Segal, D.L., Marty, M.A., Meyer, W.J., & Coolidge, F.L. (2012). Personality, suicidal ideation, and reasons for living among older adults. *The Journals of Gerontology, Series B: Psychological Sciences and Social Sciences, 67(2)*, 159–166, doi:10.1093/geronb/gbr080. Advance Access published on July 16, 2011

Personality, Suicidal Ideation, and Reasons for Living among Older Adults

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Objectives. This study examined associations between diverse types of personality disorder (PD) features, personality traits, suicidal ideation, and protective factors against suicide among community-dwelling older adults.

Methods. Participants (N = 109, M age = 71.4 years, 61% female) completed the Coolidge Axis II Inventory, NEO Five-Factor Inventory, Geriatric Suicide Ideation Scale, and Reasons for Living Inventory.

Results. PD features had positive correlations with suicidal ideation and mixed relationships with aspects of reasons for living. Personality traits had negative correlations with suicidal ideation, with the exception of neuroticism, which had a positive relationship, and were mostly unrelated to reasons for living. In regression analyses, borderline and histrionic were the only PD features that contributed significant variance in suicidal ideation, whereas neuroticism was the only personality trait that contributed significant variance in suicidal ideation. No individual PD features or personality traits contributed significant variance in reasons for living.

Discussion. The findings highlight the complexity of risk and protective factors for suicide and suggest that a thorough assessment of suicidal potential among older adults should include attention to their underlying personality traits.

Key Words: Aging—Older Adults—Personality—Resilience—Suicide Risk.

SUICIDE among older adults in the United States continues to be a profound societal problem. Indeed, according to the Centers for Disease Control and Prevention, National Centers for Injury Prevention and Control (2010), adults aged 65 years and older in the United Sates had a substantially higher death rate by suicide (14.8 per 100,000) than the general population (10.9 per 100,000) between 2000 and 2006. An extensive amount of research has investigated links in older adults between suicide and Axis I (clinical) disorders in the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM-IV-TR*; American Psychiatric Association, 2000) (see Conwell, Duberstein, & Caine, 2002; Heisel & Duberstein, 2005). Far fewer studies have examined associations between suicide and *DSM-IV-TR* Axis II personality disorders (PDs) in older adults, even though empirical evidence suggests that approximately 30%–40% of all suicides are completed by individuals with a PD (Duberstein & Conwell, 1997). Among individuals of all ages, increased suicide risk appears to be associated with borderline PD, antisocial PD, avoidant PD, and possibly schizoid PD (Duberstein & Conwell, 1997). In a review of controlled studies examining risk factors for late-life suicide, Conwell and colleagues (2002) concluded that personality traits *might* play an important role; however, further research is needed in order to make more definitive conclusions.

Although PDs are not often accurately detected and diagnosed, they exert a significant and deleterious impact on psychological and interpersonal functioning across adulthood and into later life (Segal, Coolidge, & Rosowsky, 2006). Due to the negative psychosocial impact of PDs, an evaluation of PDs and PD features may be especially important in late-life suicide research. For example, one case–control psychological autopsy study of older adults who died by suicide revealed that 44% had a PD or personality trait accentuation (i.e., significant personality traits not meeting the diagnostic criteria for PD) at the time of death, with anxious traits being the most frequent (Harwood, Hawton, Hope, & Jacoby, 2001). In fact, presence of a PD, personality trait accentuation, and depression emerged as significant predictors of suicide (Harwood et al., 2001). More recently, Heisel, Links, Conn, Van Reckum, and Flett (2007) found that older adults with narcissistic PD or narcissistic PD traits were at higher risk for suicide than patients without narcissistic PD traits.

In contrast to studies of PDs and suicidality, several studies have used Costa and McCrae's Five-Factor Model (FFM; Costa & McCrae 1992a, 1992b) to explore associations between personality traits (neuroticism, extraversion, openness to experience, agreeableness, conscientiousness) and different dimensions of suicidality among older adults. In clinical samples of depressed individuals aged 50 years and older, neuroticism has been positively associated with suicidal ideation (Duberstein et al., 2000; Heisel et al., 2006; Useda, Duberstein, Conner, & Conwell, 2004), history of attempted suicide (Useda et al., 2004), and hopelessness (Duberstein, Conner, Conwell, & Cox, 2001) in univariate analyses but not in multivariate analyses. These findings suggest that the associations between neuroticism and risk factors for suicide may be accounted for, in part, by

Received December 6, 2010; Accepted June 16, 2011
Decision Editor: Rosemary Blieszner, PhD

other traits. Other studies found that older adults who attempted suicide had higher levels of neuroticism than those who completed suicide (Tsoh et al., 2005; Useda et al., 2007) and that both younger and older adults who completed suicide had higher levels of neuroticism than an age- and gender-matched normal comparison sample (Duberstein, Conwell, & Caine, 1994).

