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JOURNAL OF DEPRESSION THERAPY
ISSN NO: 2476-1710

Research Article
DOI : 10.14302/issn.2476-1710.JDT-16-1306

"On The Road To A Better Life": An Innovative Suicide Prevention Program Based On The Realization Of Meaningful Personal Goals

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Abstract

Background. Suicide prevention programs centred on reinforcing protective factors are uncommon. Aims. Since leading a meaningful life is incompatible with suicide, a 14-week program designed to help participants realize meaningful personal goals was created to improve the psychological well-being (PWB) of depressed older adults (≥ 65 years).

Method. Persons scoring 9 or above on the Beck Depression Inventory- II (M = 22.05) took part in the program (n = 24). Their levels of PWB, depression, and suicidal thoughts were compared to those of a control group (n = 18). The questionnaires were completed three times: pre-test, post-test, and follow-up (six months later).

Results. Analyses showed that the program participants improved significantly on most indicators of well-being, including suicidal ideation, indicating that increasing protective factors could be an innovative way to prevent suicidal ideation. However, the changes were not significantly higher than those observed in the control group, except for meaning in life.

Conclusions. The absence of difference between groups was partly justified by unexplained improvements of controls between post-test and follow-up. Future studies should develop suicide prevention program that increase protective factors that provide individuals with means to achieve an optimal state of functioning.

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Key words:

protective factors, suicidal ideation, intervention program, older adults, meaning in life, depression, mental health promotion, personal goals.

Received : Oct 12, 2016; **Accepted:** Dec 23, 2016; **Published:** Jan 20, 2017;

Introduction

In one of his famous quotes, Albert Einstein once pointed out the potential of goals for the enhancement of well-being: "If you want to live a happy life, tie it to a goal, not to people or things" [1, p. 31]. Since then, research in the field of motivation has presented strong theoretical and empirical foundations for the association between striving for personally relevant intrinsic goals and psychological well-being [2, 3, 4, 5, 6, 7, 8]. Longitudinal studies and path analyses have indicated that personal commitment to the pursuit of personal goals predicts psychological well-being (PWB) [9, 10]. Furthermore, people can achieve sustainable gains in happiness, and generate positive experiences, by setting new goals and intentionally changing their actions (with efforts and engagement), instead of waiting for changes in their life circumstances [11].

However, when important obstacles (real or perceived) make the goal hard to achieve and the person's efforts are in vain, a state characterized by disorganization, discouragement, and helplessness is observed [12]. The duration of this state depends on the importance and the value given to the goal. Brandtstädter [12] found that difficulty in shifting from tenacity (persistent effort to modify current situation to reach a goal) to flexibility (relinquishing blocked goals and changing one's aspirations) seemed to predict depression. Other studies have also shown that disengagement from unattainable goals and reengagement in more satisfying, feasible, alternative goals were associated with a high level of subjective well-being and attenuated depression when facing negative life events [13, 14, 15]. More precisely, goal disengagement capacities can reduce psychological distress, while goal reengagement capacities are associated with positive affect and purpose in life [16].

Attitude toward the future and the regulation of unattainable goals have been studied in the context of suicide risk. Hopelessness (pessimism toward the future) has been consistently predicting suicidal ideation and behavior [17, 18, 19], while hope and meaning in life seemed to serve as protective factors [20, 21]. Moreover, low levels of positive future thinking, rather than the preponderance of negative future thinking, were a better predictor of suicidal ideation than hopelessness, in patients who had attempted suicide [22, 23]. Additionally, suicidal ideation were significantly higher 2.5 months after a suicide attempt among persons who reported difficulties to reengage in new goals when those they were pursuing were unobtainable [24]. The relationship with suicidal ideation is particularly strong in those who reported low levels of goal reengagement coupled with high levels of goal disengagement [24]. Furthermore, difficulty reengaging in new goals independently predicted self-harm (by overdose) two years after a suicide attempt, in another sample of patients [25].

These results provide interesting options for suicide prevention and intervention. Helping people who lost interest in life engage in new personal projects that offer meaning to their life could be an innovative prevention strategy [23, 24, 25, 26]. This is especially important in old age when illnesses or disability make goals unattainable, and consequently increase the wish to die and suicidal ideation [27, 28].

Brief interventions that target goal-setting and planning have been created to improve well-being [9, 29, 30], but those designed to prevent suicidal ideation are uncommon, especially for older adults [31]. In fact, most suicide prevention programs are centered on the reduction of risks factors and not on strengthening protective factors [31].

