AN ABSTRACT OF THE DISSERTATION OF

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With growing recognition of adolescence as the time in which suicidal thoughts and behaviors first occur, early identification and intervention systems in schools have become an international priority. Understanding and incorporating language indicators associated with the core psychological and interpersonal processes of adolescent suicidality could provide promising tools for school practitioners. Corpus linguistic research has identified several consistent verbal markers across written and spoken, formal and informal, and expressive or fictional texts. This dissertation research draws upon these findings along with interpersonal suicide theory to investigate potential replications and practical implications in the language of *13 Reasons Why* (*13RW*), young adult "suicide fiction's" most popular representation. The dissertation is composed of two research arms; Research Arm A looked at psychological and linguistic suicide-related language within Jay Asher's *13RW* novel. Research Arm B looked at the same verbal markers in the context of the *13RW* web TV series dialogue. Informed by the literature, Research Arm A sought to examine the level of 21 specific linguistic and psychological variables associated with youth suicide. Both examinations were conducted using Linguistic Inquiry and Word Count (LIWC) software. To ascertain if unique levels of these variables were present, this novel was compared against general novel norms using inferential statistics. Results encountered included the following rates higher than novel norms: (a) first-person singular three times higher;

(b) second person two times higher; (c) present time focus one and a half times higher; and (d) causal explanation thinking style one and a half times higher. Research Arm B employed the same methodology as Arm A but examined the first season dialogue of the mass media Netflix series adaptation of *13RW*. For this arm, the comparison norms were from a large database of TV series subtitle texts. For Research Arm B, the findings included the following rates higher than TV subtitle norms: (a) first person singular one and one-third higher; (b) second person one and one-third higher; (c) friend one and a half times higher; and (d) present focus one and a half times higher. These results show how the *13RW* texts have their own ways of using language and hint at features of the emerging "suicide fiction" genre that are linked to known signs of suicidality in teens. These results extend previous corpus linguistic research findings related to suicidality language markers and suggest the need for additional applications of this research specific to adolescent school community populations. Implications for school-based suicide prevention include support for the incorporation of core language analysis concepts to strengthen evidence-based practices and efficiency.

Adolescent Suicide Through the Lens of *13 Reasons Why*: A Corpus Based Study

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I understand that my dissertation will become part of the permanent collection of Oregon State University libraries. My signature below authorizes release of my dissertation to any reader upon request.

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Rachel Ware Zooi, Author

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CONTRIBUTION OF AUTHORS

Cass Dykeman, Ph.D., assisted with the research design and wrote the power analysis for

Chapters 2 and 3. Both Dr. Dykeman and James Cragun assisted with the data analysis.

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Chapter 1: A General Introduction

According to the most recent Centers for Disease Control (CDC; 2019) report, suicide is now the second leading cause of death among children and adolescents aged 13 to 19 and the leading cause of death among 13-year-olds in the United States. Between 2007 and 2018, the rate of suicide among those aged 10 to 24 increased nearly 60% (CDC, 2020). Also particular to the period of 2007–2018 was the emergence of "suicide fiction" as a new genre in young adult media with the Netflix series, *13 Reasons Why (13RW),* becoming its most popular and impactful iteration. As social and cultural influences are inherently connected to suicide phenomenon and its prevention, impactful narrative products such as *13RW* merit serious examination (Krebs, 2020; Pridmore & Walter, 2013, p. 65).

Considerations around the social impact of *13RW* arose with the novel's 2007 publication and peaked after the web television series adaptation started streaming in 2017. *13RW* entered diverse domains of public discourse focused mostly on adolescent suicide and its precipitating factors. Following the release of Season 1, *13RW* became the most tweeted about show of 2017 (Wagmeister, 2017). *13RW* has generated studies across numerous research fields and regions due to its global viewership. Much of the literature sought to further understanding of how the narrative itself or its social impact relate to theoretically relevant constructs of suicide research (Carter et al., 2021). For example, there were numerous examinations of *13RW's* potential Werther effect (e.g., Ayers et al., 2017; Cooper et al., 2018; Niederkrotenthaler et al., 2017), which occurs when a publicized suicide is correlated with an increase in suicides (Philips, 1974), or its applicability to the theory of normative social behavior, the altering of individuals' social norms related to viewing *13RW* (e.g. Carter et al., 2021; Lauricella et al., 2018). This dissertation research sought to further understanding of adolescent suicide represented in *13RW* and its correlation with yet unexplored theoretically relevant constructs of suicide research.

Both dissertation studies aimed to extend knowledge of the significance and practical utility of *13RW* through a psycholinguistic investigation. The use of linguistical methodologies for analyzing the language of individuals and popular media narratives are both growing areas of research with considerable potential for informing suicide prevention (Iavarone & Monreale 2021; Ji et al., 2018). However, no known corpus linguistic studies have been conducted on either of *13RW*'s media formats. The purpose of this research was to investigate *13RW*'s congruence with known adolescent suicide indicators and to consider related implications for school counselors and others with frontline access to suicidal youth.

To develop the research questions, extant literature on adolescent suicide was examined for potential psychosocial and linguistic indicators. This examination followed along six distinct lines. These six were (a) the social phenomenon and impact of *13RW* within adolescent suicide discourse, (b) social and interpersonal variables as risk factors for adolescent suicide, (c) relationships between psychological processes and adolescent suicidality, (d) relationships between linguistic processes and adolescent suicidality, (e) relationships between broad psycholinguistic variables and suicidality, and (f) the significance of different language contexts of suicidality indicator occurrence.

Understandably, much of the public controversy surrounding *13RW* centered on concerns over the contagion and normalization that could result from such a portrayal of adolescent suicide and the broad harm that could affect. As popularity and controversy grew, *13RW* pervaded popular discourse domains and secondary school campuses everywhere. As a result, warnings and resources were sent to parents and eventually incorporated into the Netflix series content as well. Existing evidence of how accounts in fiction and media can influence judgment

of a social problem's urgency (Strange & Leung, 1999) may help explain the reaction *13RW* catalyzed.

