



Self-Concealment and Suicidal Behaviors

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Understanding self-concealment, the tendency to actively conceal distressing personal information from others, may be important in developing effective ways to help individuals with suicidal ideation. No published study has yet assessed the relation between self-concealment and suicidal behaviors. Additionally, most self-concealment research has been conducted solely with younger adults. The relation between self-concealment and depressive symptoms among older adults (age 65 and older), and between self-concealment and suicidal behaviors among both younger (college student) and older adults, was investigated in this study. As predicted, self-concealment was significantly related to suicidal behaviors in younger adults. Furthermore, self-concealment was significantly related to depressive symptoms in older adults. Interestingly, the association between self-concealment and suicidal behaviors in this age group was not significant.

It is estimated that nearly one million people around the world die each year from suicide (World Health Organization, 2011). Although suicide may be preventable in cases where an individual's suicidal desire is known by a friend, family member, or health care professional, troubling evidence suggests that a considerable percentage of suicidal individuals hide their suicidal intent from others. In a study of older adults who died by suicide, 27% had not communicated suicidal thoughts to a confidant, while approximately 8% had denied having suicidal thoughts when questioned by their physician (Waern,

Beskow, Runeson, & Skoog, 1999). In another retrospective study of hospital patients who died by suicide, 78% denied having suicidal thoughts in the week before taking their own lives (Busch, Fawcett, & Jacobs, 2003). Given this evidence, our aim in the present study was to investigate the relation between self-concealment and suicidal behaviors.

Self-concealment has been defined as the tendency to actively conceal distressing personal information from others (Larson & Chastain, 1990). Unlike keeping a secret, which is an activity, self-concealment is viewed as a personality variable (Kelly & Yip, 2006). Self-concealment is also different from low self-disclosure, in that self-concealment implies that a person is hiding information that is distressing, whereas low self-disclosure implies only that a person is not volunteering information that is private (Fisher, 1984). Factor analysis and other empirical evidence support this distinction (Larson & Chastain, 1990).

Previous literature has documented an association between self-concealment and

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negative outcomes. Self-concealment has been shown to be correlated with anxiety, depressive symptoms, psychological distress, physical symptoms, and negative self-esteem, and inversely correlated with social support and willingness to use psychological services (Barry & Mizrahi, 2005; Cepeda-Benito & Short, 1998; Ichiyama et al., 1993; Kelly & Achter, 1995; Larson & Chastain, 1990).

Several theories have been proposed to explain these associations. One possibility is that self-concealment may often involve attempts to suppress all thoughts about one's secrets (Lane & Wegner, 1995). Studies show that such attempts at thought suppression may actually increase the frequency and intensity of unwanted thoughts (e.g., Wenzlaff & Luxton, 2003), which could in turn trigger a harmful ruminative cycle (Lane & Wegner, 1995). Alternatively, it has been suggested that, over time, the stress from keeping a secret may cause distress (Pennebaker, 1985). In particular, secret-keeping can be conceptualized as a form of behavioral inhibition, and long-term behavioral inhibition has been shown to be associated with such stress-related health problems as ulcers, heart disease, and cancer (Pennebaker, 1985). Another possibility is that self-concealment impairs social support and limits coping options, such as help-seeking (e.g., Larson & Chastain). The negative correlation between self-concealment and social support demonstrated in the literature (Cepeda-Benito & Short, 1998; Kelly & Achter, 1995; Larson & Chastain, 1990) could reflect the difficulty in providing support to those who keep distressing problems, feelings, and experiences concealed.

In addition to its relations to other forms of distress, self-concealment may be related to suicidal behaviors. In particular, the same processes theorized to explain the association between self-concealment and distress may underlie an association between self-concealment and suicidal behaviors. For example, self-concealment could lead to suicidal behaviors by increasing rumination (Lane & Wegner, 1995), which has been shown to predict both hopelessness and

suicidal ideation (Miranda & Nolen-Hoeksema, 2007). Furthermore, self-concealment could contribute to social disconnection (e.g., Cepeda-Benito & Short, 1998), which plays a major role in the onset of suicidal behavior (Joiner, 2005). Finally, individuals more inclined to self-conceal may be less willing to seek professional help for psychological problems (Barry & Mizrahi, 2005), which could become aggravated in the absence of treatment.

