



HHS Public Access

Author manuscript

J Clin Psychiatry. Author manuscript; available in PMC 2024 February 15.

Published in final edited form as:

J Clin Psychiatry. ; 84(2): . doi:10.4088/JCP.22m14469.

Long-term suicidal ideation profiles in late-life depression and their association with suicide attempt or death by suicide

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Abstract

Objective: In young and middle-aged adults, suicidal ideation is an important predictor of prospective suicide attempts, but its predictive power in late life remains unclear. In this study, we use Latent Profile Analysis (LPA) in a cohort of depressed older adults, to identify distinct ideation profiles and their clinical correlates, and test their association with risk of suicidal behavior longitudinally.

Methods: 337 depressed older adults (ages 50–93) were assessed for suicidal ideation and behavior for up to 14 years (median=3 years), at least once per year (study period: 2002–2020). Latent Profile Analysis was used, which derived four profiles of ideation scores based on subject-level aggregates. Groups were compared using ANOVA and chi-square tests at baseline, and competing risk survival analysis during follow-up.

Results: Ideation showed significant decline over time, on the average ($p < 0.001$). LPA identified four suicidal ideation profiles. Risk of suicide attempt/death was higher for chronic severe ideators (age-adjusted hazard ratio $HR = 5.75$, $CI: 2.25–14.7$, $p < 0.001$) and highly variable ideators ($HR = 3.21$, $CI: 1.03–10.1$, $p = 0.045$) compared to fast-remitting ideators, despite comparable current ideation severity at baseline. Fast remitting ideators had higher risk than low/non-ideators with no attempts or suicides ($p < 0.001$). Chronic severe ideators displayed the most severe dysfunction across personality, social characteristics, and impulsivity measures, whereas highly variable and fast-remitting ideators displayed specific deficits.

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Conflicts of Interest: The authors have no conflicts of interest to disclose

Previous presentation: Poster presented at SOBP annual meeting, New Orleans, April 28–30, 2022.

Conclusions: Assessing suicidal ideation over months/years has clinical relevance, as it enabled the identification of distinct ideation patterns associated with substantive differences in clinical presentation and risk of future suicidal behavior despite similar ideation levels at baseline.

Keywords

suicidal ideation; suicide attempt; latent profile analysis; competing risk; late life

Introduction

Suicide prevention is particularly difficult in older people¹, who have the highest proportion of fatal attempts². It is unclear whether suicidal ideation remains as important a predictor of suicidal behavior as in younger age groups³⁻⁶.

Prospectively, we found that older adults' worst lifetime ideation severity before being admitted to the study predicted near-fatal and fatal attempt⁷. However, recent cross-sectional studies suggest that older adults who become attempters late in life have a different, generally less pathological profile than suicide ideators in that age group. This has been shown for constructs as diverse as personality traits⁸, social/familial exposure to suicides⁹, and real-life decision-making competence¹⁰. Considering the above differences among suicidal older adults, suicide ideation measured at one time point (whether current or lifetime) may not be enough to accurately predict suicide risk.

In older adults, high and persistent ideation has been associated with lower overall cognitive functioning¹¹, which has in turn been found to characterize high-lethality attempts^{7,12}. However, a direct relationship between ideation profiles and late-life suicidal behavior remains to be tested.

Using Latent Profile Analysis (LPA), an Ecological Momentary Assessment (EMA) study identified five distinct ideator phenotypes in a younger population, based on subject-level aggregates containing measures of ideation frequency, severity and variability¹³. A recent re-analysis¹⁴ of STAR*D study data used LPA on pointwise measures to identify ideation trajectories during the study. In both studies, the timeframe of the measurements was short (days to weeks), thus key questions remain of how these phenotypes relate to suicidal behaviors.

Applying these methods to a longer time frame we use LPA in a cohort of depressed participants 50 years or older to (a) identify distinct ideation profiles and their clinical correlates, and (b) test the profiles' association with risk of suicidal behavior before and during follow-up. We hypothesize that different profiles of suicidal ideation are associated with different risk levels and subtypes of suicidal behavior. Specifically, we hypothesize that a chronic high ideation profile, i.e., participants with persistent high severity ideation, will have the strongest association with suicidal behavior, especially with high-lethality attempts, whereas profiles with more punctual or fluctuating ideation may be associated with lower lethality suicidal behavior.

Methods

Sample and Procedures

Sample: 337 depressed older adults (ages 50–93, mean=65.12, SD=8.75) diagnosed with non-psychotic unipolar depression by the Structured Clinical Interview for DSM Disorders (SCID)¹⁵ were recruited between 2002–2020 from geriatric inpatient units, outpatient clinics, university research registries, and through advertisements from the community to participate in a case-control longitudinal study of late-life suicidal behavior (see our previous article⁷). Study procedures were approved by the University of Pittsburgh Institutional Review Board (IRB0407166) and subjects provided informed consent. Participants were recruited in three groups: suicide attempters (N=150), suicide ideators (N=89) and nonsuicidal depressed controls (N=98). Suicide attempters had a history of self-injurious act with intent to die and current suicidal ideation as assessed using the Beck Scale for Suicidal Ideation (SSI)¹⁶ upon entry into the study. Suicide ideators endorsed current suicidal ideation with a plan, but had no lifetime history of self-injurious behavior at baseline. These participants seriously contemplated suicide and disclosed this to their family or healthcare professionals, typically triggering an inpatient admission or the intensification of outpatient care. Nonsuicidal depressed controls had no history of self-injurious behavior, suicidal ideation, or suicide attempt upon enrollment.