The relationship between social and interpersonal factors and adolescent suicide phenomena is well documented by research and heavily featured in *13RW*. Its theoretical basis spans several prominent theories of suicidology. From Durkheim's (1951) identification of social integration/disengagement to Joiner's (2007) attribution of a sense of isolation in highest risk states, socioenvironmental impact on suicidal behavior continues to amass. In recognition, the CDC has stressed "school connectedness" strategies as a key component of its five-year agenda for suicide prevention since 2008.

Psychological processes have also been investigated for their relationship to heightened suicidality. Text analysis of suicide notes has long been a method for understanding the cognitive processes and psychological states before suicide (Freuchen et al., 2012; Shneidman & Farberow, 1957). With the advent of computerized language analysis programs such as Linguistic Inquiry and Word Count (LIWC) software, text analysis has expanded the accuracy and efficiency of identifying psychological process variables associated with suicidality in suicide notes and other language contexts

Strong documentation exists regarding the relationship between linguistic dimensions and suicidality. Studies of suicide completers' written language have revealed patterns, particularly in pronoun use, when compared with matched controls (Lester, 2009; Pennebaker & Stone, 2004; Stirman & Pennebaker, 2001). Specific patterns of pronoun frequencies, in fact, have become highly validated verbal indicators of suicidality.

Since the introduction of LIWC2015's four summary variables— analytic, clout, authentic, tone— studies have begun to investigate suicidality within broad psycholinguistic

variables as well. These measures analyze language patterns as composites of interpersonal and emotional states derived from previous research converted to percentiles based on standardized scores from large samples (Pennebaker et al., 2015). Although there is a limited number of LIWC summary variable studies focusing on markers of suicidality to date, there does exist some research evidence such as the relationship between the Emotional Tone summary variable and suicide ideation in college student writing (Robinson, 2020).

<div align="center">**Relationship to National Training and Practice Standards**</div>

School campuses have long been considered opportune settings for preventing youth suicide at the community level. Research has shown that suicidal behavior first appears during the transition into adolescence, with suicide attempts then rising abruptly from young adolescence to young adulthood (Cha et al., 2018). Not until recently, however, have there been such explicit expectations of school programs and counselor competencies for addressing it. Both the Council for Accreditation of Counseling and Related Educational Programs (CACREP) national counselor training standards and a recent American School Counselor Association (ASCA) professional position statement classify suicide identification, intervention, and prevention skills as crucial for the school counseling profession (ASCA, 2020; CACREP, 2016, sections 2F5l & 2F7c). CACREP recognizes these skills as core components of counselor-training programs' counseling and helping relationships and assessment and testing curricula. Manuscripts 1 and 2 investigate current research, theory, and practice in direct support of developing counselors' suicide risk assessment and prevention competencies. The implications of introducing corpus linguistic findings are applicable to both practicing counselors and counselor educators in the development of evidence-based suicide prevention skills and programs.

Description of the Research Manuscripts

MS1. Linguistic and Psychological Processes in the Novel *13 Reasons Why*: Implications for School Counselors

Rationale

School counselors and others charged with preventing adolescent suicide need more effective means for detecting and addressing its warning signs. The drive for relevant, evidence-based practices in school settings continues as the number of adolescent suicides rises at alarming rates. While much has been studied about the meaning and impact of *13RW*'s popularity in recent years, no study to date has employed language analysis. The drive for relevant, evidence-based practices in school settings continues as the number of adolescent suicides rises at an alarming rate. While much has been studied about the meaning and impact of *13RW*'s popularity in recent years, no study to date has employed language analysis to further cultural and practical understanding of its significance. As noted by Iavarone and Monreale (2021), signs of increased suicidal risk often remain undetected until it is too late to intervene, which highlights the importance of prevention when it comes to such conditions. Language encodes psychological aspects that reflect a person's state of mind, which can be used as proxies for identifying shifts in their mental health status (p. 437).

Like Iavarone and Monreal (2021), Ji et al. (2018) also discovered psycholinguistic indicators of suicide ideation. With the advancement of computer-based technologies especially, corpus linguistic research application has many advantages to better account for human experience, emotion, and relationships (Crossley et al., 2017), areas that can be addressed school-wide and that have been strongly linked with suicide risk (Van Orden et al., 2010). In addition to capturing new and potentially useful school programming information, incorporating

this indirect approach to suicide prediction can lessen concerns about self-reporting bias (Levis et al., 2020). The purpose of this research was to explore the *13RW* novel for known psycholinguistic suicide indicators with the aim of informing suicide prevention practices in schools.

Target Journal for Publication

Professional School Counseling is a peer-reviewed journal that publishes manuscripts on theory, research, and best practices for the school counseling profession. Its articles tend to explore techniques, materials, and ideas meant to assist school counselors and related practitioners at various levels in their professional development. As such, *Professional School Counseling* solicits manuscripts that address contemporary issues in the field applicable to a broad K–12 professional audience including school counselors, school counselors-in-training, and school counselor educators. It is the flagship journal of the ASCA. The impact factor for *Professional School Counseling* is .5.

Professional School Counseling recently published an article related to this research. The study, authored by Sallee et al. (2021), titled "Interpersonal Predictors of Suicide Ideation and Attempt Among Early Adolescents," pointed to a lack in theory-based, empirical research being used in school suicide prevention practices. The researchers utilized Joiner's (2007) interpersonal theory of suicide (IPTS) to examine interpersonal constructs and their value in predicting adolescent suicidality. Using the results of two binomial logistic regressions on archival data from a 2017 8th-grade Oregon Healthy Teens Survey, the researchers determined that IPTS constructs are relevant to early adolescence and should therefore be used to inform prevention and intervention efforts in school settings (Sallee et al., 2021).

