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Family Connectedness Moderates the Association between Living Alone and Suicide Ideation in a Clinical Sample of Adults 50 Years and Older

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Abstract

Objective—To investigate whether living alone is significantly associated with expression of suicide ideation among mood-disordered mental health patients and whether degree of family connectedness moderates the association between living alone and expression of suicide ideation.

Design—Cross-sectional survey design.

Setting—Inpatient and outpatient mental health services in Rochester, New York.

Participants—130 mood disordered inpatients and outpatients 50 years or older.

Measurements—Patients completed a demographics form, an interviewer-rated measure of current suicide ideation (Scale for Suicide Ideation), and a self-report measure of family connectedness derived from the Reasons for Living Scale – Older Adult version (RFL-OA).

Results—Patients who reported greater family connectedness were significantly less likely to report suicide ideation; this protective effect was strongest for those living with others (Wald's $\chi^2_{(df=1)}=3.987$, $p=.046$, O.R.=.905; 95% C.I.=.821–.998). A significant main effect of family connectedness on suicide ideation suggested that having a stronger connection to family members decreased the likelihood of reporting suicide ideation (Wald's $\chi^2_{(df=1)}=9.730$, $p=.002$, O.R.=.852; 95% C.I.=.771–.942).

Conclusions—These results suggest potential value in assessing the quality of interpersonal relationships when conducting a suicide risk assessment among depressed middle-aged and older adults.

Keywords

Living Alone; Family Relations; Suicide Ideation; Depression

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The North American population is growing older. The population of older Americans is expected to double to 88.5 million people by 2050 [1]. The rapid expansion of the older adult population necessitates increased focus on late life healthcare and mental healthcare. Middle-aged and older adults have higher rates of suicide than the general population in the U.S. and in most countries worldwide [2]. The 2007 suicide rate among Americans 50 years or older was 15.54 per 100,000, whereas that of the general population was 11.47 per 100,000 [3]. Research on suicide risk and protective factors is needed to inform clinical interventions with this expanding population.

Much of the research on suicide among middle-aged and older adults has focused on risk factors rather than on factors that protect against death by suicide [4], necessitating research on psychosocial variables that might reduce the likelihood of contemplating suicide when experiencing adversity. Elevated suicide risk is associated with previous self-injury, presence of suicide ideation, mood disorders and other forms of psychopathology, physical illness and functional impairment, personality characteristics such as rigidity and tendency toward emotional instability, and psychosocial problems, stressors, and difficulty adjusting to life transitions [4]. Relationship-related markers of suicide risk include being divorced, separated, widowed, or single, living alone, and lacking in social activities [5,6]; having close relationships with family members and others may protect against suicide [6,7].

Living alone is commonly considered a suicide risk factor [2,8], but research findings are equivocal among middle-aged and older adults. Living with family members or others may protect against suicidal behavior [9–11] and death by suicide [5,12], negative findings notwithstanding [6,13]. Being married or having an intimate relationship also appears to protect against suicidal behaviour and death by suicide [5,11,13–15]; here too, non-significant findings have been reported [7,16]. Having children, close relatives, friends, and/or other social supports seems to protect against suicide [5,7,10]; whereas spousal conflict, family discord, and/or absence of a confidante confer risk for death by suicide [6,7,10,17].

Duberstein and colleagues hypothesized that living with family members or other social supports might decrease suicide risk due to an associated increase in emotional closeness, social support, or encouragement to seek treatment for mental health problems [5]. Research suggests that perceived social support might decrease risk for suicide. The perception of social support is also negatively associated with late-life suicide ideation, a potentially modifiable risk factor associated with death by suicide [4,18,19]; having poor social support and a limited social network is associated with presence of suicide ideation [20–24]. Rowe and colleagues reported that greater relationship satisfaction and feelings of usefulness are negatively associated with suicide ideation among older homecare recipients, irrespective of social network size [24]. Being married [20,22,23] and living with others [20,22] do not appear to be associated with suicide ideation, despite their negative association with death by suicide. These findings suggest that it may be the quality of relationships, more so than their mere presence, that protects against suicide risk.

