MIXED METHODS ANALYSIS OF USER ENGAGEMENT, LINGUISTIC INDICATORS, AND PSYCHOLOGICAL ASSOCIATIONS IN ONLINE SUICIDAL BEHAVIOR

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T. Flynn Kelly-Brunyak

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ABSTRACT

This research examined suicidal ideation and behavior in Sanctioned Suicide, an uncensored online forum where users openly discuss suicide. We analyzed 10,646 posts from 4,087 users. First, linguistic analysis revealed that positive tone predicted increased community responses while negative tone decreased responses. Second, receiving responses from others predicted continued posting only for users making venting posts, not method or goodbye posts. Third, "Goodbye" posts displayed significantly higher positive tone and future orientation compared to venting or method posts, consistent with paradoxical positivity shifts observed in suicide notes. Fourth, content analysis revealed that unbearability showed significant association with suicide behaviors while unlovability and unsolvability did not, providing partial ecological validation of these clinical constructs in naturalistic discourse. Fifth, specific stressor categories did not predict suicide behaviors in cross-sectional posts, suggesting temporal dynamics not captured within single communications.

Findings reveal distinct social, cognitive, and linguistic dynamics in online suicide discourse. Positive emotional expression increases engagement but may signal acute risk when appearing in farewell posts. Unbearability emerged as the most proximal cognitive marker of behavioral progression. The absence of cross-sectional stressor-behavior associations underscores limitations of single-post analysis and highlights the need for longitudinal approaches. These insights inform digital risk detection strategies and suicide prevention efforts tailored to online community dynamics.

Keywords: sanctioned suicide, suicidal behavior, suicide cognitions scale, mixed methods, online forums

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CHAPTER ONE

INTRODUCTION AND GENERAL INFORMATION

Mixed Methods Analysis of User Engagement, Linguistic Indicators, and Psychological Associations in Online Suicidal Behavior

Suicide represents a critical global health concern, claiming approximately 800,000 lives annually and affecting communities across cultural, economic, and geographic boundaries (WHO, 2021). This public health crisis ranks among the top 20 leading causes of death globally and constitutes the fourth leading cause of mortality among those aged 15–29 years. In the United States, suicide is the second leading cause of death among children aged 10–14 and young adults aged 25–34 (CDC, 2021). Beyond mortality, the burden of suicide extends to families, communities, and healthcare systems, with conservative estimates suggesting that for every death approximately 20 others attempt suicide and many more experience serious suicidal ideation (WHO, 2021).

Despite this, a substantial treatment gap persists. Studies indicate that up to two-thirds of people who die by suicide do not access formal mental health services in the year prior to their death (Stene-Larsen & Reneflot, 2019; Walby et al., 2018). Barriers such as stigma, fear of hospitalization, financial constraints, and limited service availability often deter individuals from seeking care (Hom et al., 2015). In the absence of formal supports, individuals experiencing suicidal thoughts and behaviors increasingly turn to digital environments as sources of connection and information (Eysenbach et al., 2004; Harris et al., 2009; Scherr & Reinemann, 2016; Seward & Harris, 2016). Research suggests that online forums provide unique spaces for disclosure and peer support, while

also introducing ethical and clinical challenges related to contagion and authenticity (Westerlund, 2012; Scourfield et al., 2012).

CHAPTER TWO

LITERATURE REVIEW

Online Communities and Suicide Support

The landscape of online suicide communities has evolved significantly over the past decade, with platforms ranging from preventive support forums to pro-suicide websites (Marchant et al., 2017). These digital spaces occupy different positions along a spectrum of suicide discourse, from prevention-oriented to method-focused communities. Harris et al. (2009) identified three distinct types of suicide forums: support forums emphasizing prevention, communities with ambiguous stances on suicide, and pro-suicide forums that explicitly discuss methods and support autonomous decision-making around suicide. Sanctioned Suicide falls primarily into this third category, though user perspectives remain diverse.

Research examining user motivations across these platforms has revealed complex patterns of engagement. Westerlund et al. (2012) found that individuals frequenting suicide forums often sought connection with others experiencing similar thoughts, validation of their emotional pain, and information that might help them understand their suicidal ideation. Paradoxically, even in forums where suicide methods were openly discussed, many users reported that participation decreased their immediate suicide risk by providing a sense of community and reducing feelings of isolation. This finding highlights the sometimes counterintuitive relationship between discussing suicide and actual suicide risk (Niederkrotenthaler et al., 2016).

The therapeutic potential of online suicide communities remains contested. While some research suggests that participation can reduce stigma and provide valuable peer support (Webb et al., 2008), other studies have documented concerning dynamics like suicide contagion, normalization of suicidal behavior, and anti-help-seeking attitudes (Daine et al., 2013). The anonymous nature of these interactions creates both opportunities and challenges – users may disclose thoughts they would never share in person, but this anonymity can also facilitate harmful encouragement or misinformation about suicide methods (Luxton et al., 2012).

Digital expressions of suicidal thinking may differ systematically from those captured in clinical settings. Masuda et al. (2013) analyzed linguistic patterns across suicide notes, therapy transcripts, and online suicide forum posts, finding distinctive features in each context. Online expressions tended to contain more explicit descriptions of emotional suffering and fewer social references than suicide notes, suggesting these platforms may capture different aspects of suicidality.

Content analysis of suicide forums has also revealed complex thematic structures. Scourfield et al. (2012) identified six major themes in suicide forum communications: disclosure of suicidal feelings, constructing suicide as rational, emotional support, factual information, attitudes toward intervention, and moral deliberations. These themes suggest that user engagement extends beyond simple information-seeking to include complex social and existential dimensions of suicidal experience.

Research interest in the connections between suicide and the internet has grown steadily since the mid-1990s (Krysinska et al., 2017). A comprehensive mapping study

identified 237 articles examining suicide and the internet between 1997 and 2015, with more than half published after 2011. Online suicide forums present both potential risks and benefits. On one hand, they can facilitate easy access to information on suicide methods, normalize suicide behaviors, and potentially discourage professional help-seeking (Krysinska et al., 2017). In some cases, these platforms have even been used to arrange suicide pacts or broadcast suicidal acts in real time. On the other hand, they can provide anonymous and nonjudgmental environments for sharing personal experiences, support socially isolated individuals, and enable real-time intervention when users disclose imminent suicidal plans (Fu et al., 2013; Krysinska et al., 2017).

Beyond general mapping studies, research has also examined the characteristics of suicidal individuals who use online platforms. Bell et al. (2018) found that young people engaging in suicide-related internet use represent a higher-risk group, reporting greater social anxiety than their peers who do not go online for such purposes. They identified two main motivations for engaging with suicide-related internet forums: connecting with others and seeking information about methods, each carrying both benefits and risks. While forums often reduced isolation and provided safe spaces for self-expression, some users reported that pessimistic or disruptive content intensified suicidal feelings. These findings underscore the importance of careful moderation to balance open expression with safety.

Engagement in online support forums is not necessarily sustained or uniformly positive. Low et al. (2021) analyzed over 21,000 posts from Reddit's r/SuicideWatch and found that posts receiving only one comment (the most common outcome) were

associated with a 14% decrease in the likelihood of users posting again. Rather than reducing future posting, higher levels of engagement encouraged continued participation. These findings suggest that active response cultures may be critical for both keeping users connected to online communities and reducing suicide risk.

Research on online forums more broadly suggests that emotional content—whether positive or negative—tends to increase user responses, with posts high in arousal eliciting greater engagement than neutral ones (Berger & Milkman, 2012). Importantly, recent findings indicate that positive posts can generate more comments than negative posts, suggesting that emotional tone may shape engagement patterns in context-dependent ways (Chen & Xia, 2024). Similarly, studies of online health support communities have found that both positive and negative self-disclosures can elicit supportive replies, suggesting that message valence plays a role in shaping engagement (Wang et al., 2015).

However, whether these general patterns of online engagement apply to suicide-specific forums like Sanctioned Suicide remains an open question. The unique nature of suicide discourse—characterized by life-threatening content and a vulnerable user base—may produce different engagement dynamics than those observed in general online communities. Understanding whether positive linguistic cues predict engagement in this context could reveal whether suicide forums follow general online behavior patterns or operate according to distinct social dynamics shaped by their sensitive subject matter.

Examining shifts in language preceding suicide is essential for improving our detection and prevention strategies, as previous studies reveal correlations between

linguistic patterns and the psychological states of individuals at risk. A linguistic analysis of suicide notes from those who completed suicide displayed more future-focused language, social connections, and positive expressions compared to those from attempters, indicating more complex emotional states in their last communications (Handelman & Lester, 2007). Similarly, Barnes et al. (2007) noted a linguistic shift in suicide-related letters over time, with a reduction in negative emotions and an uptick in death-related terms. These studies highlight the critical role of understanding linguistic cues for suicide prevention, emphasizing counterintuitive indicators of suicide risk, such as sudden emotional improvements.

The finding that *reduction* in negative linguistic markers may signal heightened suicide risk has critical implications for online suicide forums. In clinical settings, sudden improvements in mood are recognized as potential warning signs for imminent suicide attempts, as they may indicate that a person has resolved their ambivalence and committed to a plan (Barnes et al., 2007; Handleman & Lester, 2007; Simon & Gutheil, 2009). However, this pattern is less well-established in online contexts, where users may not be under clinical observation.

Goodbye posts on Sanctioned Suicide exhibit similar positive linguistic shifts as those found in suicide notes from completers. This suggests that automated linguistic analysis could help identify users at imminent risk in real time. Such detection could guide forum moderators and clinicians in distinguishing posts reflecting ongoing distress, which may benefit from engagement, from posts signaling imminent action, which may require urgent intervention.

Recent advances in social media analytics facilitate this. Zuromski et al. (2024) developed a deep learning algorithm that identified suicide-related posts among military personnel. Their algorithm demonstrated high sensitivity (0.85) and specificity (0.96), highlighting linguistic markers such as explicit references to suicide, first-person pronouns, negations, and help-seeking language. These findings demonstrate that natural language processing can detect elevated risk outside clinical settings, suggesting relevance for uncensored forums like Sanctioned Suicide, where users may disclose suicidal thoughts more candidly.

Integrating Cognitive and Digital Perspectives on Suicide

This study integrates two theoretical frameworks to examine online suicidal behavior: the Fluid Vulnerability Theory (FVT) of suicide (Rudd, 2006) and the Online Disinhibition Effect (Suler, 2004). This integration provides a comprehensive lens for understanding how digital environments may influence the expression and progression of suicidal thoughts and behaviors.

The Fluid Vulnerability Theory conceptualizes suicide risk as a dynamic process rather than a static state. According to this model, suicidal episodes emerge from the interaction between background vulnerability factors (e.g., genetic predisposition, early life experiences) and acute stressors. Central to FVT is the concept of the "suicidal mode" – an organized network of cognitive, affective, physiological, and behavioral systems that, when activated, orient an individual toward self-destruction (Bryan & Rudd, 2018). This mode is characterized by specific cognitions regarding perceived

burdensomeness, thwarted belongingness, hopelessness, and a sense that one's situation is unbearable and unsolvable (Joiner et al., 2005; Rudd & Bryan, 2021).

FVT emphasizes cognitive factors in suicidal behavior, highlighting how distorted thought patterns can create a state of cognitive constriction where suicide appears to be the only viable solution to intolerable psychological pain. For example, maladaptive core beliefs such as “The world would be better off without me,” “I can't cope with my problems any longer,” and “No one can help me solve my problems” represent enduring cognitive schemas that, when activated by life stressors, increase vulnerability to acute suicidal episodes (Bryan et al., 2022). The Brief Suicide Cognitions Scale (B-SCS) operationalizes these patterns through three key dimensions: perceived unbearability (“I can't stand this pain anymore”), unlovability (“I am completely unworthy of love”), and unsolvability (“My problems cannot be fixed”) (Bryan & Rudd, 2023a).

