Self-continuity and Suicidality: Past and Future Life Story Chapters Among Suicidal Patients and Non-Clinical Controls

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Abstract

This study examined self-continuity problems in suicidal patients from a narrative identity perspective. Twenty suicidal patients and 20 non-clinical controls narrated past and future life story chapters, which were self-rated on emotional tone, self-stability, and self-change connections, and content-coded for emotional tone and meaning-making. Suicidal patients constructed past chapters with significantly more negative and less positive emotional tone, meaning-making and self-event connections compared to controls. A similar but less pronounced and non-significant pattern was found for future chapters. When analyzing only patients high on hopelessness, significant differences were found for emotional tone, negative self-change, and negative meaning-making in future chapters. In addition, suicidal patients described fewer future chapters with lower subjective probability than controls. The findings suggest that suicidality is associated with negative past self-continuity and a disrupted or negative future self-continuity. Narrative interventions promoting adaptive self-continuity may aid suicidal individuals.

Keywords: suicidality, self-continuity, narrative identity, life story chapters

General Audience Summary

Each year, 700.000 individuals die by suicide worldwide, yet the psychological mechanisms underlying this crisis remain elusive. Here, we investigated disruptions in self-continuity, that is perceiving oneself as the same person over time, which is maintained through constructing a coherent story of one's life. Twenty suicidal patients and 20 non-clinical control participants were invited to narrate past and future life story chapters, and we assessed the emotional tone of chapters (e.g., positive emotional tone: "I was truly fortunate to spend my entire childhood living in an ordinary house surrounded by my best friends. We could share everything with each other.") and how participants connected chapters to their sense of self in positive and negative ways (e.g., positive connection: "I often say that I learned a great deal from the bullying I experienced. I stayed true to myself and came to understand that it's okay to be me."). Across measures, suicidal patients narrated their past more negatively compared to controls, suggesting negative past-to-present self-continuity. Surprisingly, suicidal patients did not differ significantly from controls in positivity when narrating their future, but they described fewer future chapters and rated them as less likely to occur than controls. This may indicate the fragile nature of the desired positive future in the suicidal group. When only analyzing patients high on hopelessness, future chapters were generally more negative and less positive, reflecting negative future self-continuity. Together, these results elucidate profound challenges in maintaining a cohesive and positive sense of self in suicidal individuals. A negative connection to their past and a bleak view of their future may amplify hopelessness and impede personal recovery. Narrative interventions may help individuals reinterpret their past and create positive, realistic, and meaningful visions for the future, which could promote positive self-continuity, reduce suicide risk, and support personal recovery.

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Each year, approximately 700.000 individuals commit suicide worldwide (World Health Organization, 2021). Although much attention has been drawn towards understanding risk factors associated with suicidality, that is suicidal ideations, suicide behaviors, and completed suicide (Beck et al., 2006; Keefner & Stenvig, 2020), the underlying mechanisms remain elusive (Buchman-Schmitt et al., 2014). Here, we focus on disruptions in self-continuity, which may put individuals at risk and be important to address in interventions.

Chandler and colleagues (2003) have suggested that suicidality is related to disrupted self-continuity, which refers to perceiving oneself as being the same person over time despite changes in oneself and the world (Prebble et al., 2013) with disruptions expressed as uncertainty of who one is or is meant to become. The future becomes detached from the present and past, minimizing concern for future well-being, which when severe may manifest as suicidality. The classic study by Chandler et al. (2003) supported this idea by showing that suicidal adolescents often struggled to perceive themselves as the same person across time, and they suggested that individuals may rely on narratives to maintain self-continuity, weaving life episodes into a cohesive story that explains personal persistence. While the relationship between suicidality and self-continuity has been supported by studies employing scale-based identity assessments and short self-descriptions (Bar-Joseph & Tzuriel, 1990; Chandler et al., 2003; Sokol & Eisenheim, 2016), no studies have explored self-continuity problems from a narrative perspective. This perspective is valuable as it goes beyond simply assessing whether suicidal individuals possess self-continuity, by illuminating the multifaceted ways in which disruptions may emerge from specific narrative processes.

Narrative Identity and Suicidality

According to McAdams (2001), identity takes the form of an internalized and evolving narrative of the self. By selecting and interpreting important events from the personal past, present, and future, individuals construct life stories that connect the self of the past with the self of the present, and the self of the future (Habermas & Bluck, 2000).

Life story chapters constitute an important component in the construction of life stories (McAdams, 2001; Thomsen, 2009). They refer to important extended periods, such as "childhood" and "married life", and contribute to life story coherence as they temporally and thematically organize past experiences and future projections (Thomsen et al., 2017). Past chapters are more important to identity and more often associated with life reflections than memories of circumscribed events (Steiner et al., 2017; Thomsen, 2009), testifying to the importance of chapters for narrative identity. Paralleling past chapters, future chapters structure the projected life story (Conway et al., 2019; Thomsen, Steiner, et al., 2016). However, individuals typically view the future more positively than the past (Berntsen & Bohn, 2010; D'Argembeau & Van der Linden, 2004) and future chapters are rated more positively than past chapters (Pedersen et al., 2018). Presumably, constructing a positive future contributes to maintaining hope and optimism, a suggestion that is supported by studies showing that suicidality is related to generating fewer positive future events and higher hopelessness (MacLeod et al., 1993; MacLeod et al., 1998).