Follow-up: We prospectively assessed suicidal ideation and suicide attempts at least once per year. All subjects included in the current analysis had a minimum of two assessment points for suicidal ideation, including the baseline assessment.

Suicide Attempt: at baseline, we assessed the presence or absence of suicidal behavior history, the number of attempts, and the severity of the maximum lethality attempt as measured by the Beck Lethality Scale (BLS)¹⁷. At follow-up, we recorded the exact dates and lethality for any attempts since the last visit.

Suicidal Ideation: we used the Scale for Suicidal Ideation, (SSI)¹⁶ to assess ideation severity at baseline and follow-ups. Scores on the SSI range from 0 (no ideation or passive death wish) to 36 (maximum level of ideation). At baseline, patients were asked about their current ideation (ideation within the past week) and their worst lifetime ideation (the time during life when ideation was at its worst). At follow-ups, patients were asked about their current ideation and their worst levels of ideation since their last visit.

Suicide death and natural death: “*Dead or alive*” status was assessed by search in the National Death Index and review of obituaries, the last search was performed in 2021. Cause of death was categorized as suicide vs. natural/accidental death. The suicide category included those who were highly suspected as suicide death based on the coroners’ report and additional information collected through the study (e.g., suicide notes obtained from relatives).

Other Clinical Characterization: *Depression* severity was measured using the 17-item Hamilton Depression Rating Scale (HDRS)¹⁸ with the suicide item removed; *Impulsivity* included attentional, non-planning, and motor impulsiveness scores derived from the Barratt

Impulsiveness Scale (BIS-11)¹⁹, positive urgency, negative urgency, lack of premeditation, lack of perseverance, and sensation seeking derived from the UPPS-P Impulsive Behavior Scale²⁰, a scale measuring impulsivity as a multi-dimensional construct, and self-harm/dyscontrol derived from the Personality Assessment Inventory-Borderline Scale (PAI-BOR)²¹. *Personality* measures encompassed: neuroticism, extraversion, openness, conscientiousness and agreeableness measured by the NEO Five-Factor Inventory (NEO-FFI)²² as well as borderline personality traits assessed by the PAI-BOR, namely affective instability, identity problems and negative relationships. *Social Characteristics*: perception of social support was measured using Interpersonal Support Evaluation List (ISEL)²³, (tangible, appraisal, self-esteem, and belonging); problem-solving abilities (Social Problem-Solving Inventory (SPSI)²⁴); interpersonal difficulties were assessed with the Inventory of Interpersonal Problems (IIP)²⁵; and perceived burdensomeness was measured by the Perceived Burdensomeness Questionnaire (PB)²⁶. *Cognition* was characterized using the Mattis Dementia Rating Scale (DRS)²⁷ for global cognitive ability, the Executive Interview (EXIT)²⁸ for cognitive control, and the Wechsler Test of Adult Reading raw score (WTAR)²⁹ for intellectual functioning. *Severity of physical comorbidities* was assessed using the Cumulative Illness Rating Scale, adapted for Geriatrics (CIRS-G)³⁰.

Statistical Methods

Statistical analyses were performed using R 4.0.3³¹.

Missing data of suicidal ideation scores took three forms: missing both current and worst ideation at an attended assessment, missing one of the two when the other was reported for the same assessment point, and censoring of follow-up. The first two types of missingness occurred in 3% and 1% of the assessment points, respectively, with no differences among recruitment groups. For details about the censoring of follow-up, please see the Supplementary Appendix 1.

Testing time trends in ideation: Subjects with no ideation ever were excluded from the time trend analyses. Two models were considered: first, the predictor was the log-transformed time in months since baseline, and second, the baseline time point was excluded. Due to the preponderance of zeros in the distribution of the ideation scores, zero-Inflated Poisson mixed effect regressions were run using the R library `glmmTMB`³².

Creating ideation profiles: Analysis steps are summarized in Figure 1. Due to the high zero-inflation in the distribution, the data was partitioned before applying the Gaussian distribution-based LPA. Two rule-based subgroups were created: the first group had no ideation at any timepoint (*No ideation*), the second had ideation at baseline and no ideation afterwards (*Baseline only ideation*).

For the remaining subjects, post-baseline ideation values were aggregated by subject and timeframe (current vs. worst ideation) into five summary indices, previously used by Kleiman and colleagues to derive ideation profiles¹³: mean, maximum, proportion of zero values, standard deviation, and the root mean successive squared deviation (RMSSD), a measure of variability combining the amplitude of the deviations from a subject's average and the autocorrelation of within-subject data. The five aggregates were calculated

separately for current and worst ideation values. Baseline worst and baseline current ideation values were added to these, for a total of 12 values..