Importantly, these cognitive constructs demonstrate strong predictive validity for future suicide attempts. In a clinical sample of emergency department patients, the B-SCS achieved perfect sensitivity (1.00) in identifying individuals who attempted suicide during a 6-month follow-up period, with all 16 patients who attempted having scored above the clinical cutoff at baseline (Rudd & Bryan, 2021). Additionally, research with primary care patients found that all B-SCS items significantly differentiated those who later attempted suicide from those who did not, even among patients who denied current suicidal ideation and prior attempts (Bryan et al., 2022). Collectively, these findings underscore that suicidal cognitions represent enduring vulnerability factors that predict behavioral progression independently of self-reported ideation. These cognitions not only

distinguish suicidal ideation from behavior but also represent potential intervention targets.

While the B-SCS provides a structured clinical assessment of suicidal cognitions, our study examines whether these themes emerge naturalistically in uncensored online discourse. Rather than administering the scale, we coded forum posts for the presence of expressions reflecting unbearability, unlovability, and unsolvability, providing ecological validation of these theoretical constructs outside formal assessment contexts.

Complementing FVT, the Online Disinhibition Effect explains how digital environments alter psychological barriers that typically regulate behavior in face-to-face interactions. Suler (2004) identified six factors that contribute to disinhibition online: dissociative anonymity (separation from real-world identity), invisibility (lack of physical presence), asynchronicity (delayed reactions), solipsistic introjection (merging online others with internal voices), dissociative imagination (perceiving online as separate from reality), and minimization of authority (reduced status differences). These factors create conditions where individuals may express thoughts—including suicidal ideation—more openly than they would in physical environments. In the context of suicide forums like Sanctioned Suicide, the Online Disinhibition Effect may facilitate less socially constrained, more candid expressions of the cognitive patterns described in FVT.

Users, protected by anonymity and physical distance, may articulate their perceived unbearability, unlovability, and unsolvability without the self-censorship that often occurs in clinical or interpersonal settings. Disinhibition creates an opportunity to observe how suicidal cognitions manifest naturalistically in online discourse, potentially

revealing aspects of suicidal thinking that remain hidden in more structured assessment contexts.

The intersection of these frameworks guided our methodological approach. By analyzing linguistic patterns and content themes through the lens of FVT's cognitive constructs, while acknowledging the disinhibition effects of the online environment, we can develop a more nuanced understanding of how suicidal cognitions emerge and evolve in digital spaces. This perspective also informed our hypotheses about how specific cognitive patterns may predict transitions from ideation to behavior.

Research finds that suicidal ideation (SI) does not reliably predict suicidal behavior (SB; e.g., obtaining a method, researching methods, making a plan, giving things away). Many do not act on their ideation and about half of attempters deny any prior ideation (Berman, 2018; Bryan et al., 2021; Franklin et al., 2017; Simon et al., 2013). The presence of distinct risk factors for SI and SB further highlight the need for differentiation (Jacobucci et al., 2021; Klonsky & May, 2014; Nock et al., 2016). Bryan and Rudd's (2023b) framework is particularly important in this effort. It offers a way to distinguish individuals who engage in SI from those who progress to an attempt.

While FVT describes suicide risk as a dynamic, temporal process involving the interaction of background vulnerabilities and acute stressors over time, our cross-sectional design allows us to examine specific components of the theory. Specifically, we assessed whether FVT's cognitive constructs—unbearability, unlovability, and unsolvability—constitute distinct themes in naturalistic online discourse and whether they demonstrate differential associations with suicide behaviors. This approach provides

ecological validation of B-SCS constructs outside structured clinical assessment contexts, while acknowledging that the temporal vulnerability-stress interaction mechanism central to FVT requires longitudinal data that our design does not provide.

Sanctioned Suicide: An Uncensored Digital Environment for Suicide Discourse

Sanctioned Suicide (sanctioned-suicide.net) represents a unique digital environment where individuals experiencing suicidal thoughts can communicate without the constraints typically found in moderated platforms. Unlike mainstream social media sites that often restrict suicide-related content, this forum operates on a “pro-choice” philosophy that emphasizes user autonomy and uncensored expression (Lekkas & Jacobson, 2023). With over 58,000 members, the platform has become a significant digital space for those seeking to discuss suicide-related topics outside clinical environments (sanctioned-suicide.net).

The platform's structure resembles other anonymous forums like Reddit, with content organized by user-generated threads and responses. However, its distinctive feature lies in its explicit purpose: facilitating open dialogue about suicide without intervention or judgment. Users create accounts with anonymous usernames, allowing them to share intimate thoughts and experiences while maintaining privacy. This anonymity creates a space where individuals may express suicidal ideation more candidly than in face-to-face clinical assessments or other digital spaces where self-censorship is common due to stigma or fear of intervention (Sueki & Eichenberg, 2012).

The platform contains various post categories, including those labeled “Goodbye,” which often indicate imminent suicide plans. Other common thread types

include method discussions, personal narratives of suicidal experiences, philosophical debates about the ethics of suicide, and general support exchanges. This categorization system provides researchers with a natural taxonomy of suicide-related discourse that reflects users' own conceptualizations rather than researcher-imposed frameworks.

From a research perspective, Sanctioned Suicide offers unprecedented access to naturalistic expressions of suicidal cognition. Traditional suicide research typically relies on retrospective interviews, clinical scale measurements, or controlled laboratory settings, all of which may introduce various forms of bias (e.g., recall bias, social desirability effects, demand characteristics, and the artificiality of structured assessment contexts). In contrast, this platform captures real-time, unprompted communications from individuals at various stages of suicidal ideation and planning (Lekkas & Jacobson, 2023). This ecological validity makes it a valuable resource for understanding how suicidal thoughts manifest in everyday contexts and how individuals transition between different stages of suicidal behavior.

Studying this community presents significant ethical challenges. The tension between research potential and user privacy requires approaches that respect the vulnerability of this population while advancing scientific understanding. Our research methodology acknowledges these concerns through anonymization procedures, aggregate-level analysis, and minimal interaction with the original digital environment.

Not all suicide-related posts serve the same function or reflect the same stage of suicidal progression. Different post types on Sanctioned Suicide—operationally defined through user-assigned tags (“Method,” “Venting”) and title keyword searches

("Goodbye")—may represent distinct points along the pathway from ideation to action. Venting posts, which express emotional distress without specific planning, may reflect earlier stages where social connection could be protective. Method-focused posts represent more advanced planning and cognitive constriction—a narrowing of mental focus in which suicide appears to be the only viable solution (Shneidman, 1993)—around suicide as a solution. Goodbye posts often signal imminent intent and represent a terminal stage of engagement.

If forum engagement reinforces continued participation, then different post types suggest different implications. For venting posts, continued engagement might represent sustained help-seeking—potentially protective if it delays progression to planning. For method posts, engagement might reinforce planning behaviors. For goodbye posts, the relationship between responses and future posting may reveal whether community engagement can interrupt imminent suicidal action or whether users at this stage are beyond the influence of online support.

Operationalizing Suicide Behaviors in Online Contexts

In this study, we define reported suicide behaviors as actions or preparations that reflect progression along the suicidal continuum, extending beyond ideation to include planning, method acquisition, and attempt preparation. While our data source consists of written communications within an online forum, our coding scheme specifically identifies behavioral indicators rather than ideation alone. These behavioral markers include death concealment planning (e.g., arranging to hide one's death from family), preparation for suicide (e.g., obtaining lethal means, writing goodbye letters), mention of

specific suicide plans with timeline and method, discussion of method lethality and implementation, and reports of prior suicide attempts. This operational definition aligns with established frameworks that distinguish preparatory behaviors from ideation (Klonsky & May, 2014; Nock et al., 2016).

The Current Study

In this study, we explore the Sanctioned Suicide platform to identify the complexities of suicidal ideation (SI) and reported suicidal behavior (SB), with five key aims and corresponding hypotheses:

Aim 1. To analyze whether emotional tone and linguistic features predict response rates from other forum users. We hypothesize that posts with more positive emotional valence will receive more community responses, while posts with more negative valence will receive fewer responses. We measured valence through LIWC-22 tone and emotion metrics (positive tone, negative tone, positive emotion, negative emotion), controlling for word count.

Aim 2. To examine whether the number of responses users receive predicts their subsequent posting frequency. We hypothesized that users who receive more responses are likelier to post again, though this relationship may vary by post type.

Aim 3. To examine linguistic differences across post categories in the online community. Congruent with past research on suicide notes, we expect to see increased positive emotion, positive tone, and future focus in posts titled 'Goodbye,' indicating imminent suicidal intent.

Aim 4. We predict that unbearability, unlovability, and unsolvability will emerge as distinct cognitive themes in naturalistic discourse, consistent with their conceptualization as distinct constructs in the B-SCS framework (Bryan & Rudd, 2023). We explored their relative prevalence, co-occurrence patterns, and associations with reported suicide behaviors to provide ecological validation of these constructs in spontaneous online expressions.

Aim 5. To examine whether activating events and external stressors are associated with reported suicide behaviors in online discourse. We hypothesized that posts containing life stressors will show higher rates of reported suicide behavior mentions compared to posts without such stressors, providing insight into the co-occurrence of external pressures and behavioral manifestations of suicide in naturalistic online contexts.

This study offers several innovative contributions to suicide research. It utilizes a unique dataset from an online community providing insights into unfiltered discussions about suicide. Our approach uniquely combines linguistic analysis, user engagement metrics, and naturalistic expressions of suicidal ideation in a single study. To our knowledge, this is the first study to examine how constructs from the B-SCS naturally emerge in an online forum context, potentially bridging clinical assessment tools with spontaneous digital expressions of suicidal thoughts. The mixed-methods approach, focusing on the ecological validation of cognitive themes in authentic online discourse, aims to inform digital intervention strategies and the design of supportive online communities, representing a novel approach to suicide prevention in digital spaces.

CHAPTER THREE

MATERIALS AND METHODS

Participants

The study received approval from the relevant Institutional Review Board (UTK IRB-24-08456-XM). We analyzed publicly available data from the Sanctioned Suicide online forum, focusing on 10,647 original posts from 4,087 unique users. It is crucial to highlight that our interaction with the data was indirect; users post anonymously under usernames. Due to the anonymous nature of the forum, demographic information such as age, race, and gender is not consistently available. This precludes comprehensive analyses of subgroup differences (e.g., by gender, age, or race), which we acknowledge as a limitation given known demographic disparities in suicidal behavior. However, demographic information was coded during the qualitative coding phase when users explicitly disclosed it within their posts. To ensure privacy, all reports excluded usernames and direct text from the forum. During the coding phase, usernames were replaced with ID codes, ensuring no researcher could access the original usernames.

Apparatus

The Linguistic Inquiry and Word Count (LIWC-22) software (Pennebaker et al., 2022), R programming language, Microsoft Excel, and ATLAS.ti were used for data analysis. LIWC-22 is a text analysis program that calculates the percentage of words in a text that match predefined linguistic categories based on an internal dictionary of over 12,000 words and word stems. The software provides word counts within each category, which are then converted to percentages of total words, forming the quantitative linguistic data analyzed in this study. We utilized the following LIWC-22 dictionaries

and variables: (1) Tone (a composite summary variable reflecting overall emotional valence of the text, scaled 0-100, with higher scores indicating more positive overall tone), (2) positive emotion (e.g., happy, love, nice), (3) negative emotion (e.g., sad, angry, hate), (4) positive tone, (5) negative tone, and (6) future focus (words indicating future-oriented thinking, e.g., will, gonna, soon). Variables 2-6 represent the percentage of words matching each linguistic category. We used R to run statistical models, and Excel managed data organization, including sorting and filtering. Additionally, Excel supported the initial qualitative coding of posts, helping to categorize and analyze thematic content based on established coding schemes. ATLAS.ti, a qualitative data analysis software, was employed for more in-depth qualitative analysis, allowing for sophisticated coding, theme development, and visualization of complex relationships within the qualitative data.