When segmenting the life story into chapters, individuals emphasize certain aspects over others, giving rise to a positive or negative emotional tone (McAdams, 1996; Thomsen et al., 2014). Moreover, individuals connect chapters to their self, also known as self-event connections (Pasupathi et al., 2007) and meaning-making (McLean et al., 2020). Self-event connections are an important process involved in self-continuity as they capture stability and change over time, illustrating stable characteristics ("I have always been too sensitive") and explaining changes ("I have become better at coping

with adversity"). Self-event connections can be both positive and negative (Banks & Salmon, 2013) and as such may ground both adaptive and maladaptive self-continuity, representing either a positive self-as-growing or a negative self-as-deteriorating over time.

Previous studies have found that psychopathology is related to more negative and less positive emotional tone and self-event connections in past chapters (Holm et al., 2016; Jensen et al., 2020; Lind, Jorgensen, et al., 2019; Pedersen et al., 2024). Surprisingly, studies on future chapters have not found significant differences in positivity between controls and individuals with psychiatric diagnoses (Dalgleish et al., 2011; Jensen et al., 2020; Pedersen et al., 2018; but see Pedersen et al., 2024). This suggests that, despite mental health challenges, individuals may construct their future life story to maintain hope (Jensen et al., 2020) and to support positive future self-continuity.

The Present Study

In the present study, we adopt a narrative identity perspective to investigate past and future self-continuity in relation to suicidality (Sokol & Eisenheim, 2016). Based on the reviewed studies, we hypothesized that self-continuity problems in suicidal individuals would emerge as more negative self-continuity, including more negative and less positive emotional tone and self-event connections in both past and future chapters, when compared to controls. We assessed these narrative characteristics using both self-report and content coding, as these methods capture related but distinct aspects of narrative identity (Panattoni & McLean, 2018). Additionally, based on prior studies (Pedersen et al., 2018), we expected that the suicidal group would describe fewer future chapters and rate these lower on subjective probability, indicating problems with future self-continuity.

Method

The study was conceived as an initial exploratory study, although the hypotheses were identified before data collection and hence, the study was not pre-registered. Data will not be made publicly available as Aarhus University data sharing rules do not presently allow this.

Participants

The suicidal group consisted of 20 patients (11 women) with a mean age of 31.1 years (*SD* = 11.27; range 18-58) recruited from the Unit of Suicide Prevention at Aarhus University Hospital. Patients were admitted for outpatient treatment at the Unit based on suicide ideation or/and recent suicide attempts. They were ineligible for treatment at the unit if they were (1) suffering from an untreated mental illness, (2) not perceived by their primary therapist to be at risk of suicide, (3) currently suffering from drug- or alcohol dependency, or (4) currently admitted to another treatment facility. In addition, participants were excluded from the present study if they did not speak Danish fluently or were below 18 years old. Five of the 20 suicidal participants reported having one or more current psychiatric diagnoses (2 with autism spectrum disorder, 1 with obsessive-compulsive disorder, 1 with attention deficit hyperactivity disorder, 2 with major depressive disorder, and 1 with anxiety disorder). Furthermore, 4 of the 20 participants had previous psychiatric hospitalizations. With respect to life time suicide attempts, 10 participants had never attempted suicide, 3 had made one suicide attempt, 4 had made two suicide attempts, while 3 had attempted suicide more than twice.

The control group comprised 20 non-clinical participants (12 women) with a mean age of 30.7 years (*SD* = 11.31; range 20-58). They were recruited to match the suicidal patients on gender, age, and educational level. Participants were recruited through social media, flyers, and word of mouth. The exclusion criteria were as

follows: (1) self-reported diagnoses of any current mental illness, (2) self-reported suicidal ideation in the past month, (3) self-reported history of suicide attempt(s), (4) not fluent in Danish, or (5) below 18 years old.

The sample size was determined based on feasibility of recruitment within the project period and to be comparable with sample sizes used in previous case-control studies of memory, future thinking and life stories in suicidal patients as well as clinical groups, which typically vary between 15-30 participants in each group, and often find large effects sizes (e.g., Hunter & O'Connor, 2003; MacLeod & Conway, 2007; MacLeod et al., 1993). A post hoc sensitivity analysis shows that the study has 80% statistical power to detect an effect size of d = 0.91 (two-tailed t-test).

Materials

Participants were invited to fill out a paper or electronic questionnaire. The materials included in the questionnaire are described below. No financial compensation was offered to participants in either group.