In the present study, we assessed potential associations among living arrangements, sense of family connectedness, and suicide ideation in a clinical sample of adults 50 years and older. We hypothesized that living with others and having a strong sense of family connection may be associated with a reduced likelihood of reporting suicide ideation. We hypothesized that family connectedness would moderate the association between living alone or with others and suicide ideation.

Methods

Procedures

We recruited patients 50 years of age and older from inpatient and outpatient mental health services of a community hospital, a tertiary care facility, an academic medical center, and an older adult mental health outpatient clinic in Rochester, New York. Research coordinators screened the records of all patients 50 years of age and older in order to identify those with a known or suspected mood disorder, an inclusion criterion for a larger study of adult depression, suicide ideation, and personality [25]. After patients provided informed consent, trained interviewers administered to them a demographics form, a cognitive screen, a structured clinical interview for diagnostic purposes, and measures assessing current suicide ideation, family connectedness, and perceived social support.

Measures

Participants completed a demographics form assessing their sex, age, marital status, and living arrangements. For the purpose of the present study, we included patients reporting that they lived alone the majority of the time (“living alone”) and those who reported living with a spouse, significant other, their children, other family members, and/or with friends or others (“living with others”). We excluded participants living in a group or institutional care setting, such as a nursing or retirement home, because the decision to live in such a setting is often dictated by medical or financial necessity, and may not be reflective of the size of one’s social network. Furthermore, living in institutional care settings might not provide the same social benefits as living with friends, family members, or other social supports.

Cognitive functioning was screened with the Mini-Mental State Examination (MMSE) [26]. The MMSE is scored out of a possible 30 points; lower scores reflect poorer cognitive functioning. The MMSE has demonstrated acceptable psychometric properties, with a reported test-retest reliability of .887 over a 24 hour period, and construct and concurrent validity [26]. We have previously reported a significant negative association between MMSE scores and late-life suicide ideation [27].

Mental disorders were diagnosed using the Structured Clinical Interview for the Diagnostic and Statistical Manual of Mental Disorders, Fourth edition (SCID-I) [28]. Patient diagnoses were established during diagnostic consensus conferences [25].

Suicide ideation was assessed with the Scale for Suicide Ideation (SSI), a 19-item clinician-rated measure that assesses current suicide ideation, presence of a suicide plan, deterrents to suicidal behavior, preparation for suicidal behavior, and anticipation of engaging in suicidal behavior [29]. Construct validity has been evidenced by significant positive associations between the SSI and an older adult measure of suicide ideation [30] and risk for death by suicide among mental health outpatients [31]. The initial five SSI items screen for presence of suicide ideation; the remaining items were only administered to individuals endorsing the “desire to make an active suicide attempt” (SSI item 4) and/or “passive suicidal desire” (SSI item 5) over the past week. We thus defined presence of suicide ideation as endorsement of SSI items 4 and/or 5. Participants endorsing either or both of these items were categorized as suicide ideators (SI, $n=32$); those not endorsing either item were categorized as non-suicide ideators (NI, $n=98$).

Family connectedness was assessed with 4 items derived from the Reasons for Living Scale – Older Adult version (RFL-OA), a 69-item questionnaire that assesses reasons for living (RFL) among older adults when contemplating suicide [32]. The RFL-OA has demonstrated robust internal consistency (Cronbach’s $\alpha=.98$) and construct validity by way of significant negative associations with measures of current suicide ideation, suicide ideation at the