Procedure

Data Collection and Preprocessing. The data for this study consisted of posts from the Sanctioned Suicide online forum, acquired through web scraping techniques rather than traditional survey responses. This approach allowed for the capture of naturalistic discussions without the potential biases introduced by researcher-driven questioning. We focused on original posts with specific user-generated tags or prefixes. We excluded replies to isolate the effects of community feedback on user behavior. The data was preprocessed to ensure anonymity and prepared for analysis.

Tag-Based Analysis Categories

Within the Sanctioned Suicide forum, posts are organized according to user-assigned tags that create categories of suicide-related discourse. This study focused on three distinct tag categories that represent different stages and expressions of suicidal thought and behavior: “Venting” tags identify posts where users express emotional distress, frustration, or personal struggles without necessarily indicating immediate suicide risk. These posts typically contain descriptions of psychological pain, interpersonal conflicts, or life stressors that contribute to suicidal ideation. The “venting” category offers insight into the day-to-day experiences and cognitive patterns that may precede suicidal behavior.

“Method” tags denote discussions focused on suicide methods, their efficacy, accessibility, and practical considerations. These posts represent a potential escalation from ideation toward planning and preparation. Method discussions often contain detailed questions about lethality, pain levels, or implementation strategies, indicating users who have moved beyond contemplation into more concrete planning stages.

“Goodbye” posts, identified through keyword searches of post titles rather than explicit tags, represent the highest risk category. These communications often serve as final messages before suicide attempts or completed suicides. They frequently contain expressions of finality, gratitude to community members, or explanations for the decision to end one's life. Goodbye posts provide critical insights into the cognitive and emotional states immediately preceding suicide attempts. By examining these three distinct categories (see Appendix A, Figures A1-A3 for representative examples of each post

type), we aimed to identify how specific cognitive themes (unbearability, unlovability, and unsolvability) manifested across the spectrum of suicidal expression. This approach enabled a more nuanced understanding of how psychological states may shift as individuals progress from ideation to planning and potentially to action.

Qualitative Content Analysis

Codebook Development and Initial Coding. The codebook was developed through an iterative, collaborative process between the principal investigator and another doctoral student-level researcher using content analysis methods (Hsieh & Shannon, 2005).The process began with open coding of an initial sample of 50 posts to identify emergent themes (inductive approach), while simultaneously incorporating theoretical constructs from suicide cognition literature, particularly the unbearability, unlovability, and unsolvability framework (Bryan & Rudd, 2023) as a deductive foundation.

The researchers independently coded batches of posts, meeting after each batch to compare codes, resolve discrepancies, and refine the codebook. This process continued until theoretical saturation was reached—the point at which no new substantive codes emerged from additional posts (Hennink et al., 2017). Saturation was achieved after coding approximately 120 posts, resulting in a comprehensive codebook that captured both the expected theoretical constructs and the unique, contextual elements of discourse within the Sanctioned Suicide community (see Table B1 in Appendix B for final codebook).

Research Assistant Training. Following codebook development and initial saturation, ten research assistants (RAs) were recruited and trained. The training process

began with a comprehensive orientation to the theoretical frameworks underlying the study, including Fluid Vulnerability Theory and the cognitive dimensions of suicidality. RAs then studied the codebook, including detailed definitions, inclusion/exclusion criteria, exemplar quotes, and coding decision trees for ambiguous cases.

Training involved practice coding of the same 120 posts used to establish saturation in the initial development phase. Practice coding was conducted in batches, with detailed feedback and discussion sessions following each batch. After each practice set, consensus meetings were held where discrepancies were discussed, ambiguities clarified, and challenging examples analyzed collectively. These sessions ensured consistent understanding of nuanced coding decisions. Before proceeding to actual data coding, each RA was required to demonstrate sufficient agreement with the established codes determined by the researchers on a final set of validation posts, defined as achieving Krippendorff's alpha $\geq .80$.

Coding Implementation. A structured coding process was implemented for the full dataset of 1,500 posts after training. Each post was coded by two different RAs working in rotating pairs to prevent systematic biases from specific coder combinations. Coding pairs worked collaboratively, with access to each other's codes in real-time to facilitate discussion and consensus. This approach ensured that all content received multiple perspectives and maintained high coding quality throughout the project.

The research team participated in mandatory weekly consensus meetings throughout the coding process. During these sessions, coding pairs presented challenging cases, discussed emerging patterns, and resolved coding disagreements through group

discussion and majority vote when necessary. The researchers provided guidance in cases of persistent ambiguity. This iterative consensus approach aligns with established qualitative coding methods that emphasize structured deliberation and resolution of coding discrepancies (Coates et al., 2021).

Throughout the coding process, systematic quality monitoring was conducted through random spot checks of approximately 10% of each week's coded material to identify any drift in coding application. When potential drift was detected, targeted retraining was provided to the relevant coders and affected posts were recoded as necessary.

Inter-rater Reliability. To assess coding reliability independent of the collaborative coding process, Krippendorff's alpha coefficients were calculated at multiple points throughout the coding process using blind, independent coding. Krippendorff's alpha was selected as the reliability measure due to its ability to handle multiple coders, missing data, and various levels of measurement. For these reliability assessments, coders worked independently without viewing each other's codes to provide unbiased estimates of agreement.

We conducted an intercoder agreement analysis on a random subset of 300 posts (20% of the full 1,500-post dataset). These posts were independently coded by six trained coders. Initial reliability was assessed after the training phase, with subsequent assessments conducted at the midpoint and completion of the coding process using stratified random samples of 10% of posts from each time period.

Because the coding scheme was designed to capture complex and nuanced features of online discourse related to suicide, we retained fine-grained codes in the full dataset to preserve theoretical granularity. However, for the reliability test, we made two adjustments consistent with methodological best practice using a semantic domain approach: (1) rare codes with minimal frequency (<10 instances in the IRR sample) were excluded, since very low base rates can distort α and produce unstable estimates (Krippendorff, 2004; Lombard, Snyder-Duch, & Bracken, 2002; Miles, Huberman, & Saldaña, 2019), and (2) conceptually overlapping subcodes were collapsed into broader parent categories to create two tiers of analysis. For example, specific stressor subcodes (e.g., interpersonal conflict, romantic breakup, family estrangement) were collapsed into a broader "interpersonal stressors" category, and individual mental health subcodes (e.g., depression, anxiety, PTSD) were grouped under "mental health indicators."

Alpha values were calculated separately for two tiers to distinguish between codes that were theoretically predetermined versus those that emerged inductively during analysis. The first tier consisted of primary theoretical constructs central to our research questions: activating events/stressors, suicide behavior, suicide cognitions (Brief Suicide Cognitions Scale dimensions), and support system dynamics. For these primary constructs, Krippendorff's $\alpha = .82$, indicating strong intercoder agreement and exceeding the recommended .80 threshold for acceptable reliability (Krippendorff, 2004). The second tier consisted of exploratory constructs including demographics, mental health indicators, abuse, and treatment barriers. For these exploratory constructs, Krippendorff's $\alpha = .84$, also indicating strong intercoder agreement (see Table C1 in Appendix C). These

reliability coefficients demonstrate consistent code application across multiple coders for both theoretically-driven and emergent constructs, providing confidence in the validity of our qualitative findings.

Statistical Analysis

We explored user interaction and emotional shifts within the Sanctioned Suicide online community through five comprehensive analytical approaches aligned with our research aims. First, we analyzed whether emotional tone and linguistic features predicted response rates from forum users. Using negative binomial regression to address overdispersion in the response count data, we modeled the number of responses as a function of linguistic features extracted via LIWC-22, including positive tone, negative tone, positive emotion, negative emotion, and word count as a control for post length.

Second, we examined whether the number of responses users received predicted their subsequent posting frequency. Using negative binomial regression to accommodate zero-inflation and overdispersion in posting data, we examined whether initial community engagement influenced continued user participation. The dependent variable was the number of subsequent posts made by each user, with average response count as the primary independent variable. We analyzed post categories (“Venting,” “Method,” “Goodbye”) as potential moderators by conducting separate analyses for each post type.

Third, we conducted one-way ANCOVAs to compare five key linguistic variables across the three post categories (“Venting,” “Method,” and “Goodbye”), with post length as a covariate. We focused on positive tone, negative tone, positive emotion, negative emotion, and future focus based on theoretical importance and previous findings. Post-

hoc comparisons using Tukey's HSD tests identified specific differences between categories while controlling for multiple comparisons.

Fourth, we analyzed how suicide cognitions (unbearability, unlovability, unsolvability) manifested across different post types through a mixed-methods approach. We coded for the presence of each theme and examined their association with reported suicide behaviors using chi-square tests and odds ratios. We also conducted qualitative co-occurrence analysis to explore relationships among cognitive constructs.

Finally, we examined whether activating events and external stressors were associated with reported suicide behavior communications in online discourse. Consistent with FVT, we hypothesized that posts mentioning acute stressors would show higher rates of suicide behavior mentions. We examined this through logistic regression with specific stressor categories (interpersonal, economic, health-related, and system/institutional) as predictors of suicide behavior presence in posts.

CHAPTER FOUR

RESULTS AND DISCUSSION

Results

Table 1 presents descriptive statistics for the full dataset and coded subsample. The dataset comprised 10,647 posts from 4,087 unique users, with an average post length of 192.13 words (*SD* = 226.11) and a mean of 11.48 responses per post (*SD* = 15.83). Most posts were categorized as venting (64.7%), followed by method discussions (30.6%) and goodbye posts (4.7%). Preliminary examination of linguistic features revealed that goodbye posts demonstrated notably higher positive tone (*M* = 6.75) compared to venting (*M* = 2.59) and method posts (*M* = 2.57), while venting posts showed the highest negative tone (*M* = 4.21). The coded subsample of 1,500 posts revealed that unbearability was the most frequently observed Brief Suicide Cognition (32.1%), followed by unsolvability (23.7%) and unlovability (8.6%). Approximately half of all coded posts (48.9%) contained references to suicide behaviors, while 30.4% mentioned activating events or stressors.

Table 1

Descriptive Statistics for Full Dataset and Post Categories

Variable		
Full Dataset Characteristics	***n***	
Total posts analyzed	10,647	
Unique users	4,087	
	M(SD)	
Word count per post	192.13 (226.11)	
Responses per post	11.48 (15.83)	
Post Categories	***n***	**%**
Venting	6,891	64.7%
Method	3,259	30.6%
Goodbye	497	4.7%
Linguistic Features by Category	***M***	**-**
Positive tone		-
Goodbye	6.75	-
Venting	2.59	-
Method	2.57	-
Negative tone		-
Venting	4.21	-
Method	2.13	-
Goodbye	1.80	-
Coded Subsample (n = 1,500)	***n***	**%**
BSC: Unbearability present	482	32.1%
BSC: Unlovability present	129	8.6%
BSC: Unsolvability present	355	23.7%
Any suicide behavior present	733	48.9%
Activating events/stressors present	456	30.4%

Note. Linguistic features measured using LIWC-22 (Pennebaker et al., 2022). BSC = Brief Suicide Cognitions. Coded subsample represents a stratified random sample of posts analyzed for qualitative themes.

Aim 1: Linguistic Predictors of Response Rates

To examine whether emotional tone and linguistic features predicted community engagement, a negative binomial regression was conducted with the number of responses as the dependent variable. The negative binomial model was selected to address

overdispersion in the response data (M = 11.48, Var = 250.47). Predictors included positive tone, negative tone, positive emotion, negative emotion, and word count.