Informed consent. The present study received approval from the Research Ethics Committee at Aarhus University Hospital. All participants were provided with written information about the study, and informed consent was obtained. In the consent, participants were informed that: (1) they had the right to withdraw their consent/participation at any time without providing a reason, (2) only the research group would have access to their responses, and (3) all narratives and study results would only be disseminated in an anonymous format. Additionally, the suicidal participants were informed that (1) their participation would not affect their current treatment and (2) if any of their responses raised concerns, the research group had permission to contact their primary therapist at the Unit of Suicide Prevention.

Narrative Identity. All participants were asked to describe up to five past and five future chapters in their life story (based on Thomsen & Berntsen, 2008). In the instructions, they were informed that chapters should encompass extended time periods, need not have a clear beginning or ending, that chapters could run in parallel, and still be ongoing. For each chapter, participants provided a title, a description of the content of the chapter, and gave their age at the beginning and end of the chapter (or marked it as ongoing for past chapters). Moreover, they rated each chapter on emotional tone, self-stability connections, self-change connections, and subjective probability (only for future chapters; see questions in Table 1). The questions have demonstrated meaningful correlations with trait anxiety, depressive symptoms (Thomsen, Matthiesen, et al., 2016), personality traits (Thomsen & Pillemer, 2017), subjective well-being (Pedersen et al., 2018), and identity disturbance (Lind & Thomsen, 2018), testifying to their validity.

The Beck Hopelessness Scale (BHS; Beck et al., 1974). BHS is a self-report instrument consisting of 20 true-false items that measure pessimistic thoughts and beliefs about the future. The scale is widely used and has proven to be reliable and valid (Beck et al., 1974; Steed, 2001). A score for each participant was calculated by adding the number of items marked as true. Scores range from 0-20, with scores from 0-3 within the normal range, 4-8 indicating mild hopelessness, 9-14 indicating moderate hopelessness, and scores greater than 14 indicating severe hopelessness (Beck et al., 1989). Prior research suggests that a cut-off score of 9 distinguishes individuals with concerning levels of hopelessness (Beck et al., 1999). The scale showed excellent internal consistency in the present study (α= .94)

DSM-5 Self-Rated Level 1 Cross-Cutting Symptom Measure for Adults (CCSM; American Psychiatric Association, 2013). To assess psychopathology, we included the

CCSM, a self-report instrument designed to identify symptoms across various mental disorders. It comprises 23 questions categorized into 13 different psychiatric domains (i.e., depression, anger, mania, anxiety, somatic symptoms, psychosis, sleep problems, memory problems, repetitive thoughts and behavior, suicide ideation, dissociation, personality function, and substance use). Participants rated each question on a 5-point scale in regard to the frequency and severity of the symptom over the past two weeks (0 = none or not at all to 4 = severe or nearly every day). A score of two or more on any item indicates mental health issues within the respective domain (except for substance use, suicidal ideation, and psychosis where a score of 1 or greater indicates mental health issues). The CCSM has demonstrated strong validity and test-retest reliability (Bravo et al., 2018; Narrow et al., 2013).

Content Coding

Emotional tone was coded on a five-point scale, with scores ranging from 1 to 5. A score of 1 reflected a life story chapter which was very negative or pessimistic, while a score of 5 reflected a life story chapter which was very positive or optimistic. A score of 3 reflected a neutral emotional tone (see McLean et al., 2020). Meaning-making was coded on a 0-2 scale, capturing episodes where the narrator steps out of the chapter's time frame to reflect on the meaning of the chapter in relation to the self or the world in positive or negative ways. The coding followed a manual developed by Cox and McAdams (2014). Each chapter received separate scores for both positive and negative meaning-making. A score of 0 reflects a chapter with absence of meaning-making, 1 is minimal or non-elaborated positive/negative meaning-making, and 2 reflects elaborated and/or impactful positive/negative meaning-making (see Appendix A for chapters illustrating content-coded positive and negative meaning-making).

All chapters were anonymized and put in random order prior to coding which was done separately for emotional tone and meaning-making. The first and second author trained with the coding manuals for emotional tone and meaning-making, until acceptable inter-rater reliability was reached. The first author coded all the chapters, while the second author co-rated a randomly selected 25% of chapters. Inter-rater reliability was good, with intraclass correlations of 0.87 for emotional tone, 0.84 for positive meaning-making, and 0.79 for negative meaning-making.

Procedure

The suicidal patients were recruited through their primary therapist during one of their initial four appointments at the Unit of Suicide Prevention. The therapist briefly presented the study and provided written information. Subsequently, the first author contacted the patients, who had agreed to hear more about the study by phone and provided oral information about the study within 1-4 weeks. If they wished to participate, an electronic or a paper questionnaire was sent to them. If the questionnaire was not completed within two weeks, they were reminded by telephone. Fourteen out of 72 participants (19%) declined to participate after receiving a phone call, and 38 of 58 participants (66%) did not return the questionnaire. The response rate is comparable to previous studies of suicidal patients (e.g., O'Connor et al., 2007; Rasmussen et al., 2010) and these low response rates likely reflect the combination of sampling a vulnerable group and the labor-intensity of participation.