Extraversion has been negatively associated with history of attempted suicide and, in addition, higher extraversion distinguished between depressed inpatients aged 50 years and older who had never made a suicide attempt from those who had (Duberstein et al., 2000). Similarly, in a separate sample of depressed inpatients aged 50 years and older, facets of extraversion, including warmth and positive emotions, were negatively correlated with suicidal ideation and history of attempted suicide and remained significant predictors in multivariate analyses (Useda et al., 2004). Higher levels of hopelessness also have been associated with low extraversion, specifically the positive emotions facet of extraversion, in depressed inpatients aged 50 years and older (Duberstein et al., 2001). In other studies, a community control group had higher levels of extraversion than either suicide attempters or suicide completers (Tsoh et al., 2005); however, extraversion did not discriminate between depressed older adults with and without suicidal ideation (Heisel et al., 2006) or older adults who had attempted suicide and those who completed suicide (Tsoh et al., 2005; Useda et al., 2007).

Duberstein (1995) hypothesized that low openness may increase suicide risk for older adults because the features associated with that particular personality trait, including cognitive rigidity and diminished behavioral repertoire, may decrease one's ability to adapt to age-related changes. In addition, individuals with low openness tend to be less emotionally sensitive and, therefore, less likely to report feeling suicidal, reducing their chances of receiving help from others and paradoxically increasing their risk for completed suicide (Duberstein, 2001). Findings from several studies have supported this proposition (Duberstein et al., 1994, 2000; Heisel et al., 2006; Tsoh et al., 2005). However, other studies have found no significant association between openness and history of suicide attempt or suicidal ideation in depressed older adults (Useda et al., 2004) or between openness and hopelessness in depressed inpatients aged 50 years or older (Duberstein et al., 2001). Furthermore, Useda and colleagues (2007) found no significant difference in openness between older adults who attempted suicide and those who completed suicide.

It appears that agreeableness and conscientiousness may be somewhat less related to risk for suicide than neuroticism, extraversion, or openness. Among depressed inpatients aged 50 years and older, one facet of agreeableness, modesty, was positively associated with a history of suicide attempt and severity of suicidal ideation, but conscientiousness was unrelated to either (Useda et al., 2004). Other studies found that older adults who attempted suicide had lower levels of conscientiousness than those who completed suicide (Tsoh et al., 2005; Useda et al., 2007). However, neither agreeableness nor conscientiousness was significantly associated with history of suicide attempt or suicidal ideation in depressed inpatients aged 50 years and older (Duberstein et al., 2000), and agreeableness and conscientiousness did not discriminate between older adults with or without suicidal ideation (Heisel et al., 2006). In addition, agreeableness and conscientiousness were unrelated to hopelessness in depressed inpatients aged 50 years and older (Duberstein et al., 2001). In sum, these studies suggest that diverse types of normal and dysfunctional personality traits may be related to various dimensions of suicidality among older individuals.

Whereas previous research has mainly focused on deficits in suicidal individuals, investigating the strengths of non-suicidal individuals may be useful to determine how to most effectively prevent suicide in older adults. The reasons that a person has for living is a factor that has been shown to help protect individuals from suicidal thoughts and actions (Linehan, Goodstein, Nielsen, & Chiles, 1983), and a number of studies have used this concept to investigate protective factors against suicide in later life. Among community samples of older adults, overall reasons for living has been associated positively with high sense of belonging (Kissane & McLaren, 2006), perceived physical well-being (Segal, Lebenson, & Coolidge, 2008), and problem- and emotion-focused coping strategies (Marty, Segal, & Coolidge, 2010). Responsibility to loved ones is high on the list of reasons for living for older adults (Miller, Segal, & Coolidge, 2001). There appears to be no significant differences in reasons for living between older women and men, implying that the gender differences in reasons for living found among younger individuals diminish with advancing age (Segal & Needham, 2007).

Few studies have examined relationships between personality and reasons for living. One type of reasons for living, survival and coping beliefs, was a significant predictor of self-injurious behaviors in a sample of women (aged 20–49 years) with borderline PD (Rietdijk, van den Bosch, Verheul, Koeter, & van den Brink, 2001). Those patients with low survival and coping beliefs (i.e., low positive expectations of the future, low coping self-efficacy, and lack of appreciation for life) were nearly seven times more likely to harm themselves within a six-month period as compared with those with high scores. Fergusson, Beautrais, and Horwood (2003) examined individual factors that could potentially relate to protective factors against suicide among young adults aged 14–21 years. Neuroticism, novelty seeking, and self-esteem emerged as important factors, such that youth with low levels of neuroticism and novelty seeking and high levels of self-esteem were less likely to experience suicidal ideation. Finally, reasons for living contributed a significant amount of variance in suicidal ideation, above and beyond personality, recent stressful life events, and

meaning in life in undergraduates (Dogra, Basu, & Das, 2008).

To our knowledge, no studies to date have examined a diverse range of normal and dysfunctional personality traits and their relationships to both risk factors for and protective factors against suicide among older adults. A better understanding of the relationships between personality and risk and protective factors is important because it can aid in risk assessment and screening for specific personality types at most risk. Indeed, some risk factors are more easily modifiable (e.g., episodes of depression), whereas others are not modifiable at all (e.g., gender), and personality is perhaps in the middle of these two poles (Segal et al., 2006). The purpose of the present study, therefore, was to examine associations between diverse types of PD features and personality traits, suicidal ideation, and reasons for living in community-dwelling older adults. PD features, measured dimensionally, were expected to be associated negatively with reasons for living and positively with suicidal ideation. Regarding personality traits (from the FFM), extraversion, agreeableness, and conscientiousness were expected to be positively related to reasons for living and negatively related to suicidal ideation, whereas neuroticism was expected to be negatively related to reasons for living and positively related to suicidal ideation. We did not make specific hypotheses about the relationships between openness to experience with suicidal ideation and reasons for living due to the inconclusive and somewhat conflicting nature of the literature on this topic with older adults.

