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Self-Rated Depression Severity Relative to Clinician-Rated Depression Severity: Trait Stability and Potential Role in Familial Transmission of Suicidal Behavior

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Abstract

Self-rated depression and hopelessness severity are predictors of suicide attempt in major depression. This study evaluated whether: (1) greater self-rated distress relative to severity of clinician-rated depression is a trait; (2) that trait is familial; and (3) that trait is linked to familial transmission of suicidal behavior. A total of 285 mood disorder probands and 457 offspring were assessed twice, at least 1 year apart. Family and subject intra-class correlations for self-report depression and hopelessness, controlling for clinician-rated depression severity, were computed. Mixed general linear models determined offspring-proband correlations. Within-individual intra-class correlation (ICC) for depression-hopelessness was 37.8% (bootstrap 95% CI: 31.0–46.3%). Parent-offspring ICC was 10.7% (bootstrap 95% CI: 3.5–17.8%). Suicide attempt concordant parent-offspring correlation for subjective depression was positive, but negative for attempter parent and nonattempter offspring ($p = .0213$ for slope interaction). Pessimism was greater in proband or offspring attempters than proband or offspring nonattempters ($p < .05$). Self-reported hopelessness is partly trait-dependent, and there is modest familial transmission of self-reported depression linked to suicidal behavior that may partly explain familial transmission of suicidal behavior.

Keywords

diathesis; linkage; major depression; pessimism; suicide attempts

INTRODUCTION

Major depressive disorder (MDD) and bipolar disorder (BD) carry higher risk for suicidal behavior, yet only a minority ever attempt suicide, indicating that additional risk factors are involved (Mann, Waternaux, Haas, & Malone, 1999). Severity of depression is one potential risk factor for suicide attempt, but clinician-rated depression severity (Hamilton Depression Rating Scale, Hamilton, 1960) does not predict suicide attempt (Galfalvy et al., 2006; Oquendo et al., 2004) or correlate with past suicide attempt (Lester & Beck, 1977; Mann et al., 1999; Van Gastel, Schotte, & Maes, 1997). We have proposed a stress-diathesis model of suicidal behavior, where risk of suicidal behavior in mood disorders depends on the presence of both an episode of major depression as a stressor and on a diathesis or predisposition to suicidal behavior (Mann et al., 1999).

The diathesis for suicidal behavior comprises vulnerability traits in multiple domains including impulsive/aggressive traits and cognitive rigidity and potentially excess subjective depression or hopelessness (Mann & Currier, 2008). In a major depressive episode, more severe self-reported depression, but not clinician-rated depression severity, is associated

with suicidal behavior and predicts suicide attempts (Mann et al., 1999). Yet it remains to be demonstrated that more pronounced subjective distress during a depressive episode, relative to clinically assessed severity, is a trait-determined response, thereby belonging to the diathesis for suicidal behavior. Two measures of subjective distress experienced during a depressive episode are self-rated depression severity and hopelessness, commonly assessed using the Beck Depression Inventory (BDI) (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) and the Beck Hopelessness Scale (BHS) (Beck, Weissman, Lester, & Trexler, 1974). Associations between suicidal behavior and hopelessness are reported in mood disorders, schizophrenia, substance use disorder, and in community samples, suggesting hopelessness is a general risk factor transcending specific disorder boundaries (Beck, Steer, Kovacs, & Garrison, 1985; Coryell & Young, 2005; Kuo, Gallo, & Eaton, 2004; Ran et al., 2005; Weissman, Beck, & Kovacs, 1979). More hopelessness increases risk of suicide and non-fatal suicide attempt (McMillan, Gilbody, Beresford, & Neilly, 2007). There is disagreement over whether hopelessness is related to suicidal behavior, especially after adjustment for current severity of depression (Kuo et al., 2004; Szanto, Reynolds, Conwell, Begley, & Houck, 1998; Wetzel, 1976). A trait dimension to hopelessness is suggested by its remaining relatively higher in suicide attempters compared with nonattempters, even after depression treatment response (Rifai, George, Stack, Mann, & Reynolds, 1994; Szanto et al., 1998; Young et al., 1996), and there is a stable rank order of hopelessness severity over 2 years in the general population (Young et al., 1996).