worst-point in one's life, and depression among mental health patients over the age of 50 [32]. Research findings have also indicated significant negative association between suicide ideation among middle-aged and older adults and RFL-OA items assessing future orientation [33], fear of suicide, moral objections, and survival and coping beliefs [34]. We assessed family connectedness with RFL-OA items stating: (1) "It would hurt my family too much, I would not want them to suffer"; (2) "I love and enjoy my family too much and could not leave them"; (3) "I have a loving family who supports me through bad times"; and (4) "My family depends on me and needs me." We did not include family-oriented RFL-OA items pertaining to relationships with a spouse and/or grandchildren because these items are not applicable to all participants. Each item was rated on a 6-point Likert scale according to how important each was as a reason for *not* taking one's life, ranging from 1 (*extremely unimportant*) to 6 (*extremely important*). Subscale scores ranged from 4 to 24 points, higher scores reflected stronger reasons for living associated with family connectedness. This 4-item scale was internally consistent in the present sample ($\alpha=.87$).

Perceived social support was assessed with the seven item Perceived Social Support (PSS) subscale of the Duke Social Support Index (DSSI), a self-report measure that assesses social network size, perceived social support, and instrumental support [35]. Total scores for the PSS subscale ranged from 7–21 with higher scores reflecting greater perceived social support. PSS scores have been shown to be significantly associated with suicide ideation [24]. The PSS subscale was internally consistent in the present sample ($\alpha=.81$).

Participants

Research coordinators approached 633 inpatients with a known or suspected mood disorder; 39 patients were also recruited from an older adults' mental health outpatient clinic. A total of 250 patients consented to participate in this study. Seventeen patients were excluded from the present analyses because they lived in an institutional care setting ($n=15$) or did not provide information regarding their living arrangements ($n=2$). An additional 57 patients were excluded because of missing data on the RFL-OA ($n=51$), PSS ($n=2$), or SSI measures ($n=4$). Forty-three patients were excluded due to the presence of a diagnosis of cognitive impairment ($n=6$) or a score below 21 points on the MMSE ($n=6$), or presence of psychotic ($n=27$) or manic symptoms ($n=4$), as these conditions might have impaired their ability to accurately complete the study interview. A further 3 patients were excluded because of the absence of an Axis I diagnosis. The study's sample thus comprised 130 participants, including 59 men (45%), with a mean (SD) age of 59.7 years (9.5), and a mean (SD) of 13.6 (2.4) years of education (see Table 1). Sixty-five percent of the sample was divorced or separated ($n=56$), widowed ($n=9$), or single ($n=19$), and 42% lived alone ($n=55$). Seventy-eight percent of the sample was unemployed ($n=21$), receiving disability benefits ($n=39$), or retired ($n=42$). Ninety-one percent self-identified as being White ($n=118$). All of the participants had a primary diagnosis of a mood disorder, including 106 with a major depressive disorder (20 of mild intensity, 50 moderate, 32 severe without psychotic features, and 4 in partial remission), 3 with minor depression, 1 with dysthymic disorder, 14 with bipolar I disorder (with current depressed episode), 3 with bipolar II disorder (with current depressed episode), and 3 with a substance-induced mood disorder (with current depressed episode).

Statistical Analyses

We have reported descriptive statistics employing means and standard deviations for continuous variables and counts and percentages for categorical variables (see Table 1). We computed binary logistic regression analyses to test the potential interaction of living arrangements and family connectedness (RFL-OA) on suicide ideator status (SSI; SI versus NI), after centering the interaction term, controlling for patient age, sex, and marital status

(see Table 2). We repeated this analysis treating perceived social support (PSS) as predictor, in place of family connectedness (RFL-OA; see Table 3), to assess whether PSS moderated the hypothesized association of living arrangements on suicide ideation status, or whether such an association was uniquely moderated by family connectedness. We tested the logistic regressions using Wald's chi-square statistic. All analyses were conducted using SPSS 16.0 and PASW 18.0 for Windows, and all reported p-values were two-tailed, with α set at 0.05.