However, one program has emphasized the development of meaning in life by helping participants set, plan, pursue, and realize meaningful, concrete personal goals [26]. Although this 11-week group workshop was not designed with suicide prevention in mind, nor was it offered to a suicidal population, the analyses of data from 21 retirees expressing suicidal ideation (from a sample of 354 retirees) showed statistically significant differences between the experimental and control groups. By the end of the program, suicidal retirees in the experimental group (n = 10) had improved significantly more than those in the control group (n = 11) on PWB and their levels of depression and psychological distress significantly decreased. These gains were maintained six months

later. Although interesting, the results from this study had some limitations. To be confirmed as an innovative approach for suicide prevention, it needed validated suicidal ideation questionnaires to evaluate the outcome variable. Also, since the group intervention format could be adding some protection against suicide [32], the research should have evaluated the effect of the program on social variables, such as loneliness or relatedness.

The objective of the present research was to replicate the study design of Lapierre et al. [26] with a sample of depressed older adults aged 65 and over, since depression is a high risk factor for suicide in old age [33], and also to extend the list of outcome variables by adding some measures of affiliation and suicidal ideation. Since this type of intervention had never been offered to depressed individuals, we primarily wanted to see if the goal management program could be useful to them.

First, it was hypothesized that PWB (measured by several indicators) and social abilities of the participants in the goal intervention program would improve statistically, compared to pre-test levels, and that their levels of depression and suicidal ideation would decrease statistically.

Second, it was essential to compare the PWB of the participants in the intervention group to that of a control group who did not take part in the program. It was hypothesized that the participants in the goal management workshop would improve beyond the controls on all measures.

Method

Procedure

Participants were eligible if they were aged 65 years or above, and scored 24 or higher on the Mini Mental State Examination [34], indicating that they probably had no serious cognitive problems [35], so they could take part in the study. Participants should also score 9 or higher on the Beck Depression Inventory -II [36], indicating minimal, mild, moderate, or severe depression.

Participants were not assigned randomly to either group, because, in previous studies, controls on the waiting list had reactions that contaminated the results [9]. For example, some were frustrated about having to wait for the workshop, while others were looking forward to be involved in this activity. For the latter, this created a new aspiration that improved PWB. Therefore, to ensure that the controls did not know about the intervention, both groups were recruited separately. Depressive older adults for the control group were recruited six months later than the intervention group and invited though local newspapers to take part in a study on the evolution of their depressive state over time. They were given 50$ CDN if they completed all three time points evaluations.

Recruitment of participants in the intervention group was done through articles about depression in old age in local newspapers, inviting those who were in this state to engage in a workshop called "On the road to a better life", designed to help them improve the quality of their life. Some older adults were referred by low cost housing managers, who identified lonely and possibly depressed older adults. From the 55 respondents who wanted to engage in the program, 13 (8 men and 5 women) did not meet the selection criteria (age, depression score) and were excluded.

All participants were given information about the research process by the coordinator who organized an individual meeting, when each participant completed the consent form and the questionnaires for the first time (week prior to start of program for intervention group). All participants were then assessed two more times: at post-test (14 weeks after pre-test) and at follow-up (6 months after post-test).

Program "On the Road to a Better Life"

The personal goals management program, entitled "On the road to a better life" [37], included 14 two-hour weekly group meetings for 5 to 8 persons (outline of meetings shown in Appendix). The duration of the program was extended from its original 11-week format [9], and the number of participants in each group was lowered, to adapt it to the needs of depressed persons who require more time to talk about their

difficulties. The objective of the program was to help participants define their goals, as well as plan, and pursue effectively one meaningful, concrete personal project. On a higher level, it was hoped that they would learn the goal realization process so they could repeat it to attain other priorities and achieve lasting PWB. Based on a cognitive behavioral approach, this mental health promotion program is considered therapeutic, but not psychotherapy. The group format also helps create warm interpersonal relationships and mutual support during the pursuit of goals. Each group is conducted by doctoral students in psychology who were trained and supervised weekly by the clinicians who developed the program [37]. The group facilitators took notes after each session.

Participants

The intervention program was offered to 42 older adults. Fourteen dropped out of the program (9 after the first or second meeting; 5 after the third or fourth meeting). Reasons mentioned included that they did not identify with other depressed participants, that the program or group format was not for them, or that they had fallen behind in the "class" after having missed the content of the first meetings. Three participants completed only 6 to 8 meetings (because of illness or conflicting schedule), and 1 did not complete the follow-up questionnaires. Twenty-four (24) participants completed more than 12 meetings and persisted until follow-up. The control group included 29 respondents; 8 dropped off at post-test, and 3 more at follow-up. Eighteen completed all three time measurements.