Research Questions and Methodology

Does *13RW* contain linguistic and psychological distinctions from other literature that might give insight to current youth suicide phenomena? To pursue this overarching question, five specific research questions were developed using known linguistic and psychological variables from the adult suicide literature. They were:

RQ1: What are the usage rates for the broad psycholinguistic processes known to be related to suicidality?

RQ2: What are the usage rates for psychological processes known to be related to suicidality?

RQ3: What are the usage rates for linguistic processes known to be related to suicidality?

RQ4: Do psychological processes known to be related to suicidality differ between the novel *13RW* and general novel norms?

RQ5: Do linguistic processes known to be related to suicidality differ between the novel *13RW* and general novel norms?

Design

This study utilized a synchronic corpus linguistic design (Weisser, 2016). The unit of analysis was single words (Bjekić et al., 2014). There were 21 variables measured across three different variable types. Research evidence supporting the selection of these variables for investigation will be detailed in the literature review section of Manuscript 1. There were 12 psychological process variables (positive emotion, negative emotion, past, present, and future focus, insight, causation, anxiety, sadness, friends, family, risk), five linguistic process variables (first-person singular, first-person plural, second-person, third-person singular, and third-person

plural), and four broad linguistic variables (analytical thinking, authenticity, clout, and emotional tone).

The research questions for Manuscript 1 involved comparing proportions of word category frequencies. The proper effect size therefore was Cohen's *w*. The average Cohen's *w* from an outcome study on anxiety disorders was used for the effect size input (Hung et al., 2020). The G*Power (Faul et al., 2009) input parameters were as follows: (a) test family- χ2 tests; (b) statistical test - goodness-of-fit tests: contingency tables; (c) type of power analysis - a priori: compute required sample size- given α, power, and effect size; (d) $w = 0.37$; (e) power (1-β error probability) $= 0.90$; (f) α $= .05$; and (g) degrees of freedom (*Df*) $= 2$. The G*Power 3.1 output suggested a sample size of 93 with an actual power of 0.90.

Procedures

The *13RW* novel Kindle edition ebook was converted from EPUB file format to a text file (.txt) using standard conversion software. Text cleaning followed the procedures set forth in the *LIWC Operator's Manual* (Pennebaker, Booth et al., 2015). After cleaning, the corpus text was uploaded as a single file to LIWC software for analysis.

MS2. Linguistic and Psychological Processes in the Dialogue of *13 Reasons Why*: Implications for School Mental Health Professionals

Rationale

Despite the increasing problem of adolescent suicidality, there is a dearth of theory-based, empirical research being used to inform prevention practices in schools. The meaning and impact of *13RW*'s popularity has been the subject of much research in recent years, yet no study to date has applied psycholinguistic research findings to further cultural and practical understanding. The purpose of this research was to evaluate correlation between the *13RW*

dialogue and known verbal indicators of adolescent suicidality and to consider related research and implications applicable to school-based mental health practitioners.

Target Journal for Publication

Children & Schools publishes professional materials relevant to social work services in education. Articles typically highlight innovations in practice, interdisciplinary efforts, research, program evaluation, policy, and planning related to school mental health. Journal subscribers include school social workers, health and mental health agencies, educational institutions, the juvenile justice system, and others concerned about child welfare, child development, and education. *Children & Schools* is considered a practitioner-to-practitioner resource. The impact factor for this journal is 1.10.

Children & Schools publishes literature similar to this research. It has published numerous articles about youth suicide. One example of a related study is "Micro- and Macrosystem Predictors of High School Male Suicidal Behaviors" (Beck-Cross & Cooper, 2015) which used Bronfenbrenner's (1974) bioecological model to examine individual and systemic predictors of adolescent suicidality. The researchers revealed significant findings related to individual risk and resilience behaviors as well as factors related to family, school, and community environments. A discussion of how these findings confirm previous research and suggest alternative school prevention strategies is included (Beck-Cross & Cooper, 2015).

Research Questions and Methodology

This study sought to explore the language of adolescent suicidality using similar constructs but in a different language register. Rather than analysis within a fictional novel register, the second study and reference corpus involved the register of natural speech in the form

of fictional tv dialogue. The methodology, design, and procedures of this second study mirror those of Manuscript 1. The research questions were as follows:

RQ1: What are the usage rates for psychological processes known to be related to suicidality?

RQ2: What are the usage rates for linguistic processes known to be related to suicidality?

RQ3: What are the usage rates for the broad psycholinguistic processes known to be related to suicidality?

RQ4: Do psychological processes known to be related to suicidality differ between the *13RW* dialogue and general television series dialogue norms?

RQ5: Do linguistic processes known to be related to suicidality differ between the *13RW* dialogue and general television series dialogue norms?

Glossary of Specialized Terms

Corpus is Latin for "body," signifying a body of texts (Baker, 2010a). A corpus is a large collection of computerized text carefully sampled to be representative of a language variety (Baker, 2010b). The plural form of this term is corpora, though corpuses is also acceptable (Baker, 2010b).

Corpus linguistics is "the study of language based on examples of real-life language use" (McEnery & Wilson, 2001. p. 1). It is a relatively recent and increasingly popular branch of linguistics due to the advent of personal computers and their data analysis capabilities. Corpus linguistics make use of quantitative methodologies to look at similarities, or differences, between different language sets (Baker, 2010b). Corpus linguistics utilizes a collection of methods; researchers must determine which method is most applicable in addressing their specific research questions as well as which software to utilize (Baker, 2010b).

Evidence-based suicide prevention practices refers to activities found to be effective by rigorous scientific evaluation. This includes engaging in evidence-based practices and selecting or developing evidence-based programs. Evidence-based suicide prevention can be applied to various activities, including decision making, use of available data and information systems, community engagement, use of sound evaluation systems, and dissemination of information (Suicide Prevention Resource Center [SPRC], 2021).