The familial transmission of suicidal behavior depends on transmission of both major psychiatric illness and components of the diathesis (Brent & Mann, 2005). Few studies have examined the heritability or familial transmission of subjective depression and hopelessness in mood disorders. Heritability of major depression has largely been studied at a syndromal level without distinguishing between clinician-rated and self-rated subjective depression. One challenge has been that an improvement in clinician-rated depression leads to an improvement in subjective depression and hopelessness. This makes it difficult to detect a potential trait wherein the relative degree of subjective distress is greater compared to the clinician-rated depression severity. We chose to overcome this problem by measuring subjective depression over time while controlling for clinician-rated severity of depression and the same in seeking evidence of its transmission from parent to offspring. In this prospective study of mood disorder probands and their offspring, we hypothesized that: a) an excess of self-rated severity of hopelessness and subjective depression relative to clinician-rated severity of depression is a trait, and b) this trait is transmitted from parent to offspring. Finally, we explored the linkage between familial transmission of suicidal behavior and this potential trait.

METHODS AND MATERIALS

Sample

A total of 285 mood disordered probands and their offspring age 10 years or older ($N = 457$, 2.3 ± 1.1 offspring/proband), were enrolled. Probands were recruited under a common protocol after presenting for treatment of depression at two sites: The Western Psychiatric Institute and Clinic, Pittsburgh, or The New York State Psychiatric Institute, New York.

Subjects were assessed at baseline and, where possible, annually thereafter. Data were collected at two time points generally more than 1 year apart (mean = 1.5 years, range = 0.6–6.7 years). We compared this group with those who dropped out before a second evaluation for a potential selection effect. Dropouts tended to be younger (17.7 ± 16.5 years) than non-dropouts (27.9 ± 15.3 years; $p = 0.004$, adjusting for “relation”). But BHS, BDI, and 17-item Hamilton Depression Rating Scale (HDRS17) (Hamilton, 1960) scores for the 58 dropouts with data from one visit did not differ statistically from the study group (after adjusting for relationship $p = 0.886$, 0.211 and 0.066 , respectively).

In the study group, 85% ($n = 241$) of probands and 49% ($n = 226$) of offspring were female. Mean ages were: proband: 43.3 ± 10.0 years and offspring: 18.3 ± 8.7 years.

Clinical Assessment

All participants gave written informed consent as required by the respective Institutional Review Boards. Interviewers had, at minimum, a Master’s degree. Axis I disorders were diagnosed using the Structured Clinical Interview for DSM-III-R and IV (Spitzer, Williams, Gibbon, & First 1990). Final diagnosis was determined through consensus conference involving senior psychiatrists, PhD level clinicians, and raters. Of probands, 79% had a major depressive disorder (MDD), 21% Bipolar I or II disorder, and 46% had comorbid alcohol/substance use disorders. Offspring had: MDD (21.2%); bipolar I or II disorder (4.9%); depression NOS (11%); and, alcohol/substance use disorders (20%).

Clinician-rated severity of depression was assessed using the HDRS17, self-rated depression assessed using the BDI and hopelessness assessed using the BHS. For offspring younger than 18 years, versions of the Child Depression Rating Scale (Poznanski, Freeman, & Mokros, 1985), Child Beck Depression Inventory (Kovacs, 1985), and Child Beck Hopelessness Scale (Kazdin, French, Unis, Esveltd-Dawson, & Sherick, 1983) were used. Recently, a state-trait hopelessness scale has been developed (Dunn et al., 2014) but was published after this study was complete. Of note it reports moderate correlations with the Beck Hopelessness Scale used in this study. The clinician ratings of depression in our study were obtained without knowledge of the subjective ratings.

Clinician- and self-rated depression and hopelessness variables were created by computing the z-scores for adult and child variables separately and then merging them (hereafter referred to under umbrella terms HDRS17, BDI, and BHS respectively).