There were significant difference on age ($t(40) = 2.89$, $p < .01$) and social desirability ($t(37.9) = 2.00$, $p < .05$) between those who dropped out of the program and those who persisted. Individuals who left the program were significantly older ($M = 73.2$) than those who persisted ($M = 68.6$) and they wanted to be seen in a positive light (social desirability: dropped out, $M = 9.17$ vs persistent, $M = 7.71$). As for the control group, those who dropped out were also significantly ($t(27) = 3.24$, $p < .01$) older ($M = 75.6$) than those who persisted ($M = 69.5$), and had a lower level of education ($t(27) = 2.18$, $p < .05$). There were no statistically significant differences on any psychological variables, between those who abandoned and those who persisted, in each group.

The final sample included 42 older adults aged from 65 to 84 years ($M = 71.9$; SD = 5.6), 24 in the intervention group (14 women; 10 men) and 18 in the control group (12 women; 6 men). Most of them (57.1%) were unmarried (33.3% divorced; 16.7% widowed; 7.1% single). The average level of education was 12.1 years (SD = 4). There were no significant differences between groups on age, level of education, marital status, gender, perception of health, or satisfaction with finances.

Four (9.5%) participants (3 in intervention group; 1 in control group) were pursuing an individual therapy, ten (23.8%, 5 in each group) were taking prescribed medication for depression and 17 (40.5%, 12 in the experimental group and 5 in the control group) were taking insomnia medication (information on type and dosage of medications was not available). Seven persons (16.7%; 5 in intervention group, 2 controls) said that they had tried to end their life in the past. No information is available on participants' past psychiatric history or traumatic events.

Measures

Each participant completed 13 questionnaires (14 with the MMSE) during an individual interview that lasted 90 minutes. The interview started with a general information questionnaire, followed by the MMSE, to ensure that participants had no cognitive problems and could take part in the study. Those who had a score below 24 on the MMSE were excluded from the study. Afterwards, they answered the Beck Depression Inventory-II (BDI-II) to confirm their eligibility to the study, and completed the other questionnaires if scores were within the required range. If not, they were thanked for their help and referred to other psychological resources by the research coordinator. Table 1 summarizes the main groups of measures that were used in the study.

Goal Related Variables

Four measures were used to establish the effect of the program on goal related variables. The Goal

Realization Process Questionnaire (GRP) [9] assessed one's perceived ability to set, plan, and pursue one's personal goals (30 items) using a 7-point Likert scale (1 = totally disagree; 7 = totally agree). The GRP had a high internal consistency (α = 0.91) with a sample of 354 retired adults. The State Hope Scale [38] evaluated two dimensions: determination to achieve one's goals, and ability to identify alternative ways to realize them. The six items were evaluated on a 4-point scale (1 = completely false; 4 = completely true); internal consistency was high (α = 0.91). The Tenacious Goal Pursuit (TGP) and Flexible Goal Adjustment (FGA) scales [39, 40] respectively measured tenacity (pursuing a goal with persistence) or flexibility (abandoning blocked goals and changing goal priorities). Each scale has 10 items, validated with a sample of 384 older adults [39]. Participants indicated if the statements applied to them on a 5-point Likert scale (0 = strongly disagree; 4 = strongly agree). Internal consistencies were 0.73 for the TGP and 0.75 for the FGA.

Positive Indicators of Well-Being

Four questionnaires evaluated various positive indicators of PWB, including social abilities. The Life Regard Index (LRI) [41] assessed meaning in life with 28 items evaluated on a 5-point Likert scale (1 =

Table 1. *Summary of main groups of measures and description of components of scale*

Goal related variables	**Description of components of scale**
Goal Realization Process Questionnaire-GRP/7	Ability to set, plan, and pursue personal goals
State Hope Scale/4	Determination to achieve goals and identification of alternative ways to reach them
Tenacious Goal Pursuit Scale-TGP/5	Persistence in goal pursuit
Flexible Goal Adjustment Scale-FGA/5	Disengagement with blocked goals or changing priorities
Positive indicators of well-being	
Life Regard Index-LRI/5	Meaning in life
Framework subscale/5	Seeing one's life positively and with some perspective
Fulfillment subscale/5	Perception of having fulfilled or in the process of fulfilling one's life-goals
Serenity Scale/5	Interior peace, trust in life, acceptation of what can't be changed
General Need Satisfaction Scale-GNS/7	Satisfaction with basic psychological needs
Autonomy/7	Choosing own actions in harmony with self
Competence/7	Feeling efficient
Relatedness/7	Establishing mutual caring alliances
Inclusionary Status Scale-IS/5	Feeling supported and included by others
Negative indicators of well-being	
Beck Depression Inventory-BDI-II/63	Depressive symptoms in the past two weeks
Geriatric Suicide Ideation Scale-GSIS	
Suicidal ideation	Wanting to end one's life
Perceived meaning in life	Having something to live for (reverse score)
Loss of Personal & Social Worth	Feeling like a burden to family
Death ideation	Drift off to sleep and never wake up
Beck Hopelessness Scale-BH/20	Negative beliefs about one's future
UCLA Loneliness Scale-LS/4	Feelings of solitude
Insomnia Severity Index-ISI/28	Nature, severity, and impact of insomnia

