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Perceived Burdensomeness and Suicide Ideation in Older Adults

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Abstract

Older adults have the highest risk of death by suicide in the United States. Improving our understanding of the factors that lead to increased risk of suicide in older adults will greatly inform our ability to prevent suicide in this high-risk group. Two studies were conducted to test the effect of perceived burdensomeness, a component of the interpersonal-psychological theory of suicide (Joiner, 2005), on suicide ideation in older adults. Further, gender was examined as a moderator of this association to determine if perceived burdensomeness exerted a greater influence on suicide ideation in males. The results of these studies suggest that perceived burdensomeness accounts for significant variance in suicide ideation, even after predictors such as depressive symptoms, hopelessness, and functional impairment are controlled. Gender did not moderate the association. The implications of these findings for treatment of older adults with suicide ideation and elevated suicide risk are discussed.

Keywords

suicide ideation; perceived burdensomeness; interpersonal-psychological theory; older adults

Older adults have one of the highest risks of death by suicide of any group in the United States, and this is particularly true of older, Caucasian men (Centers for Disease Control [CDC], 2010). The suicide rate for individuals over age 75 was 15.9 per 100,000 compared with 10.9 suicides per 100,000 in the general population (CDC, 2010). Impaired interpersonal relationships have been significantly related to suicide (e.g., poor social integration, low social support satisfaction; Beautrais, 2001; Duberstein et al., 2004); however, there exists a gap in identification of specific interpersonal factors that are differentially associated with suicide ideation in older men. Improving our understanding of suicide and associated precursors (i.e., suicide ideation) to suicidal behavior in older adults will inform our strategies for preventing suicide in this high-risk group. The purpose of this research is to test the importance of perceptions that one is a burden on others to concurrent

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thoughts of suicide in older adults and determine if this association is greater in men than women.

Interpersonal-Psychological Theory

Joiner (2005) and colleagues (Van Orden et al., 2010) recently proposed the interpersonal-psychological theory of suicide, which posits that two interpersonal constructs are key causal factors in the development of desire for suicide (i.e., suicide ideation)—perceptions of burdensomeness on loved ones and/or society and feelings of not belonging to valued groups or relationships. They suggested that perceived burdensomeness and thwarted belongingness are mental states that are proximal causes of suicidal desire. This theory predicts that the simultaneous presence of feeling like a burden on others and feeling a thwarted sense of belongingness is associated with the development of the most serious form of suicide ideation. According to these theorists, a third variable, the capability to enact lethal self-injury, which involves decreased fear of suicide and increased physical pain tolerance, must be present in order for thoughts of suicide to progress to intention to engage in suicidal behavior and to act on these intentions. Although not originally developed as a theory of suicide in older adults, the theory seems very appropriate to this population. Perceptions of burdensomeness may be more likely to occur in many older adults during the transition to retirement years. Specifically, many older adults experience distress when they begin to require more care from members of their family or friendship networks. Increased need for assistance from others may arise from medical problems or loss of a job that results in an individual requiring (and not generating) financial support (e.g., Filiberti et al., 2001). In this case, some older adults may perceive themselves a burden and may perceive that this state is permanent and stable, resulting in contemplation of suicide, with death as a solution to the problem of ongoing burdensomeness.

Perceived Burdensomeness

Recent studies have begun to examine the relation between perceived burdensomeness and suicide ideation in a variety of samples of younger adults. Van Orden, Lynam, Hollar, and Joiner (2006) examined the contribution of perceived burdensomeness to suicide ideation in a mixed psychiatric sample of adult outpatients. Perceived burdensomeness was endorsed by 5.5% of the sample, and perceived burdensomeness was associated with suicide ideation above and beyond the contribution of depressive symptoms and hopelessness (in addition to age, gender, and personality disorder status). A significant correlation between age and perceived burdensomeness suggested greater perceptions of burdensomeness among those who were older (range 18 to 62 years). Similarly, Van Orden, Witte, Gordon, Bender, and Joiner (2008) found that perceived burdensomeness was associated with suicide ideation after controlling for age, gender, and depressive symptoms in a sample of college students. In a mixed sample of community volunteers, older adults, psychiatric patients, and adults reporting homosexual orientation, de Catanzaro (1995) found that perceptions of burdensomeness were significantly correlated with suicide ideation.