Results indicated that posts with higher positive tone scores received significantly more responses (b = 0.051, SE = 0.005, z = 9.57, p < .001, IRR = 1.05), corresponding to a 5 % increase in replies for each one-unit increase in positive tone. Negative tone, positive emotion, and negative emotion were not significant predictors ($|z| < 1.6$, $p > .10$). Word count also significantly predicted response rates (b = 0.0002, SE = 0.00006, z = 3.73, p < .001, IRR = 1.0002), such that longer posts received slightly more engagement. These findings suggest that overall tone, rather than discrete emotional word use, drives community responsiveness in this online forum (see Table 2).

Table 2

Negative Binomial Regression Analysis Predicting Response Rates from Linguistic Features

Variable	***b***	**SE**	***z***	***p***	**% Change**
Intercept	2.30	0.03	84.65	<.001	-
Positive tone	0.051	0.005	9.57	<.001	+5.2%
Negative tone	-0.011	0.007	-1.56	.119	-1.1%
Positive Emotion	-0.018	0.012	-1.46	.143	-0.1%
Negative Emotion	-0.001	0.009	-0.07	.947	-0.1%
Word Count	0.0002	0.00004	4.82	<.001	+0.02% per word

Note. N = 10,647. Word count was included as a control variable to account for post length effects on response rates.

Aim 2:

To examine whether receiving responses predicts subsequent posting frequency and whether this relationship varies by post type, we conducted user-level negative

binomial regression analyses. We aggregated the dataset by username, identifying 1,811 users who made multiple posts from the total sample of 4,087 users. Key variables included total posts per user, average responses received, primary post type (most frequent tag), and subsequent posts (total posts minus one). Given the overdispersed nature of the posting count data (variance substantially exceeding the mean: $M = 3.62$, $Var = 37.78$), we employed negative binomial regression.

We conducted separate analyses for each primary post category (see Table 3) to examine our hypothesis regarding differential effects across post types. Results revealed significant tag-dependent patterns. For users whose primary post type was venting (n = 1,042), receiving responses significantly predicted increased subsequent posting (b = 0.008, SE = 0.004, z = 2.28, p = .023). However, this relationship was not significant for users primarily posting about methods (n = 651; b = 0.0001, SE = 0.003, z = 0.03, p = .974) or goodbye messages (n = 118; b = -0.005, SE = 0.006, z = -0.90, p = .367).

Table 3

Negative Binomial Regression Results: Response Effects on Subsequent Posting Behavior by Post Type

Post Type	*n*	*b*	SE	*z*	*p*	% change
Venting	1,042	0.008	0.004	2.28	.023*	+0.8%
Method	651	0.0001	0.003	0.03	.974	+0.01%
Goodbye	118	-0.005	0.006	-0.90	.367	-0.05%

Note. * $p < .05$. Separate negative binomial regressions were conducted for each post type predicting subsequent posts from average responses received.

These findings indicate that community engagement effects are specific to certain help-seeking behaviors. Users seeking emotional support through venting posts increased

their forum participation when they received community responses, while users focused on method discussions or final communications displayed no such pattern. This suggests distinct motivational frameworks and engagement dynamics across different types of suicide-related discourse.

Aim 3

To examine linguistic differences across post categories, we conducted a series of one-way ANCOVAs comparing five key linguistic variables across post types (goodbye, method, venting), with word count as a covariate. We focused on positive tone, negative tone, positive emotion, negative emotion, and future focus based on theoretical importance and previous findings.

The linguistic patterns suggest that users posting goodbye messages may be in a more resolved state than those engaged in emotional venting or method discussions. As illustrated in Figure 1, all ANCOVAs revealed significant main effects for post category. For positive tone, $F(2, 10643) = 588.47$, $p < .001$, goodbye posts showed significantly higher positive tone ($M = 6.76$) compared to both method (M = 2.54) and venting posts ($M = 2.61$) while method and venting posts did not differ significantly from each other. Conversely, Venting posts showed the highest levels ($M = 4.24$) of negative tone, $F(2, 10643) = 668.84$, $p < .001$, significantly exceeding both goodbye ($M = 1.83$) and method posts ($M = 2.05$). Effect sizes were substantial, with post category accounting for 10.0% of variance in positive tone (partial eta-squared = .100), 11.2% in negative tone (partial eta-squared = .112), and 10.6% in negative emotion (partial eta-squared = .106). Future

focus (partial eta-squared = .039) and positive emotion (partial eta-squared = .026) showed smaller but still meaningful associations (see Table 4).

Table 4

ANCOVA Results: Linguistic Differences Across Post Categories

Variable	*F*	df	*p*	$\eta^2 p$
Positive tone	588.47	2, 10643	< .001	.100
Negative tone	668.84	2, 10643	< .001	.112
Positive emotion	140.96	2, 10643	< .001	.026
Negative emotion	634.01	2, 10643	< .001	.106
Future focus	217.53	2, 10643	< .001	.039

Note. Word count included as covariate in all analyses. $\eta^2 p$ = partial eta-squared.

Positive emotion patterns mirrored positive tone findings, $F(2, 10643) = 140.96$, $p < .001$, with goodbye posts highest ($M = 1.51$), followed by venting ($M = 0.78$) and method posts ($M = 0.57$), with all pairwise comparisons reaching significance. For negative emotion, $F(2, 10643) = 634.01$, $p < .001$, venting posts again showed the highest levels ($M = 2.40$), significantly exceeding both goodbye ($M = 1.06$) and method posts ($M = 0.74$).

Future focus demonstrated the hypothesized pattern, $F(2, 10643) = 217.53$, $p < .001$, with goodbye posts showing significantly more future-oriented language ($M = 3.82$) compared to both venting ($M = 2.21$) and method posts ($M = 1.71$), with all groups differing significantly from each other. These findings support the hypothesis that goodbye posts represent a distinct psychological state characterized by increased positive

tone, positive emotion, and future orientation, while venting posts were distinguished by heightened negative emotional expression.

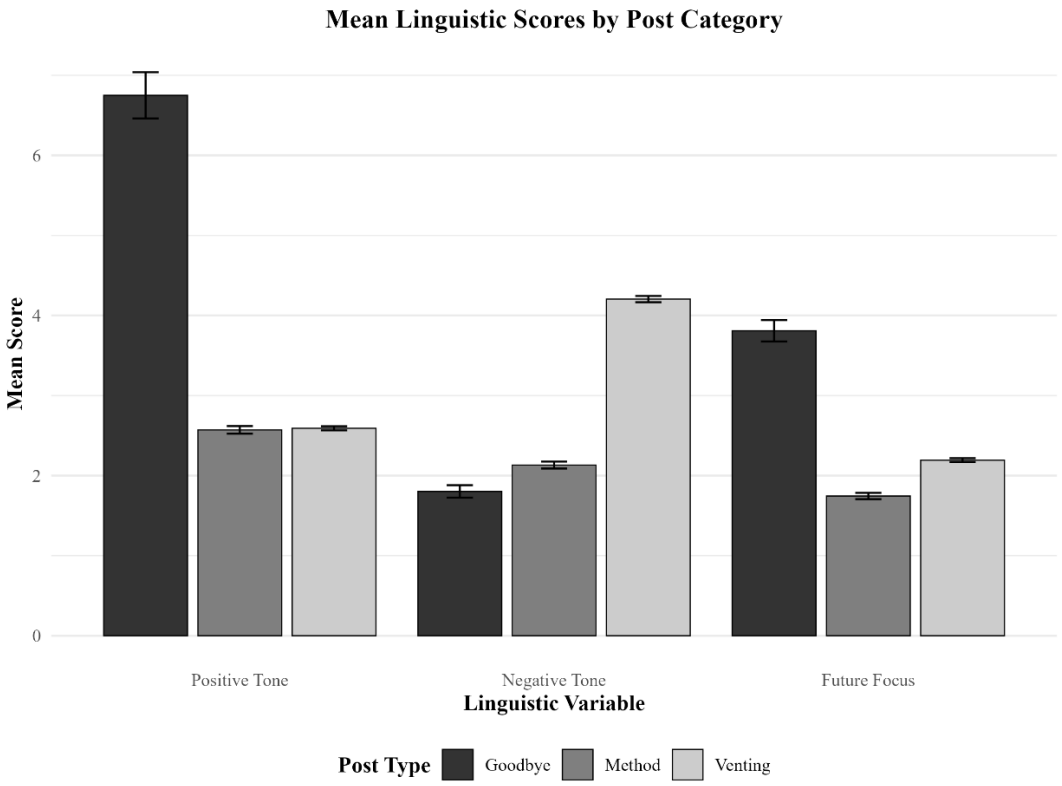

Figure 1
Mean Linguistic Scores Across Post Categories with Standard Error Bars
Note. Linguistic features measured using LIWC-22. Error bars represent standard error. Goodbye posts (*n* = 497), method posts (*n* = 3,259), and venting posts (*n* = 6,891). Full statistical results presented in Table 4.

Aim 4

Qualitative co-occurrence analysis and quantitative chi-square tests were conducted to examine whether the three Brief Suicide Cognitions (unbearability, unlovability, unsolvability) emerged as distinct constructs in online discourse and whether they related differentially to reported suicide behaviors

Qualitative Co-occurrence Patterns. Analysis of 1,500 coded posts revealed that the three cognitions showed differential co-occurrence patterns, supporting their distinctiveness. Unbearability (573 coded segments) and unsolvability (425 segments) co-occurred in 90 posts, suggesting moderate overlap between perceptions of intolerable pain and hopelessness about solutions. However, unlovability (154 segments) showed minimal co-occurrence with the other cognitions (6-8 posts), suggesting that unlovability functions as a more distinct construct in naturalistic discourse.

Cognitions and Suicide Behaviors. To test whether cognitions were related to different reported behavioral manifestations, we examined their association with suicide behaviors using chi-square tests. Posts were coded for presence/absence of each cognition and for presence/absence of any reported suicide behavior (including death concealment planning, mention of suicide plan, method discussion, preparation, or prior attempts).

Results revealed significant differential relationships (see Table 5). Unbearability showed a significant positive association with reported suicide behaviors, $\chi^2(1) = 13.29$, $p < .001$, OR = 1.51. Posts containing unbearability mentions were 1.51 times more likely to also mention suicide behaviors (55.8%) compared to posts without unbearability (45.6%). Conversely, unlovability showed no significant association with reported suicide behaviors, $\chi^2(1) = 3.09$, $p = .079$, OR = 0.71. Posts with unlovability showed numerically lower (though not statistically significant) rates of behavioral mentions (41.1% vs. 49.6%). Unsolvability demonstrated no relationship with reported suicide behaviors, $\chi^2(1) < 0.01$, $p = .998$, OR = 1.01. Posts with and without unsolvability had virtually identical rates of suicide behavior mentions (~49%).

Table 5

Chi-Square Tests of Suicide Cognitions and Suicide Behaviors

Cognition	*n* cognition present	*n* Suicide Behavior Present	%	χ^2	df	*p*	OR
Unbearability	482	269	55.8%	13.29	1	<.001*	1.51
Unlovability	129	53	41.1%	3.09	1	.079	0.71
Unsolvability	355	174	49.0%	<0.01	1	.998	1.01

Note. All tests used Pearson's chi-square with Yates' continuity correction.

These findings provide evidence for the ecological validity of the Brief Suicide Cognitions as distinct constructs that emerge naturally in online suicide-related discourse. The three cognitions showed different co-occurrence patterns with each other and evidenced differential associations with reported behavioral outcomes. Unbearability emerged as the cognition most strongly linked to reported suicide behaviors, potentially indicating that perceptions of intolerable pain represent a more proximal risk factor than feelings of worthlessness or hopelessness in this population. The minimal association between both unlovability and unsolvability and suicidal behavior suggests these cognitions may function differently in anonymous online contexts compared to clinical settings or may represent earlier-stage ideation that has not yet progressed to behavioral planning.