disagree; 5 = agree). It has two subscales of 14 items: Framework and Fulfillment. Framework measures the ability to see one's life positively and with some perspective, and to derive a set of life-goals. Fulfillment assesses the degree to which one considers having fulfilled or being in the process of fulfilling the life-goals. The index had very good test-retest reliability (r = .94) and the factorial analysis, with a sample of adults (M = 65.9 years), confirmed the two dimensions [42]. It had a high internal consistency (α = 0.91).

The Serenity Scale has 11 items that assessed, on a 5-point Likert scale (1 = never; 5 = always), the ability to find interior peace, to accept what can't be changed, and to trust in life [43]; internal consistency was good (α = 0.80). With the General Need Satisfaction Scale (GNS; [44]), participants indicated, on a 7-point scale (1 = not true at all; 7 = definitely true), the level of satisfaction of the three basic psychological needs: autonomy (choosing one's actions in harmony with self), competence (feeling efficient interacting with the environment), and relatedness (establishing mutual caring bonds and positive alliances). Internal reliability for the global scale was very good (α = .89), but varied between subscales (autonomy, 7 items = 0.69; relatedness, 6 items = 0.86; competence, 8 items = 0.71). It had never been used with older adults.

In addition to the Relatedness subscale of the GNS, another measure was used to evaluate social affiliation. The Inclusionary Status Scale (IS) contains nine items that assessed social inclusion, namely being supported and included by others [45]. Participants answered on a 5-point Likert scale (1 = not at all characteristic of me; 5 = extremely characteristic of me). Internal consistency was 0.80 with a sample of 150 undergraduates. It had never been used with older adults.

Negative Indicators of Well-Being

Five questionnaires measured negative indicators of PWB. The BDI-II, used to select the participants, assessed the presence of depressive symptoms in the past two weeks. The tool is based on the criteria found in the DSM-IV and consists of 21 items that were rated on a 4-point scale ranging from 0 to 3 [36]. Total raw scores can range from 0 to 63 and be converted into descriptive classifications based on cut scores (see Results for details). Internal consistency was good (α = 0.86) among older adults (M = 70.3 years) living in the community [46].

The Geriatric Suicide Ideation Scale (GSIS) was the measure chosen to evaluate suicide thoughts. It was developed for and validated with older adults over 65 years [47]. The 31 items, scored on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree), showed strong reliability (α = 0.93), as did the four subscales (α = 0.82 to 0.84) that assessed: Suicide Ideation, Death Ideation, Loss of Personal and Social Worth, and Perceived Meaning in Life (items with reverse score). Test-retest reliability (M = 52 days) with long-term care residents was also very good (r = 0.86 for the total scale, and 0.75 to 0.78 for the subscales).

The Beck Hopelessness Scale (BH) is a self-report instrument that consists of 20 true-false statements (scored 1-0) designed to assess the extent, during the past week, of negative beliefs concerning one's future and perceived inability to avert negative life occurrences [48]. Internal consistency varied from 0.82 to 0.93 across seven clinical samples [48], but was never validated with older adults from the community. Test-retest reliability was good for a short time interval (r = 0.81, 15 days), and modest for a longer period (0.66, six weeks).

The UCLA Loneliness Scale (LS) has 20 items describing specific feelings related to solitude [49]. Respondents indicated the frequency of these feelings on a 4-point Likert scale (1 = never; 4 = often). Validated with a sample of older adults [50], internal consistency was very good (α = .88) as well as test-retest reliability (r = .85, 8 weeks). The Insomnia Severity Index (ISI) assessed the nature, severity, and impact of insomnia [51]. It includes 7 items evaluated on a 5-point Likert scale (0 = not at all; 4 = extremely). Internal consistency was good (α = .76) with this population [51].

Statistical analyses

In order to verify the hypotheses, repeated measures of variance were done using SPSS Statistics 24. A statistical a priori power analysis was performed for sample size estimation, based on an effect size of 0.25, which is considered moderate using Cohen's (1988) criteria, an alpha of .01, and a power of 0.80. The sample size needed with this effect size (GPower 3.1) was approximately N = 40 for repeated measures between/within group comparisons. Therefore, our projected sample of 66 seemed to be adequate to detect the effect of the program and allowed for the expected attrition which led to a final sample of 42 participants.