A suicide attempt was defined as in the C-CASA system (Posner et al., 2011) and recorded as present or absent. At baseline, 50.2% ($n = 143$) of probands and 7.7% ($n = 35$) of offspring reported a history of suicide attempt.

Statistical Analyses

Multivariate Linear Mixed Model.—A trait-like quality of self-rated depression severity and hopelessness relative to clinician-rated depression severity would be manifested in statistically significant correlation of BDI and BHS within individuals across time, whereas familial transmission of a trait would be manifested as a correlation of trait severity in

parents and offspring. BHS and BDI were analyzed both individually and as a combined subjective distress factor called “BHS-BDI.”

We measured subjective depression within subject (across time points) and within family (proband and offspring), relative to clinician-rated depression severity (HDRS17), in BHS-BDI by intra-class correlation (ICC), analogous to canonical correlation analysis. For any pair of numbers h and d where both are not 0, we created a hybrid variable $h \cdot \text{BHS} + d \cdot \text{BDI}$. We modeled the trait-like quality of the factor $h \cdot \text{BHS} + d \cdot \text{BDI}$ for an individual (relative to HDRS17), then quantified its dependence within subjects (across time points) to measure trait, and within families (proband and offspring) to measure familial transmission, by intra-class correlation (ICC). The h/d or d/h ratios give information about the relative importance of BHS and BDI in the combined BHS-BDI factor. ICCs and h/d , d/h ratios were computed by mixed model analyses (supplemental documentation available upon request).

Bootstrap confidence intervals (CIs) for ICCs, presented as percentages (Hall, 1992) were determined by resampling families (probands + offspring).

Similar analyses were performed in three high-risk family subsamples. The first subsample included only offspring 18 years and older as they are more likely to have passed through the age of risk and manifest familial traits related to suicidal behavior. The second included only families of probands who had attempted suicide either prior to or over the course of the study period, because those families carried the risk for suicidal behavior. The third subsample comprised families of probands with more severe depression (HDRS17 above the median at either time point), because those families may be more at-risk. A fourth analysis to more directly assess the relationship of the putative trait and the familial transmission of suicidal behavior examined a subsample of families with an attempter proband *and* both attempter and nonattempter offspring (16 families).

Finally, given that a history of sexual and/or physical abuse is strongly associated with suicidal behavior and may enhance the diathesis for suicidal behavior and its familial transmission, we examined the association between a reported history of sexual and/or physical abuse and the factor BDI-BHS (Brodsky et al., 2008).

Mixed General Linear Models.—To examine the relationship between proband and offspring scores on HDRS17, BDI, and BHS, a mixed general linear model was run for each rating scale separately.

To investigate the postulated excess in subjective distress, BDI and BHS were adjusted for HDRS17 before taking the maximum value (of both time-points). Offspring maximum scores were regressed on proband maximum scores with a random family effect. A similar analysis was performed on HDRS17. More details are available upon request.

A multivariate linear mixed model as above was used to compare BDI and BHS in four subsamples: (1) proband attempter/offspring attempter; (2) proband attempter/offspring nonattempter; (3) proband nonattempter/offspring attempter; and (4) proband nonattempter/offspring nonattempter. All rating scale scores were converted to z-scores to facilitate

combining child and adult scores. To aid interpretation of results, values are expressed in units of the adult scales.

RESULTS

BDI, BHS & HDRS17 Correlation Matrix

In the entire sample, HDRS17 correlated moderately with both BDI ($r = .58$) and BHS ($r = .44$), and BDI and BHS correlated more strongly ($r = .69$).

Multivariate Linear Mixed Model

In the whole sample, *within subject* intra-class correlation estimate for BDI-BHS relative to HDRS17 was 37.8% (bootstrap 95% CI: 31.0–46.3%) and estimated ratio of the coefficients h and d maximizing the ICC of the hybrid variable $h\text{BHS} + d\text{BDI}$ is $d/h = 0.276$ (bootstrap 95% CI: -0.487 – 0.708). This means that hopelessness (BHS) contributes the most to the trait-like component of composite BHS-BDI trait. Given that the confidence interval includes 0, our data suggest that in the BHS-BDI domain the BHS score is a stronger marker of this trait.