We applied LPA to the above 12 centered and scaled measures to derive profiles assuming Gaussian mixture distribution, using the R library `mclust`³³. A four-profile solution was retained based on the optimal Bayes Information Criterion with the condition of having a minimum of 10 subjects per profile.

Profile comparisons: Baseline demographics and clinical characteristics were compared among the profiles. For continuous variables, we employed ANOVA followed by post-hoc tests with Tukey's HSD correction; for ordinal or highly skewed data, Kruskal-Wallis test followed by Wilcoxon tests with Holm's correction; for count data, chi-squared test followed by post-hoc pairwise chi-squared tests with Bonferroni correction. Additional sensitivity analyses included baseline age as a covariate, and adjustment for multiple testing using the Benjamini-Hochberg procedure (Supplementary Table 2).

Suicide risk comparisons: We compared profiles for the incidence of suicide attempt or death during the follow-up using competing risk survival analysis models to adjust the risk of suicide attempt/death for the risk of death from other causes. These models are applied when the assumption of random censoring for the survival analysis models may be violated, as some underlying factors may affect the risk of both kinds of events. Subjects with unverified cause of death (n=2) were classified as non-suicide for the purpose of this analysis. Using the R library `cmprsk`³⁴, profiles were tested with and without adjusting for age at baseline due to profile differences in average age.

In secondary analyses, we fit log-rank test and Cox Proportional Hazards Regression by censoring the follow-up time at the last visit for each subject. This analysis did not include death outcomes, as these occurred after the last recorded visit (for some cases, several years later).

Results

337 depressed older adults were assessed for suicidal ideation and behavior for a period ranging between 3 months and 14 years (median=3 years, interquartile range=1.6–4 years, see Supplement for comparisons and correlates). The number of assessments ranged between 2 and 16 (median=5, interquartile range=3–6). A total of 90 subjects passed away during the study period: 72 of natural causes, 5 of accidents, 13 of suicide (or suspected suicide), and 2 of undetermined causes.

Time trends in suicidal ideation during follow-up

No time trends were found in worst ideation since the last assessment during follow-up (conditional model: $b=-0.10/\log\text{-month}$, $SE=0.11$, $z=-0.85$, $p=0.394$; zero-inflation: $b=0.27$, $SE=0.21$, $z=1.27$, $p=0.206$). For current ideation, the likelihood of having any ideation decreased over time, but severity did not (conditional model: $b=0.21$, $SE=0.14$, $z=1.49$, $p=0.137$; zero-inflation: $b=0.64$, $SE=0.25$, $z=2.58$, $p=0.010$). Both current and worst ideation declined from baseline to follow-up (see Table 1, Figure 2, also Supplementary Appendix 2).

Ideation profiles

As detailed in Figure 1, two rule-based subgroups were defined as *No ideation* group (N = 61, 18.1%) and *Baseline only ideation* group (N = 61, 18.1%). Four profiles were derived from the remaining subjects using LPA: *Low ideators* (N=16), *Chronic severe ideators* (N=93), *Highly variable ideators* (N=63), and *Remitting ideators* with mild and/or rare ideation after baseline (N=43). As there were no significant demographic, clinical and cognitive differences between the *Low* and the *No ideation* group, as well as between the *Baseline only* and the *Remitting* group (Supplementary Table 1), these two pairs of groups were merged, resulting in four final profiles: *Low/non-ideators* (22.8%), *Chronic severe ideators* (27.6%), *Highly variable ideators* (18.7%), and *Fast-remitting ideators* (30.9%) (see centroids in Supplementary Tables 4 and 6). The four profiles were ordered in terms of average ideation during follow-up from lowest to highest as follows: *Low/non-ideators*, *Fast-remitting*, *Highly variable*, *Chronic severe ideators* (see Table 1 and Figures 2 and 3), while only *Low/non-ideators* differed from the other groups on current ideation at baseline. *Highly variable ideators* had comparable variability of worst ideation to *Chronic severe ideators* (Table 1) and resembled that group on all post-baseline worst ideation aggregates, while being closer to *Fast-remitting ideators* on current ideation aggregates (Figure 3).

Clinical comparison at baseline

Profiles differed in age, income level, and most psychiatric characteristics, but not on cognition or physical comorbidities (Table 1). *Chronic severe ideators* were younger at baseline than *Low/non-ideators* and *Fast-remitting ideators*, but age-adjusted models for the group comparisons mostly remained significant, even after adjustment for multiple testing (Supplementary Tables 2 and 3). *Chronic severe ideators* were more depressed than *Low/non-ideators*. *Chronic severe* and *Highly variable ideators* were more likely to have a current anxiety disorder than the *Fast-remitting* group, and a lifetime substance abuse disorder than *Low/non-ideators*.