Results

Preliminary analyses showed no significant difference between groups at pre-test on the inclusion variable of depression: The mean score of the intervention group was 21.1, and 23.3 in the control group ($t(40) = .88$, p = ns). In the sample (N = 42), scores on the BDI-II ranged from 9 to 39. According to the norms [36], depression was minimal (scores from 9 to 13) for 16.7% of the participants, mild (14 to 19) for 21.4%, moderate (20 to 28) for 42.9%, and severe (≥ 29) for 19%. Proportions were similar in both groups. It should be noted that 83.4% of the participants also suffered from insomnia, which is also a risk factor for suicide [52].

Other comparative analyses revealed significant differences between groups at pre-test for social inclusion ($t(40) = 4.77$, $p < .001$) and autonomy ($t(40) = 2.49$, $p < .05$), which were both higher in the intervention group. Also, controls were significantly lower on the GSIS meaning in life subscale ($t(40) = 10.48$, $p < .001$), and on the LS ($t(40) = 4.15$, $p < .001$). Essentially, at pre-test, depressed participants in the intervention group felt more included and supported by their social environment, and that they could decide and take charge of their life, while controls felt isolated and that their life lacked meaning. Table 2 presents the mean scores of each variable for each group.

The goal of this study was to verify if the personal goal realization program could improve the PWB of depressed participants. Therefore, we first looked at the results of repeated analyses of variance only for those in the intervention group (with the Greenhouse-Geisser correction after testing for Mauchly's sphericity test). Results showed that the first hypothesis was confirmed: Depressed older adults taking part in the program showed an improvement on most goal variables and PWB indicators at post-test. This improvement was maintained six months later (see Table 2). More precisely, there was a significant increase in participants' perceived ability to set realistic and concrete goals, to plan efficient means and concrete actions to achieve them, and to identify strategies to overcome obstacles (higher GRP scores). There was also an increase in their level of hope, especially their determination to move into action and their ability to find alternative means to reach their goals. Participants in the goal program also seemed to have satisfied two out of three basic psychological needs: they felt more competent to achieve desired outcomes, and felt related to others. Moreover, results suggest that the participants showed an increase in their level of serenity, indicating that they could accept what couldn't be changed, and did not let events influence their well-being. Higher scores on the LRI showed that they also felt that there was meaning to their life, that they saw life more positively, had clear objectives for living, and were fulfilling their life goals. Notably, there was a significant decrease in the levels of depression, insomnia, hopelessness, loneliness, and on the GSIS, especially on the sub-scales that depicted suicidal ideation, lack of meaning to life, and loss of personal worth. It should be noted that men seemed to improve as much as women, since there was no significant difference between genders.

The second hypothesis proposed that the participants to the goal intervention program would improve beyond the controls on PWB at post-test and follow-up. Gain scores were chosen to analyse the results because they provide an easy way to test whether a group improves or deteriorates between two measures [53]. Ancova (with pre-test scores as covariate) was rejected because it usually requires that covariate does not vary between groups, which is often a problem in non-equivalent group designs such as ours.

Table 2. *Means and standard deviations of variables for intervention and control groups (N = 42)*