Studies examining perceived burdensomeness in older adults have primarily included older adults experiencing functional impairment or physical illness. Expressions of concern that functional impairment, physical illness, and depression lead to burden on family members are common among older adults with these conditions (Dunkle, 1983; Noor-Mahomed, Schlebusch, & Bosch, 2003). Several studies have found that perceptions of being a burden on others are significantly associated with suicide ideation in older adults with life-limiting conditions. Wilson, Curran, and McPherson (2005) found that participants with terminal cancer who reported a high sense of burden had significantly greater depressive symptoms, desire for death, and suicide ideation than those with a low sense of burden. Similarly,

Akechi et al. (2003) found that concern about being a burden on others was an important predictor of change in suicide ideation among terminally ill patients with cancer. The extant literature suffers from a lack of research examining the effect of perceptions of burdensomeness on suicide ideation in older adults without diagnosed, life-limiting medical conditions.

The purpose of this research was to test the association of perceived burdensomeness on suicide ideation in older adults. It was hypothesized that perceived burdensomeness would contribute significantly to the variance in suicide ideation in a cross-section of older adult participants recruited from a participant registry (Study 1) and primary care physician offices (Study 2) after controlling for known risk factors for suicide (e.g., gender, depressive symptoms). Study 1 was a pilot study designed to test the prediction that perceived burdensomeness would contribute unique variance to suicide ideation after demographic (age, gender) and psychological covariates (e.g., loneliness, depressive symptoms) were controlled. Study 2 expanded on Study 1 in several ways. First, a larger sample was recruited through a primary care setting, the setting in which older adults at risk for suicide are most likely to present for care (Conwell et al., 2000). Second, additional assessment tools were added to allow us to control for the possibility that variables such as hopelessness, and health status contributed to the observed relations in Study 1. In both studies, gender was examined as a moderator of the impact of perceptions of burdensomeness on suicide ideation. To date, few studies have identified factors that are differentially associated with the higher rate of suicide deaths in older males (CDC, 2010); therefore, we aimed to determine if perceived burdensomeness was more associated with a risk factor for suicide, suicide ideation, among this high-risk group.

Study 1 Method

Participants

Fifty seven participants aged 55 and older ($M = 74.14$, $SD = 7.51$) were recruited from a registry of older adults willing to participate in research through the Duke University Center for Aging and Human Development. Participants were contacted by phone and provided a description of the study. They were then scheduled to complete a one-hour session in a research clinic. Phone contact was made with 106 individuals, and 57 agreed to participate in this study (54% participation rate). To maximize variability within the sample on study variables, participants were excluded only if they had obvious cognitive impairment or psychotic symptoms that impaired their ability to complete the study. This study was approved by the Duke University Medical Center Institutional Review Board and was conducted in compliance with the approved protocol.

The sample included 32 women and 25 men; 93% of the sample was White, 5% African American, and 2% Asian/Pacific Islander. The recruited included an over-representation of White participants and an under-representation of Black participants compared with census data for Chapel Hill and Durham, NC. The mean total years of education in this sample was 16.77 ($SD = 2.47$).

Measures

Interpersonal Needs Questionnaire—The Interpersonal Needs Questionnaire (INQ; Van Orden et al., 2008) is a 12-item scale with separate subscales for perceived burdensomeness and thwarted belongingness. The perceived burdensomeness subscale assesses the extent to which an individual reports feeling that he or she is a burden on others and that loved ones would be better off without him or her. Among outpatient psychology clinic patients and undergraduate students (Van Orden et al., 2008) and patients participating

in outpatient treatment for opiate addiction (Conner, Britton, Sworts, & Joiner, 2007), internal consistency for this subscale has ranged from .85 to .93. Test-retest reliability at both 2 weeks and 1 month was .73 (Conner et al., 2007; Van Orden et al., 2008). In this sample, internal reliability was .90 for the perceived burdensomeness subscale.