Linguistic Inquiry and Word Count (LIWC) is a linguistic analysis software that has undergone several revisions, the most recent of which took place in 2015 (Pennebaker, Booth et al., 2015). The LIWC program can be utilized to review and analyze many kinds of written text; the program returns results on 90 output variables (i.e., LIWC categories). Internal reliability and external validity of LIWC are well documented (Pennebaker, Booth et al., 2015).

*Log-likelihood (LL) test*s are commonly used in keyword analysis. LL performs tests for a significant difference in frequency between two corpora.

Register, Registers are "language varieties associated with a particular combination of situational characteristics and communicative purposes, which in turn typically exhibit linguistic similarities" (Biber, 2020, p. 435).

Suicidality is a term that covers suicidal ideation (serious thoughts about taking one's own life), suicide plans, and suicide behaviors or attempts (U.S. Department of Health, 2021).

Suicide assessment refers to a more comprehensive evaluation completed by a qualified professional to confirm suspected suicide risk, to estimate immediate level of danger, and to decide on a course of treatment. Although assessments can involve structured questionnaires, they also can include a more open-ended conversation with a patient and/or friends and family to gain insight into an individual's thoughts and behavior, risk factors (e.g., access to lethal means

or a history of suicide attempts), protective factors (e.g., immediate family support), and medical and mental health history (SPRC, 2021).

Suicide intervention is a specific activity or set of activities designed to decrease risk factors or increase protective factors. Suicide interventions can be targeted as either universal, selective, or indicated (SPRC, 2021).

Suicide prevention is a collection of efforts to reduce the risk of suicide. This includes prevention and protective strategies for individuals, families, and communities (CDC, 2021).

Suicide screening is a procedure in which a standardized tool, instrument, or protocol is used to identify individuals who may be at risk for suicide (SPRC, 2021).

Web television series is a series of scripted or nonscripted videos, generally in episodic form, released on the Internet as part of the web television medium, which first emerged in the late 1990s and became more prominent in the early 2000s (Definitions, 2021). Web series content can be fictional or nonfictional. Television (and movie) dialogue tend to be significantly more informal than other language varieties and are thought to closely resemble spoken language (Davies, 2021).

Thematic Linkage of Manuscripts

The first and second manuscripts link thematically through research design, methods, and data analysis. The two studies differ, however, by corpus register and variations between the two distinct media formats for *13RW*, the novel and the web television series dialogue. The novel study analyzes and compares within the corpus register conventions specific to more formal, written language. By contrast, the analyses and comparisons of the web television dialogue study are specific to the less formal, natural speech conventions. Together, they aim to fill gaps in research by exploring the linguistic themes of a current and consequential suicide fiction.

Organization of Dissertation

This dissertation is organized into four chapters. Chapter 1 presents an overview of the two studies and the goals of this research. Chapters 2 and 3 each stand alone as manuscripts for journal submission. Chapter 2 includes its own literature review, methods, data analysis, and results section, and focuses on the 2007 original novel version of *13RW*. Chapter 3 also includes a literature review, methods, data analysis, and results section, while focusing on the 2017 web television series version of *13RW*. Though the two studies utilize similar research questions, variables, methods, and data analyses, each article provides pertinent information for the readers of that journal. The final chapter, Chapter 4, summarizes the combined results and concludes the dissertation.

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Chapter 2: Manuscript 1

Linguistic and Psychological Processes in the Novel *13 Reasons Why*:

Implications for School Counselors

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Abstract

The 2007 suicide fiction *13 Reasons Why* (*13RW*) emerged as a central popular culture manifestation of its time. Since then, widespread discourse over the potential risks and benefits of *13RW*'s depiction of adolescent suicide has persisted. The purpose of this study was to gain understanding of the significance of *13RW* in terms of its congruence with established verbal indicators of suicidality and to consider related implications for current prevention practice in schools. The Linguistic Inquiry and Word Count software was used to evaluate 21 selected variables encompassing three types of word count categories within both *13RW* and a large novel norm reference. The variable types were broad psycholinguistic processes, linguistic processes, and psychological processes. The statistical analysis consisted of a log-likelihood ratio test with risk ratio serving as the effect magnitude. The majority of the hypothesized suicidality indicator variables exhibited substantial differences between *13RW* and general novel norms. Notably, *13RW*'s first-person singular references were approximately three times higher than average (2.99) while the number of second-person singular references was nearly twice as high (1.96). The study demonstrates the potential popular of culture fiction as a vehicle for current and complex understanding of societal issues such as adolescent suicide. Implications for school-based suicide prevention suggest that the incorporation of core language analysis concepts in conjunction with interpersonal process and school climate considerations may assist in synchronizing evidence-based strategies in this field.

Keywords: LIWC, adolescents, suicide, *13 Reasons Why* novel, interpersonal-psychological theory of suicidal behavior (IPTS)

Linguistic and Psychological Processes in the Novel *13 Reasons Why*:

Implications for School Counselors

Young adult (YA) novels, even those on difficult subjects such as suicide rarely stir the national consciousness. One exception is *13 Reasons Why* (*13RW*) by Jay Asher (2007). After selling more than three million copies in the United States in its first ten years, *13RW* and its subsequent Netflix series continued to generate broad interest and controversy. While many parents, educators, and mental health professionals were alarmed by the dark and explicit suicide content, teens were drawn to *13RW* with most reporting it to be a realistic portrayal of what being a teenager is really like (Lauricella et al., 2018; Walter & Boyd, 2019).

