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Yael Aviad & Keren Cohen-Louck

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Locus of Control and Purpose in Life as Protective Factors against the Risk for Suicide in Older Adults

Yael Aviad  and Keren Cohen-Louck

Department of Criminology, Ariel University, Ariel, Israel

ABSTRACT

The purpose of this study is to identify factors that can be used as protective factors against the risk for suicide in older adults, based on locus of control (LC), the belief whether life events are the result of one's own actions or of external factors, and purpose in life or a sense that one's life is worth living. Purpose in life (PIL) was defined as a mediating variable between locus of control and the risk for suicide. This cross-sectional study involved 195 older adults people, aged 65–100. They were reached through convenience sampling. Statistical analyses involved bivariate analyses (correlations, t-tests), and multiple hierarchical regressions to assess the contribution of purpose in life and locus of control to against the risk for suicide. Mediation was examined with the process procedure, using bootstrapping and 95% CI. There was a negative correlation between purpose in life, internal locus of control, and risk for suicide; purpose in life mediated the relationship between internal locus of control and risk for suicide. The combination of purpose of life and internal locus of control can serve as protective factors against the risk or the potential for suicide in older adults.

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Risk for suicide in older adults; locus of control in older adults; purpose in life in older adults; protective factors

Suicide and predisposition to suicide are major problems in the mental health of older adults (Canetto, 2017; Koo, Kölves, & De Leo, 2017; World Health Organization [WHO], 2017), with most cases of suicide of older adults ending in death. The DSM-V (2013) defines attempted suicide as a self-initiated sequence of behaviors by an individual who at the time of initiation carries out a set of actions that can lead to his or her own death. In Israel, 18.3% of all suicides occur among people aged 65–75, and 21.5% are in people aged 75 and above (The Ministry of Health in Israel, 2018). Note that the real numbers are much higher because a prominent phenomenon in the older adult population is silent suicide, that is, disguised suicide that the environment perceives as a tragic death (taking an overdose of pills under the guise of confusion or senility).

The factors associated with suicide and predictors of this behavior in older adults are mental illness (mainly depression), physical illness, and type of personality (Conejero, Olié, Courtet, & Calati, 2018; Kim, 2014; Kjøseth,

Ekeberg, & Steihaug, 2010; Mogensen, Möller, Hultin, & Mittendorfer-Rutz, 2016). A high proportion of seniors seek medical help shortly before they attempt suicide, but their distress is not always identified. Studies in recent years suggest that suicide of older adults can be prevented, primarily by increasing awareness and use of antidepressants (Baek et al., 2015; Barak, Olmer, & Aizenberg, 2006). In the present study, we propose that the combination of purpose in life or meaning in life, as Victor Frankl (1984) referred to it, and internal locus of control, a term coined by Rotter (1966), can serve as protective factors against the high risk or high potential for suicide of older adults.

The term “meaning in life” or “purpose in life” is broad, and it includes interpretations, feelings, opinions, attitudes, and perceptions that give subjective meaning to existence as part of the construction of the authentic self (Kleiman & Beaver, 2013). *Meaning* relates to something important and valuable for the person. Therefore, “meaning in life” refers to a meaningful life – a life that has added value to a person. The essence of Frankl’s theory (1984, 2000) is a search for meaning in life. For Frankl (1984, 2000), man is a spiritual creature, whose primary driving force in life is a strong desire to find meaning in life. This need is inherent in humanity; it is perpetual, dynamic, and universal. Therefore, individuals who see their life as meaningless feel that they are unable to realize valuable goals, or that the goals have lost their importance. Previous studies have shown a negative association between the level of meaning in life and risk and suicide behaviors (Aviad- Wilchek, 2014; Heisel & Flett, 2008), as well as a negative association between meaning in life and mental states, such as anxiety and depression (Testoni et al., 2018).

Many studies show that some older adults have a strong subjective feeling that life has no meaning anymore (e.g., Kjølseth et al., 2010; Rurup et al., 2011), that they had nothing left to live for, and that everything that had bestowed value on life has been lost (Kjølseth et al., 2010). At the same time, some older adults find meaning in life that protects them from the risk of depression and suicide (Figueiredo et al., 2015; Heisel & Flett, 2008; Purcell et al., 2012). Even those who attempted suicide have reported that meaning in life, such as religious belief, a family support system, a sense of belonging with a significant other, contact with others, care for children (Purcell et al., 2012; Yur’yev et al., 2010), relations with a pet, and the return of a sense of independence in their lives has helped them overcome the suicidal crisis they experienced (Figueiredo et al., 2015).