Geriatric Suicide Ideation Scale–Suicide Ideation Subscale—The GSIS–SI (Heisel & Flett, 2006) includes a 10-item subscale measuring suicide ideation (e.g., "At times I think that if things get much worse for me, I will end my life." "I am preoccupied with wishing that my life were over soon."). In this study, one item was removed due to item content related to perceived burdensomeness ("I frequently think that my family will be better off when I am dead."). This scale includes a five-point Likert scale with response options ranging from *strongly disagree* (1) to *strongly agree* (5).Thus, scores on this subscale could range from 9 to 45. To maximize the interpretability of results, we centered scores on this scale such that the minimum score was 0 and the maximum score was 36. The initial validation study revealed strong psychometric properties, including internal consistency of. 82 for the Suicide Ideation subscale;.test-retest reliability over a 1- to 2-month period was . 78. The GSIS-SI subscale and the Scale for Suicide Ideation (Beck & Steer, 1988) have a correlation of .54, suggesting adequate content validity. Construct validity has been established by high correlations with measures of similar constructs (e.g., life satisfaction [inverse association], psychological well-being [inverse association], poor perceived physical health, depression, social hopelessness; Heisel & Flett, 2006). The internal consistency for the GSIS-SI subscale in this sample was .90.

Center for Epidemiologic Studies–Depression Scale—The 20-item CESD (Radloff, 1977) was administered as the primary measure of depressive symptoms. Studies with older adult participants have confirmed the adequacy of the psychometric properties of this instrument when used with older adults (Beekman, Deeg, Limbeek, & Braam, 1997; Hertzog, Alstine, Usala, Hultseh, & Dixon, 1990; Lewinsohn, Seelely, Roberts, & Allen, 1997). The internal consistency for the CESD was .95 in this sample.

Revised UCLA Loneliness Scale—The UCLA Loneliness Scale (Russell, Peplau, & Cutrona, 1980) is a 20-item self-report scale that assesses respondents' feelings of loneliness. Participants indicate how frequently they experience companionship, isolation, and closeness with others on a 4-point Likert scale ranging from *never* to *often*. The authors reported that the scale has good internal consistency and construct validity; internal consistency was .90 in this sample.

Procedure

Participants completed the self-report measures described in the previous section in a session lasting less than an hour. Following completion of study measures, answers to all completed questionnaires were reviewed to ensure that participants were not currently experiencing significant distress. In addition, the responses to all questions pertaining to thoughts of suicide or suicide risk were assessed and safety ensured while the first author was present. A list of local resources for evaluation and treatment was provided to all participants who were interested in this information or for whom depression or suicide risk were identified. In addition, in the event that the first author deemed a participant to be at imminent risk for suicide or dangerous behavior, procedures were followed to ensure immediate evaluation in a medical facility.

Data Analysis

To test the hypothesis that perceived burdensomeness would be independently associated with suicide ideation beyond the individual contributions of several important risk factors

for suicide, regression analysis was used. The analyses for this manuscript were conducted using SPSS Version 17.0. The distribution of the GSIS-SI variable in these data was positively skewed (skew = 2.67 [*SE* = .32]) with significant overdispersion (*M* = 2.65 [*SE* = .60], σ^2 = 19.71, *K* = 7.65 [*SE* = .63]; range = 0 to 21); therefore, negative binomial regression was selected as the most appropriate data analytic strategy (Cameron & Travedi, 1998; Elhai, Calhoun, & Ford, 2008; Long, 1997). As noted by Elhai and colleagues, negative binomial regression is most appropriate for data that are overdispersed because it includes a random component that accounts for unobserved variance among cases. This random component allows for more accurate estimation of the standard errors and z statistics compared with Poisson regression, producing more accurate significance tests of the effect of predictor variables.

The GSIS-SI score (suicide ideation) was entered as the criterion variable with age, gender, depressive symptoms (CESD), and loneliness (UCLA Loneliness) in the first model. Perceived burdensomeness subscale score (INQ) was added as a predictor variable in the second model to determine whether perceived burdensomeness predicted the number of GSIS-SI items reported at the time of the assessment after accounting for these covariates. A third model was tested that also included the interaction between gender and perceived burdensomeness. The addition of a small number of known covariates was seen as a stringent test of the association between perceived burdensomeness and suicide ideation given the small sample size of this pilot study.