In sum, self-concealment would seem to have the potential to inform and advance the study of suicide. Despite this potential, no published study has yet assessed the association between suicidal behavior and self-concealment. In addition, most of the research on self-concealment has been conducted with college students, and no published study has yet assessed the relation between self-concealment and depressive symptoms in older adults.

The purpose of the present study was to extend previous research by assessing the relation between self-concealment and depressive symptoms in older adults, and between self-concealment and suicidal behaviors in both older adults and college students. Two hypotheses were tested. First, based on prior research that found a moderate correlation between self-concealment and depressive symptoms in college students and middle-aged adults (Ichiyama et al., 1993; Kelly & Achter, 1995; Larson & Chastain, 1990), we hypothesized that self-concealment would be associated with depressive symptoms in older adults. Second, based on evidence that some individuals conceal their suicidal intentions (Busch et al., 2003; Waern et al., 1999), we hypothesized that self-concealment would be associated with suicidal behaviors in both younger and older adults.

We also explored the possibility of an interaction between self-concealment and depressive symptoms in their relation to suicidal behaviors. This exploratory hypothesis was based on the notion that self-concealment and depressive symptoms may affect the strength of the relation each has to

suicidal behaviors. For example, individuals with depressive symptoms may be in need of support from friends, family, and other loved ones, yet for individuals who conceal their depressive symptoms, such support is likely to be in short supply (Cepeda-Benito & Short, 1998; Kelly & Achter, 1995; Larson & Chastain, 1990).

Finally, owing to the scarcity of research on the relation between self-concealment and suicidal behaviors in younger and older adults, we wanted to explore the possibility of sex, age, and age group (younger adults vs. older adults) as moderators of the relation between self-concealment and suicidal behaviors. Exploratory analyses were conducted within each of the two samples for sex and age—and on both samples combined for age group—to investigate the possibility of a moderating effect.

METHOD

Participants

Data were collected separately from two samples: younger adults (college students) and older adults (age 65 and older). Six hundred forty-two college student participants were recruited from undergraduate psychology courses at a large, public university in the southeastern United States. College student participants each completed an online survey containing all required measures, and participants were granted extra credit for their participation. Nearly all (97%) of the younger adult participants were between the ages of 18 and 24, inclusive. A large percentage (71%) of the younger adult participants was female, which is consistent with the gender distribution of psychology majors at the institution. Ethnically, the vast majority (92%) of younger adult participants were Caucasian. Other ethnic groups represented in the younger adult sample included African American (3%), Asian American (1%), and other (2%). This ethnic composition is consistent with the ethnic distribution at the institution.

Older adult participants were located via a commercially purchased mailing list that contained names and addresses of a sample of 2,500 adults over the age of 65 in New Jersey, Ohio, Pennsylvania, and West Virginia. These states were chosen to coincide with the geographical distribution of the younger adult participants. Older adults were contacted by mail and asked to complete a written version of the survey. Participants were offered a chance to win one of two \$50 cash prizes in a raffle. Eighty-nine older adult participants returned a completed survey (a 3.6% response rate), with slightly more males (52%) returning the survey than females. This gender distribution reflects a higher representation of older adult males than found in the region (41%; U.S. Census Bureau, 2008a, 2008b, 2008c, 2008d). Most older adult participants were Caucasian (95%), which according to the U.S. Census Bureau is a slightly higher representation of Caucasians than the percentage of Caucasians found across the four states (NJ: 71.40%, OH: 85.50%, PA: 84.90%, WV: 95.5%). The older adult sample also included a small percentage of African American (3%) and Native American (1%) participants. This underrepresents African Americans in this region (NJ: 14.40%, OH: 12.60%, PA: 11.10%, WV: 4.00%), but matches the distribution of Native Americans in the region (NJ: 0.6%, OH: 0.7%, PA: 0.5%, WV: 0.6%; U.S. Census Bureau).