To recruit the control group, information about the study and contact details for the first author were posted on social media or distributed through flyers. The recruitment materials stated that the study was seeking individuals without current suicidal ideation or mental illness, in order to compare the life stories of individuals with and without suicidal ideation and behavior. Potential participants contacted the

first author on mail or phone and a questionnaire was emailed to those who matched the suicidal patients on age, gender, and educational level. If the questionnaire was not completed after two weeks, potential participants received a reminder email. Eight out of 28 individuals who received the questionnaire did not return it (29%).

Results

For the analyses, means were calculated for positive and negative emotional tone, positive and negative self-stability connections, positive and negative self-change connections, subjective probability (only for future chapters), content coded emotional tone, positive meaning-making, and negative meaning-making by adding the scores for each measure and dividing by the number of chapters described and rated by each participant. Four suicidal participants reported no future chapters, resulting in their exclusion from the calculated means for future chapters. For these four participants, the number of future chapters were scored with the value of 0.

Preliminary Analyses

We examined group differences in demographic variables between suicidal patients and controls (see Table 2). A series of Pearson's chi-square tests revealed no significant differences between groups on gender ($X^2(1) = 0.10$, $p = .749$), marital status ($X^2(3) = 4.61$, $p = .203$), educational status ($X^2(4) = 3.58$, $p = .465$), and employment status ($X^2(5) = 2.75$, $p = .739$). Likewise, an independent t-test showed no significant age difference between groups ($t(36) = 0.10$, $p = .920$). These analyses indicate that the recruitment strategy succeeded in matching the two groups on major demographic variables. However, small group differences in marital status, educational status, and employment status cannot be ruled put, as the study was only powered to detect large effects.

As expected, participants in the suicidal group reported significantly higher levels of hopelessness than the control group (see Table 3). The mean score of 9.60 in the suicidal group is similar to scores found for suicidal individuals in previous studies of suicidality (Arie et al., 2008; Williams et al., 2005) and is above the threshold of 9, indicating concerning levels. However, hopelessness scores ranged widely (from 0-19) within the suicidal patients, possibly suggesting that some of our participants had improved at the time of study participation, which took place 4-6 weeks into the treatment.

Also as anticipated, the suicidal group reported significantly more symptoms of psychopathology overall when compared to the control group (see Table 3). Specifically, suicidal patients reported significantly higher levels of depression, anger, anxiety, somatic symptoms, suicidal ideation, sleep problems, memory problems, repetitive thoughts and behavior, and impaired personality function compared to controls. No significant differences were found in symptoms of mania, psychosis, dissociation, or substance use (see Table B1 for statistical analyses of group differences on subdomains of psychopathology).

Past Life Story Chapters

There was no significant difference in the number of past chapters between suicidal patients and controls. As expected, suicidal patients' narrative identities indicated negative past self-continuity when compared to controls (see Table 3, left side). Specifically, suicidal patients rated the emotional tone of their past chapters as less positive and more negative than controls. They also rated past chapters lower on positive self-stability and positive self-change, while negative self-stability and negative self-change were rated higher. The content coded measures showed a similar pattern, revealing that suicidal patients described past chapters with a more negative emotional tone and less positive meaning-making, although no group differences were found for negative meaning-making (see Appendix A for content coded examples of positive emotional tone and meaning-making as well as negative

emotional tone and meaning-making). Effect sizes were generally large except for negative meaning-making, where a medium effect size was found. Although not statistically significant, this effect may still represent a meaningful difference, as the study was only powered to detect large effects (d = 0.91 or greater).

As some of the participants in the suicide group had low hopelessness scores, we decided to explore past chapters focusing on patients scoring over the cut-off of concerning hopelessness (> 9). Thirteen suicidal patients were included in these analyses and compared to the control group (see Table 3, right side). The results were similar to those reported above examining the full suicide group, but effect sizes tended to be larger.

Future Life Story Chapters

The suicidal patients described fewer future chapters and rated their future chapters as less probable compared to controls (see Table 3, left side). Surprisingly, we found no significant differences between the groups on self-report measures indicating negative self-continuity in future chapters. Likewise, there were no significant differences in content coded emotional tone or positive meaning-making. However, suicidal patients included significantly more negative meaning-making when describing their future chapters. We note that the two groups generally differed in the expected ways, although the effect sizes were moderate and hence not significant. Given that the study was only powered to detect large effects (d = 0.91), these moderate effects may reflect meaningful differences between groups.

As for past chapters, we decided to analyze the subgroup of suicidal patients scoring above concerning levels of hopelessness (N = 10, except for number of future chapters N = 13). Parallel to the analyses reported above, suicidal patients high in hopelessness described fewer future chapters and rated future chapters lower on subjective probability compared to controls. However, this subgroup did report significantly higher levels of negative emotional tone and negative self-change compared to controls, while positive emotional tone was

significantly lower. Moreover, this subgroup had more negative content coded emotional tone and higher negative meaning-making compared to the control group. Notably, larger effect sizes were found across all variables compared to analyses involving the entire suicidal group indicating that negative future self-continuity is more present when hopelessness is high (see Table 3, right side).