Chronic severe ideators displayed the most severe dysfunction based on scores across personality, social characteristics, and impulsivity measures (see Figure 2 and Supplementary Tables 2–3). *Highly variable ideators* and *Fast remitters* displayed specific dysfunctions: low self-esteem, high negative problem orientation, high neuroticism and high rates of anxiety and substance use disorders in highly variable ideators, in contrast to social problem-solving deficits in *Fast remitters*.

In terms of history of suicidal behavior, 60% of both the *Chronic severe* and the *Highly variable* groups, and 48% of the *Fast-remitting* group had past suicide attempt; these were significantly higher than for the *Low/non-ideator profile* (0%). The former three profiles did not differ significantly on maximum lethality of suicide attempts. The number of past suicide attempts at baseline was significantly higher in the *Chronic severe* group than in the *Fast-remitting* group (mean 1.4 vs. 0.74, $p=0.006$).

Comparison of suicidal behavior during the study

Time from baseline until death or the end of study period ranged between 3 months and 18 years (median=6 years, interquartile range=3–10 years). Forty subjects had a suicide

attempt during the study period or died by suicide. Twenty-five (62.5%) were from the *Chronic severe* group, nine (22.5%) from the *Highly variable* group, and six (15%) from the *Fast-remitting* group. None of them were from the *Low/non-ideator* group.

The competing risk analysis found significant profile differences for the cumulative incidence of suicidal behavior (statistic=34.18, df=3, $p<0.001$, Figure 4) but not for natural/accidental death (statistic=4.03, df=3, $p=0.258$). Pairwise comparisons showed lower risk in *Low/non-ideators* than in the other groups ($p<0.05$ for all 3 comparisons, Supplementary Table 5), and these differences were robust to covarying for age (all $p<0.001$). The risk in *Chronic severe ideators* was higher than in *Fast-remitting ideators* (age adjusted HR=5.75, 95% CI: 2.25–14.7, $z=3.65$, $p<0.001$), but not *Highly variable ideators* (HR=2.02, 95% CI: 0.91–4.49, $z=1.73$, $p=0.083$); while *Highly variable ideators* were at higher risk than *Fast-remitting ideators* (HR=3.21, 95% CI: 1.03–10.1, $z=2.01$, $p=0.045$). Covarying for baseline cognition measured by the DRS total score did not change any of the profile differences, although impaired global cognition was a risk factor for suicidal behavior (HR=0.96/point, 95% CI: 0.92–0.997, $z=-2.12$, $p=0.034$).

In the secondary survival analysis, 37 subjects had at least one suicide attempt. There were significant profile differences (log-rank test $\chi^2=28.2$, df=3, $p<0.001$), with similar pairwise differences as in the competing risk model, with the exception of *Fast-remitting ideators* and *Highly variable ideators* no longer being different ($\chi^2=2.7$, df=1, $p=0.103$).

Discussion

We examined the longitudinal course of suicidal ideation among depressed older adults and found evidence of four distinct profiles associated with substantive differences in baseline clinical presentations, including personality characteristics, psychiatric co-morbidities, and most importantly, history of suicidal behavior. Specifically, we identified a *Chronic severe* and a *Highly variable* profile with high rates of suicide attempts and death by suicide that contrasted with a *Fast-remitting* and a *Low/non-ideator* profile. As profiles included ideation values that occurred after a suicide attempt, the results of the competing risk analysis cannot be considered prospective validation; nevertheless, they test long-term association between ideation and behavior.

The present study confirms the importance of worst lifetime suicidal ideation above current ideation in late life, similarly to prior findings in young adults³⁵. It further corroborates that the ideation's evolution is associated with risk of suicidal behavior more than single-time-point assessments^{4,5}: *Fast-remitting ideators* reported comparable suicidal ideation at baseline as *Chronic severe* and *Highly variable ideators*, yet they had significantly lower worst ideation scores, fewer past attempts, and lower risk of attempting during follow-up. It is possible that *Fast-remitting ideators represent a resilient group where suicidal ideation was precipitated by a major life event (e.g., loss of family member)* but had low ideation scores during follow-up and lower suicide risk. *Highly variable ideators* were similar to *Fast-remitting ideators* in terms of their current ideation trajectory during follow-up, but resembled chronic ideators in terms of their worst between-assessment ideation. This profile may have short, intense ideation periods that are severe enough to be recalled, but are

unlikely to coincide with yearly assessments; more frequent assessment like Ecological Momentary Assessment may be needed for this profile.

Our study used similar summary indices for ideation as a previous EMA study¹³ that derived five profiles, but examined changes over months/years instead of daily fluctuations, and computed summary indices for worst ideation since last contact in addition to current ideation. A published LPA of 9 weeks of ideation from the STAR*D study identified four profiles very similar to ours (variable SI, little-to-no-SI, persistent SI, improving SI). We further extended their analysis by linking these profiles to long-term suicidal behavior. Although the large difference in timeframes makes it unrealistic to quantitatively compare the derived profiles between studies, we conclude that examining longer periods may be as valuable to identify ideation patterns as monitoring daily or weekly fluctuations. This has clinical relevance, as longer periods match real-life assessment opportunities better, e.g., during medical appointments.