Results and Discussion

Descriptive statistics and correlations between variables are presented in Table 1. The negative binomial regression model with the covariate variables was significant with likelihood ratio chi-square equal to 35.02, *df* = 4, $p < .001$. Examination of included variables (Table 2) indicated significant effects for gender (Wald $\chi^2 = 8.40$, $p = .004$) and loneliness (Wald $\chi^2 = 3.97$, $p = .042$). For gender, the coefficient for male gender was 1.08; thus, the expected log count of GSIS-SI for men was 1.08. The exponentiated value of this was 2.94, which means male gender is associated with a 2.94 times greater GSIS-SI score than for female gender. The coefficient for loneliness was .07 ($p = .05$) with an exponentiated value of 1.06.

The second regression model including perceived burdensomeness was significant with likelihood ratio chi-square equal to 42.78, *df* = 5, $p < .001$, suggesting better model fit than the model with only the covariates. Perceived burdensomeness was significant in this model when all covariates were held constant (Wald $\chi^2 = 7.21$, $p = .007$). The coefficient for perceived burdensomeness was 0.11 ($p = .007$) with an exponentiated value of 1.11.

The third model included the interaction between perceived burdensomeness and gender. This model was significant with a likelihood ratio chi square of 42.79, *df* = 6, $p < .001$, indicating poorer fit to the data than the model without this interaction. The coefficient for this interaction (.008) was not significant.

These results suggest that perceived burdensomeness may be a unique and independent risk factor for suicide ideation among older adults. Although a longitudinal design is necessary to draw causal inferences, the results of this study (elevated suicide ideation with high levels of perceived burdensomeness, after controlling for age, gender, depressive symptoms and loneliness) are consistent with the theory. In addition, our results replicated and extended findings from previous studies with samples aged 18 to 65 years (Van Orden et al., 2008).

Study 2

There were several design considerations that limit the interpretation of the findings from Study 1. The sample was relatively small, highly educated, and included healthy older adults who had volunteered to be repeatedly contacted to participate in research. Physical and cognitive functioning indices were not formally assessed, although it is likely that these variables affect both the predictor variable (i.e., perceived burdensomeness) and the criterion variable (i.e., suicide ideation). Thus, Study 2 was conducted to replicate and extend the findings of Study 1 in a larger sample of older adults in primary care settings.

Method

Participants—One hundred and five participants (M = 70.89 years, SD = 7.63) were recruited from primary care settings within the Texas Tech University Health Sciences Center. A previous study reported that as many as 70% of older adults who die by suicide have seen a primary care physician within 30 days prior to death (Conwell, 1994); therefore, the primary care population is ideal for studying correlates of late-life suicide ideation. This study was approved by the Texas Tech University Health Sciences Center Institutional Review Board and was conducted in compliance with the approved protocol.

Scheduled medical appointments within this setting were reviewed, and patients who were 60 years of age or older were sent a letter that described the study and indicated that a member of the research staff would contact them. From the 436 letters sent 105 patients agreed to participate in this study (24% participation rate). The sample included 78 women and 27 men. To determine whether this disparity in participation between women and men was due to a participation bias, we examined the gender distribution of the older adults in the recruitment site clinics over a period of 18 months. Among all older adults seen in this clinic, only 37% were men, a pattern consistent with the longer life expectancy for women, resulting in fewer older men seeking medical services. This suggests that the gender imbalance noted in our study largely reflects the gender distribution of the clinic rather than a gender difference in participation rates.

In terms of ethnicity, 91% of the sample was White, 1% Black or African American, 6% Hispanic, 1% Native American, and 1% identified as “other.” Census data for the community indicated that approximately 83% of adults over 60 are White; 7% Hispanic or Latino; 4% Black or African American; 1% Native Hawaiian or Other Pacific Islander; 3% Asian; 1% American Indian/Alaska Native. Therefore, this sample is broadly representative of the ethnic distribution of this area, with some overrepresentation of White participants. Sixty two percent of the sample reported being married or living with a partner; 22% were widowed; and 16% were divorced, separated, in an intimate relationship, or never married. The mean total years of education was 13.99 years (SD = 3.23).