Method

Participants and Procedure

Participants were 109 community-dwelling older adults (*M* age = 71.4 years, *SD* = 8.2 years, age range = 60–95 years, 61% female, 88% European American) recruited through newspaper advertisements and an older adult research registry database. Participants completed anonymously a self-report questionnaire packet at a university research office. A graduate-level research assistant assisted with test administration and paid the older adults $15 for their participation. This study was approved by the University of Colorado Institutional Review Board.

Measures

Coolidge Axis II Inventory.—The Coolidge Axis II Inventory (CATI) is a 250-item self-report inventory designed to assess the 10 PDs listed in the *DSM-IV-TR*: antisocial, avoidant, borderline, dependent, histrionic, narcissistic, obsessive-compulsive, paranoid, schizotypal, and schizoid (Coolidge, 2000). The CATI can be used with both clinical and nonclinical populations, as it views PDs as dimensional, rather than categorical, in nature. Items are answered on a 4-point Likert scale, and raw scores of each scale are translated into *T*-scores (*M* = 50, *SD* =10). Scores above 70 are indicative of the likely presence of the particular disorder. The CATI has ample evidence of reliability and validity (Coolidge, 2000) and has been used in a diverse range of studies with older adults (see Segal et al., 2006). In the current sample, Cronbach's alpha coefficients for CATI scales are provided in Table 1.

Table 1. Descriptive Statistics for CATI, NEO-FFI, RFL, and GSIS

	M	*SD*	α
Coolidge Axis II Inventory (CATI)			
Antisocial (45)	46.07	7.41	.76
Avoidant (18)	47.16	8.21	.83
Borderline (23)	43.01	7.42	.80
Dependent (27)	46.75	9.56	.87
Histrionic (30)	43.91	9.27	.67
Narcissistic (26)	41.88	8.31	.78
Obsessive-compulsive (30)	45.85	10.15	.80
Paranoid (20)	44.55	9.40	.81
Schizotypal (22)	45.79	10.09	.79
Schizoid (9)	53.27	10.15	.69
NEO Five-Factor Inventory (NEO-FFI)			
Neuroticism (12)	50.00	10.00	.85
Extraversion (12)	50.01	10.01	.73
Openness to experience (12)	50.00	10.00	.60
Agreeableness (12)	50.00	10.01	.80
Conscientiousness (12)	50.01	10.01	.82
Reasons for Living Inventory (RFL)			
RFL total (48)	4.10	0.80	.94
Survival and coping beliefs (24)	4.75	0.90	.94
Responsibility to family (7)	4.44	1.22	.86
Child-related concerns (3)	4.28	1.57	.78
Fear of suicide (7)	2.46	1.09	.78
Fear of social disapproval (3)	2.59	1.38	.81
Moral objections (4)	3.55	1.67	.82
Geriatric Suicide Ideation Scale (GSIS)			
GSIS total (31)	51.14	15.88	.92
Suicide ideation (10)	13.76	4.73	.81
Death ideation (5)	8.85	3.58	.70
Loss of personal and social worth (7)	13.69	5.18	.80
Perceived meaning in life (8)	13.32	4.51	.82

Note: Number of items for each subscale is listed in parentheses.

NEO Five-Factor Inventory.—The NEO Five-Factor Inventory (NEO-FFI) is a 60-item self-report questionnaire that assesses five lexically derived domains of personality: neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness (Costa & McCrae, 1992b). Items are rated on a 5-point Likert scale, and raw scores are converted into *T*-scores, where scores below 45 are considered low, 45–55 are average, and above 56 are high. The NEO-FFI has ample evidence of reliability and validity among diverse adult populations (Costa & McCrae, 2006), and the measure has been successfully utilized in research with older adults (e.g., Duberstein et al., 2000; Useda et al., 2004). Alpha coefficients in the present sample are provided in Table 1.

Reasons for Living Inventory.—The Reasons for Living Inventory (RFL) is a 48-item self-report measure that

Table 2. Pearson Correlations Between CATI and RFL and Between CATI and GSIS

	AN	AV	BL	DE	HI	NA	OC	PA	ST	SZ
Reasons for Living Inventory (RFL)										
RFL total	−.08	−.13	.13	.11	.26*	.02	−.09	−.21*	−.21*	−.36**
Survival and coping beliefs	−.12	−.34**	−.04	−.12	.24*	−.05	−.26**	−.34**	−.36**	−.41**
Responsibility to family	−.03	−.12	.05	.12	.26**	.03	−.05	−.19	−.19	−.30**
Child-related concerns	−.06	−.11	.08	.08	.21*	−.05	−.13	−.16	−.23*	−.28**
Fear of suicide	.16	.31**	.47**	.46**	.27**	.37**	.37**	.23*	.25**	.12
Fear of social disapproval	.10	.24*	.23*	.34**	.23*	.22*	.20*	−.04	.13	−.03
Moral objections	−.18	−.12	−.01	.03	<.01	−.17	−.10	−.18	−.12	−.32**
Geriatric Suicide Ideation Scale (GSIS)										
GSIS total	.43**	.58**	.54**	.44**	−.03	.41**	.53**	.64**	.62**	.54**
Suicide ideation	.43**	.46**	.47**	.34**	−.01	.38**	.45**	.53**	.51**	.43**
Death ideation	.21*	.35**	.39**	.28**	.02	.17	.31**	.31**	.32**	.20*
Loss of social worth	.43**	.51**	.54**	.43**	−.01	.41**	.51**	.66**	.58**	.52**
Meaning in life	.28**	.50**	.34**	.37**	−.10	.34**	.43**	.54**	.55**	.48**

Notes: AN = antisocial; AV = avoidant; BL = borderline; DE = dependent; HI = histrionic; NA = narcissistic; OC = obsessive-compulsive; PA = paranoid; ST = schizotypal; SZ = schizoid. Meaning in life subscale is reverse scored.