The *within family* ICC was 10.7% (bootstrap 95% CI: 3.5–17.8%) in the entire sample. The estimated ratio of h and d , $h/d = -0.136$ (95% bootstrap CI: -0.735 – 2.485). The negative sign means that the maximally transmitted hopelessness and subjective depression factor is a weighted *difference* between hopelessness and subjective depression with subjective depression contributing most of the weight. As the confidence interval includes 0, these data suggest that with respect to familial transmission in the BHS-BDI domain, subjective depression severity (BDI) is more strongly transmitted (albeit modestly) from proband to offspring.

Family Subsamples

In the subsample of probands with a history of suicide attempt, (families where the diathesis for suicidal behavior may be more pronounced), the *within subject* ICC was comparable to the initial model (40.1%), as was the *within family* ICC (11.3%). Comparable results were also observed in the subsamples of subjects where offspring were 18 years and older (*within subject* ICC 44.0%, *within family* ICC 11.8%), and where probands had more severe depression (HDRS17 score > 10) (*within subject* ICC 39.0%, *within family* ICC 11.8%).

In the subsample of families with attempter probands, and *both* attempter and non-attempter offspring (16 families), for attempter proband and attempter offspring (concordant for attempt) the *within subject* ICC was 39.3% (bootstrap 95% CI: 18–69%), and the *within family* ICC was 20.7% (bootstrap 95% CI: 0–41%), and for attempter proband and nonattempter offspring (discordant for attempt), the *within subject* ICC was 56.9% (bootstrap 95% CI: 38–92%) and the *within family* ICC was 20.0% (bootstrap 95% CI: 0–40%). Although the *within family* ICC was similar in magnitude between parent-offspring who were concordant for suicide attempt compared with discordant parent-offspring, the direction of the correlation was positive for the concordant pairs and negative for discordant

pairs. This interaction was statistically significant for subjective depression corrected for clinician-rated depression (t -value = 2.46, DF = 24, p = .0213).

Reported History of Childhood Abuse

In the subsample consisting of subjects who reported a history of physical or sexual abuse, results were comparable to the initial model with 46.0% for *within subject* ICC and 11.2% for *within family* ICC. In the subsample consisting of subjects who had *no* history of physical or sexual abuse, results were also comparable to the initial model with 35.1% for *within subject* and 12.0% for *within family* ICC. Since 46.0 and 35.1% both lie within the 95% confidence interval for the overall within subject ICC, we have no evidence that the *within subject* ICC's differ for subjects with and without a reported history of abuse.

Mixed General Linear Models

Table 1 presents results of the mixed general linear models. Proband and offspring HDRS17 depression scores were modestly correlated (β = 0.112, t = 2.08, df = 219, p = 0.038) as were proband and offspring BDI scores (β = 0.106, t = 2.32, df = 219, p = 0.021). There was no correlation between proband and offspring BHS scores (β = 0.036, t = 0.793, df = 219, p = 0.428).

Tables 2 and 3 give the relative values of BDI and BHS adjusted for clinician-rated depression score by proband attempter, proband nonattempter, and offspring attempter group relative to the offspring nonattempter group, whose score is set to zero. With the exception of the BHS in offspring attempters and offspring nonattempters, all other BHS and BDI differences with the offspring nonattempter group were statistically significant. Proband and offspring attempter groups have greater self-rated depression relative to clinician-rated depression compared with proband and offspring nonattempters, respectively (Table 2). Overall severity appears lower in offspring compared to probands regardless of attempter status, as would be expected since all probands had a mood disorder and only a subgroup of offspring had a mood disorder.