Discussion

We examined past and future life story chapters in suicidal patients and non-clinical controls to provide a narrative identity perspective on self-continuity disruptions. Suicidal patients constructed past chapters indicating more negative self-continuity, as assessed both by self-report and content coding. For future chapters, most measures followed the expected pattern of a more negative future self-continuity for suicidal patients, although the effect sizes were smaller and only significant for negative meaning-making. However, suicidal patients had fewer future chapters and rated their subjective probability lower compared to controls. When considering a sub-group of patients with high hopelessness, we found significant differences for emotional tone, negative self-change, and negative meaning-making in future chapters.

Past Chapters and Suicidality

Our finding that the suicidal group narrated their past chapters with less positive and more negative emotional tone and self-event connections generally mirrors findings from studies of individuals with psychopathology (Dalgleish et al., 2011; Jensen et al., 2020; Lind, Thomsen, et al., 2019; Pedersen et al., 2024). This indicates that the pattern may reflect poor mental health more generally rather than being specific to suicidality. In addition, the more negative and less positive past chapters could reflect adversity, as individuals with high suicide risk have experienced more adverse life events (Rutter, 1986; Strauss et al., 2020).

Research shows that suicidal individuals recall more negative and fewer positive memories compared to controls (Kaviani et al., 2005; Williams & Broadbent, 1986), indicating that biased memory retrieval could also play a role. However, narrative identity is shaped not only by memory but also by how individuals interpret relations between events and the self (McAdams, 2001; Pasupathi et al., 2007). Such self-event connections can foster or hinder adaptive self-continuity, depending on whether they support positive or negative self-continuity. In this study, suicidal patients reported less positive and more negative self-event connections and included less positive meaning-making than controls, thereby reinforcing negative past self-continuity. While previous research has related suicidality to diminished past self-continuity (Chandler et al., 2003; Sokol & Eisenheim, 2016), our results extend this literature by suggesting that negative past self-continuity may also play a role.

Future Chapters and Suicidality

Our results did not indicate general negative future self-continuity in the suicidal group, although the non-significant effects were in the expected direction. This finding aligns with previous research on future chapters in different clinical groups (Dalgleish et al., 2011; Jensen et al., 2020). Previous studies have found significant effects when examining specific future events in relation to suicidality (McLeod et al., 1993; Rasmussen et al., 2010) and it is possible that the effect for future chapters is weaker because chapters depend more on abstract memory representations (Conway & Pleydell-Pearce, 2000). Such abstraction may protect individuals with mental health problems from intrusive negative future events (Newby & Moulds, 2011), allowing a more positive future view. Moreover, studies examining specific future events typically assess suicidal participants' ability to generate as many event as possible within a constrained time frame and do not target identity salient events as is the case for our narrative approach. Struggles with identifying positive future chapters could be even more consequential than reduced fluency in generating positive

specific future events, as it would massively impact identity and broad future outlook. Hence, the smaller effect sizes and lack of significant differences for positivity in future chapters may represent a narrative strategy for protecting hope despite suicidal ideation and difficulties with imagining specific positive future events.

The idea that suicidal patients' positive future chapters may reflect an effort to preserve hope despite current challenges (Jensen et al., 2020;), find support in the analyses showing that when only the subgroup high on hopelessness was included, significant differences emerged, with suicidal patients describing future chapters as more negative and less positive than controls. This tendency may reflect negative future self-continuity. Although research has suggested that future self-continuity can protect against suicidal tendencies (Chandler et al., 2003; Sokol & Eisenheim, 2016;), we suggest that future self-continuity may be negative when it locks individuals into a deteriorating and hopeless trajectory. Individuals with a negative past narrative identity would gain self-continuity by constructing a negative future narrative. However, our subgroup analyses indicate that this pattern of negative self-continuity would be associated with worse outcomes. Rather than perpetuating persistence of a negative past, vulnerable individuals need to construct a positive future narrative while preserving self-continuity. As individuals draw on the past to project their future (Schacter et al., 2007), creating positive future self-continuity in light of a negative past likely represents a substantial psychological challenge (Pedersen et al., 2024). Indeed, narrating a positive future could also be viewed as indicative of self-continuity problems in the suicidal group.

The relatively positive future chapters narrated by the suicidal patients may emerge because they, like nonclinical groups, rely on the life script when thinking about their future (Berntsen & Bohn, 2010). The life script refers to internalized culturally agreed upon milestones in the idealized life that individuals use to construct their life stories (Berntsen & Rubin, 2004). However, suicidal individuals likely have past lives that deviate from the

positively biased life script, as indicated by their negative chapters and research on adversity (Serafini et al., 2015; Bruffaerts et al., 2010), which could challenge the future projection of their life stories. The use of the life script may result in overly abstract positive future chapters lacking the personal detail that could be provided by anchoring in positive past chapters, with the benefit of avoiding negative future self-continuity, but risking a fragile positive future self-continuity (see Appendix C for examples of positive and negative future chapters). This idea is consistent with the lower probability ratings for future chapters in suicidal patients and with research documenting struggles with generating specific, positive future events that would provide richer detail in future chapters.