Measures

Center for Epidemiologic Studies Depression Scale-Revised. The revised Center for Epidemiologic Studies Depression Scale (CESDR; Eaton, Muntaner, Smith, Tien, & Ybarra, 2004) is a 20-item self-report measure of depressive symptoms across such dimensions as dysphoria, anhedonia, fatigue, sleep, and appetite. Item content for the CESDR was designed to reflect elements of the diagnostic criteria for major depressive disorder as represented in the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Asso-

ciation, 2000). The CESDR has a Likert-type, 4-point scale (0–3), with each response corresponding to the frequency of a depressive symptom over the past week. The total score can range from 0 to 60, with a score above 16 indicating a high risk of a depressive disorder and impaired functioning (Eaton et al., 2004). The CESDR has excellent reliability, with Cronbach's alpha coefficients ranging from .87 to .98 (Eaton et al., 2004). In the current study, the Cronbach's alpha of the CESDR was .91. Convergent validity has been demonstrated by correlations with the original Center for Epidemiologic Studies Depression Scale (CESD; Radloff, 1977) ranging from $r = .88$ to $r = .93$ (Eaton et al.).

Self-Concealment Scale. The Self-Concealment Scale (Larson & Chastain, 1990) is a 10-item self-report measure of the tendency to actively conceal distressing personal information from others. This measure utilizes a Likert-type 5-point (1–5) scale, with possible responses ranging from *strongly agree* to *strongly disagree*. The measure is intended to gauge self-concealment across three dimensions (the tendency to not disclose personal information, keeping distressing secrets and negative thoughts about oneself from others, and fear of self-disclosure), but factor analysis and high internal consistency support the unidimensionality of the measure (Larson & Chastain).

The Self-Concealment Scale has been shown to have acceptable reliability (Larson & Chastain, 1990). Larson and Chastain found the internal consistency of the Self-Concealment Scale to be acceptable, measuring a Cronbach's alpha of .83 and a test-retest reliability of $r = .81$ over a 4-week interval. In the current study, the Cronbach's alpha of the Self-Concealment Scale was .87 for the younger adult sample, and .84 for the older adult sample. The construct validity of the Self-Concealment Scale has been demonstrated by the independent contribution of self-concealment in the prediction of depressive symptoms and anxiety symptoms (Larson & Chastain). Construct validity has been further supported by Larson and Chastain's finding

that individuals with high self-concealment scores have more physical symptoms, depressive symptoms, and anxiety symptoms than those with low self-disclosure scores.

Suicidal Behaviors Questionnaire. Originally a 34-item questionnaire developed by Linehan (1981), the Suicidal Behaviors Questionnaire (SBQ-4) is a self-report measure of suicidal thoughts and behaviors, shortened to four items by Cole (1988) through factor analysis. The version used here reflects minor differences from the wording and scale of the original SBQ-4, and includes the following four questions: (1) Have you thought about or attempted to kill yourself in your lifetime? (2) How often have you thought about killing yourself in the last year? (3) Have you ever told someone that you were going to commit suicide, or that you might do it in your lifetime? and (4) How likely is it that you will attempt suicide in your lifetime?

The SBQ-4 has been shown to be both a valid and reliable measure of suicidal behaviors. Cotton, Peters, and Range (1995) reported the Cronbach's alpha of the SBQ-4 to be .8 for a nonclinical sample, indicating acceptable internal consistency. The 2-week test-retest reliability for the SBQ-4 was found by Cotton et al. to be high (.95). For the current study, the reliability was adequate ($\alpha = 0.64$ for the older adult sample and $\alpha = 0.83$ for the younger adult sample). A moderate correlation with the Reasons for Living Inventory ($r = -.34, p < .01$) and a moderate to strong correlation with the Scale for Suicidal Ideation ($r = .69, p < .001$) support the validity of the SBQ-4 (Cotton et al.).

Demographics. Demographic data were collected, including age, sex, and ethnicity. Age was measured categorically (e.g., 18–24, 25–34, 35–44, etc.).

RESULTS

Preliminary analyses were conducted to determine whether the missing data on the CESDR and Self-Concealment Scale could be considered to be missing at random.

t tests indicated no significant association between the missing data on either scale and suicidal behaviors. Therefore, the data were assumed to be missing at random. For incomplete CESDR and Self-Concealment Scale protocols, if participants responded to 80% or more of the total items, scale scores were prorated based on the average score for all answered items. Owing to the brevity of the SBQ-4, incomplete SBQ-4 protocols were omitted from analysis.

Data were examined to ensure that they conformed to the assumptions of regression. Square-root transformations of the CESDR and SBQ-4 were performed to bring the skew and kurtosis of these measures to within an acceptable range of normality. Because two items on the CESDR are explicitly related to suicidal behaviors, they were dropped from the CESDR measure for analyses that included both the CESDR and SBQ-4.