Aim 5: Stressor Categories and Suicide Behaviors

A binary logistic regression was conducted to examine whether specific categories of life stressors were differentially associated with reported suicide behaviors. In this model, suicidal behavior (dummy coded 1= present and 0 = not present) was

regressed simultaneously onto four stressor categories (interpersonal, economic, health-related, and system/institutional)

The hypothesis that life stressors would be associated with increased suicide behaviors in cross-sectional forum posts was not supported. Results revealed no significant associations between any stressor category and reported suicide behaviors when controlling for other stressor types (see Table 6). Interpersonal stressors (OR = 0.81, 95% CI [0.54, 1.19], p = .293), economic stressors (OR = 1.07, 95% CI [0.62, 1.77], p = .797), health-related stressors (OR = 1.01, 95% CI [0.71, 1.43], p = .965), and system/institutional stressors (OR = 0.87, 95% CI [0.58, 1.28], p = .483) were not significantly associated with suicide behavior mentions in forum posts.

Table 6

Logistic Regression Predicting Suicide Behaviors from Stressor Categories

Predictor	***B***	**SE**	***Wald χ²***	***p***	**OR**	**95% CI**
Intercept	-2.15	0.15	213.42	<.001	0.12	[0.09, 0.15]
Interpersonal Stressor	-0.21	.20	1.10	.293	0.81	[0.54, 1.19]
Economic Stressor	0.07	.27	0.07	.797	1.07	[0.62, 1.77]
Health-related Stressor	0.01	.18	0.00	.965	1.01	[0.71, 1.43]
System/Institutional Stressor	-0.14	.20	0.49	.483	0.87	[0.58, 1.28]

Note. N = 1,500. Model $\chi^2(4) = 1.88$, p = .757. Nagelkerke R^2 = .002.

Discussion

We examined online communications of suicidality through five interconnected aims using a mixed-methods approach to analyze posts from the Sanctioned Suicide forum. There were notable findings. First, results revealed that positive tone predicted increased community engagement while negative tone predicted decreased engagement.

Second, receiving responses influenced subsequent increases in posting behavior only for venting posts, not for method discussions or goodbye messages. Third, goodbye posts demonstrated significantly higher positive tone and future focus compared to venting and method posts. Fourth, unbearability was significantly associated with reported suicide behaviors, but this association was not found for unlovability or unsolvability. Finally, neither aggregate stressors nor specific stressor categories predicted reported suicide behaviors in cross-sectional posts.

Together, these findings reveal that online suicidal communication is shaped by distinct linguistic, cognitive, and social dynamics that evolve across stages of crisis. Posts with more positive tone and greater length elicited higher levels of community engagement, whereas posts with highly negative tone received fewer replies— suggesting that users experiencing the most severe distress may be least likely to receive support. Community feedback predicted continued participation only for venting posts, indicating that social reinforcement may strengthen or sustain help-seeking behavior during periods of ongoing distress. Community feedback exerted only limited influence, however, when users discussed suicide methods or expressed final goodbyes. Notably, goodbye posts displayed paradoxical positivity and future orientation, consistent with prior work on suicide notes indicating a psychological shift toward resolution and closure once a decision to die has been reached.

Analysis of Brief Suicide Cognitions indicated that *unbearability* was uniquely associated with reported suicide behaviors, underscoring the central role of psychological pain as a catalyst for action. By contrast, *unlovability* and *unsolvability* appeared less

relevant within this context. Finally, the absence of a cross-sectional link between stressors and reported suicidal behaviors further highlights the temporal and contextual complexity of these processes, suggesting that stressors may influence risk trajectories over time rather than within a single post. Collectively, these findings highlight the value of integrating linguistic indicators, peer-support dynamics, and cognitive content to more accurately assess suicide risk in online environments.

Linguistic Associations with Response Rates (Aim 1)

Interpretation of tone vs. emotion effects. The finding that positive tone—rather than discrete emotion words—predicted greater engagement is consistent with work on emotional contagion and approach–avoidance motivation in online settings. Emotional contagion refers to the tendency for people to mirror or "catch" others' affective tone through language (Barsade, 2002), such that positively valenced language fosters reciprocity and social approach, while negative tone may elicit discomfort or empathic fatigue. Similarly, approach–avoidance motivation theory proposes that positive affect activates behavioral approach tendencies, whereas negative affect triggers withdrawal or avoidance (Carver & White, 1994; Elliot, 2006). Together, these mechanisms suggest that positive tone may create an approachable affective climate that invites participation, whereas highly negative content can suppress replies due to empathic strain or uncertainty about how to help. Notably, this pattern diverges from Facebook evidence where negative feeling posts often elicit more comments and supportive language, while positive posts garner more likes (Burke & Develin, 2016). The discrepancy likely reflects platform norms and audience composition: Facebook interactions occur among

identifiable, often strong-tie networks that feel some obligation to respond supportively; in an anonymous, uncensored suicide forum, intense negativity may feel less "approachable," dampening public replies even if private or offline support occurs outside our observation window. More broadly, unlike some general social platforms where negative affect can drive engagement via controversy or outrage (Brady et al., 2017), suicide-focused spaces center on support, not debate—so approachable tone becomes a more salient cue for whether peers step in.

Our results align with broader mental-health community patterns: posts sharing personal states or progress tend to invite more interaction than purely informational content (e.g., Morini et al., 2024). At the same time, the negative-tone effect suggests a support asymmetry: those in greatest distress may paradoxically receive fewer public replies. Forum design could mitigate this by (a) lightweight prompts that nudge responses to high-risk, low-reply posts, and/or (b) automated flagging of posts likely to be ignored, prioritizing moderator outreach. Finally, the word-count effect implies that structurally richer posts provide more "hooks" for engagement; brief guidance encouraging a sentence or two of context may increase help-seeking yield without burdening users.

While posts with more positive tone received greater engagement, this finding should not be interpreted as evidence that engagement on Sanctioned Suicide is inherently beneficial. The present analyses are cross-sectional and quantify response counts rather than the content or function of those replies. Engagement may reflect visibility or social contagion rather than genuine support. Moreover, in the context of a suicide forum, increased interaction could, in some cases, reinforce suicidal norms or

amplify distress. Longitudinal data are required to clarify whether engagement predicts adaptive outcomes (e.g., expressions of coping, disengagement from the site) or maladaptive trajectories (e.g., posting in the "Goodbye" thread, which often signals imminent risk). My planned follow-up study will use temporal modeling of user trajectories to address this critical question.

Engagement Patterns and Motivational Frameworks (Aim 2)

Previous research suggests that receiving comments generally promotes continued posting in suicide-related forums (Low et al. 2021). Findings from the present study indicate, however, that this effect depends on the type of post. User-level analyses revealed that receiving responses significantly predicted continued posting for *venting* posts, but not for *method* or *goodbye* posts. These findings suggest that the effects of community engagement are specific to particular forms of help-seeking behavior. Users who posted venting messages—characterized by emotional disclosure and ongoing distress—were more likely to remain active when they received replies, whereas users whose posts focused on suicide methods or farewells showed no such reinforcement effect. Whether continued engagement represents a protective or risk-maintaining factor remains an open empirical question requiring longitudinal behavioral outcome data.

The pattern observed for venting posts points to a social reinforcement process in which supportive feedback encourages continued help-seeking and community participation. Consistent with prior research on online mental health forums, engagement tends to be concentrated among a small subset of highly active users (Carron-Arthur et al., 2014) and varies systematically by communication type, with help-seeking posts

eliciting the most interactive responses (Srivastava et al., 2025). Overall, engagement appears to benefit users seeking emotional support but does not influence subsequent posting behavior when initial post content is focused on planning or expressing finality. It appears that venting reflects a fluctuating distress state responsive to peer support, while method and goodbye posts represent more resolved states less influenced by social support. These findings caution against one-size-fits-all engagement strategies and suggest that interventions in online suicide forums should be tailored to the function of communication.

Linguistic Patterns Across Post Types (Aim 3)

Linguistic analysis revealed clear differences across post types. Goodbye posts demonstrated significantly higher positive tone and future focus compared to venting and method posts. Venting posts showed the highest levels of negative tone and negative emotion, while method posts were consistently intermediate. These effects were not only statistically significant but also practically meaningful, with post type accounting for significant variance in tone and emotion. Taken together, these findings suggest that different forms of online suicide-related communication represent distinct psychological states.

The elevated positivity and future orientation observed in goodbye posts align with prior research on suicide notes documenting calmness, gratitude, and relief once a decision to die has been reached (Handelman & Lester, 2007; Barnes et al., 2007). Lexical analyses have found that suicide notes contain less distressed language and more positive emotion words than blogs about depression or suicidal thoughts (Leavitt et al.,

2021), suggesting that deciding to act may paradoxically reduce distress. Network-based analyses extend this evidence, finding that suicide notes are organized around clusters of positive concepts (e.g., love, family) that are segregated from negative content, reflecting efforts at coherence and meaning-making at the end of life (Teixeira et al., 2021). Computational modeling has revealed that suicide notes display high emotional complexity, with endings often combining positive emotions (joy, trust, anticipation) with negative ones (fear, sadness), indicating a shift toward resolution rather than ambivalence (Stella et al., 2022).

This paradoxical positivity reflects what can be termed *post-decisional relief*. Prospective clinical studies have documented that suicide attempters often show rapid decreases in depression and anxiety shortly after making an attempt (Jallade et al., 2005), with improvements in mood co-occurring with reductions in hopelessness and impulsivity (Sarfati et al., 2003). This suggests that the act of deciding to attempt suicide—and eliminating the ambivalence inherent in deliberation—may temporarily alleviate distress. In our dataset, users writing goodbye posts may have experienced a similar resolution, resulting in the elevated positivity and future focus observed in their linguistic patterns.

Venting posts captured a very different psychological state. These were marked by high levels of negative emotion and tone, consistent with ongoing emotional struggles and psychological turmoil. Venting users may be actively processing pain and distress, expressing feelings of hopelessness and anger without evidence of concrete plans. The linguistic profile of venting posts is consistent with fluctuating ideation or acute distress

that has not crystallized into a resolved decision. This interpretation is supported by the fact that venting posts also showed greater responsiveness to community engagement in Aim 2, suggesting that these users remain socially receptive and potentially open to support.

Method posts generally occupied an intermediate position between venting and goodbye posts, suggesting that they may reflect a transitional or preparatory state. While less emotionally extreme than venting posts, they were also less positively toned than goodbye posts. Instead, these communications may represent pragmatic, instrumental discourse focused on obtaining information about methods. This supports the idea that method discussions correspond to a more concrete planning phase in the suicide process.

These findings carry important implications for suicide risk assessment in both online and offline settings. The paradoxical positivity observed in goodbye posts highlights a critical challenge. These findings underscore the importance of cautioning against interpreting improved tone in isolation as a marker of reduced risk, as apparent uplift may signal imminent danger rather than safety.

For clinicians and platform moderators alike, sudden increases in positive tone or future orientation may warrant heightened concern. Automated monitoring systems, for instance, should be designed to detect not only negative affect but also abrupt linguistic shifts toward positivity, which may signal resolution rather than recovery. The distinct linguistic profiles across post types suggest functionally different psychological states rather than mere variation in content.

Finally, the context of online anonymity may amplify these dynamics. The Online Disinhibition Effect (Suler, 2004) suggests that individuals disclose more openly in anonymous forums than in face-to-face settings. As a result, the patterns identified here may provide ecologically valid insight into suicidal states that are often hidden from clinicians. However, because the cross-sectional design cannot track individual trajectories, it remains unclear whether users progress from venting to method to goodbye posts over time. Longitudinal research following users across multiple posts is needed to test whether these categories represent sequential stages in the suicide process.