The Centers for Disease Control (CDC, 2020) reported a sharp rise in suicide rates among younger populations since the novels publication for those aged 10 to 24. The cause for this rise remains debated in the literature with many factors suggested; among them are increasing use of digital media (Hagan et al., 2017; Riehm et al., 2019; Twenge et al., 2018), increased academic pressure (Twenge et al., 2010), limited access to mental health care (Whitney & Peterson, 2019), and broader stressors such as the 2008 financial crisis, racism, gun violence, and climate change (Doepke & Zilibotti, 2019; Golberstein et al., 2019; Marks et al., 2021).

This rise in adolescent suicide rates occurred despite decades of school suicide prevention program research, state-mandated prevention policies, and research (Platt et al., 2019). Studies have shown that suicide is largely preventable (Bailey et al., 2011) and that the majority of suicide completers repeatedly communicate their suicidality to others prior (Joiner, 2007, Van Orden et al., 2010); however, identifying those who are at risk and delivering timely interventions remain elusive (Caine, 2013). A substantial body of research on the association between language patterns and suicidality not commonly known in the school counseling

profession may contribute significantly to the push for evidence-based suicide prevention methods (Barnes et al., 2007; Lester et al., 2010; Stirman & Pennebaker, 2001; Tausczik & Pennebaker, 2010). *13RW* is a relevant and widely studied popular culture artifact of adolescent suicide; however, it has not been investigated in terms of its psycholinguistic features of suicidality. The purpose of this research was to evaluate the correspondence of the *13RW* novel with known adolescent suicide indicators and to consider related implications for evidence-based suicide prevention practice in schools.

A review of current literature on adolescent suicide, its potential psychosocial and linguistic indicators, and corresponding *13RW* discourse revealed four key topics. These topics were: (a) socioenvironmental factors associated with teen suicide, (b) the relationship between psychological processes and suicidality, (c) the relationship between linguistic processes and suicidality, (d) the relationship between broad psycholinguistic variables and suicidality, and (e) the significance of fictional language registers in linguistic comparisons. After the literature related to these points is reviewed, the research questions of this study are specified.

The setting and plot of *13RW* is conducive to an examination of socioecological factors known to influence teens' attitudes and behaviors toward suicide. Addressing suicide risk factors in school settings (e.g., bullying, social isolation) and promoting protective ones (e.g., social connection, positive relationships with adults, school safety) are now recurring recommendations among researchers in the field (American Foundation of Suicide Prevention [AFSP], 2019; CDC, 2018; Cramer & Kapusta, 2017; Hatzenbuehler, 2011; Singer et al., 2019). Such an approach is also consistent with both Bronfenbrenner's (1974) socioecological developmental theory—that youth are most impacted by what happens in their immediate social environment (family, peer group, home, and school life)—and Joiner's (2005) interpersonal psychological theory of

suicidal behavior (IPTS), which points to strong associations between a person's sense of social belonging and value and their suicide risk level. In the recorded suicide notes she leaves, the main character of the novel, Hannah Baker, recounts numerous interpersonal risk factors for suicide, including her recent move and new student status, and experiences of bullying, sexual assault, social rejection, and unsupportive adults. The *13RW* narrative in many respects reflects current social conditions of known adolescent suicide risk factors.

Another well-studied category of socioenvironmental impact on adolescent suicidal behavior concerns contagion—the increase in suicidal behaviors after exposure to the suicide of a peer or suicide publicity. The topic of contagion is present in both the plot of *13RW* and the focus of *13RW*'s extensive impact studies. Suicide-related contagion is a well-documented social phenomenon (De Luca et al., 2012; Gould et al., 2003). In addition to direct exposure to suicide, it has also been discovered that simply being part of a social environment with greater exposure to depressed peers is associated with suicidal ideation (Fulginiti et al., 2016). Despite the fact that containing suicide contagion in the age of mass information and social media is practically impossible, the importance of understanding its role in rising rates of adolescent suicide remains.

Numerous studies have attempted to trace the effects of *13RW* on teens' attitudes and behaviors toward suicide. Negative impact findings include an increase in suicide-related internet searches shortly after the series release (Ayers et al., 2017), negative effects such as worsening mood (da Rosa et al., 2019), and increased suicidality (Zimerman et al., 2018) among certain vulnerable youth populations. However, the literature also shows many young *13RW* consumers demonstrating beneficial outcomes. For example, the results of a survey of more than 20,000 adolescents reported decreased ideation among most viewers after watching the show (Zimerman et al., 2018). Toward potentially beneficial research and practice outcomes, this study examined

what is resonating with and potentially indicative of suicidality within *13RW* and the age/generation for whom it was written with previously unapplied findings from corpus linguistics research.

Language can provide unique access to psychological processes that are otherwise internal or even unconscious to the person experiencing them, including those related to suicidality. Recent decades of psycholinguistic research and analysis methods have found that language provides a valid measure of suicidality (Egnoto & Griffin, 2016; Pestian et al., 2010). Text analysis computer software programs such as Linguistic Inquiry and Word Count (LIWC) have become an increasingly efficient tool for examining the internal thought processes and psychological states that occur before suicide. According to the literature, the most consistent psychological process verbal indicators have been found in proportions of both negative (Baddeley et al., 2011; Lumontod, 2020; O'Dea et al., 2017) and positive (Lester, 2009; Lester & McSwain, 2011) emotion expressions, present-focused attention (Kim et al., 2019; Lester et al., 2010, 2017), and interpersonal relationship perceptions (Fernández-Cabana, Ceballos-Espinoza et al., 2015; Lester, 2008; Williams, 2006). Interpretations suggest alignment with depressive symptoms and feelings of hopelessness and social disconnection which strongly predict suicide ideation (Lamis et al., 2016).