Cognitive factors did not significantly discriminate between the ideation profiles, although, as we reported previously¹² and replicated here, lower global cognitive performance predicted suicidal behavior during follow-up. This finding aligns with prior studies indicating that late-life suicidal ideation may not be related to cognition even if suicidal behavior is^{36,37}, and instead ideation and cognition may act as independent risk factors for suicidal behavior.

Limitations:

The lack of granularity of follow-up made it impossible to tie suicidal ideation values to the period immediately preceding subjects' suicide attempts. As data on psychiatric treatment was not systematically available, we were unable to determine whether treatment was associated with the positive evolution of the *Fast-remitting* group.

Our findings highlight the need to conduct repeated assessments of suicide risk and to include worst suicidal ideation measures in clinical screening tools, as most psychometric questionnaires exclusively assess current suicidal ideation³⁸. The ideation profiles identified can contribute to the development of more refined assessment tools, especially for older populations where prior attempt history is scarce¹.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgements:

We would like to acknowledge Katherine Whitman, BA (Department of Psychiatry, University of Pittsburgh School of Medicine, Pittsburgh, PA, USA) for editorial assistance. Ms. Whitman has no conflicts of interest to declare.

Role Of The Funding Agency: This research was supported by the National Institutes of Health, Bethesda, Maryland, USA through grant number MH R01MH085651 to K.Sz., The funding agencies had no role in the design and conduct of the study; collection, management, analysis, and interpretation of the data; preparation, review, or approval of the manuscript, and decision to submit the manuscript for publication.

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Clinical Points

- Clinicians should assess suicidal ideation repeatedly and ask not only about current ideation but also about worst suicidal ideation since last visit.
- Assessing suicidal ideation over longer periods of time (months/years) will help to identify individuals with differential risk of future suicidal behavior despite similar levels of ideation at baseline.
- Those with high persistent ideation and fluctuating high ideation levels (scores) are at especially high risk for future suicidal behavior and should be monitored and treated as such.