The term “locus of control” refers to the attribution one makes in understanding the factors responsible for the occurrence of a particular event in one’s life, whether a positive and desirable event or a negative and undesirable one (Rotter, 1966; Ryon & Gleason, 2014). The literature distinguishes between internal and external locus of control. When individuals perceive events as subject to their personal control and believe that they occur as

a result of their own behavior, actions, and reactions, they see themselves as affecting what happens in their life. By contrast, external control locus of control is attributed to persons who perceive events that happen to them as occurring regardless of their behavior and being beyond their control; therefore, they feel that they are controlled by external environmental forces, such as luck, chance, fate, or other people. The findings of previous studies suggest that internal locus of control is associated with active effort, assertiveness, goal achievement, and autonomous decision-making. They have shown that people with internal locus of control are better able to adapt and cope, and that they have a higher sense of independence than do people with external locus of control, who are prone to states of depression, anxiety, suspicion, insecurity, fear of failures, and inability to cope with stressful events.

Rotter (1966) emphasized that locus of control is a personality trait, a fixed and stable structure that organizes behavior beyond changing situations. At the same time, however, Rotter noted that it is also subject to normative developmental changes resulting from the individuals' history of experiences throughout their life. For example, Ryon and Gleason (2014) argued that for individuals to develop internal LC over time, they must know successes and have positive experiences. Furthermore, individuals with internal LC tend to be more optimistic about the outcome of their actions and adopt healthier behaviors, experience less stress and negative feelings, such as anxiety and anger, and are at lower risk of developing depression when distressed than are people with external LC (Hobfoll, Johnson, Ennis, & Jackson, 2003; Ryon & Gleason, 2014). Furthermore, people with internal LC believe that they cause the results of their actions and therefore make active efforts to find meaning in their lives (Frankl, 1984; Tas & İskender, 2018). It has also been shown that internal LC can serve as a source of emotional strength in times of crisis (Lefcourt, 2014; Thorne & Ebener, 2018), and decrease suicidal attitudes suicide attempts in adolescents (Aydin, Algin, Poyraz, & Kalenderoglu, 2018). Thus, internal LC can serve as a protective factor against the risk or the potential for suicide in people at high risk.

Studies that examined LC in older adults showed that advanced age was linked to increasing belief in external factors regulating life events when facing stress (Derks, De Leeuw, Hordijk, & Winnubst, 2005), and that older adults tend to use more external LC, especially in various health-related stress situations (e.g., Derks et al., 2005). Research findings suggest that with aging, the sense of control declines (Lachman, Neupert, & Agrigoroaei, 2011; Mirowsky & Ross, 2007), perhaps because of the uncontrollable changes older adults experience. With age, individuals experience a loss of perceived control associated with increasing acknowledgment of the constraints and limitations imposed by uncontrollable factors. They also experience a reduced connection between actions and outcomes. The differences in beliefs about the locus of control with age seem to occur mainly because older adults experience fewer

opportunities for control and more situations in which control is limited (Lachman et al., 2011; Lachman & Firth, 2004). The literature dealing with risk for suicide and its relation to LC in older adults is scarce. One study (Malfent, Wondrak, Kapusta, & Sonneck, 2010) found that older adults who displayed suicidal ideation had more external LC, whereas those who did not had more internal LC. The present study examined whether internal LC can serve as a protective factor in older adults at high risk for suicide.

Current research aim and hypotheses

The present study argues that many seniors, especially the older ones, find their lives not to be meaningful both because of physical or mental impairments and because of the loss of friends and spouses, leading to a high level of depression and risk for suicide and that older adults tend to use more external LC. We chose purpose in life (or meaning in life) and LC as protective factors against the high risk or high potential for suicide in older adults given that the research literature found that both serve as protective factors for various populations (Lefcourt, 2014; Mohseni, Iranpour, Naghibzadeh-Tahami, Kazazi, & Borhaninejad, 2019; Thorne & Ebener, 2018). The aim of the current research was to examine whether these factors can serve as protective factors and reduce the risk or the potential for suicide in older adults. The innovation of this research lies in examining the combination of these two variables and whether PIL mediates between them, as a protective factor against the risk for suicide.

Based on the review of the literature and existing research, our research hypotheses are as follows:

H1: There is a significant positive association between internal LC and purpose in life (PIL).

H2: There is a significant negative association between internal LC and risk for suicide (Index of Potential Suicide) (overall score and the dimensions of anxiety and emotional state).

H3: There is a significant negative association between PIL and risk for suicide (IPS) (overall score and the dimensions of anxiety and emotional state).

Finally, the literature review indicates that LC is associated with PIL and that PIL is associated with risk for suicide (IPS). Therefore, we hypothesize that:

H4: PIL mediates the relationship between LC and the risk for suicide (IPS).