Cognitive Vulnerabilities in Online Contexts (Aim 4)

Analysis of the Brief Suicide Cognitions framework in this dataset revealed that the three proposed cognitive vulnerabilities—unbearability, unlovability, and unsolvability—emerged as distinct constructs in online discourse, but they did not function equivalently predicting suicide behaviors. Unbearability was the most prevalent cognition and showed a significant positive association with reported suicide behaviors. Unlovability appeared less frequently and showed a non-significant trend toward lower behavioral mentions. Unsolvability demonstrated virtually no relationship with behaviors. Co-occurrence patterns further supported their distinctiveness: Unbearability and unsolvability sometimes overlapped, but unlovability was largely independent.

These findings underscore that the BSCs, while theoretically interrelated, may play different roles in naturalistic suicide communication. Unbearability appears most proximally linked to reported suicidal behavior, consistent with Bryan and Rudd's (2023) conceptualization of intolerable psychological pain as a key driver of suicidal action. The

salience of unbearability in this dataset suggests that when individuals explicitly describe their suffering as unendurable, they are more likely to also describe concrete suicide behaviors. This result strengthens the ecological validity of the construct and highlights it as a critical risk marker in anonymous, online contexts.

The null findings for unlovability and unsolvability are more complex. In clinical research, hopelessness (unsolvability) and low self-worth (unlovability) are associated with suicidal ideation and attempts, but in this dataset, they did not predict behavioral mentions. Several interpretations are possible. First, these may represent more distal vulnerabilities that contribute to chronic ideation rather than acute risk and thus may not co-occur with behavior-related discourse in single posts. Second, the lower base rate of unlovability suggests it may be underrepresented in this online community, or that users are less willing to disclose themes of self-worth compared to unbearable distress. Finally, unsolvability may function earlier in the ideation-to-action trajectory, with hopelessness preceding but not overlapping with explicit behavioral planning in the same communication.

These results suggest that not all BSCs carry equal weight when observed in naturalistic settings. For risk assessment in online contexts, expressions of unbearability should be taken especially seriously as they appear more tightly coupled with suicide behaviors. Unlovability and unsolvability, by contrast, may be important indicators of vulnerability but require a longitudinal or multimodal approach to detect their role in escalation. This has practical implications: Clinicians and automated systems alike may

need to prioritize intolerable pain as a red flag for acute risk while continuing to monitor self-worth and hopelessness as markers of ongoing susceptibility.

Our findings also highlight the potential impact of the online context itself. Online Disinhibition may facilitate frank expressions of unbearable pain, while themes of self-worth or hopelessness may be less readily disclosed in anonymous peer spaces. In clinical interviews, by contrast, hopelessness is often probed directly. This raises important questions about how platform, context, and disclosure norms shape which cognitions emerge in discourse. Future research should examine whether these differences are methodological (a function of coding single posts) or substantive (reflecting how people narrate distress online versus in clinical settings).

These results provide partial ecological validation of the BSC framework but also suggest that unbearable distress may be the most behaviorally proximate cognition in digital discourse. Further work is needed to clarify the temporal ordering of these cognitions and to determine whether the online environment amplifies or suppresses certain vulnerability themes.

Life Stressors and Suicide Behaviors in Online Discourse (Aim 5)

Contrary to expectations, neither the aggregate presence of stressors nor specific stressor categories (interpersonal, economic, health-related, system/institutional) were significantly associated with reported suicide behaviors in cross-sectional forum posts. When stressor categories were examined simultaneously through logistic regression, none showed significant unique effects. This could reflect our cross-sectional design rather than the irrelevance of stressors. Users may compartmentalize their communications,

discussing stressors in some posts and behaviors in others, preventing detection of relationships within single-post analyses. This would align with other research findings that stressors operate over time, often in interaction with cognitive and affective vulnerabilities, rather than as direct, immediate triggers of behavior (Joiner et al., 2005).

Another interpretation is that stressors function as distal rather than proximal factors. Consistent with FVT, which emphasizes that suicidal episodes emerge from the interaction between background vulnerability and acute stressors (Rudd, 2006), the impact of acute events on behavior may be mediated by cognitions such as unbearability. For example, a relational loss may only translate into suicidal action if it produces a perception of intolerable psychological pain. The finding also underscores the unique communicative nature of online forums. Forum posts are self-directed narratives, not structured assessments, and users may selectively disclose only certain elements of their experience. Someone discussing method selection may omit the context of a recent breakup, while someone venting about work stress may not mention suicidal thoughts in the same message.

Our findings suggest stressors likely operate through temporal processes and cognitive mediators, as proposed by FVT (Rudd, 2006), rather than through direct linear effects observable in single posts. Future research should employ longitudinal tracking of users across multiple posts to reveal whether stressor discussions precede or follow behavioral communications. Although users post under pseudonymous usernames rather than real identities, their posting history can be tracked over time within the platform, enabling temporal analyses of behavioral progression while maintaining anonymity.

Supplemental Qualitative Findings: Clinical Context for Online Help-Seeking

While our primary analyses focused on linguistic patterns, community engagement dynamics, and suicide cognitions, qualitative coding revealed clinically relevant contextual factors that help explain why individuals seek support in uncensored online forums rather than from mental health providers. Although systematic analysis of these themes was beyond the scope of our aims, their frequency and clinical significance warrant brief discussion (see Appendix E for code definitions and frequencies).

Treatment System Failures and the Migration to Online Spaces

Analysis revealed evidence of negative experiences with formal mental health care. Mistrust of healthcare providers appeared in 276 coded segments while treatment barriers and failures were documented in 191 segments. These themes help contextualize the treatment gap noted in our introduction: Up to two-thirds of people who die by suicide do not access formal services in the year prior to their death (Stene-Larsen & Reneflot, 2019; Walby et al., 2018).

Users frequently described receiving superficial interventions rather than meaningful care and frustration with risk management protocols that foreclosed discussions about suicide. Online disinhibition helps explain this migration: Anonymity and reduced authority hierarchies may offer refuge from clinical environments experienced as invalidating or coercive. However, this same disinhibition creates risk, as users may receive harmful information or encouragement to die by suicide from peers.

Responses to Suicide Disclosure: What Helps and What Harms

Eighty-nine coded segments captured users' reactions to responses they received after disclosing suicidal thoughts. Dismissive or minimizing responses emerged as particularly damaging, including platitudes, toxic positivity, and generic advice experienced as trivializing serious distress. Effective responses were those that validated emotional pain, acknowledged the legitimacy of suffering, and offered connection without demanding immediate recovery. These patterns suggest that training for crisis workers and peer moderators should emphasize validation of distress over problem-solving, particularly in initial contacts.

Paradoxical Well-Being: When "Good Enough" Life Circumstances Coexist with Suicidal Intent

Although less frequent (78 coded segments), expressions of paradoxical well-being represent a clinically significant pattern challenging common assumptions about suicide risk. This theme captured the concurrent experience of objective life satisfaction or success alongside persistent suicidal ideation. This pattern relates to the linguistic shifts observed in goodbye posts (Aim 3), reinforcing that apparent well-being should not be automatically interpreted as reduced risk.

Limitations

Due to the anonymous nature of online forums, demographic data such as age, gender, and race were rarely available, limiting analyses of subgroup differences. Additionally, research drawing on social media data is susceptible to biases related to selection and participation (Pokhriyal et al., 2023). Users who actively contribute to

online forums and generate most of the available content may not reflect the characteristics or experiences of the general population, particularly those who do not participate in digital communities or engage only selectively.

Furthermore, the authenticity of user posts cannot be independently verified. Nonetheless, prior research indicates that detailed, emotionally consistent narratives, sustained engagement, and a lack of incentive for deception suggest that most posts reflect genuine experiences (Lekkas & Jacobson, 2023; Scourfield et al., 2012; Westerlund et al., 2012). Our cross-sectional design prevents conclusions about temporal sequencing or causal relationships, particularly regarding whether individuals progress from venting to method discussions to goodbye posts. Relatedly, stressors may influence suicidal behavior over time, but such effects may not emerge within single posts analyzed in isolation.

Finally, while our qualitative coding achieved strong reliability, the inherent complexity of online discourse means some nuance may not be fully captured. Despite these limitations, the present study offers valuable insights into how suicidal thoughts and behaviors are expressed in online communities, highlighting both unique risks and opportunities for intervention in digital contexts. These findings provide a foundation for future research and inform the recommendations outlined in the next chapter.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

This study examined online suicidal behavior through a mixed-methods approach across five aims, analyzing over 10,000 posts from the Sanctioned Suicide online forum. Findings revealed that linguistic tone predicts community engagement, with positive tone eliciting more responses and negative tone less. Receiving responses influenced subsequent posting behavior only with venting posts, suggesting that social reinforcement operates differently depending on context. Distinct linguistic patterns emerged across post categories, with "Goodbye" posts displaying paradoxically elevated positive tone and future orientation compared to venting or method discussions.

Content analysis also revealed that feelings of unbearability showed significant association with reported suicide behaviors, while feelings of unlovability and unsolvability did not, providing partial ecological validation of the Brief Suicide Cognitions framework. Contrary to expectations, specific stressor categories (interpersonal, economic, health-related, system/institutional) did not predict reported suicide behaviors in cross-sectional posts, underscoring the temporal complexity of how external pressures translate into behavioral risk.

These findings underscore the importance of considering online environments as dynamic spaces where communication patterns may shape risk. Importantly, apparent improvements in tone cannot be interpreted as signs of reduced risk, as uplift may signal imminent danger rather than safety. The absence of cross-sectional stressor-behavior associations highlights the limitations of single-post analyses and suggests that

understanding risk escalation requires longitudinal tracking across multiple communications.

Future studies should extend these findings through longitudinal analyses to track users' posting patterns over time, integrate computational methods for real-time detection, and examine diverse online communities to assess generalizability. Suicide prevention efforts must adapt to digital contexts, incorporating linguistic markers (particularly expressions of unbearability), paradoxical mood shifts in farewell communications, and interactional dynamics to better identify individuals at imminent risk.

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APPENDICES

APPENDIX A

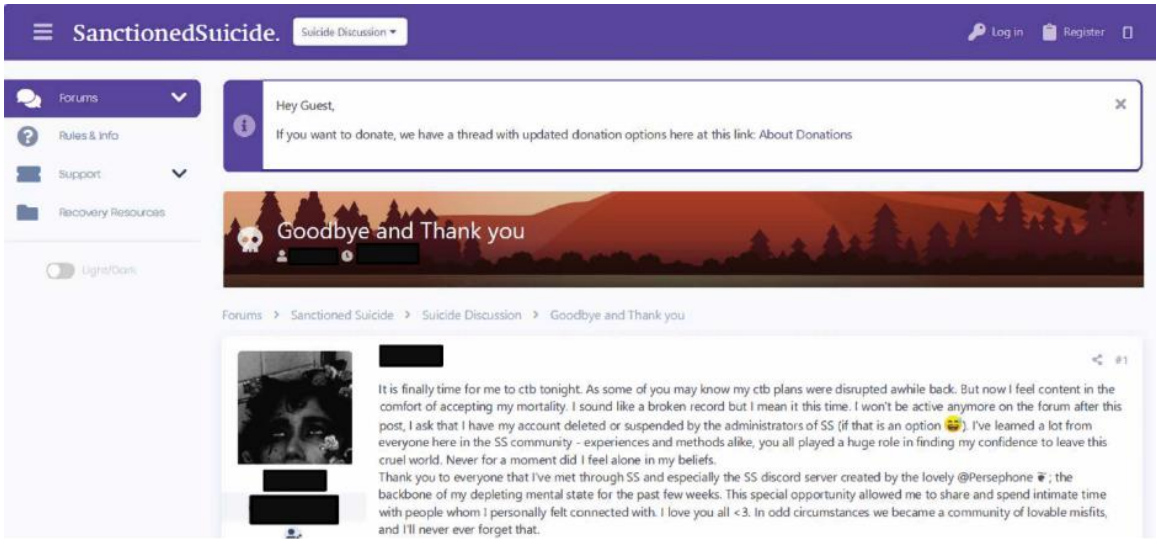

Figure A1

Screenshot from Sanctioned Suicide of a User Post with Goodbye in the Title

Note. Goodbye: Posts where users express imminent suicidal intentions, often serving as their final communication. This post serves as a digital suicide note, indicating the imminent risk of suicide by the user. CTB is an ingroup shorthand for “catch the bus.” It means to die by suicide. Usernames and dates have been redacted to protect the identity of the members.

