional individuation is a unique construct.

Discussion

The purpose of this study was to examine the relationship between dysfunctional individuation and depression. Because this was the first longitudinal study of dysfunctional

individuation, we first tested its stability over time. We then looked at scores on the DIS and the BDI-II at each time point and made the prediction that scores of dysfunctional individuation would change with the scores of depression (Stey, Hill, & Lapsley, in press; Beck, 1996). However, there are other situational or dispositional factors in existence that are known to be predictors of depression. In order to be sure that we were looking at the relationship between failure to resolve individuation problems in adolescence and the presence of depressive symptoms later in life, we controlled for the situational factor of perceived stress and for the dispositional factor of neuroticism.

We used a longitudinal design in this study because this enabled us to say something concrete about the ways that the variables change. Three waves of data were used because it is important to have been able to show each individual participants' growth trajectory. Without three time points, it would be impossible to discern when the changes happened (Rogosa, Brandt, & Zimowski, 1982). With three time points, we were able to see if the changes all happened between the first and second time points or if the change was more steady and gradual over the year of assessment. Another benefit to having more than two data collections is that we were able to make sure that the "change" we were observing was not just statistical error (Rogosa, Brandt, & Zimowski, 1982; Singer & Willet, 2003). We used full maximum likelihood techniques to analyze the data and estimate the parameters.

Our first research goal was centered around charting the stability of dysfunctional individuation as measured by the new 10-item DIS (Stey, Hill, & Lapsley, in press). Since dysfunctional individuation is a developmental construct, we hypothesized that it would show change over time. However, the results that we found did not support this hypothesis. As observed in Figure 2, dysfunctional individuation appeared quite stable in the present study.

There are a few reasons why this could be the case. First, the present study had a longitudinal design, but it only tested subjects three times over the course of one year. Therefore, change in dysfunctional individuation may not be observable in such a relatively short time period.

Second, the sample was made up of emerging adults between the ages of 18 and 24. There is a chance that if dysfunctional individuation does change over time, it does not occur during this age. The second phase of the separation-individuation process begins in adolescence, which is the life stage before emerging adulthood (Allen, Hauser, Bell, & O'Connor, 1994; Collins, 1990; Lapsley & Edgerton, 2002). Adolescents are younger than the emerging adults in the present study, so perhaps any manifestation of dysfunctional individuation and its change over time would have occurred earlier.

It was also interesting to note that as participants aged, they did not follow our expectation that they would show fewer problems associated with individuation. Separation-individuation is a challenge that is supposed to occur during the time of adolescence to emerging adulthood, but it should be resolved during this time and not persist into adulthood. However, Model M3, as seen in Table 2, did not demonstrate that the age of the participants predicted the severity of depression symptoms. The M3 model was not significant, and it showed an opposite trend to what we would have expected: a trend of fewer depressive symptoms over time. This contradicts our earlier assumption that problems with individuation would become more troubling as the person ages. Again, perhaps this finding would have been significant if the longitudinal study had covered the span of a couple of years rather than just one year. Although a slight downward trend in depression scores was observed over the three time points of the present study, we could not be certain if this non-significant finding is going to continue or reverse over a longer time period. It would have been interesting to study the

change over time from middle school through the end of college in order to potentially note more change.

The results did confirm that the DIS has a robust pattern of convergent and discriminant validity. We discovered this pattern by looking at the correlations between the DIS, stress, and neuroticism. Model M4 from Table 2 illustrated that both dysfunctional individuation and neuroticism were strong predictors of depression over time. However, M4 also showed that the effect of dysfunctional individuation over time was not simply explained by trait neuroticism. To find more evidence of discriminant validity, we were interested in the correlations between neuroticism and the DIS. We found that these correlations were positive and significant, but they were modest. Additionally, correlations were smaller than those between neuroticism and scores on the BDI-II. Since there is literature confirming that the personality trait of neuroticism predicts depression, this correlation was expected (Ormel, Rosmalen, & Farmer, 2004). The smaller correlations between the scores on the DIS and the dispositional and situational factors of neuroticism and stress shows the convergent and discriminant validity of the DIS.

The implication of this confirmed hypothesis was that dysfunctional individuation scores could be useful in predicting depression both for current symptoms and for future symptoms. The literature has linked neuroticism and stress to depressive symptoms in past research; however, there was a significant gap in the literature for the link between dysfunctional individuation as a predictor for depression (Ormel, Rosmalen, & Farmer, 2004). Now that we have established this link, the DIS can perhaps find a role within the realm of clinical psychology as a diagnostic tool for depression. This would be a similar use to the Christenson and Wilson scale's role as a diagnostic screen for borderline personality disorder.