Method

Participants and procedure

The study included 195 older adults, men and women, mostly Jewish (98%), from Israel. They ranged in age from 65 to 100 years ($M = 77.26$, $SD = 8.43$).

The researchers approached several nursing homes and assisted living facilities for permission to carry out the study. Cooperation was partial; we gained access to seven nursing homes and assisted living facilities that agreed to participate (five nursing homes refused to participate). The research assistants contacted the nursing homes residents and asked for participants using the snowball method, with several of the participating older adults referring others in the nursing home. The research assistants also contacted community-dwelling older adults, using the snowball method. They approached older adults in their community based on personal relationships, and asked them to refer additional older adults to the study. They also approached some individuals from the community organization of the older adults. We used validated Hebrew versions of all the questionnaires. The questionnaires were administered only to independently functioning older adults residents, who agreed to participate. Older adults who were dependent or not functioning were excluded from the study. The questionnaires were administered by research assistants, in coordination with the managers of the nursing homes and assisted living facilities. The research assistants were trained by the researchers. All participants signed an informed consent form after the purpose of the study was explained to them, stating that they agreed to participate in the study, and were assured that they could stop participation at any stage that they would remain anonymous, and that the study was conducted for research purposes only. An ethics approval was received by the Ethics Review Board of Ariel University, No. AU-YA-20170911.

Instruments

Demographic variables

Participants were asked to provide information about their gender, age, family status, education level, country of birth, religiosity, and number of children.

The Israeli index of potential suicide. To predict suicide attempts, we used the Israeli version (IIPS; Bar-Joseph & Tzuriel, 1985, 1990) of the Index of Potential Suicide (IPS; Zung, 1974). IIPS includes three factors: depression (10 items), anxiety (5 items), and emotional state (sense of guilt and anger) (6 items). Participants ranked the items on a 6-point Likert scale, ranging from 1 (never) to 6 (very often). High scores indicate a high suicide potential. The initial internal consistencies in this study were: depression $\alpha = .84$, anxiety $\alpha = .79$, and emotional

state $\alpha = .47$. To improve the internal consistency of the “emotional state” factor, we conducted a factor analysis and excluded two items from the subscale. Following this process, α for emotional state was .90.

The Israeli version includes only those items from the original IPS that discriminate significantly between suicidal and non-suicidal groups. The IIPS includes 21 items adapted for age (young as well as old people) and cultural differences. The original version of this questionnaire contained seven items that directly addressed risk for suicide, however, since it is possible to examine risk for suicide without these items, they were removed from the Hebrew version. The shorter version is more suitable for sensitive populations who may be negatively affected by reading items describing suicidal tendencies (Bar-Joseph & Tzuriel, 1985). The inter-correlations between the subscales (depression, anxiety, and emotional state) were $r = .46$, $r = .56$, and $r = .70$ ($p < .001$). Because of the low internal consistency for emotional state, and the high inter-correlations between the subscales, a principal component factor analysis was conducted with the 21 items. Varimax rotation and Eigenvalues greater than 1 were used. Two items were first excluded because of low communalities (0.29 and 0.17), and the analysis was recalculated. Two factors have emerged. The first factor centered on emotional state, and contained 11 items (Eigenvalue = 6.81, 35.83% of the variance), describing anxiety, guilt and anger, for example, “I have moments of rage and loss of control” and “I’m falling apart.” Internal consistency was good: $\alpha = .90$. The second factor centered on depression, and contained eight items (Eigenvalue = 3.32, 17.45% of the variance), for example, “I don’t enjoy doing things I used to” and “I feel that with time things won’t improve.” Internal consistency was good: $\alpha = .89$. Internal consistency for the total score was $\alpha = .90$, and the correlation between the two factors was $r = .33$ ($p < .001$). Both factors and the total score were computed as item means, with higher scores reflecting greater risk for suicide.

The locus of control questionnaire. (Rotter, 1966) measures the belief that rewards stem from one’s behavior (internal LC) or from external forces over which one has no control (external LC). The questionnaire consists of 12 statements, representing faith in external or internal LC in a wide range of situations, including interpersonal ones. Rotter (1966) reported the reliability of the questionnaire to be in the range of 0.49– 0.83 on different tests, depending on the nature of the sample. In a reliability test using the split-half method, a correlation of 0.73 was obtained. Rotter (1966) explained the relatively low internal reliability of the questionnaire by the fact that the items were derived from different universes of content. Higher scores represent higher internal LC. Internal consistency for the present sample was low ($\alpha = .60$).