	Intervention condition (n = 24)							Control group (n = 18)						
	Pre-test		Post-test		Follow-up		F	Pre-test		Post-test		Follow-up		F
	M	*SD*	*M*	*SD*	*M*	*SD*		*M*	*SD*	*M*	*SD*	*M*	*SD*	
Goal variables														
GRP/7	4.50	0.97	5.17[a]	0.76	5.05[b]	1.04	11.46***	4.33	1.09	4.73	1.21	4.95[b]	1.01	5.52**
Hope/4	2.85	0.48	3.25[a]	0.41	3.35[b]	0.42	13.39***	2.77	0.44	2.96	0.70	3.05[b]	0.55	5.39**
Tenacity/4	2.03	0.79	2.10	0.74	2.15	0.74	0.45	2.40	0.42	2.36	0.51	1.50	0.58	14.00***
Flexibility/4	2.68	0.52	2.79	0.44	2.88	0.45	2.73	2.39	0.48	2.56	0.50	2.50	0.43	2.11
Positive PWB indicators														
LRI/5	3.09	0.78	3.64[a]	0.50	3.79[b]	0.60	16.45***	3.01	0.29	3.16	0.40	3.24	0.87	0.79
Framework/5	3.17	0.91	3.72[a]	0.58	3.84[b]	0.59	14.10***	3.07	0.36	3.18	0.47	3.44	0.81	2.07
Fulfillment/5	3.01	0.75	3.57[a]	0.49	3.74[b]	0.64	13.84***	2.94	0.29	3.13	0.40	3.04	0.95	0.43
Serenity/5	3.19	0.58	3.46	0.57	3.68[b]	0.58	7.76**	3.14	0.37	3.30	0.53	2.97	0.73	2.75
GNS(needs)/7	4.97	0.62	5.24	0.65	5.31[b]	0.63	6.44**	4.62	0.43	4.62	0.56	5.06	0.71	4.21*
Autonomy	5.05	0.75	5.30	0.75	5.19	0.88	1.18	4.54	0.50	4.52	0.71	5.19[bc]	0.75	8.62***
Competence	4.63	0.84	5.04[a]	1.00	5.03[b]	0.89	5.35**	4.34	0.72	4.46	0.68	4.51	1.05	0.18
Relatedness	5.16	0.91	5.33	0.78	5.63[b]	0.79	6.09**	4.89	0.53	4.83	0.59	5.37	0.91	3.59
Social inclusion/5	3.70	0.70	3.57	0.59	3.76	0.64	1.64	2.81	0.42	2.73	0.53	3.40[bc]	0.71	8.08**
Negative PWB indicators														
BDI-II/63	21.10	8.05	11.30[a]	8.86	10.90[b]	8.16	20.86***	23.30	7.66	14.50[a]	8.35	15.90[b]	9.66	11.48***
GSIS /5	2.18	0.57	1.93[a]	0.53	1.90[b]	0.56	6.19**	2.68	0.47	2.51	0.54	2.07[bc]	0.83	16.19***
Suicidal ideation	2.02	0.65	1.83	0.61	1.75	0.53	3.84*	1.97	0.88	1.86	1.07	1.86	0.97	0.62
Lack of meaning	2.10	0.54	1.80[a]	0.54	1.88	0.69	3.51*	3.97	0.62	3.83	0.95	2.06[bc]	0.67	30.89***
Loss of worth	2.54	0.57	2.30	0.71	2.13[b]	0.65	4.47*	2.67	0.82	2.31	0.80	2.52	0.76	3.08
Death ideation	2.10	0.98	1.81	0.74	1.90	0.90	2.66	2.07	0.92	1.97	1.11	1.87	1.14	0.80
Hopelessness/20	6.29	3.03	4.33[a]	3.94	5.29	3.69	4.07*	9.44	5.08	7.44	5.59	8.22	5.17	3.28
Loneliness/4	2.17	0.53	2.02	0.46	1.95	0.53	3.39*	2.75	0.31	2.75	0.40	2.23[bc]	0.57	12.05***
Insomnia/28	12.40	5.67	8.75[a]	5.89	8.04[b]	4.50	9.62***	12.70	5.14	9.17	5.55	11.10	5.63	3.33

Note: [a]significant difference between pre/post. [b]significant difference between pre/follow-up. [c]significant difference between post/follow-up. *p < .05. **p < .01. ***p < .001. Greenhouse-Geisser df : 2(46), except if Mauchly's sphericity test is significant LRI: Life Regard Index; GNS: General Needs Satisfaction Scale; BDI-II: Beck Depression Inventory; GSIS: Geriatric Suicide Ideation Scale.

Therefore, in order to test the second hypothesis, three change scores indicating progress were calculated for each variable: one between pre-test and post-test, the second between post-test and follow-up, and the third between pre-test and follow-up (see Table 3).

Results of the analyses of variance showed that the intervention group made significantly more progress than the control group between pre-test and post-test on the LRI, especially the Framework subscale (having a set of life goals and seeing life more positively). Between pre-test and follow-up, the gains were greater in the experimental group for the Fulfillment subscale (sense of accomplishment) and also for the Serenity scale.

Results also revealed many significant differences between groups in change scores between post-test and follow-up. Serenity decreased significantly in controls, while lack of self-worth increased, compared to those in the intervention group. On the other hand, controls made significant gains, compared to the intervention group, in autonomy and social inclusion. There was also a significant reduction in loneliness, and in the lack of meaning in their life. It should be noted that, at pre-test, the controls were significantly lower than participants in the intervention group on those last four variables. Comparison of the change scores also indicated a significant diminution in tenacity in the control group, again during the six months after post-test. It seems that the controls became less persistent in their pursuit of their goals. Finally, it was observed that controls' scores (see Table 2) were always poorer than those of the intervention group on all variables.