Limitations and Directions for Future Study

There were several limitations to the present study that are worth mentioning. First, the sample in this study was comprised of undergraduate university students and alumni who had graduated within the last year. Future research should include adults in their late 20s and 30s in order to gauge effects in adulthood beyond what college students experience. A decade might be more likely to reveal change than just one year. The observed relationship between dysfunctional individuation and depression almost certainly would be stronger if the sample was analyzed over a period of several years into adulthood, instead of just focusing on people within the emerging adulthood phase of life. Second, the length of the longitudinal study was only over the period of one year. In order to determine the effects of dysfunctional individuation during adolescence and emerging adulthood on the long-term development of depressive symptoms, it is necessary to collect data for longer than just a year and over time points that are more spread out than every six months. In terms of the information gained about the sample, it is beneficial to collect data as many times as possible and over the longest possible interval of time (Singer & Willet, 2003). Those researchers who conduct longitudinal research must commit to expending large amounts of time and financial resources. Based on the resources that we had to work with, the three waves of data in the present study were certainly better than collecting data from the sample just one or two times. However, future research could include multiple time points over a couple of years, instead of just one year as in the present study. Research in the future could also analyze the DIS, BDI-II, neuroticism, and perceived stress in relation to some of the demographic information that we collected but did not use in the present study. For example, there may be some effects of age and gender on the way that DIS scores predict depression over time. We also collected data related to relationship status, intimacy, and the geographic location of the participants that was not used in any of the research questions. It would be interesting to

investigate these interpersonal relationship variables along with the DIS to see if other manifestations of dysfunctional individuation can be seen developing over time

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Figure 1: Summary of Missingness; slight jitter was added to reduce overplotting

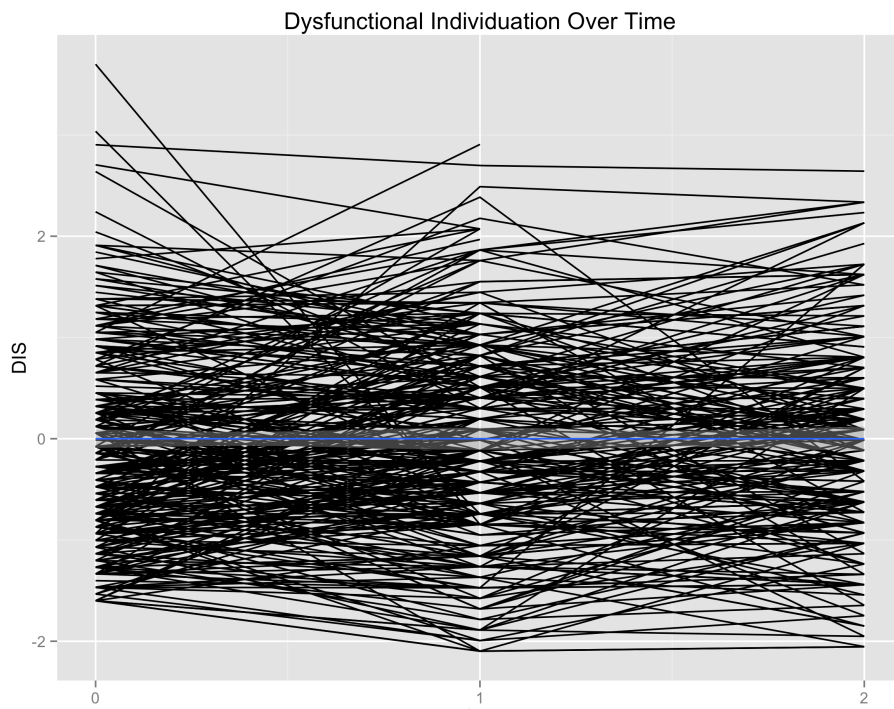


Figure 2: Dysfunctional Individuation over Time; slight jitter was added to reduce overplotting