*$p < 05$; **$p < .01$.

assesses a range of beliefs thought to be important in differentiating suicidal from non-suicidal individuals (Linehan et al., 1983). The RFL contains six subscales: Survival and Coping Beliefs, Responsibility to Family, Child-Related Concerns, Fear of Suicide, Fear of Social Disapproval, and Moral Objections. Respondents indicate, on a 6-point scale, the importance of each reason for not committing suicide should the thought occur. Mean scores were calculated for each of the subscales and the total score as per Linehan and colleagues (1983), with higher scores indicating stronger reasons for living. The RFL has a solid theoretical base, is extensively used in research, and has abundant evidence of reliability and validity (see Range, 2005) including several studies with older adults (e.g., Miller et al, 2001; Segal & Needham, 2007; Segal et al., 2008). Alpha coefficients in the present sample are presented in Table 1.

Geriatric Suicide Ideation Scale.—The Geriatric Suicide Ideation Scale (GSIS) is a 31-item self-report measure of suicide ideation and related factors in older adults consisting of four subscales: Suicide Ideation, Death Ideation, Loss of Personal and Social Worth, and Perceived Meaning in Life, plus an additional item: "I have tried ending my life in the past" that loads on the total score but not on any subscale (Heisel & Flett, 2006). Respondents rate to what extent they agree with each item on a 5-point scale. Items on the Perceived Meaning in Life subscale are reverse scored so that higher scores on the scale indicate higher suicidal ideation. The GSIS demonstrates strong reliability and validity among older adults (Heisel & Flett, 2006). Alpha coefficients in the present sample are provided in Table 1.

Results

Mean subscale scores and standard deviations were calculated for the CATI, NEO-FFI, RFL, and GSIS (see Table 1). The RFL means represent moderate levels of reasons for living, whereas the GSIS means represent a relatively low level of suicidal ideation, with some variation. Gender was examined and found to be unrelated to any of the total or subscale scores for the measures included in this study (e.g., the largest correlation was between gender and RFL fear of suicide, $r = .22$) and did not contribute a significant amount of variance in the regression models.

CATI Results

Pearson correlations were calculated between the CATI and the RFL and then between the CATI and the GSIS (see Table 2). With regard to the RFL, the RFL total score had a small positive relationship with the histrionic PD scale and small-to-medium negative relationships with paranoid, schizotypal, and schizoid PD scales. Survival and coping beliefs had a small positive relationship with the histrionic PD scale and small-to-medium negative relationships with avoidant, obsessive-compulsive, paranoid, schizotypal, and schizoid PD scales. Responsibility to family had a small positive relationship with the histrionic scale and a medium negative relationship with the schizoid PD scale. Child-related concerns had a small positive relationship with histrionic scale and small negative relationships with the schizotypal and schizoid PD scales. Fear of suicide had small-to-medium positive relationships with avoidant, borderline, dependent, histrionic, narcissistic, obsessive-compulsive, paranoid, and schizotypal PD scales. Fear of social disapproval had small-to-medium positive relationships with avoidant, borderline, dependent, histrionic, narcissistic, and obsessive-compulsive PD scales. Finally, moral objections had a medium negative relationship with schizoid PD traits. With regard to the GSIS, all of the CATI PD scales had medium-to-large positive relationships with GSIS total, with the exception of histrionic PD traits, which was unrelated to the GSIS total or any GSIS subscale scores. The remainder of the correlations ranged from small (.21) to large (.66).

Table 3. Summary of the Multiple Regression Analysis for CATI PD Scales Predicting RFL Total Score

CATI PD Scales	Standardized β
Antisocial	−.07
Avoidant	.04
Borderline	.27
Dependent	.12
Histrionic	<.01
Narcissistic	.04
Obsessive-compulsive	−.06
Paranoid	−.11
Schizotypal	−.12
Schizoid	−.29

Notes: $F(10,81) = 2.09$; $R = .45$; $R^2 = .21$; adjusted $R^2 = .11$ ($p < .05$). CATI = Coolidge Axis II Inventory; PD = personality disorder; RFL = Reasons for Living Inventory.

Table 4. Summary of the Multiple Regression Analysis for CATI PD Scales Predicting GSIS Total Score

CATI PD Scales	Standardized β
Antisocial	.07
Avoidant	.09
Borderline	.40**
Dependent	.04
Histrionic	−.27*
Narcissistic	.12
Obsessive-compulsive	−.04
Paranoid	.09
Schizotypal	.06
Schizoid	.18

Notes: $F(10,90) = 10.89$; $R = .74$; $R^2 = .55$; adjusted $R^2 = .50$ ($p < .001$). CATI = Coolidge Axis II Inventory; GSIS = Geriatric Suicide Ideation Scale; PD = personality disorder.