In addition to negative future self-continuity and a fragile positive future self-continuity resulting from overly abstract chapters with low subjective probability, disrupted future self-continuity might also reveal itself with difficulties in generating future chapters. This pattern was observed in suicidal patients constructing significantly fewer future chapters compared to controls and four patients were unable to generate any future chapters (see also Jensen et al., 2020; Pedersen et al., 2024).

Clinical Implications

Reconstructing narrative identity through encouraging positive interpretations of past experiences that may foster adaptive self-continuity could be beneficial (Thomsen et al., 2023). As evident, the construction of a future narrative identity that promotes positive self-continuity may be especially challenging. Narrative interventions that aid individuals in creating positive, realistic, and meaningful future chapters well-anchored in valued parts of the narrative past could help create positive future self-continuity, possibly reducing suicide risk (Sokol et al., 2021).

Limitations

The cross-sectional design prevents conclusions about causality, which needs to be addressed in prospective and intervention studies of narrative identity and suicidality. Second, the patient group may not be representative of the wider population of suicidal individuals, both because they were in treatment and because the response rate was relatively low. Third, the small sample size limited the statistical power of the study, which was only powered to detect large effects. Future research with larger sample sizes is needed to replicate and validate these findings. Fourth, the patterns observed may reflect patients in improvement and we are unable to assess which of the narrative identity indicators reflect the most severe self-continuity problems and acute suicidal risk. Fifth, we cannot rule out the possibility that the findings reflect poor mental health or general adversity rather than suicidality specifically. Future studies could compare clinical groups, groups with various types of adversity, and groups high on suicidality to identify narrative identity characteristics unique to suicidality.

Conclusion

This study illuminated different facets of self-continuity problems in suicidal individuals through a narrative identity perspective. While negative past self-continuity seems to be a marker of suicidality as well as poor mental health more generally, challenges with future self-continuity may manifest in different ways. Patients high on hopelessness showed evidence of negative future self-continuity. However, other indicators of challenges with future self-continuity may include an abstract positive future low on subjective probability and difficulties in generating future chapters.

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Appendix A

Chapters Illustrating Content-Coded Emotional Tone and Meaning-Making

Depression

Over the past three years, I have had periods of mild depression, which have resolved on their own. At the end of February 2020, I could feel that I was starting to dip. In mid March, I met a guy through Instagram, who made me doubt my current relationship. The connection with this guy started off really well, but over the course of several months, it became very toxic and had a major negative impact on my self-esteem. It worsened my depression, and eventually I became so upset about the whole situation, along with feelings of guilt toward my current boyfriend, that I attempted to take my own life in [date].

Past chapter coded with negative emotional tone = 1

Fear

However, I have a fear that this won't succeed, my girlfriend and I might break up, and that I'll be pulled into a negative spiral like some of my family has been. It's a dark future, where I might struggle to keep myself going, as everything could fall apart, and I would see no value in my life. A life where I would continue to be dependent on antidepressants just to get through the day. That is my greatest fear.

Future chapter coded with negative emotional tone = 1

My friends on [street name]

I was truly fortunate to spend my entire childhood on [street name], living in an ordinary house surrounded by my best friends. There were three boys my age who, by coincidence, went to the same kindergarten as I did, and later to the same primary school. We played football, PlayStation, jumped on the trampoline, drank our first beer together, and could

share everything with each other. We were literally living a good life. It was an unforgettable time.

Past chapter coded with positive emotional tone = 5

Completion of education

In this chapter, I hope to have finished an education. I also hope to have done well, maybe even found a partner. Finally, I hope to secure a reasonable job with career advancement opportunities, providing stability in life.

Future chapter coded with positive emotional tone = 4

Alone with no help from family, along with exclusion from community

Growing up with a fundamental sense of being alone and having to fend for myself. ***I remember this feeling from the age of six, and it has been a basic premise throughout my entire life.*** *My family provided me with food but not care, and they were never emotionally available. The reason I have made it through life is that, from an early age,* ***I learned the hard way how to take care of myself.*** *[...] My parents divorced when I was four years old. I grew up with my mother and sister, who had, and still have, a symbiotic, very close relationship. I was the "extra" child they didn't expect. [...] I remember from a very young age learning to adapt and serve my mother and sister, acting almost as a servant to them. There was never any room for me. I recall asking my father around the age of six if I could live with him. He said no, as he had a new wife and she had a child, which became his new family. [...]* ***As an adult, I still feel an indefinable sense of being on the outside, not part of anything. This feeling has rooted itself so deeply within me that it affects the way I interact with others. It is as if I assume in advance that I won't be accepted into any group. I try to work on overcoming this feeling, but I am repeatedly caught in that sense of being left out.***

Past chapter coded with negative meaning-making (bold) = 2.