The purpose in life test. (PIL; Crumbaugh and Maholick (1981) tests the perception of the world as coherent, understandable, and purposeful. The questionnaire consists of 18 items and was found to have discriminant validity between psychiatric and normative populations. Each item is a statement, and participants indicate the extent to which it characterizes them. Responses are provided on a 6-point scale, ranging from 1 (low PIL) to 6 (high PIL). The 18 scores are averaged, with a higher score indicating higher PIL. The internal reliability was high (.86). We found good internal consistency for the present sample ($\alpha = .93$).

Data analysis

Data were analyzed with SPSS ver. 25. First, we calculated means, standard deviations, and Pearson correlations for the study variables. We used a series of t-tests to analyze gender differences, marital status differences, education differences, and differences in the way of living for the study variables. We calculated Pearson correlations between the study variables and age, and multiple hierarchical regressions to assess the contribution of purpose in life and LC to risk for suicide beyond gender, age, marital status, and education level. We entered demographic variables at step 1 and purpose in life and LC at step 2. We examined the extent to which purpose in life mediates the relationship between LC and risk for suicide with the PROCESS procedure of SPSS (Hayes, 2018), controlling for gender, age, marital status, and education level.

Results

Descriptive results

Most of the participants were female ($N = 123$, 63.1%). Close to half the older adults were widowed ($N = 89$, 45.6%), the others were generally married ($N = 82$, 42.1%). Almost all had children ($N = 181$, 92.8%). About a half had a high-school education ($N = 90$, 46.2%), others generally higher or academic education ($N = 78$, 40.0%). About 40% were secular ($N = 82$, 42.1%), the others somewhat religious ($N = 56$, 28.7%) or religious ($N = 54$, 27.7%). Ninety-one participants (46.7%) lived in the community and 104 (53.3%) in assisted living facilities. These variables are partially similar to the data on the older adults in the general population in Israel. For example, 59% of the older adults in the general population are married, 92% are Jewish, 51% have a high-school education, and approximately 60% are female (Central Bureau of Statistics, 2019).

Average risk for suicide was below the mid-scale, and average PIL was above the mid-scale. Average LC was at about mid-scale (Table 1). Significant correlations were found between the study variables. Risk for suicide correlated negatively mainly with PIL, whereas PIL and LC were positively correlated.

Table 1. Means, standard deviations, and correlations between study variables ($N = 195$).

	<i>M</i> (<i>SD</i>)	2.	3.	4.	5.
1. Risk of suicide, total score (1–6)	2.67 (0.80)	.76***	.86***	–.78***	–.48***
2. Risk of suicide, depression (1–6)	2.89 (1.03)		.33***	–.58***	–.43***
3. Risk of suicide, emotional state (1–6)	2.52 (0.94)			–.69***	–.38***
4. Purpose in life (1–6)	4.15 (0.97)				.53***
5. Locus of control (1–5)	3.26 (0.45)				

*** $p < .001$

Gender was found to be significant regarding PIL, with women scoring higher than men ($M = 4.26$, $SD = 0.85$ vs. $M = 3.94$, $SD = 1.10$, $t(113.70) = 2.12$, $p = .036$). Age correlated positively with risk for suicide (total score $r = .40$, depression $r = .35$, emotional state $r = .31$, $p < .001$), and negatively related to PIL ($r = -.38$, $p < .001$), and LC ($r = -.31$, $p < .001$). In other words, the older the individuals were, the higher was their risk for suicide, and the lower their PIL and internal LC.

Marital status was found to be significant as well. Married older adults scored lower on risk for suicide than others ($M = 2.37$, $SD = 0.70$ vs. $M = 2.89$, $SD = 0.81$, $t(188) = 4.61$, $p < .001$). They also scored higher on PIL ($M = 4.53$, $SD = 0.80$ vs. $M = 3.88$, $SD = 0.99$, $t(188.86) = -5.01$, $p < .001$) and on internal LC ($M = 3.43$, $SD = 0.46$ vs. $M = 3.15$, $SD = 0.41$, $t(184) = -4.35$, $p < .001$) than did the unmarried older adults (mostly widowed).

Academic education was a significant factor in risk for suicide. Older adults with academic education scored lower than those with high-school education ($M = 2.31$, $SD = 0.70$ vs. $M = 2.89$, $SD = 0.81$, $t(164) = 4.88$, $p < .001$). Older adults with academic education also scored higher on PIL ($M = 4.62$, $SD = 0.78$ vs. $M = 3.79$, $SD = 1.00$, $t(163.98) = -6.03$, $p < .001$) and on internal LC ($M = 3.42$, $SD = 0.48$ vs. $M = 3.10$, $SD = 0.36$, $t(138.94) = -4.66$, $p < .001$) than did those with high-school education. Finally, religiosity was unrelated to any of the study variables.