To maximize variability within the sample on study variables, only those with current symptoms of mania, substance abuse, psychotic disorder, severe memory impairment, or cognitive difficulties (24 or lower on the Mini Mental Status Exam [MMSE]; Folstein, Folstein, & McHugh, 1975) were excluded. These question were answered and the MMSE was administered immediately following consent for participation. Excluded participants were given referral information for seeking additional help with the identified problem (e.g., memory impairment, psychotic disorder). A total of five screened participants were excluded due to MMSE scores below 24. Two participants were excluded due to memory impairment. Of included participants, 26% reported having been diagnosed with a mental condition or psychological disorder in the past, 11% within the last 12 months. Six participants reported a history of at least one previous incident involving deliberate self-harm or suicide attempt.

Measures—All of the assessment instruments used in Study 1 were included in Study 2. Internal consistency values were greater than .78 for all instruments in Study 2. Two additional covariates (hopelessness, health) were assessed.

The Beck Hopelessness Scale (BHS; Beck & Steer, 1988) is a 20-item instrument used to assess pessimistic expectations of the future. Previous studies have supported the psychometric properties of this instrument in multiple populations and have indicated that scores on the BHS are a predictor of death by suicide, even after controlling for depressive symptoms (Beck & Steer, 1988; Beck, Brown, Berchick, Stewart, & Steer, 1990; Brown, Beck, Steer, & Grisham, 2000). The internal consistency for the BHS in this sample was .86.

The Medical Outcomes Study Short Form General Health Survey–8 (SF-8; Quality Metric Incorporated) is an 8-item instrument that assesses participant perceptions of overall physical and emotional health as well as the effect of difficulties in these areas. Previous studies have provided positive support for the content and construct validity of this scale as well as test-retest reliability (Lefante, Harmon, Ashby, Barnard, & Webber, 2005; Turner-Bowker, Bayliss, Ware, & Kosinski, 2003; Ware, Loskinski, Dewey, & Gandek, 2001).

Procedure—Participants completed the study measures and interview in the research clinic of the first author. The same procedures followed in Study 1 were again used to detect and respond to significant current distress and suicide risk.

Data Analysis—The distribution of the suicide ideation variable in these data was also positively skewed (skew = 2.75 [*SE* = .24]) with significant overdispersion (*M* = 2.90 [*SE* = .49], σ^2 = 23.76, *K* = 8.59 [*SE* = .48]; range = 0 to 25); therefore negative binomial regression was again used for data analysis. Six variables were included as covariates: age, gender, hopelessness, depressive symptoms, perceptions of physical and emotional health, and loneliness. These covariates were chosen as they were either theoretically associated with perceived burdensomeness (i.e., health) or have been identified as a strong predictors of suicide ideation (i.e., depression, hopelessness, loneliness).

Results and Discussion

Descriptive statistics and correlations between variables are presented in Table 3. The first negative binomial regression model with only the covariates was significant with likelihood ratio chi-square equal to 72.06, *df* = 6, *p* < .001. Examination of the individual covariates indicated a significant effect for loneliness (Wald χ^2 = 11.98, *p* = .001); its coefficient was .09 (*p* = .001). This is interpreted such that for a one-unit increase in loneliness, the log of expected counts of GSIS-SI (suicide ideation) would be expected to increase by .09, when all other variables are held constant. The exponentiated value of this was 1.07, which means that a one-unit increase in loneliness is associated with a 1.07 greater GSIS-SI score.

The second negative binomial regression model including the covariates and perceived burdensomeness was significant with likelihood ratio chi-square = 76.29, *df* = 7, *p* < .001, suggesting good model fit. Inspection of individual variables indicated significant effects for loneliness (Wald χ^2 = 9.71, *p* = .002) and perceived burdensomeness (Wald χ^2 = 4.15, *p* = .04). The coefficient for loneliness was .08 (*p* = .002), with an exponentiated value of 1.08. The coefficient for perceived burdensomeness was .07 (*p* = .04), with an exponentiated value of 1.06.

A third negative binomial regression model was tested in which the interaction between perceived burdensomeness and gender was added. This model was significant with a likelihood ratio chi square of 76.65, *df* = 8, *p* < .001, indicating poorer fit to the data than the model without this interaction. The coefficient for the interaction (.06) was not significant.