DISCUSSION

In an earlier prospective study (Oquendo et al., 2004) we identified a factor comprised of baseline scores for hopelessness (BHS), suicidal ideation (SSI), subjective depression (BDI) and reasons for living (RFLI) that predicted future suicide attempts over a 2-year period. This raised the possibility that a propensity for a more negative subjective response to a major depressive episode may be a characteristic of the diathesis for suicidal behavior. In that study we also found that clinician-rated depression severity (HDRS) did not distinguish suicide attempters from nonattempters, supporting this formulation. That study did not assess the stability of that factor over time within individuals, and to answer that question requires correction for change in clinician-rated depression severity over time as patients were treated.

In the present study we find that the composite variable of self-rated subjective depression and hopelessness relative to clinician-rated severity of depression does have a trait dimension, although the trait appeared to be largely captured by the hopelessness score,

and less so by the depression self-reported severity score. Consistent with our hypothesis that this trait is related to suicidal behavior, we now found that the BDI and BHS scores that comprised the composite variable were higher in proband attempters compared with proband nonattempters, and higher in offspring attempters compared with offspring nonattempters.

The multivariate linear mixed model yielded an ICC of 37.8% within individuals in the composite factor (BDI and BHS scores relative to HDRS17 scores) over a 1-year period, consistent with a trait dimension. That model controlled for level of clinician-rated depression, which generally was higher at baseline assessment because many probands met criteria for a major depressive episode at initial presentation, as that was their initial reason for being in our research clinics. Thus, although subjective depression and hopelessness are higher during a depressive episode and decrease during recovery, a trait contribution to the severity of these self-report measures is detectable when clinician-rated depression severity is controlled for.

Hopelessness (BHS) and self-rated depression (BDI) severity have been independently associated with suicidal behavior in various psychiatric disorders (Beck et al., 1985, 1961, 1974; Brent et al., 2002; Coryell & Young, 2005; Kuo et al., 2004; Sullivan, Neale, & Kendler, 2000; Swartz et al., 2008; Weissman et al., 1979). They have been generally treated as state-dependent, but a small number of studies report that hopelessness also has trait qualities (Dunn et al., 2014; Haatainen et al., 2003; Rifai et al., 1994; Szanto et al., 1998; Young et al., 1996) only one previous study controlled for severity of clinician-rated depression (Young et al., 1996). That study identified trait hopelessness, measuring baseline levels of hopelessness when an individual was not depressed, and the magnitude of hopelessness response to increasing depression (Young et al., 1996). This latter measure is comparable with our formulation in that it describes hopelessness response relative to the severity of the stressor. Interestingly, in that study greater baseline hopelessness when not depressed predicted suicide attempt in a 3-year follow-up. In our prospective study, hopelessness, as a stand-alone variable, was not sufficient to predict suicidal behavior, but when included in a factor with other indicators of subjective response such as self-rated depression (BDI), it did predict future suicide attempt (Galfalvy et al., 2006; Oquendo et al., 2004). Our present study results indicate that hopelessness is the major part of the trait of the combined subjective depression-hopelessness variable and as such would be expected to have potential predictive properties for patients. Identification of individuals with more severe manifestations of this trait of hopelessness may potentially increase predictive power for future suicidal behavior, and this construct may overlap with hopelessness depression described by others (Abramson, Alloy, & Metalsky, 1989).

We next examined this trait in high-risk family subsamples including those with: more severe depression in the proband parent; or offspring with a suicide attempt; or older offspring who were likely to have passed through more of the age of risk; or offspring reporting a history of childhood adversity and therefore potentially more likely to manifest the diathesis for suicidal behavior including the trait of a greater subjective despair. Results indicate this trait was comparable in all these subsets, indicating that this is a robust finding.