Of the participants, 91 (46.7%) lived in the community, and 104 (53.3%) in assisted living facilities. A higher percentage of the participants in assisted living facilities were widowed (60% vs. 31%, $\chi^2(2) = 31.59$, $p < .001$), and had a high-school education (62% vs. 42%, $\chi^2(2) = 9.17$, $p = .010$), rather than higher or academic education. These participants were also older on average ($M = 81.61$, $SD = 7.39$) than those living in the community ($M = 72.58$, $SD = 6.84$) ($t(193) = 8.69$, $p < .001$). Participants living in the community reported higher internal LC and PIL ($M = 3.42$, $SD = 0.42$; and $M = 4.57$, $SD = 0.70$, respectively) than did those in assisted living facilities ($M = 3.13$, $SD = 0.43$; and $M = 3.78$, $SD = 1.01$, respectively), and lower risk for suicide ($M = 2.47$, $SD = 0.67$; and $M = 2.93$, $SD = 0.77$) ($t(193) = 4.72$; 6.36, and -4.40 , respectively, $p < .001$). Because the relevant demographic variables (gender, age, marital status, education level)

associated with the study variables also differentiated between participants living in the community and those in assisted living facilities (with the exception of gender), their inclusion as control variables during the first step of the regression and PROCESS models also controlled for participants' way of living. Thus, differences between older adults living in the community and in assisted living facilities were controlled for by controlling for gender, age, marital status, and education level.

Main results

Three multiple hierarchical regressions were conducted to assess the contribution of PIL and LC to risk for suicide, beyond gender, age, marital status, and education level (Table 2). In other words, we calculated three two-step regressions, (a) for the total score, (b) for depression, and (c) for emotional state – as dependent variables. In each regression, demographic variables were entered at step one, and PIL and LC at step two.

Results show that all three regression models, predicting the total score of risk for suicide and its dimensions, were significant, explaining 41% to 66% of the variance. In all three regressions, the demographic variables were significant in the first step but lost their significance after PIL and LC were entered. PIL negatively and significantly explained the total score of risk for suicide and its dimensions, whereas the contribution of LC was not significant.

We examined the extent to which PIL mediates the relationship between LC and risk for suicide using the PROCESS procedure (Hayes, 2018), controlling for gender, age, marital status, and education level (Table 3). Results reveal significant mediation in all cases, so that a more internal LC is related to higher PIL, which in turn is related to lower risk for suicide on the total score and the two dimensions.

Table 2. Multiple hierarchical regressions predicting risk of suicide ($N = 195$).

	Risk of suicide		
	Total score β (SE)	Depression β (SE)	Emotional state β (SE)
Step 1			
Gender	.14 (0.12)*	.07 (0.16)	.16 (0.14)*
Age	.26 (0.01)**	.23 (0.01)**	.21 (0.01)*
Marital status	-.21 (0.13)**	-.23 (0.18)**	-.13 (0.16)
Education level	-.28 (0.12)***	-.15 (0.16)*	-.30 (0.14)***
Adj. R^2	.28***	.18***	.21***
Step 2			
Gender	-.02 (0.09)	-.05 (0.14)	.01 (0.12)
Age	.05 (0.01)	.07 (0.01)	.02 (0.01)
Marital status	-.07 (0.09)	-.12 (0.16)	-.01 (0.13)
Education level	-.01 (0.09)	.07 (0.15)	-.07 (0.12)
Purpose in life	-.73 (0.05)***	-.52 (0.09)***	-.67 (0.07)***
Locus of control	-.07 (0.10)	-.14 (0.17)	-.01 (0.14)
Adj. R^2	.66***	.41***	.50***
$F(6, 188)$	49.23***	18.78***	25.78***

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 3. Mediation analyses for risk of suicide, purpose in life, and locus of control ($N = 195$).

Dependent variable (DV)	Independent variable (IV)	Mediator	IV to mediator B (SE)	Mediator to DV B (SE)	Mediation effect B (SE) (95% CI)	Z
Total score	Locus of control	Purpose in life	0.77*** (0.15)	-0.60*** (0.05)	-0.46 (0.10) (-0.62, -0.30)	4.67***
Depression				-0.54*** (0.09)	-0.42 (0.11) (-0.60, -0.25)	3.93***
Emotional state				-0.64*** (0.07)	-0.49 (0.11) (-0.68, -0.31)	4.39***

*** $p < .001$

Discussion

The objective of the present study was to examine whether purpose in life (or meaning in life) and LC can serve as protective factors against the risk or the potential for suicide in older adults.