Results

The findings of our initial regression analysis indicated the presence of a significant interaction effect of living arrangements and family connectedness on suicide ideation ($\chi^2_{(df=1)}=3.987$, $p=.046$, O.R.=.905; 95% C.I.=.821–.998); patients who lived with others and reported higher levels of family connectedness expressed significantly less suicide ideation than did those living alone (see Table 2). A significant main effect of family connectedness indicated that patients who reported higher levels of family connectedness were significantly less likely to report suicide ideation compared to those who reported less family connectedness ($\chi^2_{(df=1)}=9.730$, $p=.002$, O.R.=.852; 95% C.I.=.771–.942).

Findings of our second logistic regression analysis did not demonstrate the presence of a significant interaction effect of perceived social support and living alone on suicide ideation ($\chi^2_{(df=1)}=.296$, $p=.586$, O.R.=.960; 95% C.I.=.830–1.111; see Table 3). However, a significant main effect emerged for perceived social support on suicide ideation ($\chi^2_{(df=1)}=14.717$, $p=.001$, O.R.=.747; 95% C.I.=.643–.867), indicating that patients who perceived a greater degree of social support were less likely to endorse contemplating suicide.

Conclusions

We investigated whether family connectedness moderated the association between living arrangements and clinical expression of suicide ideation among mood-disordered mental health patients 50 years of age or older. Study findings indicated that the association between living arrangements and suicide ideation was moderated by family connectedness. Participants who reported a greater sense of connection with family members were significantly less likely to endorse suicide ideation than were those who reported lower levels of family connectedness; this protective effect was greatest among patients who lived with others. These findings suggest that previous inconsistent findings regarding residential arrangements and suicide risk may have been due, in part, to previous researchers not having investigated the quality of participants' social relationships.

Clinical research dictates that depressed older adults who live with family members may be at lower risk for suicide due to the protective effects of social support [5]. The present findings suggest that merely inquiring about living arrangements may contribute little to the assessment of an older patient's suicide risk. It is critical to investigate the nature and quality of the patient's relationships with members of their social network [24]. Clinicians are thus advised to inquire into older patients' perceived connectedness with family members, rather than merely asking about their living arrangements. It is possible that patients' subjective experiences of social connection may help decrease feelings of interpersonal isolation or perceived burdensomeness, factors theorized to mitigate suicide risk [36]. The finding that perceived social support was negatively associated with suicide ideation status, yet did not interact with living alone in predicting suicide ideation status, suggests that subjective support may protect against suicidal despair irrespective of whether one lives alone or with others. Although the sense of enhanced connection to one's family was negatively associated with presence of suicide ideation, this potentially protective effect was most robust among those

living with others. Our findings thus supported previous research suggesting that having poor or strained relationships, whether defined by the absence of social support or the presence of family discord, is associated with the likelihood of experiencing suicide ideation [24], engaging in suicidal behavior [10], and dying by suicide [6].

The present study was limited by a cross-sectional design, and focused exclusively on suicide ideation dichotomized as present vs. absent, based on the fact that only 32 patients endorsed suicide ideation on the SSI; research is needed incorporating continuously-scored measures of suicide ideation. Longitudinal studies are additionally needed assessing whether family connectedness protects against the emergence or exacerbation of suicidal behavior and/or death by suicide. Participants included mental health patients 50 years of age or older. The majority of participants were White, necessitating research with more diverse samples. We investigated the nature of family relationships in potentially protecting against suicide risk and did not examine the quality of relationships or perceived connection with non-relatives.

We have theorized that protective factors may not simply reflect an absence of suicide risk, but rather may enhance psychological well-being and confer psychological resiliency to mental disorders and risk for suicide [4]. Research is needed assessing whether perceived connectedness to friends, peers, or other supports protects against suicide ideation, and whether participation in social activities, seniors centers, and/or religious activities increases community connectedness and helps protect against death by suicide. Research findings have indicated that social activity predicts improvement in depressive symptom severity [37] and that therapeutic interventions focusing on resolving interpersonal conflict and improving social interactions significantly reduce suicide ideation among depressed older adults [38–40]. Research is needed assessing whether enhancing social connectedness moderates clinical outcomes in clinical trials designed to reduce suicide risk.