This propensity for more severe trait hopelessness relative to clinician-rated depression severity may be related to the construct of pessimism. Pessimism has been operationalized in many ways including negative explanatory or attitudinal styles, negative cognitive biases, and negative future expectancies (Alloy et al., 1999; Anderson, 1990; Wichman, Reich, & Weary, 2006). Abramson et al. (1989) described a hopelessness theory of depression hypothesized to explain a subtype of depression called hopelessness depression. That type of depression may be associated with greater risk of suicidal behavior, and overlap with the type of depression we are describing where pessimism is prominent and suicidal behavior more common. Our study suggests vulnerability to this type of depression is a trait and potentially transmissible in families. There is a dearth of studies of pessimism as a personality trait or its relationship to our construct and suicidal behavior. A twin study of personality disorder traits reported that pessimism, assessed by eight items in the 560-item Dimensional Assessment of Personality Problems Scale, was 48% heritable (Jang, Livesley, & Vernon, 1996). A twin study of the DSM-V proposed depressive personality disorder that is characterized by “excessive negative, pessimistic beliefs about oneself and other people” (Association, 1994), found a 50% heritability contribution in females and a more modest 28%, in males, but did not give heritability estimates for individual criteria such as pessimism (Orstavik, Kendler, Czajkowski, Tambs, & Reichborn-Kjennerud, 2007).

Future studies should examine the relation between trait hopelessness relative to clinician-rated depression severity and scales such as the Life Orientation Test (Scheier, Carver, & Bridges, 1994), The Dunn State Trait Hopelessness Scale (Dunn et al., 2014) and the Future Events Scale (Anderson, 1990), which specifically assess pessimism in the domains of personality and cognition. Such indices may then be tested for predictive properties and potential use in clinical practice. Recent studies have examined hopelessness as a predictor of outcome in cardiac disease, stroke, AIDS and cancer (Rosenfeld et al., 2011) but most such studies do not control for severity of associated depression. Conversely, optimism and hope may moderate a reported relationship between brooding rumination, a construct related to pessimism, and suicidal ideation (Tucker et al., 2013), and together with hope and optimism, should be the subject of further study in relation to our construct of pessimism.

Familial Transmission

We found that the composite trait is transmitted only modestly from parent to offspring, as is clinician-rated depression severity. Notably, it is the subjective depression component of this composite variable that accounts for most or all of the transmitted score based on the multivariate mixed model. These results are consistent with the mixed linear general model that detected no correlation of parent and offspring hopelessness, in contrast to a modest correlation for self-rated depression. Why hopelessness accounts for more of the individual trait and subjective depression accounts for more of the parent-offspring correlation is not clear, although the latter is modest in magnitude and the estimates more prone to error. Transmission of severity of mood disorders in families could be due to genetic and non-genetic effects. The latter may include the possibility that depression in a parent affects mood in offspring. The latter explanation is plausible because although we rated current severity of depression and hopelessness around the same visit in both parent and offspring, we generally employed different raters for each to reduce bias, and hopelessness was not

correlated between parent and offspring. Moreover, treatment of maternal depression is reported to improve depression responses in children (Pilowsky et al., 2006; Swartz et al., 2008).

We also found some evidence of linkage between the composite trait and suicidal behavior. The intra-familial correlation of proband-offspring trait scores was about 20% for attempter probands and attempter offspring and for attempter probands with nonattempter offspring, but for concordant parent-offspring in terms of suicide attempt, there was, as predicted, a positive correlation for subjective depression relative to clinician-rated depression severity. In discordant parent-offspring, this correlation was negative and that suggests the same psychopathology is being transmitted in concordant parent-offspring, but a protective factor appears to be transmitted in discordant parent-offspring. We have previously reported that 12% of offspring of a parent with a major depression and a history of a suicide attempt will themselves manifest an attempt, a rate about six times that of offspring of nonattempters with MDD (Brent et al., 2002).