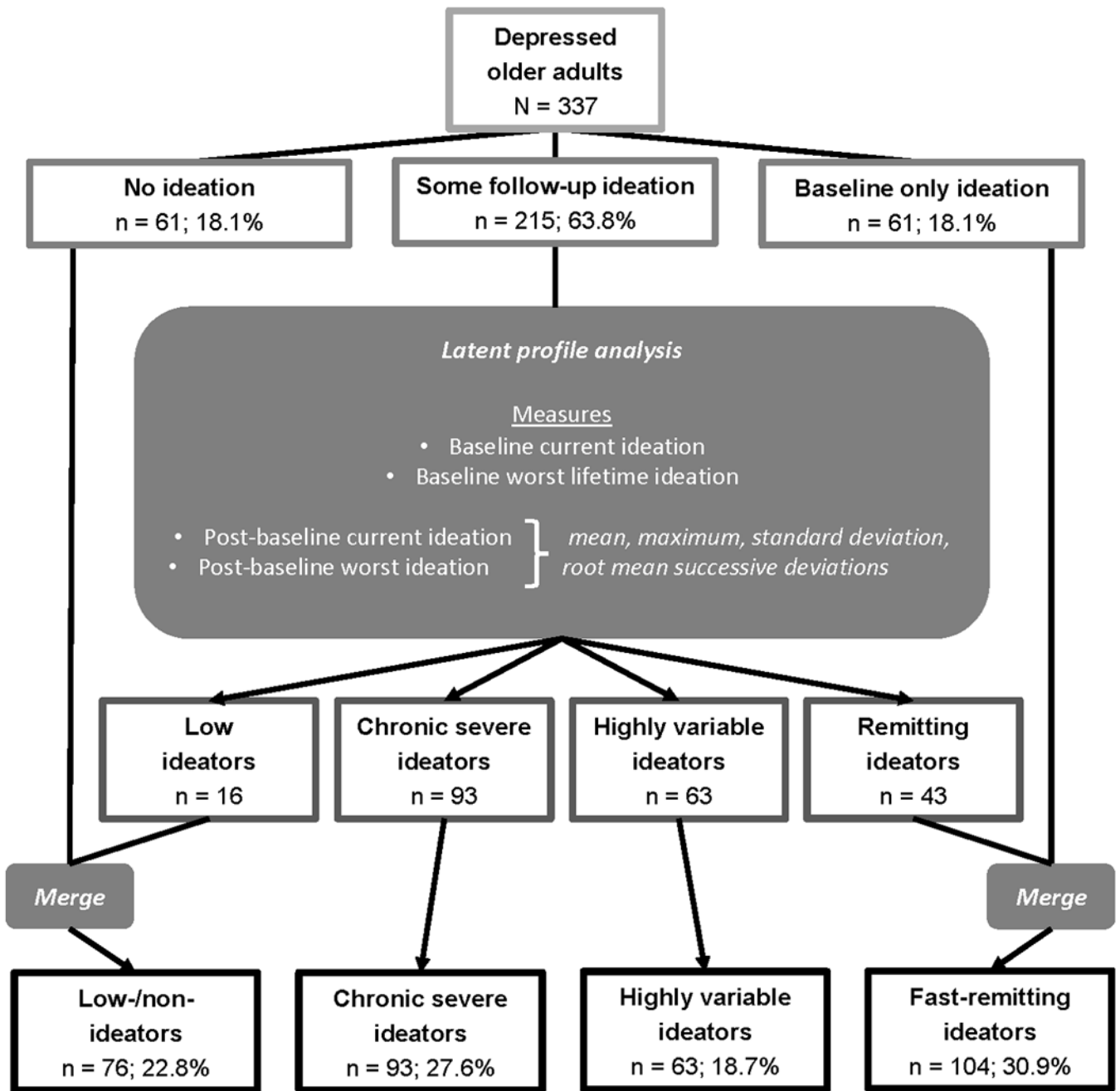


Figure 1.
Flow chart illustrating the steps taken to derive the ideation profiles.

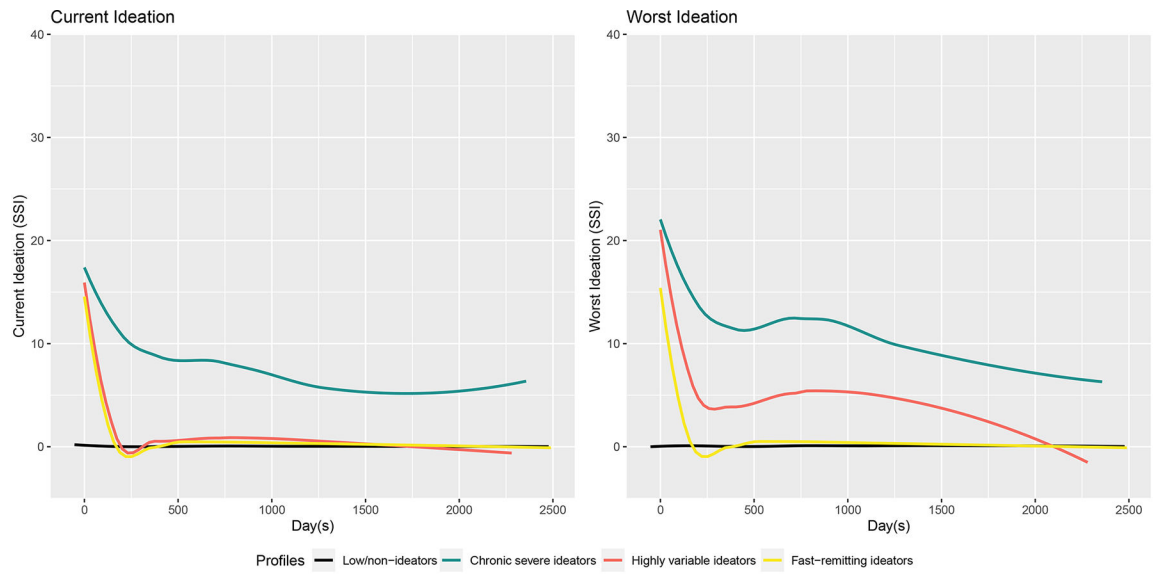
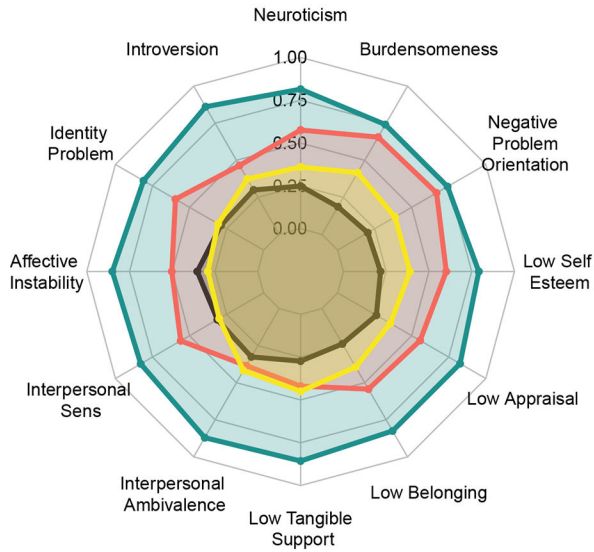
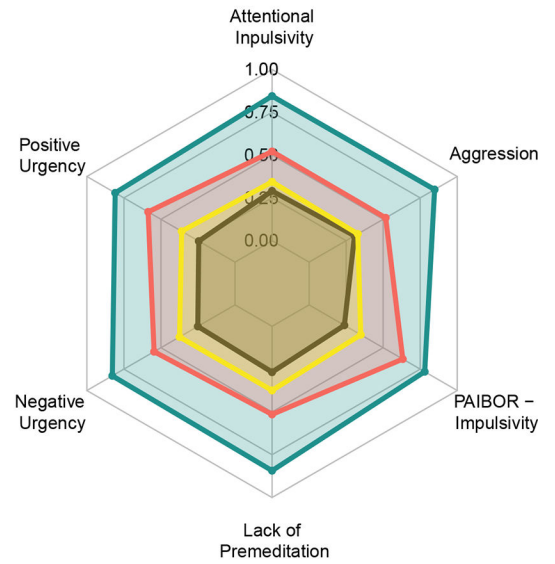


Figure 2.
Smoothed suicidal ideation trajectories over time for the four profiles.