As was hypothesized, we found a negative correlation between PIL and risk for suicide (in the overall score and in its two dimensions: anxiety and emotional state), so that the higher the level of PIL, the lower the risk for suicide was. This finding is consistent with the research literature, according to which people with a sense of PIL are less likely to display risk behaviors, including suicidal ideation (Aviad-Wilchek, 2021; Aviad-Wilchek & Ne'eman-Haviv, 2018; Brassai, Piko, & Steger, 2012). This result shows that meaning in life provides strength and a reason for coping, despite hardship and suffering, as Frankl (1984) explained.

Furthermore, we found a negative correlation between internal LC and the risk for suicide (in the overall score and in its two dimensions: anxiety and emotional state), so that the more internal the LC was, the lower the risk for suicide was. The literature review shows that individuals with internal LC make greater efforts to succeed than do individuals with external LC, because they believe that success and failure depend only on them (Lefcourt, 2014; Ryon & Gleason, 2014). This relationship was found to be relevant for the general population, and the present study proved that it also holds for older adults.

A third finding of the study is the presence of a positive correlation between internal LC and the level of PIL. As we hypothesized, people who have internal LC believe that they cause the results of their actions and therefore make active efforts to find meaning in their lives (Frankl, 1984).

Additional findings of the study, which support and help explain the relationship between LC and PIL and a decrease in the risk for suicide, have shown that age and marital status have a negative effect both on the participants' LC and PIL, and on their risk for suicide. This means that the older the adult population is, and to the extent that their family is no longer intact, their LC increases, PIL drops, and risk for suicide increases.

This finding can be understood with reference to the severe losses that older adults may have experienced: loss of friends, spouses, as well as physical and mental abilities. These significant losses make them feel that they have been left without a supportive social environment and have lost their independence, becoming more dependent on others (Aharon, 2015; Lachman et al., 2011; Mirowsky & Ross, 2007). The sense of dependence leads to severe feelings of trouble and burden on family members, and to the thought that life, for them, has lost its meaning (Aharon, 2015).

Furthermore, because of their reduced physical and mental state, many older adults, especially unmarried ones, display a sense of absence of meaning in life (Aharon, 2015). Kekes (1986) pointed to two possible obstacles to achieving a meaningful life: personal (internal disharmony) and environmental (brutal life circumstances leading to frustration and indifference). The death of a spouse or close friends may lead to internal disharmony and even to frustration and indifference. Thus, a situation of external LC on the one hand, and a sense of existential emptiness on the other, increases the risk for suicide, as shown above.

In sum, despite the findings indicating differences based on the independent variables of the study (age, sex, and education), the proposed protective factors, LC and PIL, were found to be applicable to all participants. PIL mediated between internal LC and the risk for suicide (in the overall score and in the two dimensions of suicide) in older adults, a population with a high potential for suicide (WHO, 2017).

The present study has several limitations. It did not distinguish between different groups of older adults, such as the childless vs. those with families, the lonely vs. those surrounded by friends, independent ones vs. those requiring nursing care, and more. In addition, the snowball sampling method limited the representativeness of the results. Combining residents of nursing homes and assisted living facilities with community-dwelling elders may also limit the degree to which the sample was representative of the general population. Furthermore, internal consistency for internal LC was low. Despite these limitations, the study made important contributions to both theory and practice. The model identified protective factors that can be used against the risk or the potential for suicide of older adults, and increase their meaning in life. The protective factors proposed here can be used by care and prevention workers to reduce the risk for suicide in older adults, reducing the distress of this population and enabling the state to meet its obligations to its older citizens. Follow-up studies should examine these factors in various groups and seek other variables that may help social services assist in reducing the risk for suicide in older adults.

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Disclosure statement

No potential conflict of interest was reported by the author(s).

Notes on contributors

Yael Wilchek-Aviad PhD, is the Deputy Head of the Department of Criminology at Ariel University. Her research focuses on: Violence Against Men, Parental Alienation and Meaningful Life.

Keren Cohen-Louck, PhD, is a senior lecturer in the Department of Criminology at Ariel University. Her main research interests are the effects of mass trauma (e.g., terrorism, COVID-19 pandemic) and coping with stressful situations.