Language analysis research has also documented strong relationships between particular linguistic dimensions and suicidality. LIWC studies of suicide completers' language have replicated patterns, particularly in pronoun use, when compared with matched controls (e.g., Lester, 2009; Pennebaker & Stone, 2003; Stirman & Pennebaker, 2001). Numerous studies across multiple languages and populations have found higher use of the first-person singular in the language of those who are depressed or suicidal, indicative of a heightened self-focus

(Baddeley et al., 2011; Fernández-Cabana, García-Caballero et al., 2013, 2015; Lester, 2009; Lester & McSwain, 2011; Lumontod, 2020; Pennebaker & Stone, 2003). Conversely, these same writers show substantially lower use of first-person plural pronouns thought to be indicative of perceiving the self as part of a social group (Baddeley et al., 2011). These documented links between patterns of language use and suicide continue to expand.

Although only preliminary evidence exists linking broad psycholinguistic processes to suicide risk, there are developmental reasons to believe this may be a fruitful area for adolescent suicide research. The most recent version of LIWC (Pennebaker, Booth, et al., 2015) contains the addition of summary variables which analyze language patterns as composites of interpersonal and emotional states (Pennebaker, Booth et al., 2015). To date, emotional tone (the relative use of both negative and positive emotion expressions) and clout (a person's relative social status, confidence, or leadership) are cited as having significant negative correlations with depression and suicidality (O'Dea et al., 2017; Lumontod, 2020). The summary variables may help glean understanding of the overarching interpersonal interactions and emotional experiences portrayed in *13RW*.

Important to any corpus linguistics study is the consideration of register analysis. Registers can generally be understood as different language contexts within a culture (Biber, 2019) that continue to expand across written and spoken language domains—for example, natural speech, blogs, Twitter, academic writing, expressive writing, newspapers, and novels. Linguists have defined registers by their different situational characteristics, functions, and tendencies to predict language variations (Biber, 2012, 2019; Biber et al., 2016). As school counselors are commonly analyzing suicide risk screener responses, student writings brought by

a concerned teacher, student social media posts, or media content influences, awareness of different situational contexts and language features stands to benefit clinical judgement.

  In the case of the current study and previous research, fictional language is asserted to be a relevant source for understanding and addressing real world adolescent suicide phenomena on two levels. The first regards popular fiction's cultural function and social influence. Culture is significant to suicide phenomena which has been depicted in fictional texts for centuries with features that have been found generally analogous to those of suicide in the real world (Bates, 2019; Pridmore & Walter, 2013). Historically, and perhaps more rapidly in the media age and among adolescents (Uhls et al., 2021), narrative products have proven to be powerful agents in conveying and sustaining the culture of groups (Pridmore & Walter, 2013) including shifting knowledge, attitudes, and behaviors around social and mental health issues including adolescent suicide both positively (e.g. Carter et al., 2020; Lauricella et al., 2018; Uhls et al., 2021) and negatively (e.g. Ayers et al., 2017; Cooper et al., 2018; Ferguson, 2020) with evidence of cultural variations (e.g Chu ??). As such, examining the intersections between fictional and real-world suicide phenomenon is an important component of culturally relevant prevention efforts.

  An additional rationale for why a corpus linguistic study of *13RW* offers generalizability to current adolescent populations is based upon emerging linguistic research. In addition to LIWC studies documenting language patterns associated with suicidality in both fictional and nonfiction texts, there are a growing number of linguist researchers supporting fictional dialogue as a valid proxy for natural speech. There are obvious and well-studied differences between fictional dialogue which is written to seem like spoken language, and actual natural speech which occurs spontaneously (Biber, 1988, 2011; Jucker, 2021). However, the overall resemblance between novel dialogue, and even more so movie and tv dialogue, and real time

natural speech has also been well studied (Bednarek, 2018; Forchini, 2012, 2017, 2021) and increasingly accepted in the field of linguistics.

Given the aforenoted research needs and gaps, five research questions were designed to guide this study. These questions were as follows:

RQ1: What are the usage rates for the broad psycholinguistic processes known to be related to suicidality?

RQ2: What are the usage rates for linguistic processes known to be related to suicidality?

RQ3: What are the usage rates for psychological processes known to be related to suicidality?

RQ4: Do linguistic processes known to be related to suicidality differ between the novel *13RW* scripts and general norms?

RQ5: Do psychological processes known to be related to suicidality differ between the novel *13RW* scripts and general novel norms?

Method

Design

This study employed a synchronic corpus linguistic design (Weisser, 2016). Three types of variables were used in this study: linguistic processes, psychological process, and broad psycholinguistic processes. In sum, 21 variables across these three types were assessed. The unit of measure for all variables was continuous. The unit of analysis was individual words.

The research questions for the present study involved comparing proportions. The proper effect size therefore was Cohen's *w*. The average Cohen's *w* from an outcome study on anxiety disorders was used for the effect size input (Hung et al., 2020). The G*Power (Faul et al., 2009) input parameters were as follows: (a) test family- $\chi 2$ tests; (b) statistical test - goodness-of-fit

tests: contingency tables; (c) type of power analysis - a priori: compute required sample size-given α, power, and effect size; (d) $w = 0.37$; (e) power (1-β error probability) $= 0.90$; (f) α $=$ .05; and (g) degrees of freedom (Df) $= 2$. The G*Power 3.1 output suggested a sample size of 93 with an actual power of 0.90.

Study Corpus

Register, Scope, and Sources

The corpus register was fiction, and the subregister was YA fiction. The scope was the entire novel text of *Thirteen Reasons Why* written by John Asher (2007) except for the front matter pages. The source was the Kindle edition (2009) from Penguin (ISBN 9781101539927).

Preprocessing

The *Thirteen Reasons Why* Kindle edition ebook was converted from EPUB file format to a text file (.txt) using conversion software. After preprocessing (e.g., removing the text of any front or back matter that was not part of the novel), the total word count of the corpus text was 63,404.