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Table 1

Patient demographic information and descriptive statistics for study measures (N=130).

	Range	Mean (SD)	N (%)
Age	50–84	59.7 (9.5)	
Education	5–17	13.6 (2.4)	
Sex			
Men			59 (45.4)
Women			71 (54.6)
Marital Status			
Married			46 (35.4)
Single, never married			19 (14.6)
Separated or divorced			56 (43.1)
Widowed			9 (6.9)
Racial Group			
White			118 (90.8)
Other			11 (8.4)
Missing data			1 (0.8)
Employment			
Full-time			15 (11.5)
Part-time			13 (10.0)
Retired			42 (32.3)
On disability			39 (30.0)
Unemployed			21 (16.2)
Living arrangements			
Living alone			55 (42.3)
Living with others			75 (57.7)
Primary Diagnosis			
Major depressive disorder			106 (81.6)
Minor depression			3 (2.3)
Dysthymic disorder			1 (0.8)
Bipolar I disorder			14 (10.8)
Bipolar II disorder			3 (2.3)
Substance-induced mood disorder			3 (2.3)
SSI Suicide Ideator Status			
Suicide ideator			32 (25)
Non-suicide ideator			98 (75)
FC	4–24	18.3 (5.6)	
DSSI - Perceived social support	7–21	16.1 (3.7)	
MMSE	22–30	27.9 (2.0)	

Note: SSI=Scale for Suicide Ideation; FC=Family Connectedness subscale of the Reasons for Living Scale-Older Adult version; DSSI=Duke Social Support Index; MMSE=Mini-Mental State Examination.

Table 2

Logistic regression analysis predicting suicide ideator status with living alone status, family connectedness, and their centered interaction ($N=130$).

Variable	Wald	O.R.(95% C.I.)	p-value
Constant	12.855	-	.001
Age	11.481	.815(.724-.917)	.001
Marital status	3.053	-	.384
Single	.422	.554(.093-3.287)	.516
Separated/Divorced	1.557	.360(.072-1.792)	.212
Widowed	1.136	7.410(.186-294.811)	.287
Sex	2.880	2.370(.875-6.423)	.090
LA	.188	1.356(.342-5.377)	.665
FC	9.730	.852(.771-.942)	.001
FC $\times$ LA	3.987	.905(.821-.998)	.046

Note: Wald=Wald's χ^2 ; $df=1$; O.R.=Odds Ratio; 95% C.I.=95% confidence interval; LA=living arrangements (statistics are presented for participants who were living alone, as compared with those living with others); FC=Family Connectedness subscale of the Reasons for Living Scale-Older Adult version. Married participants comprised the reference group for analyses involving Marital Status. Suicide ideator status was assessed with the Scale for Suicide Ideation.

Table 3

Logistic regression analysis predicting suicide ideator status with living alone status, perceptions of social support, and their centered interaction ($N=130$).

Variable	Wald	O.R.(95% C.I.)	p-value
Constant	14.699	-	.001
Age	10.403	.836(.750–.932)	.001
Marital status	1.797	-	.616
Single	.264	1.565(.284–8.626)	.607
Separated/Divorced	.046	.859(.213–3.464)	.831
Widowed	1.042	8.732(.136–559.690)	.307
Sex	3.797	2.846(.994–8.148)	.051
LA	.198	.731(.184–2.906)	.657
PSS	14.717	.747(.643–.867)	.001
PSS $\times$ LA	.296	.960(.830–1.111)	.586

Note: Wald=Wald's χ^2 , $df=1$; O.R.=Odds Ratio; 95% C.I.=95% confidence interval; LA=living arrangements (statistics are presented for participants who were living alone, as compared with those living with others); PSS=Duke Social Support Index Perceived Social Support subscale. Married participants comprised the reference group for analyses involving Marital Status. Suicide ideator status was assessed with the Scale for Suicide Ideation.