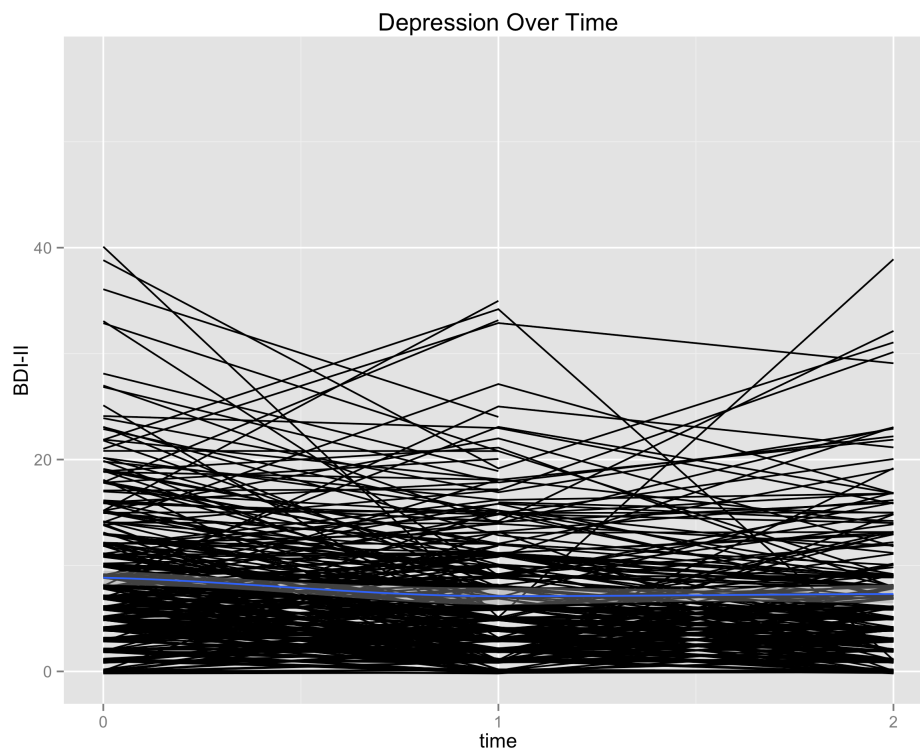


Figure 3: Depression Over Time; slight jitter was added to reduce overplotting

Table 1: Correlation Matrix for Three Time Points

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. DIS (Time 1)	—													
2. DIS (Time 2)	0.58	—												
3. DIS (Time 3)	0.56	0.7	—											
4. BDI Time 1	0.49	0.36	0.46	—										
5. BDI (Time 2)	0.4	0.4	0.46	0.62	—									
6. BDI (Time 3)	0.35	0.36	0.51	0.61	0.6	—								
7. Neuroticism (Time 1)	0.4	0.36	0.34	0.58	0.44	0.42	—							
8. Neuroticism (Time 2)	0.3	0.42	0.35	0.49	0.5	0.46	0.81	—						
9. Neuroticism (Time 3)	0.33	0.35	0.46	0.46	0.42	0.57	0.73	0.82	—					
10. Stress (Time 1)	0.43	0.4	0.42	0.73	0.5	0.5	0.6	0.5	0.47	—				
11. Stress (Time 2)	0.34	0.43	0.42	0.51	0.6	0.52	0.54	0.64	0.55	0.55	—			
12. Stress (Time 3)	0.35	0.34	0.52	0.41	0.44	0.69	0.41	0.49	0.61	0.46	0.56	—		
13. Age	-.07	-.09	-.08	0.01	-.02	-.02	0.01	-.02	0.01	0.01	0.04	0.03	—	
14. Gender	-.10	-.15	-.08	0.04	-.09	0.02	0.17	0.12	0.11	0.1	0.02	0.06	.02	—

Table 2: Summary of Multilevel Models Predicting Depression (BDI-II).

Fixed Effects	Parameter	Model			
		M1	M2	M3	M4
Intercept (initial status)	γ_{00}	8.67* (0.35)	8.36* (0.30)	8.35* (0.29)	-1.23* (0.72)
Time (rate of change)	γ_{01}	-0.69* (0.18)	-0.76* (0.17)	-0.73* (0.19)	-0.73* (0.15)
DIS	γ_{20}		2.56* (0.23)	2.99* (0.35)	1.41* (0.20)
DIS × Time	γ_{30}			-0.44 (0.23)	
Neuroticism	γ_{30}				3.36* (0.28)
Variance Components					
Level-1 Within-Person	σ_e^2	16.35	17.39	13.8	13.32
Level-2 In Intercept	σ_0^2	42.73	23.73	16.05	29.03
In rate of change	σ_1^2	2.50	0.79	2.31	0.22
In DIS	σ_2^2		5.16	21.53	2.47
In DIS × Time	σ_3^2			4.46	
In Neuroticism	σ_3^2				9.18
Goodness-of-fit					
Deviance		7093.51	6698.64	6716.23	6284.70
AIC		7105.51	6718.64	6746.23	6314.70
BIC		7135.48	6768.30	6820.72	6388.92

Note: $N = 476$. Standard errors corresponding to parameter estimates appear in parentheses below respective parameter estimates. * $p < .05$