A. Personality & Social Characteristics



B. Impulsivity



C. Ideation

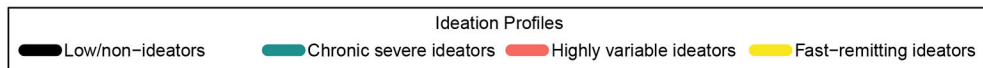
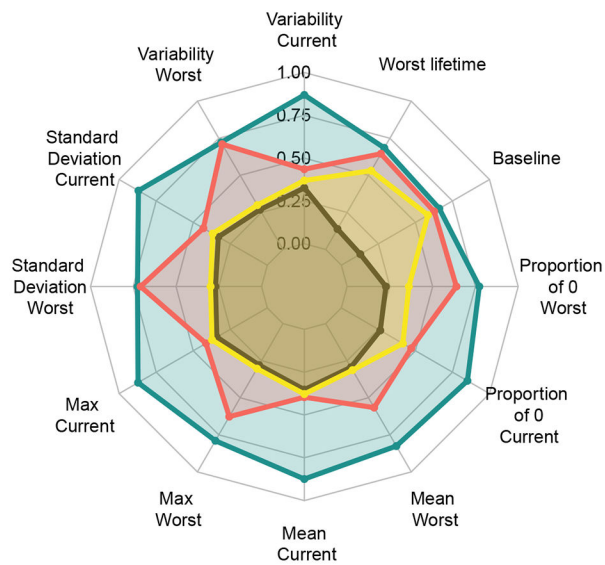


Figure 3. Radar plot illustrating profile averages (centered and scaled).

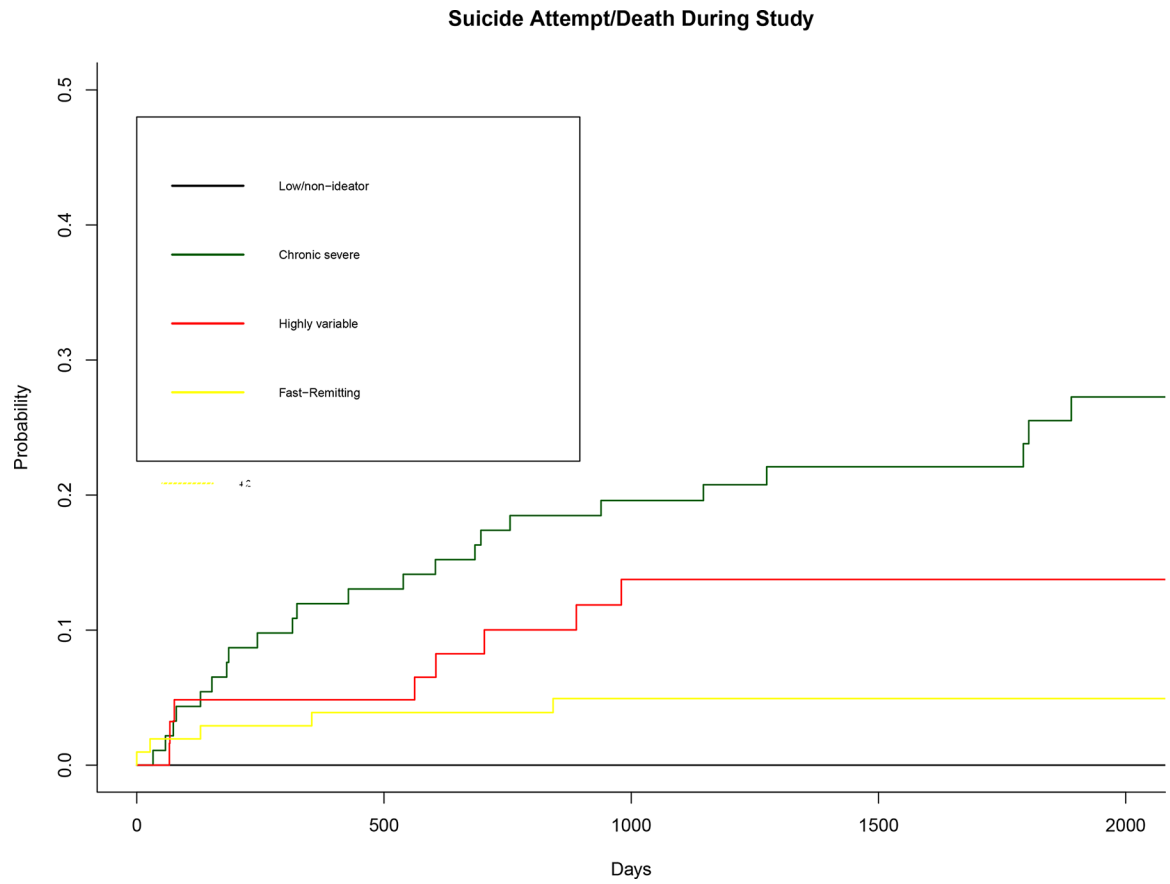


Figure 4. Cumulative incidence curves for suicide attempt and suicide death during 2000 days of follow-up.