My work life

One day, I will finish my studies, and I need to find a job. ***Since I'm a man without ambitions or enthusiasm****, I just need to be placed somewhere where I can't do any harm****. In my view, working is the primary way to contribute to others and justify one's existence****, and considering that society has funded my education, it's the least I can do. I have no expectations or dreams about the job market, so my starting point is unclear.*

Future chapter coded with negative meaning-making (bold) = 1.

[Country]

It took me pushing all my boundaries, but I eventually made it to a folk high school in [country]. It challenged me in many ways. ***I became better at processing my thoughts and dealing with my paranoia.*** *And for the first time, I felt welcomed in a social setting. I made real friends for the first time.* ***I also learned to let things go and laugh a bit at the world and at myself.*** *Thoughts of suicide became less frequent during that time, and even though life was still difficult,* ***I got better at making the most of it.***

Note. Past chapter. Positive meaning-making marked with bold = 2.

Experiencing the world

Another wish, one I've dreamed of for many years but have not yet dared to fulfill, is to take that big leap out into the world and experience something truly extraordinary while I still have the chance. Exactly where that experience should take me remains unclear. However, the dream is not just one single journey but several destinations around the world. I have many ideas for different trips and many ideas for ways to do it. The step is a big one, but ***I'm certain that this step will make me stronger and more independent. Perhaps it will also give***

me the courage to try other things in life and make it harder for anything to knock me off course.

Note. Future chapter. Positive meaning-making marked with bold = 2.

Appendix B

Table B1

Group Differences for Domains of Psychopathology

	Suicidal patients (N, %)	Controls (N, %)	X^2	*p*
Depression	17 (85)	4 (20)	16.94	<.001
Anger	13 (65)	6 (30)	4.91	.027
Mania	10 (50)	5 (25)	2.67	.102
Anxiety	16 (80)	3 (15)	16.94	<.001
Somatic symptoms	12 (60)	2 (10)	10.99	<.001
Suicidal ideation	15 (75)	0 (0)	24.00	<.001
Psychosis	4 (20)	1 (5)	2.06	.151
Sleep problems	11 (55)	2 (10)	9.23	.002
Memory problems	14 (70)	1 (5)	18.03	<.001
Repetitive thoughts and behavior	13 (65)	2 (10)	12.91	<.001
Dissociation	6 (30)	2 (10)	2.50	.114
Personality function	12 (60)	5 (25)	5.01	.025
Substance use	11 (55)	13 (65)	0.42	.519

Note. N and % refers to participants reporting symptoms within each domain of psychopathology.

Appendix C

Positive Future Chapters Illustrating Lack of Future Self-Continuity

Completion of education

In this chapter, I hope to have finished an education. I also hope to have done well, maybe even found a partner. Finally, I hope to secure a reasonable job with career advancement opportunities, providing stability in life.

Career and family focus

After completing my education, I hope I can focus on both my career and personal life. By then, I wish to be in a relationship with someone I see a future with. Professionally, I aim to be permanently employed in a meaningful job that offers both support and challenges.

Negative Future Chapters Illustrating Negative Future Self-Continuity

The education is failing

What makes me anxious about the future is that I don't have anything stable to hold my everyday life together. That's why I'm convinced I'll end up in a worse mental state than I'm in now with my depression. For that reason, I want an education that I can manage.

My child in school

My greatest fear is the thought of one day having a child. What if they end up experiencing the same crap I did, becoming just as insecure as me? I fear the day I hear my child crying in the room because they've been bullied at school, just as I once was.

Table 1

Questions for Past and Future Life Story Chapters

	Questions for past chapters	Questions for future chapters
Positive emotional tone	How positive were the events in this chapter?	How positive do you imagine the events in this chapter?
Negative emotional tone	How negative were the events in this chapter?	How negative do you imagine the events in this chapter?
Positive self-stability	Does the chapter highlight any positive characteristics that describe who you are as a person?	Do you imagine that the chapter highlights any positive characteristics that describe who you are as a person?
Negative self-stability	Does the chapter highlight any negative characteristics that describe who you are as a person?	Do you imagine that the chapter highlights any negative characteristics that describe who you are as a person?
Positive self-change	Has the chapter caused you to change in a positive way?	Do you imagine that the chapter will cause you to change in a positive way?
Negative self-change	Has the chapter caused you to change in a negative way?	Do you imagine that the chapter will cause you to change in a negative way?
Subjective probability	N/A	How likely do you think it is that the chapter will become part of your future life?

Note. All questions were rated from 0 = not at all; to 5 = to a very high degree.