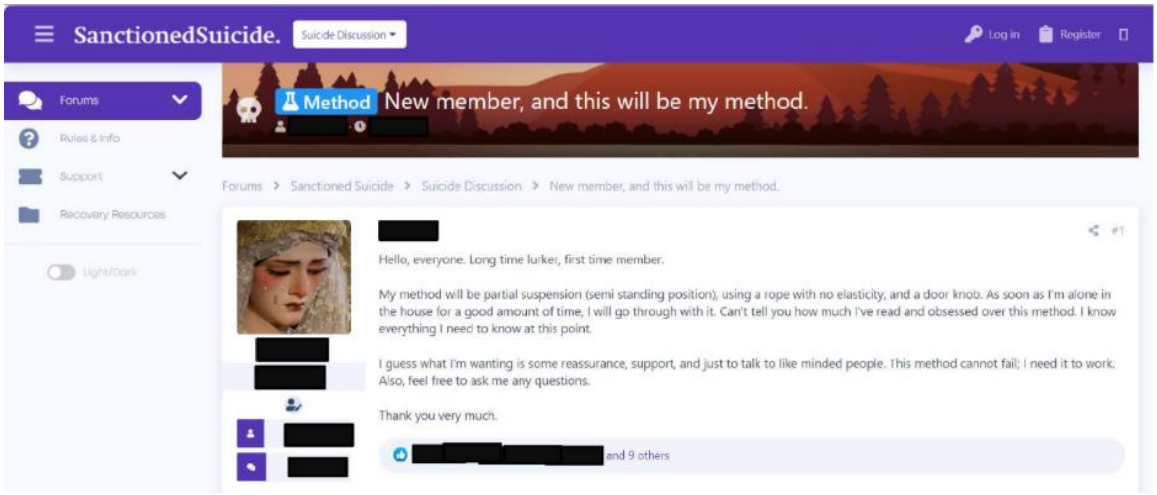

Figure A2

Screenshot from Sanctioned Suicide of a User Post with the Tag Method

Note. Method: Involves users sharing detailed information about various suicide methods and how to obtain the means to carry them out. This figure shows a discussion about suicide methods.

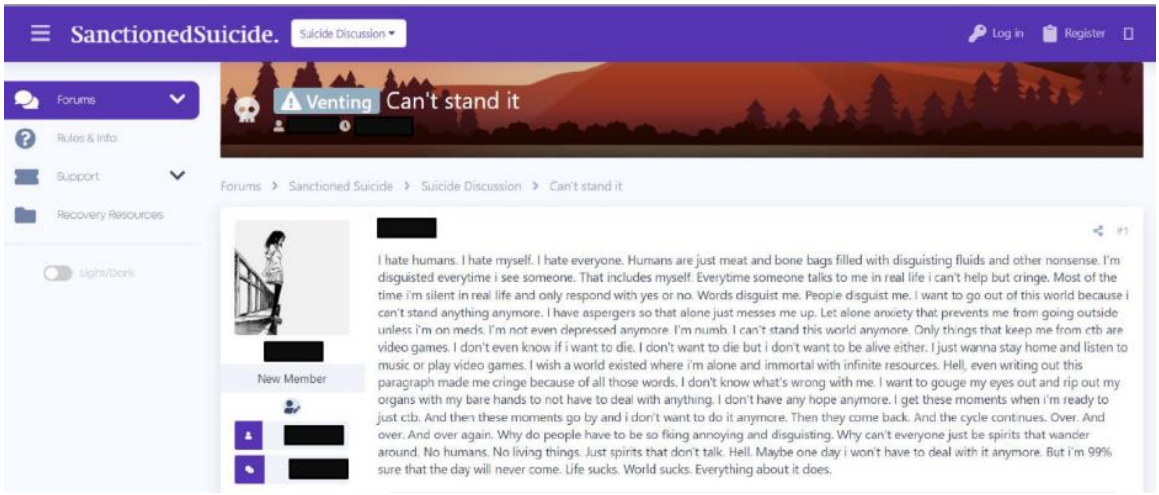

Figure A3

Screenshot from Sanctioned Suicide of a User Post with the Tag Venting

Note. Venting: This figure features users venting frustrations about personal, social, or life challenges, reflecting emotional distress. It contains a user's expressions of frustration with personal and life situations.

APPENDIX B

Table B1

Qualitative Codebook

Code	Definition	Frequency
Abuse	Interactions in which one person behaves in a cruel, violent, demeaning, or invasive manner toward another person or an animal. The term most commonly implies physical mistreatment but also encompasses sexual and psychological (emotional) mistreatment.	269
Bullying		72
Cultural/Identity		3
Financial/Economic		7
Mental/Psychological/Verbal/Emotional		164
Physical		46
Sexual		39
Activating Event/Stressor	User indicates a triggering event to their current feelings of increased suicide ideation or suicide behavior. Any event, force, or condition that results in physical or emotional stress. Stressors may be internal or external forces that require adjustment or coping strategies.	491
Approach-Avoidance Conflict in Suicide	The simultaneous presence of strong desire for death/suicide alongside fear, hesitation, or barriers to attempting. Represents internal conflict between suicidal drive and survival instinct or other preventing factors.	351
Attachment/Relationship Patterns	Patterns of relating to others that indicate attachment styles, relationship dynamics, and interpersonal behaviors.	116
Attempt Conditionality	The specification of circumstances, timing, or conditions that must be met before proceeding with a suicide attempt. Examples include temporal, access, personal milestones, and external event conditions.	128
Belief Systems	Religious, spiritual, or philosophical beliefs influencing how the individual views death and suicide.	117

Table B1 (*continued*)

Code	Definition	Frequency
Unbearability*	Perception that one is incapable of tolerating distress. “I can't stand this pain anymore”; “I can't cope with my problems any longer”; “I can't imagine being able to withstand this kind of pain.”	573
Unlovability*	Perception that one is worthless, defective, and fundamentally flawed. “I am completely unworthy of love”; “There is nothing redeeming about me.”	154
Unsolvability*	Perceptions that one is hopelessly incapable of solving one's problems, and that suicide is the only solution. “Suicide is the only way to end this pain”; “Nothing can help me solve my problems.”	425
Death Concealment Planning	Deliberate efforts to make a suicide appear as a non-suicide death (accident, illness, or natural causes) to protect others from knowing it was intentional. This includes specific planning around method selection, preparation, and execution designed to mask suicidal intent and create an alternative narrative about cause of death. This differs from general method planning as the primary focus is on managing the post-death interpretation of the event by survivors rather than just the method itself.	21
Demographics	Explicitly stated demographic information	193
Age		142
Ethnicity		1
Gender		43
Nationality		3
Race		5
Sexual Orientation		16
Family System Crisis	Complex family situations creating or exacerbating suicidal ideation including substance abuse in family, legal/criminal issues, financial instability, domestic violence/abuse, health crisis in family, role reversal/parentification, trapped by family circumstances, and split family coping strategies.	88
Financial Troubles	References to financial troubles or areas of financial concern	118

Table B1 (*continued*)

Code	Definition	Frequency
Grief	The anguish experienced after significant loss, usually the death of a beloved person. Grief often includes physiological distress, separation anxiety, confusion, yearning, obsessive dwelling on the past, and apprehension about the future.	62
Guilt-Based Prevention	The experience of guilt acting as a barrier to suicide attempt, characterized by acute awareness of the negative impact one's death would have on others, self-reproach about causing others pain, and guilt about leaving responsibilities unfulfilled. This differs from general responsibility barriers as it focuses specifically on the emotional experience of guilt rather than practical obligations.	118
Housing Loss/Insecurity	Indication of housing loss or fear of housing loss.	35
Invalidation/Gaslighting	The experience of having legitimate physical health or mental health conditions dismissed, minimized, or misattributed.	102
Job Insecurity		112
Cannot find work		16
Disability		15
Laid Off		7
Quit		11
Terminated		13
Unemployed		56
Loneliness	Affective and cognitive discomfort or uneasiness from being or perceiving oneself to be alone or otherwise solitary. Psychological theory emphasizes the emotional distress that results when inherent needs for intimacy and companionship are not met, and the unpleasant experience that results from a perceived discrepancy between an individual's desired and actual social relationships.	261
Medication(s) (Doctor Prescribed)	Doctor prescribed medications taken in compliance with the doctor's intent. Does not include medications taken in an unintended manner (i.e., overdose or to assist a suicide attempt).	141

Table B1 (*continued*)

Code	Definition	Frequency
Mental Health Diagnosis – Self Reported	Any self-reported DSM-V classifications.	308
Mental Health Symptoms	Mental health symptoms mentioned but not specifically reported as a formal diagnosis (e.g., sad, tired, feeling depressed).	975
Method Planning/Implementation Barriers	Specific challenges and obstacles in suicide method planning or execution including technical failure, access limitations, location barriers, physical injury from attempt, social barriers to access, privacy/isolation challenges, method reliability concerns, geographic constraints, and opportunity limitations.	252
Mistrust	Suspicion or lack of confidence in others including family, friends, people in general, healthcare workers (non-mental health), romantic interests, society, mental health care workers, government, law enforcement (police, legal system), and education systems.	276
Otherness	The experience or perception of being fundamentally different, alienated, or disconnected from mainstream society, specific groups, or a sense of normalcy. This can manifest as feeling like an outsider, being misunderstood, or experiencing a profound sense of not belonging. Otherness may be internally felt or externally imposed through societal reactions, stigma, or discrimination.	260
Pain (Physical Pain)		125
Pain (Psychological Pain)	Intolerable pain caused by intense psychological suffering (rather than physical dysfunction). At its extreme, prolonged psychic pain can lead to suicide attempts.	288
Paradoxical Well-being	The concurrent experience of objective life satisfaction/success and persistent suicidal ideation, characterized by a disconnect between external circumstances and internal states. This phenomenon represents the paradox of experiencing suicidal thoughts despite having what would typically be considered markers of a "good life" or meaningful connections.	78
Physical Health Disorder - Self Reported	Evidence of current physical health impairment including presenting symptoms and their duration and severity.	111

Table B1 (*continued*)