Table 3. *Change scores for intervention and control groups between time measurements (N = 42)*

	Mean Differences								
	Pre-test and post-test			Post-test and follow-up			Pre-test and follow-up		
	Interv	Control	F(1,40)	Interv	Control	F(1,40)	Interv	Control	F(1,40)
Goal variables									
GRP	0.67	0.40	1.15	-0.12	0.23	2.80	0.55	0.62	0.08
Hope	0.40	0.19	1.97	0.10	0.08	0.01	0.50	0.28	2.16
Tenacity	0.07	-0.04	0.29	0.05	-0.86	17.11***	0.12	-0.90	19.92***
Flexibility	0.10	0.17	0.28	0.09	-0.06	1.71	0.20	0.11	0.50
Positive PWB indicators									
LRI	0.55	0.15	4.76*	0.14	0.09	0.09	0.70	0.24	2.82
Framework	0.55	0.12	4.98*	0.12	0.26	0.51	0.67	0.38	1.12
Fulfillment	0.56	0.19	3.16	0.17	-0.09	1.41	0.73	0.10	4.51*
Serenity	0.27	0.16	0.32	0.22	-0.32	10.48**	0.49	-0.16	10.63**
GNS (needs)	0.27	0.01	2.32	0.08	0.44	3.49	0.35	0.45	0.24
Autonomy	0.25	-0.02	1.30	-0.11	0.67	10.12**	0.14	0.65	3.76
Competence	0.42	0.12	1.32	-0.01	0.05	0.03	0.41	0.17	0.49
Relatedness	0.18	-0.06	1.45	0.30	0.53	0.87	0.47	0.48	0.00
Social inclusion	-0.13	-0.09	0.04	0.19	0.67	5.11*	0.06	0.58	6.83**
Negative PWB indicators									
BDI-II	-9.79	-8.78	0.11	-0.38	1.44	1.09	-10.17	-7.33	0.92
GSIS	-0.25	-0.17	0.38	-0.03	-0.44	8.82**	-0.28	-0.61	4.66*
Suicidal ideation	-0.20	-0.11	0.29	-0.07	0.00	0.26	-0.27	-0.11	0.95
Lack of meaning	-0.30	-0.14	0.97	0.07	-1.76	31.22***	-0.22	-1.90	33.63***
Loss of worth	-0.24	-0.36	0.29	-0.17	0.21	5.08*	-0.41	-0.15	1.68
Death ideation	-0.29	-0.10	1.10	0.09	-0.10	0.79	-0.20	-0.20	0.00
Hopelessness	-1.96	-2.00	0.001	0.96	0.78	0.04	-1.00	-1.22	0.04
Loneliness	-0.15	0.00	1.27	-0.06	-0.51	11.04**	-0.21	-0.51	3.54
Insomnia	-3.67	-3.56	0.00	-0.71	1.94	3.42	-4.38	-1.61	2.20

Note. *p < .05. **p < .01. ***p < .001. LRI: Life Regard Index; GNS: General Needs Satisfaction Scale;

BDI-II: Beck Depression Inventory; GSIS: Geriatric Suicide Ideation Scale.

Discussion

As stated in a systematic review of suicide prevention programs designed especially for older adults [31], interventions centered on the development of protective factors are extremely rare. Based on theoretical and empirical motivation research, the program "On the road to a better life", was an attempt at creating an alternative method to improve the state of depressed older adults who lost their interest in life by teaching them how to engage in new goals. This innovative approach seemed beneficial to the participants and could be promising for suicide prevention. Undoubtedly, leading a meaningful life is incompatible with thoughts of self-destruction. In fact, the increases in levels of PWB (hope, competence, positive attitude toward life-framework, sense of accomplishment-fulfillment, serenity) are interesting since suicidal persons are usually characterized by helplessness, negative beliefs about their future and about reaching their aspirations, as well as difficulty in generating alternative solutions when facing obstacles [21, 25]. More importantly, program participants expressed less depressive symptoms and suicidal ideation at post-test and follow-up, six months later. Similar effects were observed in terminally ill older adults who took part in a meaning-centered group psychotherapy: Meaning in life was significantly enhanced, and wish for hasten death was reduced, compared to a support control group [54]. The program "On the road to a better life" could provide an interesting addition to the choice of treatments available for depressed suicidal older individuals, especially for men who might prefer a program centered on action and problem solving to a therapy focusing on the expression of emotions and inner conflicts [55].

The group format of the program seemed to have been beneficial to create new relationships since 87.5% of the participants in the intervention group met after the end of the program, and 21% met more than ten times. Social support can act as a protective factor against suicidal ideation [32, 56]. Then again, a complementary regression analysis indicated that perceived ability to realize one's goals (GRP scores) at post-test significantly predicted the reduction of geriatric suicidal ideation scores (β = -0.47; t =-3.64, $p < .001$, $R^2_{adjusted}$ = 0.41), while social variables (social inclusion, relatedness, loneliness) did not.