A Pearson's product moment correlation analysis was conducted to establish the interrelations among study measures before testing the hypotheses (see Table 1). The association between self-concealment and suicidal behaviors was significant in the younger adults but not in the older adults.

TABLE 1
Intercorrelations, Means, and Standard Deviations of Study Measures

Measure	SCS	SBQ-4	CESDR ^a	<i>M</i>	<i>SD</i>
Younger adults (<i>n</i> = 637)					
SCS	—	.384 ^{***}	—	28.29	7.91
SBQ-4		—	—	1.86	2.55
Older adults (<i>n</i> = 89)					
SCS	—	.129	.386 ^{**}	26.49	6.30
SBQ-4		—	.311 [*]	1.10	1.79
CESDR			—	7.36	8.94

SCS, Self-Concealment Scale; SBQ-4, Suicidal Behaviors Questionnaire; CESDR, Center for Epidemiologic Studies Depression Scale-Revised. The sample size varies slightly owing to differences in missing data on each of the measures.

^aThe CESDR was only administered to the older adult sample.

p* < .01. *p* < .001. ****p* < .0001

Depressive symptoms were significantly correlated with both self-concealment and suicidal behaviors in the older adults.

A *t* test indicated no significant difference in suicidal behaviors between men and women in either the younger or older adult sample, $t(626) = 1.70$, $p = .08$, and $t(83) = -.53$, $p = .6$, respectively. However, age demonstrated a small but significant correlation with suicidal behaviors in the younger adult sample ($r = .10$, $p = .01$). Therefore, only the variable of age was controlled for in all linear regressions conducted with suicidal behaviors as the outcome variable.

A series of linear regression analyses was conducted to test our hypotheses. A test of the first hypothesis demonstrated that self-concealment was significantly related to depressive symptoms in the older adults, $F(1, 76) = 13.32$, $p < .001$, adjusted $R^2 = .15$.

To test the second hypothesis, that self-concealment would be associated with suicidal behaviors in both younger and older adults, a linear regression was conducted within each of the two samples, controlling for age (results are shown in Table 2). For the younger adults, self-concealment accounted for significant variation in suicidal behaviors, $F(1, 624) = 108.38$, $p < .0001$, adjusted $\Delta R^2 = .15$. For the older adults, the

TABLE 2
*Summary of the Linear Regression Analyses for the Prediction of Suicidal Behaviors in Older (*n* = 89) and Younger (*n* = 637) Adults*

Predictor	<i>B</i>	<i>SE B</i>	β
Younger adult suicidal behaviors			
Intercept	.93	.04	.39
Age	.43	.15	.11
SCS	.03	.02	.05
Older adult suicidal behaviors			
Intercept	1.86	.98	.00
Age	-.19	.15	-.14
SCS	.01	.02	.11
CESDR	.13	.06	.25

SCS, Self-Concealment Scale; CESDR, Center for Epidemiologic Studies Depression Scale-Revised. The CESDR was only administered to the older adult sample.

result was not significant, $F(1, 82) = .61$, $p = .21$, adjusted $\Delta R^2 = .01$.

A linear regression was also conducted to test the exploratory hypothesis that self-concealment and depressive symptoms would interact in the prediction of suicidal behaviors in older adults. The result, however, was not significant, $F(1, 71) = .1$, $p = .76$.

In exploratory analyses, a linear regression was conducted to determine whether or not age group (younger adults vs. older adults) was a moderator in the relation between self-concealment and suicidal behaviors. The interaction of age group and self-concealment was not significant, $F(1, 708) = 3.39$, $p = .07$.

DISCUSSION

As hypothesized, self-concealment accounted for significant variation in suicidal behaviors in younger adults. This finding is consistent with previous research that found self-concealment to be related to other forms of distress (e.g., Larson & Chastain, 1990), yet it contributes to the field by demonstrating that self-concealment is related to perhaps the most serious form of distress—suicidal behavior. This relation is new to the literature and points to self-concealment as a potentially valuable tool in suicide research and prevention.