*$p < .05$; **$p < .01$.

Multiple regression analyses were used to examine the contribution of each of the CATI PD scale scores in predicting the RFL total score (see Table 3) and the GSIS total score (see Table 4). The total variance explained by the first model (RFL) was 21% (R^2, adjusted $R^2 = .11$), $F(10, 81) = 2.09$, $p < .05$. Only the standardized β for the schizoid scale approached statistical significance ($p = .06$), whereas the rest of the CATI PD scales all made minimal and nonsignificant contributions. The total variance explained by the second model (GSIS) was 55% (R^2, adjusted $R^2 = .50$), $F(10, 90) = 10.89$, $p < .001$. Two independent variables had significant standardized β: borderline PD scale was a significant positive predictor, whereas histrionic PD scale was a significant negative predictor.

NEO-FFI Results

Pearson correlations were calculated between the NEO-FFI, RFL, and GSIS (see Table 5). Results for the RFL showed that the RFL total score had medium positive relationships with extraversion and conscientiousness. Survival and coping beliefs had medium positive relationships with extraversion, agreeableness, and conscientiousness and a small negative relationship with neuroticism. Both responsibility to family and child-related concerns had small positive relationships with extraversion and conscientiousness. Fear of suicide had a medium positive relationship with neuroticism. Moral objections had a small positive relationship with conscientiousness and a large negative relationship with openness to experience. Finally, fear of social disapproval was not significantly correlated with any of the NEO-FFI subscales. With regard to the GSIS, most notably, neuroticism had medium-to-large positive relationships with the GSIS total and each of the GSIS subscale scores. Extraversion, agreeableness, and conscientiousness had medium negative relationships with the GSIS total and each of the GSIS subscales with the exception of the death ideation subscale. The NEO-FFI trait of openness to experience was largely unrelated to GSIS total and GSIS subscale scores with the exception of a significant negative correlation with the death ideation subscale.

Finally, multiple regression analyses were used to examine the contribution of each of the NEO-FFI factor scores in predicting the RFL total score (see Table 6) and the GSIS total score (see Table 7). The total variance explained by the first model (RFL) was 18% (R^2, adjusted $R^2 = .13$), $F(5, 83) = 3.63$, $p < .01$. Neuroticism and conscientiousness approached significance ($p = .07$ and .05, respectively), whereas extraversion, openness, and agreeableness all had nonsignificant contributions. The total variance explained by the second model (GSIS) was 38% (R^2, adjusted $R^2 = .35$), $F(5, 92) = 11.39$, $p < .001$, with neuroticism as the only significant predictor (standardized β = .44).

Discussion

The present study examined the associations between PD features and personality traits, suicidal ideation, and protective factors against suicide in community-dwelling older adults. Support for the hypothesized relationships was mixed. As expected, PD features were associated strongly and positively with suicidal ideation and explained a significant proportion of the variance in suicidal ideation. These findings are consistent with previous studies, which indicated that PD features increase risk for suicide (e.g., Harwood et al., 2001; Heisel et al., 2007). In spite of the large bivariate correlations between PD features and suicidal ideation, only borderline and histrionic features contributed a significant amount of unique variance in the regression analysis. Given that the PD features as a group accounted for half of the total variance in suicidal ideation, these findings indicate that there was a large amount of overlap between the features of the various PDs. PD features were mostly unrelated to reasons for living, with a few exceptions, which are discussed below. PD features also explained a significant amount of total variance in reasons for living, although none contributed a significant unique amount of variance,

Table 5. Pearson Correlations Between NEO-FFI and RFL and Between NEO-FFI and GSIS

	N	E	O	A	C
Reasons for Living Inventory (RFL)					
RFL total	−.02	.27*	−.18	.19	.31**
Survival and coping beliefs	−.25*	.43**	−.03	.33**	.44**
Responsibility to family	−.05	.21*	−.07	.17	.20*
Child-related concerns	−.09	.25*	−.12	.16	.21*
Fear of suicide	.44**	−.15	−.07	−.20	−.16
Fear of social disapproval	.16	.09	−.19	−.09	.05
Moral objections	−.08	.10	−.51**	.19	.26**
Geriatric Suicide Ideation Scale (GSIS)					
GSIS total	.59**	−.44**	−.14	−.45**	−.28**
Suicide ideation	.47**	−.34**	−.10	−.34**	−.20*
Death ideation	.37**	−.17	−.25*	−.12	−.06
Loss of personal and social worth	.59**	−.47**	−.09	−.48**	−.27**
Perceived meaning in life	.48**	−.42**	−.12	−.47**	−.34**

Notes: A = agreeableness, C = conscientiousness; E = extraversion; N = neuroticism; O = openness to experience; NEO-FFI = NEO Five-Factor Inventory. Perceived meaning in life subscale is reverse scored.

*$p < .05$; **$p < .01$.

again reflecting the large amount of overlap between the features of the various PDs.