The heritability of the syndrome of major depression is well-documented (Sullivan et al., 2000), and there are non-genetic familial effects that can contribute to familial transmission of major depression. Studies examining severity at the syndromal level report greater heritability of more severe subtypes of depression (Lyons et al., 1998; Schreier, Hofler, Wittchen, & Lieb, 2006), an increase in risk for MDD in offspring with greater severity of maternal depression (Hammen & Brennan, 2003; Rohde, Lewinsohn, Klein, & Seeley, 2005), and that adolescents with more severe MDD are more likely to have a parent or sibling with MDD (Klein, Lewinsohn, Rohde, Seeley, & Durbin, 2002; Lieb, Isensee, Hofler, & Wittchen, 2002). In the STAR*D Child study, severity of current maternal episode (rated by HDRS17) was not associated with depression severity in offspring aged 7–17 years (Pilowsky et al., 2006), but lack of maternal remission at 3 months was associated with a greater rate of depression diagnosis and lack of symptom relief in offspring (Weissman et al., 2006). In this study, when we conducted a separate analysis for families in which the proband had more severe depression (HDRS17 above the median score, >10), the ICC's for those families were comparable to those of the entire sample (39.0% intra-individual, and 11.8% within family). Thus, we could not detect a greater effect in the more severe subgroup.

Study Limitations

Co-parents were not included in the study because we did not have direct data on all co-parents. Family studies have reported that suicide is more heritable with two affected parents (Nomura, Warner, & Wickramaratne, 2001), but although we did have such co-parent data from other family members, third party reporters may not have been aware of all suicide attempts in a co-parent and thereby lessen the power to detect second parent effects on transmission of suicidal behavior and this trait. Some subjects may be more introverted and more likely to reveal information on a self-report form than in an interview. Future studies should seek to measure introversion and rule out such alternative explanations of these findings.

CONCLUSION

We found evidence that level of subjective depression and hopelessness relative to clinician rated depression severity is a trait, and that trait is mostly the hopelessness component. Suicidal behavior is transmitted in families (Brent & Mann, 2005), in part via the transmission of elements of a diathesis for suicidal behavior. Familial transmission of the composite trait was modest, but despite being weakly transmitted, our data suggest that it could contribute to the familial transmission of suicidal behavior, which is also modestly transmitted (Brent et al., 2002). The subjective depression-hopelessness trait warrants further study to determine to what degree it may assist in identifying individuals at greater risk for suicidal behavior (Oquendo et al., 2004), its relationship to the hypothesized subtype of hopelessness depression (Abramson et al., 1989) as well as offering a target for testing a therapeutic intervention such as cognitive therapy to reduce the risk of suicidal behavior in mood disorders, and potentially familial transmission of this risk (Brown et al., 2005). Although amelioration of depression by antidepressants is closely linked to reduction of suicidal ideation in adults, that relationship is not apparent in children (Gibbons, Brown, Hur, Davis, & Mann, 2012), indicating that other factors, such as subjective distress, may be more important therapeutic targets.

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DISCLOSURES

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TABLE 1.

Mixed General Linear Models of Proband and Offspring Severity of Depression, and Hopelessness:
Intergenerational Correlation of Maximum Severity Over a 1-Year Follow-Up Period

	Coefficient	Std. Error	t-value	df	p-value
HDRS17	0.112	0.054	2.08	219	0.04
BDI	0.106	.046	2.32	219	0.02
BHS	0.036	0.045	0.79	219	0.43

Note. HDRS17 - Hamilton Depression Rating Scale; BDI - Beck Depression Inventory; BHS - Beck Hopelessness Scale.

TABLE 2.

Self-Rated Depression Scores Corrected for Clinician-Rated Depression Severity in Parents and Offspring

Suicide attempter history	Proband parent	Offspring
Attempter	6.09, $p = 0$	2.16, $p = 0.03$
Nonattempter	4.43, $p = 0$	0

Note. Relative values in BDI expressed in equivalent adult units. The comparison group is the nonattempter-offspring group. P -values for the comparisons are included. (The 0 p -values are 0 up to 5 decimal places.) In the three non-zero cells the SD is 8.10.

TABLE 3.

Hopelessness Scores Corrected for Clinician-Rated Depression Severity in Parent and Offspring

Suicide attempt history	Proband parent	Offspring
Attempter	3.10, $p = 0$	0.32, $p = 0.60$
Nonattempter	2.23, $p = 0$	0

Note. Relative values in BHS expressed in equivalent adult units. The comparison group is the nonattempter-offspring group. P -values for the comparisons are included. (The 0 p -values are 0 up to 5 decimal places.) In the three non-zero cells the SD is 4.75.