Table 1.

Demographic and Clinical Characteristics by Four Groups (N = 337)

	Low/non-ideators (LI) N=77	Chronic severe ideators (CI) N=93	Highly variable ideators (VI) N=63	Fast-remitting ideators (RI) N=104	p-value	Pairwise Comparison
	Mean (SD)/N (%)	Mean (SD)/N (%)	Mean (SD)/N (%)	Mean (SD)/N (%)		
Age	66.68 (8.96)	62.89 (7.55)	64.05 (8.14)	66.62 (9.52)	0.006	CI<LI&RI
Gender (Female)	47 (61.04%)	56 (60.22%)	33 (52.38%)	47 (45.19%)	0.098	
Race (Caucasian)	62 (80.52%)	79 (84.95%)	53 (84.13%)	87 (85.29%)	0.904	
Education	14.44 (2.67)	14.16 (2.53)	14.30 (3.17)	14.40 (2.83)	0.909	
Income in thousands	21.32 (16.39)	19.95 (14.45)	20.05 (17.17)	27.32 (21.11)	0.045	None
Depression severity ^a	17.84 (3.96)	21.05 (5.06)	19.19 (5.67)	19.50 (5.67)	0.001	LI<CI
Intellectual functioning ^b	119.89 (107.32)	114.30 (101.78)	109.39 (14.54)	116.06 (102.54)	0.951	
Physical illness severity ^c	9.31 (4.44)	8.67 (3.96)	9.11 (4.93)	8.99 (4.44)	0.836	
Borderline traits ^d	24.30 (11.06)	35.36 (11.97)	30.23 (15.42)	24.67 (10.90)	<0.001	LI&RI<CI
Dementia Rating Scale	134.89 (5.45)	134.65 (5.64)	134.58 (7.36)	132.48 (6.54)	0.053	
Anxiety disorder (lifetime) ^e	45 (58.44%)	65 (71.43%)	47 (78.33%)	56 (54.90%)	0.007	RI<VI
Anxiety disorder (current) ^e	40 (51.95%)	58 (63.74%)	40 (66.67%)	46 (45.10%)	0.015	RI<CI&VI
Substance use disorder (lifetime) ^e	23 (29.87%)	49 (53.85%)	31 (51.67%)	42 (41.18%)	0.009	LI<CI&VI
Substance use disorder (current) ^e	4 (5.19%)	15 (16.48%)	8 (13.33%)	10 (9.80%)	0.121	
History of baseline attempt	. (.)	56 (60.22%)	38 (60.32%)	50 (48.08%)	<0.001	LI<CI&VI&RI
Number of attempts	. (.)	1.38 (1.83)	0.97 (1.15)	0.74 (1.01)	0.006	RI<CI
Maximum lethality ^f	. (.)	4.05 (2.11)	3.54 (2.10)	3.41 (2.32)	0.269	
Baseline ideation ^g						
Current	0.14 (0.74)	19.14 (6.74)	17.91 (9.53)	16.41 (11.04)	<0.001	LI<CI&VI&RI
Worst	0.04 (0.19)	24.11 (6.77)	22.37 (8.68)	17.35 (11.06)	<0.001	LI<RI<CI&VI
Follow-up ideation (mean) ^g						

	Low/non-ideators (LI)	Chronic severe ideators (CI)	Highly variable ideators (VI)	Fast-remitting ideators (RI)	p-value	Pairwise Comparison
Current	0.04 (0.11)	8.91 (5.21)	0.78 (0.97)	0.47 (0.52)	<0.001	LI<RI<VI<CI
Worst	0.08 (0.26)	12.10 (6.31)	6.23 (5.54)	0.52 (0.87)	<0.001	LI<RI<VI<CI
Follow-up ideation (variability)^g						
Current	0.11 (0.33)	6.91(4.09)	1.48 (2.11)	0.65 (1.36)	<0.001	LI<RI<VI<CI
Worst	0.20 (0.59)	7.44 (4.87)	7.25 (5.72)	0.69 (1.39)	<0.001	LI<RI<VI & CI

Notes:

^aHamilton Rating Scale for Depression (HRSD)

^bWechsler Test of Adult Reading

^cCumulative Illness Rating Scale-Geriatric (CIRS-G)

^dPersonality Assessment Inventory - Borderline subscale (PAI-BOR)

^eStructured Clinical Interview for DSM-IV (SCID)

^fBeck Lethality Scale (BLS)

^gScale of Suicidal Ideation (SSI)