One unexpected finding was regarding histrionic PD features in the correlational analyses, which were unrelated to suicidal ideation, but were positively associated with reasons for living. Millon, Grossman, Millon, Meagher, and Ramnath (2004) suggested that histrionic characteristics are a valued part of the culture in the United States, perhaps more so than the characteristics of any other PD. As such, the friendly, expressive, charming, outgoing, and theatrical nature of the histrionic type may, at subclinical levels, imbue individuals with histrionic traits with relatively strong reasons for living. Another possibility is that people with histrionic traits tend to engage in impression management, often as a strategy to be viewed as positive and successful in order to secure attention and admiration from others. As such, this tendency may have influenced their self-reports of the quality of their relationships, reflected on the RFL, as well as their suicidal ideation. Because little information exists regarding the connection between histrionic traits and suicidal ideation, this may be a useful area for future research.

Also unexpectedly, most PD features were positively associated with fear of suicide and fear of social disapproval on the RFL. One explanation for these findings might relate to the strong positive correlations between PD features and suicidal ideation. Upon inspection of the RFL items, it is clear that many of the items on the fear of suicide subscale are directly related to suicidal ideation. For example, rating the fear of suicide item, "I am so inept that my method would not work," as an important reason for not committing suicide could indicate that an individual has thought about suicide to the extent of devising a method for doing so. Thus, those individuals who have thought about suicide, but have not attempted or completed suicide, might have endorsed these items as reasons for not acting on their thoughts. Alternatively, it is possible that those who experience suicidal ideation fear suicide more because it is a greater reality for them. Given that three of the highest correlations with fear of suicide were PDs from Cluster B (borderline, histrionic, and narcissistic), which are characterized by their erratic and impulsive behaviors, these individuals may be more afraid of becoming out of control and attempting or completing suicide than others. Therefore, their fear of suicide is a strong deterrent to following through on their suicidal ideation. The significant positive associations between several types of PD features and fear of social disapproval may reflect their desire for support from others in spite of the difficulties these individuals encounter in their interpersonal relationships.

Consistent with previous literature (e.g., Duberstein et al., 2000; Heisel et al., 2006; Useda et al., 2004), neuroticism

Table 6. Summary of the Multiple Regression Analysis for NEO-FFI Scales Predicting RFL Total Score

NEO Scales	Standardized β
Neuroticism	.25
Extraversion	.24
Openness to experience	−.13
Agreeableness	.14
Conscientiousness	.23

Notes: $F(5, 83) = 3.63$; $R = .42$; $R^2 = .18$; adjusted $R^2 = .13$ ($p < .01$). NEO-FFI = NEO Five-Factor Inventory; RFL = Reasons for Living Inventory.

Table 7. Summary of the Multiple Regression Analysis for NEO-FFI Scales Predicting GSIS Total Score

NEO Scales	Standardized β
Neuroticism	.44*
Extraversion	−.12
Openness to experience	−.02
Agreeableness	−.13
Conscientiousness	−.01

Notes: $F(5, 92) = 11.39$; $R = .62$; $R^2 = .38$; adjusted $R^2 = .35$ ($p < .001$). GSIS = Geriatric Suicide Ideation Scale; NEO-FFI = NEO Five-Factor Inventory.

*$p < .001$.

was positively and strongly related to suicidal ideation. However, in contrast to previous findings, neuroticism emerged as the only significant personality trait in the regression analysis, indicating that it was associated with suicidal ideation independent of the other personality traits. Previous studies, where neuroticism was not significant in multivariate analyses, controlled for variables, such as age, gender, and hopelessness, whereas the current study only examined personality variables, which may account for the seemingly discrepant findings. In addition, neuroticism was mostly negatively related to reasons for living, with the exception of the medium positive relationship with fear of suicide, similar to the relationships between PD features and fear of suicide discussed above. Given that neuroticism is associated with characteristics such as anxiety, hostility, depression, self-consciousness, impulsiveness, and vulnerability, this finding appears to be consistent with the overall picture of neurotic individuals in that they experience a great deal of hopelessness and panic. More broadly, neuroticism has been associated with a variety of negative mental health outcomes and measures across different age groups (Costa & McCrae, 2006), suggesting that it is indeed a robust factor in impaired mental health in general, and it has a strong relationship to suicidal ideation.

As expected, extraversion, agreeableness, and conscientiousness were negatively related to suicidal ideation. In addition, extraversion and conscientiousness were positively related to overall reasons for living, and extraversion, conscientiousness, and agreeableness had moderate relationships with survival and coping beliefs in the correlational analysis. This suggests that individuals with high levels of these traits are likely to have positive expectations about the future, high coping self-efficacy, and a strong appreciation for the value of life. Openness to experience was largely unrelated to suicidal ideation except for a small negative relationship with death ideation. Additionally, openness was unrelated to reasons for living except for a large negative relationship with moral objections. This latter finding is consistent with the notion that individuals with higher levels of openness may be less reluctant than those with lower openness to acknowledge suicidal thoughts if they have them (Duberstein, 2001). That is, individuals with high levels of openness may have fewer concerns about moral restrictions against suicide and, therefore, may be more willing to disclose suicidal thoughts than who do endorse moral objections to suicide. Although personality traits accounted for a significant proportion of the variance of reasons for living, none individually contributed a significant amount of unique variance, perhaps indicating that no one personality trait serves as a protective factor against suicide.