ORCID

Yael Aviad  <http://orcid.org/0000-0002-7364-6182>

References

- Aharon, O. (2015). *Suicide and its significance for the old man and his family* (PhD thesis). Israel, Haifa University, Haifa, (Hebrew).
- Aviad- Wilchek, Y. (2014). Meaning in life and suicidal tendency among immigrant (Ethiopian) youth and native-born Israeli youth. *Journal of Immigrant and Minority Health, 17*(4), 1041–1048. doi:10.1007/s10903-014-0028-5
- Aviad-Wilchek, Y. (2021). Locus of control and the meaning of life as a salutogenic model that reduces suicidal tendencies in patients with mental illness. *Current Psychology, 40*(2), 465–474. doi:10.1007/s12144-018-0122-2
- Aviad-Wilchek, Y., & Ne’eman-Haviv, V. (2018). Connection between the sense of meaning in life and suicidal tendencies among teenage girls in distress compared with ‘normative’ teenage girls. *International Journal of Offender Therapy and Comparative Criminology, 62* (6), 1474–1487. doi:10.1177/0306624X16684566
- Aydin, I., Algin, A., Poyraz, M. K., & Kalenderoglu, A. (2018). An analysis with rotter internal-external locus of control scale, rosenberg self-esteem scale, and the Barratt impulsivity scale on patients who attempted to recurrent suicide. *Eurasian Journal Ofemergency Medicine, 17*(3), 109–112. doi:10.5152/eajem.2018.39306
- Baek, J. H., Park, J. I., Ahn, J., Roh, S. W., Heo, J. Y., Fava, M., . . . Jeon, H. J. (2015). Review of suicide prevention programs: Massachusetts, United States, in comparison with Seoul. *Psychiatry Investigation, 12*(3), 281–287. doi:10.4306/pi.2015.12.3.281
- Barak, Y., Olmer, A., & Aizenberg, D. (2006). Antidepressants reduce the risk of suicide among elderly depressed patients. *Neuropsychopharmacology, 31*(1), 178–181. doi:10.1038/sj.npp.1300863

- Bar-Joseph, H., & Tzuriel, D. (1985). *Israeli index of suicide potential*. Ramat-Gan, Israel: Bar-Ilan University, Department of Psychology.
- Bar-Joseph, H., & Tzuriel, D. (1990). Suicidal tendencies and ego identity in adolescence. *Adolescence*, 25(97), 215–223.
- Brassai, L., Piko, B. F., & Steger, M. F. (2012). Existential attitudes and eastern European adolescents' problem and health behaviors: Highlighting the role of the search for meaning in life. *The Psychological Record*, 62(4), 719–734. doi:10.1007/BF03395831
- Canetto, S. S. (2017). Suicide: Why are older men so vulnerable? *Men and Masculinities*, 20(1), 49–70. doi:10.1177/1097184X15613832
- Central Bureau of Statistics. (2019). *International day of senior citizen's day selected data on various topics regarding Israeli senior citizens aged 65 and over*. Jerusalem, Israel. [Hebrew].
- Conejero, I., Olié, E., Courtet, P., & Calati, R. (2018). Suicide in older adults: Current perspectives. *Clinical Interventions in Aging*, 13, 691–699.
- Crocker, L., Clare, L., & Evans, K. (2006). Giving up or finding a solution? The experience of attempted suicide in later life. *Aging & Mental Health*, 10(6), 638–647.
- Crumbaugh, J. C., & Maholick, L. T. (1981). *PIL [Purpose in life test]*. Abilene, Texas: Viktor Frankl Institute of Logotherapy.
- Derks, W., De Leeuw, J. R. J., Hordijk, G. J., & Winnubst, J. A. M. (2005). Differences in coping style and locus of control between older and younger patients with head and neck cancer. *Clinical Otolaryngology*, 30(2), 186–192.
- Figueiredo, A. E. B., da Silva, R. M., Vieira, L. J. E. S., Mangas, R. M. N., de Sousa, G. S., Freitas, J. S., . . . Sougey, E. B. (2015). Is it possible to overcome suicidal ideation and suicide attempts? A study of the elderly. *Ciencia & Saude Coletiva*, 20(6), 1711–1719. doi:10.1590/1413-81232015206.02102015
- Frankl, V. E. (1984). *Man's search for meaning*. New York, NY: Washington Square Pr.
- Frankl, V. E. (2000). *Man's search for ultimate meaning*. New York, NY: MJF Books.
- Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional process analysis* (2nd ed.). New York, NY: The Guilford Press.
- Heisel, M. J., & Flett, G. L. (2008). Psychological resilience to suicide ideation among older adults. *Clinical Gerontologist*, 31(4), 51–70. doi:10.1080/07317110801947177
- Hobfoll, S. E., Johnson, R. J., Ennis, N., & Jackson, A. P. (2003). Resource loss, resource gain, and emotional outcomes among inner city women. *Journal of Personality and Social Psychology*, 84(3), 632–643. doi:10.1037/0022-3514.84.3.632
- Kekes, J. (1986). The informed will and the meaning of life. *Philosophy and Phenomenological Research*, 47(1), 75–90. doi:10.2307/2107725
- Kim, Y. (2014). Understanding the life experiences of older adults in Korea following a suicide attempt. *Qualitative Health Research*, 24(10), 1391–1399. doi:10.1177/1049732314547643
- Kjølseth, I., Ekeberg, Ø., & Steihaug, S. (2010). Why suicide? Elderly people who committed suicide and their experience of life in the period before their death. *International Psychogeriatrics*, 22(2), 209–218.
- Kleiman, E. M., & Beaver, J. K. (2013). A meaningful life is worth living: Meaning in life as a suicide resiliency factor. *Psychiatry Research*, 210(3), 934–939. doi:10.1016/j.psychres.2013.08.002
- Koo, Y. W., Kölves, K., & De Leo, D. (2017). Suicide in older adults: A comparison with middle-aged adults using the queensland suicide register. *International Psychogeriatrics*, 29(3), 419–430.
- Lachman, M. E., Neupert, S. D., & Agrigoroaei, S. (2011). The relevance of control beliefs for health and aging. In K. W. Ahai & S. L. Willis (Eds.), *Handbook of the psychology of aging* (pp. 175–190). Cambridge, Massachusetts: Academic Press.