The goal management program has not proven to be more effective compared to the control group, except for LRI, namely "the belief that one is fulfilling life-goals that provide a highly valued understanding of one's life" [41, p. 410]. Nonetheless, it should be noted that changes in the controls happened during the six months between post-test and follow-up, while the changes in the intervention group were seen immediately after the program and the improvement was maintained until follow-up. Even if participants were asked if they faced any stressful events during that period, there was no question about positive events, new activities, or relationships that might have influenced participants' perception of life. Also the changes in the controls could simply reflect the effect of summer activities (follow-up was done after summer for the control group and in winter for the intervention group) on the life of Canadian elderly persons who are often trapped at home during a cold and icy winter that lasts six months, a season when they are particularly confronted to their functional limitations. Moreover, the improvements were seen mainly on variables (loneliness, autonomy, social inclusion, and meaning in life) where the controls were significantly lower than the intervention participants at pre-test, suggesting a regression toward the mean. On the other hand, during the same period, controls deteriorated on self-worth and serenity; they also showed a significant decline in tenacity indicating that they weren't making any efforts to pursue their goals. This last observation could indicate higher disengagement, increased resignation, or merely enjoying the present. New research should look closely at changes in tenacity and flexibility, along with goal disengagement and reengagement, in depressed older individuals.

Strengths and Limitations

Evaluating suicide prevention programs can be challenging because they tend to have multiple components, making it difficult to discern which characteristics contributed to a given outcome [57]. Also, since suicide is a rare event, researchers often

have to look at the preventive effect of their program on proximal variables, like depression or suicidal ideation, although 85 to 90% of ideators never attempt suicide [58]. In the present study, the overall results are suggestive of the value of programs developing protective factors in older adults living in the community. However, for the program to be evidence-based there is a need for randomized controlled trials [56]. Nonetheless, the goal realization program was theory-driven and its elements and activities were built upon established theory. In the past, this type of program also produced a consistent pattern of positive outcomes and demonstrated practical utility for promoting well-being [5, 9, 26, 29, 30]. These positive aspects are essential to promote further evaluation of the program for suicide prevention [58].

Finally, the program would be difficult to implement, as shown by the difficulties in the recruitment process of depressed participants. Family doctors in Quebec (Canada) are over-worked and were unable to give time to research. Therefore, no participants were referred by a healthcare provider and only self-referred motivated participants took part in the program. Also, participants seemed to have special psychological (autonomy) and social characteristics (feeling included) that facilitated engagement in the workshop. Therefore, it is impossible to know if the program could be useful for clinically evaluated depressed patients and incorporated into existing mental health service provision, even if it can be offered individually [37]. It also should be mentioned that only a few participants were pursuing psychological or pharmacological treatments and their low number made it impossible to control for possible mediating/ moderating effects of therapy or medications. Treatments might interfere with the results and should be considered in future studies as well as comorbid psychiatric disorders condition like anxiety. Some more work is needed on those issues.

Conclusion

It has been demonstrated that mental health promotion programs and psychotherapy contribute to the reduction of depression and suicide [59, 60]. Future research should continue looking at interventions that increase protective factors. Medications are often necessary to improve depressed individuals' mood, but do not give meaning to life. Also, programs enhancing various protective factors might have longer lasting effects, making people happier and actively participating in the community. The program "On the road to a better life" is a type of positive psychology intervention cultivating positive feelings, behaviors, and cognitions through meaningful goal achievement experiences [60]. The use of such strategies for suicide prevention could provide an interesting and innovative approach to improve the state of individuals who have lost their interest in life.

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APPENDIX[1]

Steps	Meetings	Content of the program ***"On the road to a better life "***
Preliminary steps	1	Social activity to promote cohesion and cooperation between the members of the group.
	2-3	Share their experience and difficulties. See that they have similar problems.
Goal setting	4-5	Inventory of personal aspirations, goals, & interests. Classification into various domains of life and into a hierarchical network. Identification of negative beliefs that impede on the realization of goals.
	6-7	Selection of 5 high priority goals. Evaluation according to distinct dimensions: Difficulty, stress, effort, probability of realization, enjoyment, control, support from others, conflict, feelings of competence. Exploration of the characteristics of the goals they want to pursue.
	8	Translation into a "target behavior". The goal is described into concrete, clear and precise terms to facilitate its realization. One goal is chosen. Commitment to the group to try and accomplish the goal.
Goal planning	9-10	Crucial step including choice of means, identification of concrete actions and steps to reach the goal. Anticipation of obstacles and identification of strategies to overcome them. Identification of personal, social, and material resources. Suggestions from the group are useful.
Goal pursuit	11-12-13	Execution of the action plan. Evaluation of effort, progress, difficulties, abilities & resources. Identification of thoughts and emotions that impede the actions. Adjustments to the unexpected. Group support is essential.
Evaluation of the outcome	14	Evaluation of progress & knowledge. Evaluation of strengths and challenges. Ability to use the process in the future. Evaluation of well-being and

[1]The workshop program is described in details in the group facilitator's guide (Dubé, Bouffard, Lapierre, & Marcoux, 2014).

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