Reference Corpus

Register, Scope, and Sources

General novel scales contained in the LIWC 2015 *Psychometric Manual* (Pennebaker, Boyd et al., 2015) served as reference norms for comparison to the *13RW* output variable data. These are norm reference variables derived from LIWC language categories and adjusted to account for the base rate of word usage specific to novels as opposed to those used to interpret varying language contexts (e.g., blogs, expressive writing, news articles, social media posts, natural speech, . The general novel norms were established using a large sample of novels acquired from Project Gutenberg that had been tagged as "literature." All novels were written in

the English language by different authors who lived between approximately 1660 and 2008. The norms are presented in the form of averages across a total corpus of 57,467,183 words. The average word count was 65,716, and this number was used for the denominator in all analyses.

Preprocessing

No preprocessing occurred since published norms were used.

Measures

Overview

The measures used were preset scales within the most recent version of LIWC (Pennebaker, Boyd et al., 2015). Satisfactory validity and reliability for the LIWC scales have been reported by Pennebaker, Boyd et al. Each variable is reported as a percentage of all words used in the studied text and scaled in relation to established measures of linguistic and psychological processes.

Psychological Processes

There were 12 psychological processes assessed. Selected psychological process categories and an example word were positive emotion (love), negative emotion (hurt), anxiety (worried), causation (because), family (daughter), friends (neighbor), future focus (may), insight (know), past focus (ago), present focus (today), risk (danger), and sadness (crying).

Linguistic Processes

There were five linguistic processes assessed. These were the following types of pronouns: first-person singular, first-person plural, second person, third-person singular, and third-person plural.

Broad Psycholinguistic Variables

Analytic

Analytic is a summary variable often representing categorical thinking. High scores indicate formal, logical, or hierarchical processes, while low scores indicate informal, personal, or narrative thinking.

Clout

Clout is a summary variable that may be indicative of social status, confidence, or power. A high score is associated with a perspective of high expertise, whereas a low score is associated with a more tentative or humble style.

Authentic

Authentic is a summary variable. A high score is associated with the qualities of being open and honest (or personal, humble, and vulnerable). A low score indicates a more guarded or distanced form of discourse.

Tone

Tone is the summary variable for overall emotional tone or sentiment. A score >50 indicates positive emotion. A score <50 indicates negative emotion—specifically, greater anxiety, sadness, or hostility. A score at or close to 50 suggests either a lack of emotionality or different levels of ambivalence.

Apparatus

LIWC (pronounced Luke) is a software tool that counts words through a processor. Its dictionaries are based on psychometric and linguistic research. For the purposes of this study, the standard dictionaries and most current version, LIWC2015, were used. LIWC2015 offers new

dictionaries including adding more social words and cognitive process words (Pennebaker, Booth et al., 2015).

Data Analysis

The first three research questions were descriptive in nature. For RQ1, the standard score for each broad psycholinguistic variable were provided. For RQs 2–3, raw count and normalized count (percentage of all words) were noted for all variables. RQs 4–5 were inferential in nature. For both, the log likelihood ratio test was used. In terms of effect size, risk ratio (RR) was employed. An RR value above one indicates that the study corpus has a higher rate of that word category than the reference corpus. If a value is far from one, it represents a strong effect. For example, a value of two would indicate that the rate in the study corpus is double that of the reference corpus. All analyses were conducted using R with an alpha level of .001.

Results

For RQ1, obtained results for the summary variable composite scores comparison were (a) analytic was lower in *13RW* compared to the reference norm (45 to 65), (b) clout was lower (55 to 75), (c) authentic was much higher (85 to 22), and (d) overall emotional tone was slightly higher (45 to 35). All LIWC analysis results for RQs 2–5 can be found in Table 2.1. Regarding RQs 4–5, the two strongest differences in results were found in linguistic process categories. In *13RW,* the frequency of first-person singular was approximately three times higher (2.99), and the frequency of second person was nearly two times higher (1.96).

Discussion

The aim of this study was to analyze the language of the popular culture suicide fiction *13RW* as a potential means for increased practical understanding of current adolescent suicide phenomena and its language indicators. RQ1 explored broad psycholinguistic comparisons by

analyzing all four summary variables within both *13RW* and LIWC's general novel norms. RQ2–3 examined usage rates of 21 pertinent psychological and linguistic process variables within the two corpora. RQ 4–5 compared results from RQ2–3 to evaluate differences between them. Because descriptive statistics are contained within the results of inferential analyses of the same variables, the reasons for the obtained results for RQ2 and RQ4 are addressed together. The same applies for RQ3 and RQ5.

Beginning with RQ1, the results of all four summary variables analyses help describe an overall voice or worldview inherent to *13RW*. Compared with general novel norms and previous suicide-related corpus linguistic findings (Baddeley et al., 2011; Lumontod, 2020; O'Dea et al., 2016, 2017), the obtained results for *13RW* were lower in clout. A compelling interpretation for low clout in *13RW* can be found in IPTS and known correlations with low perceived social status and states of heightened suicide risk (thwarted belonging and perceived burdensomeness). Analytic word use was also lower in *13RW* which is characteristic of people who write and think using language that is more narrative, focusing on the here-and-now and on personal experiences. This suggests a correlation with the more present- and self-focused tendencies observed in those who become increasingly suicidal and represents a pattern that recurs across the primary results of the current study. Another possible explanation for the lower analytic and clout results in *13RW* may reflect the perceptions, social status, and challenges more developmentally characteristic of, or preferred by, emerging adult readers. Future corpus linguistic research on both real world and popular fiction suicide utilizing the summary variables and specific to adolescent/young adult populations would aid in drawing conclusions for these two results.