- Lefcourt, H. M. (Ed.). (2014). *Locus of control: Current trends in theory & research*. New York, NY: Psychology Press.
- Malfent, D., Wondrak, T., Kapusta, N. D., & Sonneck, G. (2010). Suicidal ideation and its correlates among elderly in residential care homes. *International Journal of Geriatric Psychiatry, 25*(8), 843–884.
- Mirowsky, J., & Ross, C. E. (2007). Life course trajectories of perceived control and their relationship to education. *American Journal of Sociology, 112*(5), 1339–1382. doi:10.1086/511800
- Mogensen, H., Möller, J., Hultin, H., & Mittendorfer-Rutz, E. (2016). Death of a close relative and the risk of suicide in Sweden—a large scale register-based case-crossover study. *PloS One, 11*(10), e0164274. doi:10.1371/journal.pone.0164274
- Mohseni, M., Iranpour, A., Naghibzadeh-Tahami, A., Kazazi, L., & Borhaninejad, V. (2019). The relationship between meaning in life and resilience in older adults: A cross-sectional study. *Health Psychology Report, 7*(2), 133–138. doi:10.5114/hpr.2019.85659
- Purcell, B., Heisel, M., Speice, J., Franus, N., Conwell, Y., & Duberstein, P. R. (2012). Family connectedness moderates the association between living alone and suicide ideation in a clinical sample of adults 50 years and older. *American Journal of Geriatric Psychiatry, 20*, 717–723.
- Rotter, J. B. (1966). Generalized expectancies for internal versus external control reinforcement. *Psychological Monographs, 80*(1), 1–28. doi:10.1037/h0092976
- Rurup, M. L., Pasma, H. R., Goedhart, J., Deeg, D. J., Kerkhof, A. J., & Onwuteaka-Philipsen, B. D. (2011). Understanding why older people develop a wish to die: A qualitative interview study. *Crisis, 32*(4), 204–216.
- Ryon, H. S., & Gleason, M. E. (2014). The role of locus of control in daily life. *Personality & Social Psychology Bulletin, 40*(1), 121–131. doi:10.1177/0146167213507087
- Tas, I., & İskender, M. (2018). An examination of meaning in life, satisfaction with life, self-concept and locus of control among teachers. *Journal of Education and Training Studies, 6*(1), 21–31. doi:10.11114/jets.v6i1.2773
- Testoni, I., Sansonetto, G., Ronconi, L., Rodelli, M., Baracco, G., & Grassi, L. (2018). Meaning of life, representation of death, and their association with psychological distress. *Palliative & Supportive Care, 16*(5), 511–519. doi:10.1017/S1478951517000669
- The Ministry of Health in Israel. (2018). Suicide in Israel. Jerusalem, Israel: Ministry of Health Retrieved from https://www.health.gov.il/PublicationsFiles/loss_2018.pdf
- Thorne, K., & Ebener, D. (2018). Locus of control as a mediator between posttraumatic stress and suicide risk: Rural implications. *Rural Society, 27*(3), 208–223. doi:10.1080/10371656.2018.1504759
- World Health Organization (WHO). (2017). *Depression and other common mental disorders: Global health estimates*.
- Yur'yev, A., Leppik, L., Tooding, L. M., Sisask, M., Värnik, P., Wu, J., & Värnik, A. (2010). Social inclusion affects elderly suicide mortality. *International Psychogeriatrics, 22*, 1337–1343.
- Zung, W. K. (1974). Index of potential suicide (IPS). A rating scale for suicide prevention. In A. T. Beck., H. L. Resnik., & D. J. Lettieri (Eds.), *The prediction of suicide* (pp. 221–249). USA, Maryland: Charles Press.