Additionally, this study advances the field by examining self-concealment in an older adult population. The finding that self-concealment is related to depressive symptoms in older adults mirrors the relation between self-concealment and depressive symptoms that has been demonstrated in younger adults here and elsewhere in the literature (e.g., Ichiyama et al., 1993). However, the unexpected result that self-concealment is not related to suicidal behaviors in older adults suggests that there may be differences in the way self-concealment operates across the life span.

One explanation for the lack of a relation between self-concealment and suicidal

behaviors in older adults is that whereas self-concealment may lead to social disconnection in younger adults, it may not lead to social disconnection in older adults. In support of this possibility is evidence that social goals change over the life span (e.g., Carstensen, Isaacowitz, & Charles, 1999). As a result, components of social interaction such as self-concealment may influence relationships and the perception of relationships differently in older adults.

This study has several limitations which should be considered when interpreting our findings. To begin, this study used a nonclinical sample, and thus there was limited variability in the measure of suicidal behaviors. Even so, the range of scores on the SBQ4 for the younger and older adults was more than sufficient, with a range of 0–13 for the younger adults and 0–10 for the older adults. Another limitation of the present study is its cross-sectional design, which cannot be used to determine whether self-concealment precedes suicidal behaviors. Nevertheless, covariation between self-concealment and suicidal behaviors is itself an important finding, and merits further study. The low rate of response to the mailed survey in the older adult sample, along with overrepresentation of men and Caucasians in the sample, also must be noted as limitations of the present study, and may indicate voluntary bias in the older adult sample. In particular, the lack of relation between self-concealment and suicidal behaviors observed in the older adults should be interpreted with these limitations in mind.

Future research in self-concealment and suicidal behavior would benefit from an investigation into the processes responsible for their correlation. Specifically, researchers should investigate whether or not social connectedness and rumination mediate the relation between self-concealment and suicidal behavior. Longitudinal studies should also be conducted to investigate the role of self-concealment over time in the development of suicidal behaviors.

The findings of this study suggest that self-concealment may serve as a clinical indica-

tor of or a risk factor for suicidal behavior in younger adults. As such, clinicians should be mindful that some of their clients—especially younger adults—may be actively concealing suicidal ideation. Clinicians should also note that multimethod assessment may be especially helpful when evaluating individuals with suicide risk factors who deny suicidal thinking. Part of a multimethod approach may include gathering information from friends and family members. Furthermore, rather than relying solely on verbal reports of suicidal thoughts, clinicians may benefit from looking for a confluence of behavioral indicators. Such indicators might include signs of depression (e.g., insomnia, hypersomnia, abnormal weight loss or gain, psychomotor retardation, and cognitive deficits), nightmares (Nadorff, Nazem, & Fiske, 2011), attentional bias to suicide-related stimuli (Cha, Najmi, Park, Finn, & Nock, 2010), or warning signs of a suicide plan (e.g., seeking access to weapons or other means of self-injury; Rudd et al., 2006). Additionally, the demographic profile of an individual (e.g., age, race, and employment status), the presence and proximity of a stressful life event (e.g., the loss of a loved one from death or divorce, the loss of a job, rape, or disablement), and mental health history (including a history of one or more psychological disorders and prior suicidal behavior) might provide a helpful context for symptoms and behaviors when assessing suicide risk (Nock et al., 2008).

The results of this study also suggest that prevention programs should be tailored

to consider individuals who do not actively seek out assistance. Gatekeeper training focused on detecting warning signs of suicide could be helpful in identifying individuals with suicidal thoughts who are keeping their thoughts a secret. Signs of hopelessness, anhedonia, impulsiveness, and high emotional reactivity may be especially important risk factors for gatekeepers to consider (Nock et al., 2008). Even if suicidal thoughts are not communicated and suicidal behaviors are not observed, individuals with multiple risk factors should be encouraged to seek professional care.

Although the current results have clear implications for assessment and prevention, the development of targeted treatments for individuals high in self-concealment will require further research to clarify the relation between self-concealment and suicidal behaviors. If self-concealment is found to cause distress, including suicidal thinking, interventions to reduce the tendency to self-conceal should be designed.

In conclusion, the new finding of an association between self-concealment and suicidal behaviors suggests that self-concealment may be a sign of severe distress. Whether self-concealment is the cause of this distress remains to be seen. Nevertheless, the results of this study underscore the potential importance of considering self-concealment in the assessment and prevention of suicide.

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