Table 2

Demographic Variables for the Suicidal Patients and the Control Group

		Suicidal patients	Controls
Gender (N, %)	Women	11 (55)	12 (60)
	Men	9 (45)	8 (40)
Age (M, SD)		31.11 (11.27)	30.74 (11.31)
Educational status (N, %)	Primary School	3 (15)	0 (0)
	High School	7 (35)	9 (45)
	Vocational School	2 (10)	2 (10)
	Bachelor's degree	7 (35)	7 (35)
	Master's degree	1 (5)	2 (10)
Employment status (N, %)	Unemployed	3 (15)	2 (10)
	Student	10 (50)	11 (55)
	Full-time employment	3 (15)	5 (25)
	Part-time employment	1 (5)	0 (0)
	Retired	1 (5)	0 (0)
	Other	2 (10)	2 (10)
Marital status (N, %)	Single	10 (50)	7 (35)
	In a relationship	6 (30)	7 (35)
	Married	2 (10)	6 (30)
	Divorced	2 (10)	0 (0)

Note. [a]One suicidal patient and one control did not report their age, and hence are not included in the analyses.

Table 3

Group Differences on Narrative Identity Characteristics, Hopelessness, and Psychopathology

	Controls M (SD)	Suicidal patients M (SD)	t-value	*p*	Cohen's d	Suicidal patients (high BHS) M (SD)[b]	t-value	*p*	Cohen's d
Past chapters									
Positive tone	3.92 (0.65)	2.68 (0.63)	6.15	<.001	1.95	2.54 (0.70)	5.78	<.001	2.06
Negative tone	2.40 (0.64)	3.68 (0.89)	5.24	<.001	1.66	3.81 (0.93)	5.13	<.001	1.83
Positive self-stability	3.80 (0.69)	2.87 (0.95)	3.55	.001	1.12	2.49 (0.85)	4.85	<.001	1.73
Negative self-stability	2.34 (0.54)	3.21 (1.09)	3.17	.003	1.00	3.28 (1.19)	3.09	.004	1.10
Positive self-change	4.30 (0.46)	2.83 (0.84)	6.83	<.001	2.16	2.60 (0.69)	8.55	<.001	3.05
Negative self-change	1.83 (0.44)	3.31 (1.00)	6.06	<.001	1.92	3.29 (1,12)	4.46	<.001	1.87
Emotional tone	3.34 (0.52)	2.08 (0.50)	7.84	<.001	2.48	2.01 (0.53)	7.08	<.001	2.52
Positive meaning-making	0.80 (0.46)	0.34 (0.24)	3.89	<.001	1.23	0.36 (0.26)	3.45	.002	1.10
Negative meaning-making	0.29 (0.29)	0.48 (0.39)	1.71	.096	0.54	0.51 (0.42)	1.66	.113	0.64
Number of past chapters	4.95 (0.22)	4.45 (1.05)	2.08	.05	0.66	4.31 (1,18)	1.94	.076	0.85
Future chapters[a]									
Positive tone	4.31 (0.55)	3.93 (0.88)	1.59	.121	0.53	3.60 (0.88)	2.72	.011	1.05
Negative tone	2.07 (0.57)	2.47 (0.82)	1.73	.094	0.58	2.75 (0.78)	2.73	.011	1.06

	Controls M (SD)	Suicidal patients M (SD)	t-value	*p*	Cohen's d	Suicidal patients (high BHS) M (SD)[b]	t-value	*p*	Cohen's d
Positive self-stability	3.81 (0.93)	3.65 (0.89)	0.53	.600	0.18	3.20 (0.72)	1.79	.084	0.69
Negative self-stability	2.14 (0.78)	2.47 (0.76)	1.27	.213	0.43	2.64 (0.78)	1.61	.115	0.63
Positive self-change	3.91 (0.82)	3.94 (0.99)	0.10	.919	0.03	3.56 (1.03)	1.00	.324	0.39
Negative self-change	1.78 (0.56)	2.11 (0.85)	1.43	.163	0.48	2.34 (0.92)	2.10	.045	0.81
Subjective probability	4.09 (0.94)	3.32 (0.84)	2.56	.015	0.86	2.91 (0.62)	3.58	.001	1.39
Emotional tone	3.75 (0.42)	3.45 (0.79)	1.48	.147	0.50	3.20 (0.77)	2.57	.016	1.00
Positive meaning-making	0.49 (0.41)	0.50 (0.56)	0.11	.917	0.04	0.30 (0.39)	1.15	.260	0.45
Negative meaning-making	0.10 (0.16)	0.43 (0.41)	3.03	.007	1.11	0.56 (0.44)	4.21	<.001	1.63
Number of future chapters	4.25 (1.25)	3.05 (1.96)	2.31	.028	0.73	2.62 (1.85)	2.80	.011	1.08
Hopelessness	2.30 (2.49)	9.60 (6.62)	4.61	<.001	1.46	13.92 (3.17)	11.75	<.001	4.19
Psychopathology	10.05 (7.50)	31.50 (13.28)	6.29	<.001	1.99	37.31 (10.57)	8.68	<.001	3.09

Note. [a]Four suicidal patients did not describe any future chapters and are therefore not included in the analyses of future chapter characteristics, except from number of future chapters (scored as zero). [b]Seven suicidal patients with BHS scores below 9 were excluded from the analyses, resulting in 13 patients in the sample for past chapters and 10 patients for future chapters.