A strength of the present study was its evaluation of assorted types of PD features and personality traits and their relationships to suicidal ideation and buffers to suicide. However, limitations of the present study also deserve attention. Most notably, use of a homogeneous nonclinical sample restricts generalizability of the results to clinical and more diverse samples. Although we believe it is useful to pursue an understanding of personality traits and their impact on suicide risk across the spectrum of psychopathology, caution must be urged about extending the findings to clinical or more culturally diverse populations. Future research should include a similar investigation among older adults with a wider range of severity of psychopathology receiving inpatient or outpatient mental health treatment as well as with older adults of different racial/cultural backgrounds. In addition, due to the correlational design of the study, no causality can be inferred. Prospective studies determining the causal relationships between personality and suicidal risk and protective factors against suicide among older adults are warranted. Finally, the findings of the present study with regard to neuroticism and extroversion are consistent with those of prior studies investigating personality correlates of suicide across the life span (see Brezo, Paris, & Turecki, 2006 for a review); however, this study did not directly investigate the effect of age on the associations between personality and suicidal ideation. We are aware of only one cross-sectional study that did examine age, personality, and suicide directly (i.e., Duberstein et al., 1994), and thus, more research is necessary in order to fully understand these relationships.

The findings from the current study highlight the complexity of risk and protective factors for suicide among older adults. For example, although the net effect of high levels of openness may be protective against suicidal behavior, the fact that those high in openness have fewer moral obligations to suicide should be taken into account by clinicians. Similarly, individuals with histrionic PD features may minimize their suicidal ideation and overstate the quality of their relationships, presenting as if they are better off than is actually the case. In addition, the findings of this study suggest that underlying PD features may be useful in providing an understanding of suicidal ideation but not necessarily cognitive deterrents to suicide among older adults. Personality traits (as defined by the FFM) also had stronger relationships to suicidal ideation than protective factors against suicide in this sample of older adults. Given the strong predictive power of PD features and personality traits on suicidal ideation, a thorough assessment of suicidal potential among older adults should include attention to the person's underlying personality traits. Certainly, the investigation of suicidal ideation and its comorbidity with attitudes and traits that either buffer or enhance its likelihood is an important research endeavor. Because older adults are known to have higher suicide rates than the general population, it makes such research an even more compelling and humanitarian task.

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References

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.). Washington, DC: Author.

Brezo, J., Paris, J., & Turecki, G. (2006). Personality traits as correlates of suicidal ideation, suicide attempts, and suicide completions: A systematic review. *Acta Psychiatrica Scandinavica*, *113*, 180–206. doi: 10.1111/j.1600-0447.2005.00702.x.

Centers for Disease Control and Prevention, National Centers for Injury Prevention and Control. (2010). *Web-based Injury Statistics Query and Reporting System (WISQARS) injury mortality report, 1999-2006*. Retrieved from http://www.cdc.gov/injury/wisqars/index.html

Conwell, Y., Duberstein, P. R., & Caine, E. D. (2002). Risk factors for suicide in later life. *Biological Psychiatry*, *52*, 193–204. doi:10.1016/S0006-3223(02)01347-1.

Coolidge, F. L. (2000). *Coolidge Axis II inventory: Manual*. Colorado Springs, CO: Author.

Costa, P. T. Jr., & McCrae, R. R. (1992a). Four ways five factors are basic. *Personality and Individual Differences*, *13*, 653–665. doi:10.1016/0191-8869(92)90236-I.

Costa, P. T. Jr., & McCrae, R. R. (1992b). *Revised NEO Personality Inventory (NEO-PI-R) and NEO Five-Factor Inventory (NEO-FFI) professional manual*. Odessa, FL: Psychological Assessment Resources.

Costa, P. T. Jr., & McCrae, R. R. (2006). Trait and factor theories. In J. C. Thomas & D. L. Segal (Eds.), Personality and everyday functioning. Volume 1 in M. Hersen & J. C. Thomas (Eds.-in-Chief), Comprehensive handbook of personality and psychopathology (pp. 96–114). New York, NY: Wiley.

Dogra, A. K., Basu, S., & Das, S. (2008). The roles of personality, stressful life events, meaning in life, reasons for living on suicidal ideation: A study in college students. *Journal of Projective Psychology & Mental Health*, *15*, 52–57.

Duberstein, P. R. (1995). Openness to experience and completed suicide across the second half of life. *International Psychogeriatrics*, *7*, 183–198. doi:10.1017/S1041610295001967.

Duberstein, P. R. (2001). Are closed-minded people more open to the idea of killing themselves? *Suicide and Life-Threatening Behavior*, *31*, 9–14. doi:10.1521/suli.31.1.9.21309.

Duberstein, P. R., Conner, K. R., Conwell, Y., & Cox, C. (2001). Personality correlates of hopelessness in depressed inpatients 50 years of age and older. *Journal of Personality Assessment*, *77*, 380–390. doi:10.1207/S15327752JPA7702_16.

Duberstein, P. R., & Conwell, Y. (1997). Personality disorders and completed suicide: A methodological and conceptual review. *Clinical Psychology: Science and Practice*, *4*, 359–376. doi:10.1111/j.1468-2850.1997.tb00127.x.

Duberstein, P. R., Conwell, Y., & Caine, E. D. (1994). Age differences in the personality characteristics of suicide completers: Preliminary findings from a psychological autopsy study. *Psychiatry*, *57*, 213–223.