Code	Definition	Frequency
Protective Factor	Elements, circumstances, relationships, or characteristics that reduce suicide risk by providing support, meaning, or reasons for living. These factors can help buffer against suicidal thoughts and behaviors despite the presence of risk factors. Examples include pets/animals, children/family, future goals, creative pursuits, professional help, social support, religious/spiritual beliefs, fear of attempt failure/consequences, personal values/beliefs against suicide, purpose/meaning, sense of obligation to others.	126
Rejection	Denial of love, attention, interest, or approval. Includes romantic rejection, friendship rejection, family rejection, school rejection, and peer rejection.	191
Response to Suicide Disclosure	Responses to disclosure of suicidal ideation or plans including dismissal/minimization, lack of expected response, unexpected concern from others, no practical help offered, casual/normalized response, guilt from others' worry, indirect attempts for help, and help-seeking disappointment.	89
SB: Mention of Suicide Plan*	Specific plan or general mention of a suicide plan.	494
SB: Method*	Any means by which a person may choose to end their life. May include strangulation, Nembutal (N), suffocation, self-poisoning, drug overdose, hanging, sodium nitrate (SN), exit bag, inert gas, carbon monoxide/dioxide, firearm, cutting/stabbing, starvation/dehydration, collision with vehicle, assisted suicide, antiemetics, auxiliary substances to methods, drowning, and jumping.	472
SB: Preparation for Suicide Made*	Evidence of preparations including obtaining the method, conducting research, writing a suicide note, giving things away, making a will, or closing social media accounts.	196
SB: Prior Suicide Attempt*	Original poster reports prior suicide attempt(s).	185
Substance(s)	A drug of abuse (e.g., alcohol, cannabis, cocaine, inhalant), medication, or toxin capable of producing harmful effects. Includes non-doctor prescribed substances or doctor-prescribed medications taken in an unintended way.	202

Table B1 (*continued*)

Code	Definition	Frequency
Support System Dynamics	The presence, absence, quality, and complexity of social support networks and their impact on the individual's experience.	1,079
Absent	No Support system mentioned/available	121
Complex Support	Mixed with helpful and harmful aspects	51
Deteriorated	Previously had support but the support no longer exists	74
Family Support		200
Friend Support		79
Institutional Support	Work, school, church, etc.	11
Online Community support		148
Present and Effective	Support exists and helps	28
Present but Ineffective	Support does not meet needs	137
Professional Support	Therapists, doctors, etc.	199
Rejected Support	Pushing away available support	58
Reluctant to Access	Hesitant to use available support	15
Superficial Support	Surface-level care without depth	51
Support Burden	Indicates feeling like a burden to supporters	81
Treatment Barriers/Failures	Experiences of inadequate or failed treatment attempts including failed hospitalization, inadequate care, system barriers, treatment resistance, or negative treatment experiences.	191

Note. Codes marked with an asterisk (*) represent theoretically-driven constructs: BSC codes reflect Brief Suicide Cognitions Scale dimensions (Bryan & Rudd, 2023); SB codes represent suicide behaviors. Frequency indicates number of coded segments across 1,500 posts. Parent codes shown in bold; subcodes indented.

APPENDIX C

Table C1

Krippendorff's Unitized Alpha Coefficients by Coding Tier

Coding Tier	**Cu-α**	***n* Coders**	***n* Posts**
Tier 1: Primary Theoretical Constructs	.821	6	300
Tier 2: Exploratory Constructs	.843	6	300

Note. Tier 1 included: Activating Events/Stressors, Suicide Behavior, Suicide Cognitions (Brief Suicide Cognitions Scale dimensions), and Support System Dynamics. Tier 2 included: Abuse, Demographics, Invalidation/Gaslighting, Mental Health Diagnosis & Symptoms, Mistrust, Otherness, Psychological Pain, Paradoxical Well-being, Physical Health Disorders, Rejection, Substances, Treatment Barriers/Failures, Approach-Avoidance Conflict, and Belief Systems. Krippendorff's unitized alpha (Cu-α) was used because coders selected variable-length text segments. Cu-α ≥ .80 indicates acceptable reliability (Krippendorff, 2004). Both tiers exceeded the recommended threshold. Reliability calculated on 300 randomly selected posts (20% of 1,500-post dataset).

APPENDIX D

Table D1

Primary Thematic Quotations by Code

Code / Construct	Exemplar Quote	ID
Brief Suicide Cognitions		
Unbearability	"This constant emotional pain has become intolerable. I can't continue experiencing these feelings, it's not really living. I'm exhausted by it all. I find myself wishing I won't see the next morning, or that if I do wake up, it will be for the final time."	50
Unlovability	"Being unattractive means I'll always be alone. I won't ever know what it's like to have romantic relationships, physical intimacy, or even close friendships. Can a life like this have any value?	1461
Unsolvability	"I'm trapped in this existence forever, and I just need it to stop."	982
Suicide Behaviors		
Death Concealment Planning	"I'm telling people I'm leaving for a distant job opportunity, then finding the right time to end my life without anyone knowing (I could make it look unintentional). My relatives wouldn't discover what happened until days or weeks after I'm gone. They can give alternative explanations for how I died."	69
Attempt Conditionality	"My father is experiencing early-stage dementia, and his cognitive decline is progressing rapidly. When he no longer recognizes who I am that's when I plan to end my life.	1012
Mention of Suicide Plan	"I already have the date, I only need the method and the will to do it. During these days I will go scout a location since I plan to do it in the woods where they won't find me"	838
Preparation for Suicide Made	"I ordered my sodium nitrate and I am very excited. It's a very sick sense of relief. I also got Tagamet so I won't vomit"	818
Prior Suicide Attempt	"After my previous unsuccessful attempts, my children won't speak to me"	1041
Method	"Tonight is the night that I go ahead with the partial hanging method."	1334

Table D1 (continued)

Code / Construct	Exemplar Quote	ID
Interpersonal Stressors		
Rejection	"My closest friend for a decade has cut off contact with me. she won't respond anymore and I discovered she changed her number :(."	1203
Abuse	"My mom discovered indirect methods of hurting me physically, such as making me take pills I didn't need, attempting to make me fall, withholding food, and deliberately hitting me with a shopping cart while claiming it was unintentional. She also regularly tried to slam doors into me or shut my limbs in them."	411
Family System Crisis	"It's overwhelming to serve as my father's emotional support person since he's also dealing with suicidal thoughts, and then my parents are always fighting with each other and each one continuously tells me that the other is terrible and harmful and mentally unstable"	1001
Loneliness	"i think being hospitalized would be better than my current situation. at least there i'd have actual human contact instead of only talking to myself or writing things down. i'm lost about what my next step should be, i feel incredibly isolated at this moment"	1045
Economic Stressors		
Financial Troubles	"I launched my own company a couple years back, initially securing investment without much difficulty but things went downhill this past summer... Funds are depleted, I owe the bank money and will likely face insolvency before the year ends"	854
Job Insecurity	"finding employment is a struggle. I've finished two certification courses: the first one left me traumatized from constant setbacks and humiliation, and the second proved worthless ultimately, since you can't land a position without prior work history."	659
Housing Insecurity	"I'm moving to subsidized housing but the conditions are terrible—essentially homeless just not sleeping outside. My life has been one crisis after another and I've been waiting for a final reason to end it. Now I'm struggling to get to an unfamiliar place with all my belongings, no phone service or navigation."	1403

Table D1 *(continued)*

Code / Construct	Exemplar Quote	ID
Health-Related Stressors		
Pain (Physical Pain)	"I suffer from a chronic pain condition that keeps me in unrelenting discomfort, occasionally becoming so severe that I lose the ability to talk or function physically."	292
Pain (Psychological Pain)	"I'm suffering so much, why can't the people around me recognize it? My self-hatred is so intense it's physically painful"	354
Physical Health Disorder	"The physical suffering is unbearable. I have CRPS affecting both of my legs, which ranks at the top of pain measurements, is poorly understood by many physicians and is often referred to as the suicide disease. I wish I could have my legs amputated"	349
Mental Health Symptoms	"I feel like I need anti-anxiety medication but I can't afford to be drowsy because I have to get this cleaning done. I'm experiencing suicidal thoughts, fear, despair, being overwhelmed, anxiety, feelings of worthlessness... an hour earlier I felt nothing and had been emotionally flat for weeks. Everything seemed distant and muted, like watching life happen to someone else. Now I'm spiraling and can't regain control"	615
Institutional/Systemic Stressors		
Response to Suicide Disclosure	"I'm sick of all the toxic positivity nonsense, being told to search for purpose, focus on tomorrow and keep struggling, that I'm resilient and existence is precious, i just need to discover my "inner power" and stay courageous. i understand they have good motives and such, it's somewhat touching that they're invested, but really, shut up!"	665
Invalidation/Gaslighting	"I confided in my closest friend (Heads up! she's a mental health professional, so she ought to understand this stuff) that I've been struggling with depression and suicidal thoughts and she dismissed me saying I was overreacting and that I shouldn't be feeling like this over a single setback."	296
Treatment Barriers/Failures	"The psychiatric nurse isn't providing useful support. I've already attempted those approaches, everything she's mentioned, and none of it works. She also makes comments about how ending your life is selfish and had me watch a video about it. It's not beneficial, I should have been sent for actual therapy. The psychologist seemed shocked that she hadn't made a therapy referral. I can't pay out of pocket since we don't have the money. They're aware I have specific plans and access to methods but they're not taking any action."	272

Table D1 *(continued)*

Code / Construct	Exemplar Quote	ID
Mistrust	"How can mental health professionals and counselors tell you just hang in there a little while longer you'll improve you'll recover without providing any real useful guidance. How can clinicians and nurses sit there condescendingly saying "well, your situation is improving, isn't it" but then immediately after advising me to go home and take a relaxing bath. A bath is absolutely not what I need right now. What's the actual purpose of counseling? Does it make you feel improved, or does it teach you to better conceal your emotions? I'm frustrated by every attempt to discuss suicide being shut down and getting handed a crisis line number. Being promised by officers during an involuntary hold that they'll support you they'll ensure you receive treatment, then staff members saying to them while laughing she's faking it she's not actually suicidal."	315

Note. Construct definitions for *Unbearability, Unlovability, Unsolvability,* and contextual stressor categories are provided in Table B1. The quotations below are illustrative examples drawn from coded forum posts. IDs correspond to ATLAS.ti document:quotation identifiers. Quotations have been paraphrased to protect user identity in accordance with IRB requirements, while preserving the original emotional content, tone, and thematic meaning. Minor edits for clarity have also been applied.

APPENDIX E

Table E1

Supplemental Qualitative Codebook

Code	Definition	Frequency
Paradoxical Well-Being	The concurrent experience of objective life satisfaction/success and persistent suicidal ideation, characterized by a disconnect between external circumstances and internal states. This phenomenon represents the paradox of experiencing suicidal thoughts despite having what would typically be considered markers of a "good life" or meaningful connections.	78
Approach-Avoidance Conflict in Suicide	The simultaneous presence of strong desire for death/suicide alongside fear, hesitation, or barriers to attempting. This represents an internal conflict between suicidal drive and survival instinct or other preventing factors.	351

Note. Supplemental qualitative codes not included in primary analyses. Frequency indicates number of coded segments across 1,500 posts. These themes emerged during content analysis and provide clinical context for online help-seeking behavior.

VITA

Flynn Kelly-Brunyak was born in Chicago, Illinois and raised in South Texas. She received her Bachelor of Arts degree in Clinical Psychology from City University of New York, Hunter College in December 2020, graduating summa cum laude with a 4.0 GPA and departmental honors. During her undergraduate studies, she was inducted into Phi Beta Kappa and Psi Chi and received the Livingston-Welch Award for Research.

Following graduation, Kelly-Brunyak worked as a Clinical Research Assistant in the Nock Lab at Harvard University and Franciscan Children's/Boston Children's Hospital, focusing on intensive longitudinal studies of suicidal adolescents. She also served as a Research Assistant at Harvard Law School, contributing to research on juvenile justice issues.

In August 2024, Kelly-Brunyak began her doctoral studies in Clinical Psychology at the University of Tennessee, Knoxville, where she works in the PAVES Laboratory under the supervision of Dr. Chris Elledge. Her research focuses on peer victimization, online suicidal behavior, and digital mental health interventions. She has received multiple grants and fellowships totaling over $4,000, including the 2024 Psi Chi Graduate Research Grant ($1,600), the 2024 APAGS/Psi Chi Junior Scientist Fellowship ($1,000), and multiple travel awards from the University of Tennessee and Psi Chi.