These results provide compelling support for the importance of perceived burdensomeness to concurrent suicide ideation scores in an older adult community sample recruited through a primary care setting. Specifically, this study indicates that perceived burden-someness contributes substantial additional variance beyond the known risk factors of hopelessness and depressive symptoms (e.g., Beck et al., 1990; Dyer & Kreitman, 1984). The design of Study 2 has several methodological improvements over Study 1, including increased sample size, recruitment in a primary care setting, inclusion of measures of cognitive and physical functioning, as well as a measure of hopelessness, a construct known to predict suicide and suicide ideation.

General Discussion

One of the fundamental goals in this area of research is to identify constructs associated with suicide ideation that are potentially malleable, such that clinicians and other health care providers can engage in preventive efforts. Based on the interpersonal-psychological theory (Joiner, 2005), this study points to the importance of perceived burdensomeness, a theoretically linked construct that is related to suicide ideation in older adults. According to the theory, perceived burdensomeness is a proximal, causal risk factor for suicide ideation and desire. As such, this construct should be significantly associated with suicide ideation. Results from these two studies indicate that perceived burdensomeness accounted for unique variance in suicide ideation after accounting for the variance related to a large number of correlates of suicide ideation in older adults.

Support was not found for the hypothesis that perceived burdensomeness exerts a greater impact on suicide ideation in males compared to females. This study included older adults recruited from a primary care environment, many of whom had few perceptions of burdensomeness and few thoughts of suicide. Thus, it is possible that gender differences in the impact of perceived burdensomeness on suicide ideation are more apparent among older adults with greater symptom severity in both domains. It is also possible that this association is greater among those engaging in suicidal behavior, rather than ideation. Thus, future research will aim to test the moderation effect of gender in samples with more proximal risk for suicide.

There are, however, several limitations to the studies. First, both samples were largely Caucasian, female, and highly educated. The gender distribution of the Study 2 sample reflected the gender ratio of patients in a primary care clinic (63% women, 37% men); however, our recruitment of 26% men suggests a lower rate of participation by men than women. Most studies of older adults have included a much higher proportion of women, limiting the ability to identify variables of specific importance to suicide in older Caucasian men (De Leo et al., 2002; Unützer et al., 2006) and this remains a difficulty with these samples. This is a limitation that should be addressed in future studies. The rate of agreement to participate in this study was 24%. Although we cannot examine whether those who participated differed in meaningful ways from those who did not on study-related variables, it is possible that older adults with greater physical and psychological difficulties may have declined participation, leading to a sample with less frequent elevation on study variables, including suicide ideation. To more fully understand suicide ideation in older adults, it is important to conduct research with underrepresented older adults, including older adults of various ethnic backgrounds and educational levels. Education level covaries with financial status, and it is possible that individuals from lower SES have particular stressors that relate to perceived burdensomeness. Similarly, individuals with cultural identities that stress family and interpersonal relationship goals above independence and achievement goals may be particularly vulnerable to changes in perceived burden.

A second characteristic of the sample that influences the interpretation of the results is that the participants were not members of a group particularly at risk for suicide, other than their age status and presentation to primary care (Study 2). Although this can be considered a strength of the study (a significant minority of individuals who end their lives do not fall into an identifiable risk group), it also limits the ability to generalize these findings to older adults potentially most at risk for suicide (e.g., depressed, widowed, loss of independence). Future investigation in this area would benefit from research efforts focused particularly on at-risk groups within the older adult population.

The data presented in both studies are cross-sectional and rely on self-report. Although the results support the theoretical model, they do not provide information about the prospective unfolding of these relationships. For example, it is impossible to determine whether suicide ideation precedes, follows, or occurs simultaneously with perceived burdensomeness. Further, it is possible that biases may be present wherein participants underreport thoughts of suicide or the extent to which they feel like a burden on others. Future research with longitudinal designs will help to elucidate the nature of these relationships, adding both to the complexity of the theoretical model and potential intervention models.