Duberstein, P. R., Conwell, Y., Seidlitz, L., Denning, D. G., Cox, C., & Caine, E. D. (2000). Personality traits and suicidal behavior and ideation in depressed inpatients 50 years of age and older. *The Journals of Gerontology, Series B: Psychological Sciences and Social Sciences*, *55*, 18–26.

Fergusson, D. M., Beautrais, A. L., & Horwood, L. J. (2003). Vulnerability and resiliency to suicidal behaviours in young people. *Psychological Medicine*, *33*, 61–73. doi:10.1017/S0033291702006748.

Harwood, D., Hawton, K., Hope, T., & Jacoby, R. (2001). Psychiatric disorder and personality factors associated with suicide in older people: A descriptive and case-control study. *International Journal of Geriatric Psychiatry*, *16*, 155–165. doi:10.1002/1099-1166(200102)16:2<155::AID-GPS289>3.0.CO;2-0.

Heisel, M. J., & Duberstein, P. R. (2005). Suicide prevention in older adults. *Clinical Psychology: Science and Practice*, *12*, 242–259. doi:10.1093/clipsy/bpi030.

Heisel, M. J., Duberstein, P. R., Conner, K. R., Franus, N., Beckman, A., & Conwell, Y. (2006). Personality and reports of suicide ideation among depressed adults 50 years of age and older. *Journal of Affective Disorders*, *90*, 175–180. doi: 10.1016/j.jad.2005.11.005.

Heisel, M. J., & Flett, G. L. (2006). The development and initial validation of the Geriatric Suicide Ideation Scale. *American Journal of Geriatric Psychiatry*, *14*, 742–751. doi:10.1097/01.JGP.0000218699.27899.f9.

Heisel, M. J., Links, P. S., Conn, D., Van Reekum, R., & Flett, G. L. (2007). Narcissistic personality and vulnerability to late-life suicide. *American Journal of Geriatric Psychiatry*, *15*, 734–741. doi:10.1097/01.JGP.0000260853.63533.7d.

Kissane, M., & McLaren, S. (2006). Sense of belonging as a predictor of reasons for living in older adults. *Death Studies*, *30*, 243–258. doi:10.1080/07481180500493401.

Linehan, M. M., Goodstein, J. L., Nielsen, S. L., & Chiles, J. A. (1983). Reasons for staying alive when you are thinking of killing yourself: The Reasons for Living Inventory. *Journal of Consulting and Clinical Psychology*, *51*, 276–286. doi:10.1037/0022-006X.51.2.276.

Marty, M. A., Segal, D. L., & Coolidge, F. (2010). Relationships among dispositional coping strategies, suicidal ideation, and protective factors against suicide in older adults. *Aging and Mental Health*, *14*, 1015–1023. doi: 10.1080/13607863.2010.501068.

Miller, J. S., Segal, D. L., & Coolidge, F. L. (2001). A comparison of suicidal thinking and reasons for living among younger and older adults. *Death Studies*, *25*, 357–365. doi:10.1080/07481180151143105.

Millon, T., Grossman, S., Millon, C., Meagher, S., & Ramnath, R. (2004). *Personality disorders in modern life* (2nd ed.). Hoboken, NJ: Wiley.

Range, L. M. (2005). The family of instruments that assess suicide risk. *Journal of Psychopathology and Behavioral Assessment*, *27*, 133–140. doi:10.1007/s10862-005-5387-8.

Rietdijk, E. A., van den Bosch, L. M. C., Verheul, R., Koeter, M. W. J., & van den Brink, W. (2001). Predicting self-damaging and suicidal behaviors in female borderline patients: Reasons for living, coping, and depressive personality disorder. *Journal of Personality Disorders*, *15*, 512–520. doi:10.1521/pedi.15.6.512.19188.

Segal, D. L., Coolidge, F. L., & Rosowsky, E. (2006). *Personality disorders and older adults: Diagnosis, assessment, and treatment*. Hoboken, NJ: Wiley.

Segal, D. L., Lebenson, S., & Coolidge, F. L. (2008). Global self-rated health status predicts reasons for living among older adults. *Clinical Gerontologist*, *31*, 122–132. doi:10.1080/07317110802144006.

Segal, D. L., & Needham, T. N. (2007). An exploration of gender differences on the reasons for living inventory among older adults. *Death Studies*, *31*, 573–581. doi:10.1080/07481180701357033.

Tsoh, J. M. Y., Chiu, H. F. K., Duberstein, P. R., Chan, S. S. M., Chi, I., Yip, P., & Conwell, Y. (2005). Attempted suicide in the Chinese elderly: A multi-group controlled study. *American Journal of Geriatric Psychiatry*, *13*, 562–571. doi:10.1176/appi.ajgp.13.7.562.

Useda, J. D., Duberstein, P. R., Conner, K. R., Beckman, A., Franus, N., Tu, X., & Conwell, Y. (2007). Personality differences in attempted suicide versus suicide in adults 50 years of age or older. *Journal of Consulting and Clinical Psychology*, *75*, 126–133. doi:10.1037/0022-006X.75.1.126.

Useda, J. D., Duberstein, P. R., Conner, K. R., & Conwell, Y. (2004). Personality and attempted suicide in depressed adults 50 years of age and older: A facet level analysis. *Comprehensive Psychiatry*, *45*, 353–361. doi:10.1016/j.comppsych.2004.06.002.