In addition to research that addresses the delineated limitations of the current studies, research that examines the degree to which perceived burdensomeness is a malleable construct will be of significant benefit to efforts aimed at preventing suicide in older adults. The first step is determining whether or not this construct can be changed, and the second step is determining the degree to which change in this construct is associated with change in suicide ideation. The perception of burden on loved ones is a class of thoughts that might be particularly amenable to interventions involved in cognitive therapy. In a recently published book, Joiner, Van Orden, Witte, and Rudd (2009) described strategies for targeting perceptions of burdensomeness. For example, they suggested collaborating with the individual to generate evidence indicating the patient's death is not worth more than his or her life. This may begin with the therapeutic relationship, wherein the clinician provides facts demonstrating the patient's contribution to loved ones and society. The clinician further suggests that the patient begin to collect information from others that provides counterevidence to the perceptions of burdensomeness. Additional modifications to other empirically based approaches to the treatment of suicidal behavior to reduce perceptions of burdensomeness are described by Joiner et al. (2009). Although these strategies remain untested, researchers have demonstrated success in treating geriatric depression with cognitive-behavioral therapy (e.g., Pinquart, Duberstein, & Lyness, 2006); thus, perceptions of burden on others may also be treated successfully in psychotherapy.

In sum, the two studies presented lend initial support to the importance of perceived burdensomeness as a correlate of suicide ideation in two older adult samples recruited from both the community and primary care physician offices. Given the risk of death by suicide in older adults and the increasing proportion of older adults in the United States, it is necessary to understand risk factors for suicidal desire and, ultimately, for suicidal behavior and death by suicide. The interpersonal-psychological theory of suicide allows for specific hypotheses about the necessary conditions for suicidal desire and the pathways through which developed desire may combine with acquired capability to result in suicide. Continuing to test this model may lead to development of assessment, prevention, and intervention strategies to reduce this significant public health concern.

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Table 1

Correlations and Descriptive Statistics for Study 1 ($N = 57$)

	1	2	3	4	5
1. Age	—				
2. Depression	−.23	—			
3. Loneliness	−.32*	.78***	—		
4. Burden	−.24	.82***	.77***	—	
5. Suicide Ideation	−.12	.61***	.50***	.72***	—
Mean	74.14	7.78	32.77	10.72	11.65
SD	7.51	10.37	9.12	6.13	4.44

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 2

Variables Associated With Suicide Ideation—Study 1 ($N = 57$)

	Coefficient	*SE*	Wald χ^2	*p*
Model 1				
Intercept	−1.45	1.91	.57	.449
Age	.01	.02	.13	.839
Gender (Male)	1.08	.37	8.40	.004
Depression	.04	.03	1.74	.188
Loneliness	.07	.03	3.97	.042
Model 2				
Intercept	−1.63	1.88	.75	.386
Age	.01	.02	.13	.717
Gender (Male)	.79	.39	4.13	.042
Depression	.00	.03	.02	.891
Loneliness	.05	.03	2.14	.143
Burden	.11	.04	7.21	.007

Table 3

Correlations and Descriptive Statistics for Study 2 ($N = 105$)

	1	2	3	4	5	6	7
1. Age	—						
2. Depression	−.05	—					
3. Hopelessness	−.07	.53***	—				
4. Loneliness	.01	.66***	.66***	—			
5. Health	.07	−.66***	−.42***	−.44***	—		
6. Burden	.09	.63***	.54***	.60***	−.48***	—	
7. Suicide Ideation	−.06	.58***	.64***	.63***	−.46***	.67***	—
Mean	70.89	8.85	2.45	33.40	32.16	11.39	11.89
SD	7.63	9.10	3.27	8.50	6.21	5.94	4.87

* $p < .05$.

** $p < .01$.

*** $p < .001$.

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Table 4

Variables Associated With Suicide Ideation—Study 2 (N = 105)

	Coefficient	*SE*	Wald χ^2	*p*
Model 1				
Intercept	−.88	1.39	.41	.524
Age	.01	.02	.19	.662
Gender (Male)	.07	.33	.04	.839
Depression	.02	.02	1.08	.299
Hopelessness	−.01	.05	.01	.930
Loneliness	.09	.03	11.98	.001
Health	−.02	.03	.54	.464
Model 2				
Intercept	−.67	1.42	.22	.636
Age	.00	.02	.00	.989
Gender (Male)	.07	.07	.04	.845
Depression	.01	.02	.29	.589
Hopelessness	−.03	.05	.21	.645
Loneliness	.08	.03	9.71	.002
Health	−.01	.03	.11	.746
Burden	.06	.03	4.15	.042