For the two remaining summary variables, authentic and emotional tone, *13RW* results were higher than those in the reference corpus; however, minimal research exists to provide context for these findings. In the case of the present study, authentic showed the greatest observed difference among the four summary variable comparisons. Since high authenticity indicates a language style that is informal in nature and more focused on personal experience, it stands to reason that explanations for low analytic results apply conversely, but this is difficult to quantify due to only preliminary research and unpublished composite formulas of the summary variables. Interestingly, many studies have identified authenticity as a reliable measure for detecting honesty versus deceit and its impact on others in both spoken and written language. Revealing truths is key in the first pages of the novel as Hannah introduces the tape-recorded explanations of her suicide as true, jokingly asking, "Why would a dead girl lie?" (Asher, 2007 p. 2). While it is possible such a high result for authentic represents a first direct demonstration of a relationship with pending suicide, a more cautious explanation is that a personal, informal, and genuine language style is likely more prevalent in popular young adult fiction and certainly more stereotypically female (Newman et al., 2008).

As for the slightly higher overall emotional tone found in *13RW*, these results appear to reflect the dynamic and inconsistent patterns of emotion word usage in those who are suicidal. The formula for this summary variable is understood to be frequency of positive emotion minus – frequency of negative emotion. Although increased negative emotion expressions are characteristic of depression and suicidality (Baddeley et al., 2011; Lumontod, 2020, O'Dea et al., 2017), increased positive emotion patterns have been identified in the language of those at elevated risk (O'Dea et al., 2017) or closer proximity to the time of suicide (Lester, 2009; Lester & McSwain, 2011). Between depression- or suicidal risk-related differences, the latter is a more

probable explanation since the novel begins when Hannah decided to create her recordings and carry out suicide. In this regard, the light, resolute, and often caddy tone in Hannah Baker's language seems to align with these previous LIWC studies and a commonly understood warning sign of suicide imminence. Upward shifts in mood and energy have been explained by the sense of relief and practical need for maintaining acquired capability (Joiner, 2007) once the suicidal individual has decided to act on their plan.

Regarding linguistic processes typically related to suicidality, RQ2 and RQ4 results were most notable in first-person singular and second-person pronoun frequencies. High first-person singular references have been an early and enduring linguistic indicator of suicidality (Baddeley et al., 2011; Fernández-Cabana, García-Caballero et al., 2013; Fernández-Cabana, Ceballos-Espinoza et al., 2015; Lester, 2009; Lester & McSwain, 2011; O'Dea, 2017; Pennebaker & Stone, 2003; Weintraub, 1981). When compared to non-suicide fiction novels, first-person singular words in *13RW* were nearly three times more frequent. The effect size of this finding strongly suggests an attentional focus and level of emotional pain indicative of real-world adolescent suicide phenomenon. Again, a genre-specific literary style or female-attributed linguistic difference may also factor into the obtained results, but the strength of this finding supports correspondence with known linguistic elements and isolated states inherent to suicidality.

The obtained results for second person also merit comment. Compared to non-suicide fiction novels, the nearly two times higher frequency of second person in *13RW* reinforces previous suicide research and linkages discovered between pronoun use and quality of relationships. Tausczik and Pennebaker (2010) traced a seemingly counterintuitive pattern that second-person rather than first-person plural is more important in predicting low-quality

relationships. Taken with the significantly lower family references and slightly lower friends references in a high school setting novel, these findings indicate that close relationships are lacking in this popular culture narrative. The most compelling explanation for this cluster of findings is that Hannah Baker's narration is indicative of adolescent suicide phenomenon and the protective factor research on school and family connectedness, or in interpersonal theory terms, perceived "belonging."

In terms of RQ 3 and RQ5, the two psychological process variables with the greatest obtained effect sizes were for increased present focus and causation in *13RW*. There are two probable and seemingly related explanations derived from previous findings indicating present focus as strongly characteristic of suicide-related writings (Kim et al., 2019; Lester et al., 2010; Lester, 2017). First, is the interpretation that highly suicidal individuals are acutely concerned with their own present status, and second is the interpretation that when combined with increased first-person singular, present focus conveys social withdrawal and a sense of hopelessness about the future (O'Dea, 2017). Both explanations are supported by adolescent suicide theory. More so than a negative fixation on the past or the future, researchers have identified higher risk relationships to a present time perspective—e.g., those who experience a constricted temporal focus (Baumeister, 1990) or a fatalistic present (Laghi et al., 2009). A third but less reliable explanation within the novel context is the pattern found by Lester et al.'s (2010) comparison of suicide notes showing significantly higher use of present-tense words among females.

Interestingly, the causation word frequencies (e.g., because, effect) were notably inconsistent with previous research. Several journal and suicide note analyses have highlighted a lower or decreasing-over-time pattern for causation words (Fernandez-Cabana, 2013; Fernandez-Cabana, 2015; Lester, 2020). Lester stated, "The decrease in words concerned with *causation*

suggest that Electra was less interested in the reasons for her life's situation" (p. 142). In *13RW,* however, causation is dramatically asserted in both the title and taboo topics addressed—teen suicide along with bullying, substance use, depression, and sexual assault. The implied blaming of others for a person's suicide was in fact one of the controversies surrounding *13RW* with some fearing it could dangerously minimize the complexity of suicide and others seeing it as helpful toward extending social responsibility. This narrative choice and stance toward social responsibility may likely explain the higher use of causal words. Another explanation worth consideration is the link between anxiety and higher than average use of causal words in related research (Kim, 2019; Smirnova, 2018). However, previous literature remains limited to support the rise in adolescent anxiety rates and their relation to high causal word rates in suicide fiction.

There are two main limitations to keep in mind when considering the results of this study. The first is related to the corpus registers selected. In choosing to analyze a popular suicide fiction, by nature it is a holistic analysis that includes all the novel's language and not just the dialogue of its suicidal protagonist. In this regard, previous corpus linguistic methodology focused on linguistic and psychological processes of suicidal individuals should be considered a less direct comparison. A second limitation is inherent to the analysis software used LIWC2015). The computerized scoring system is unable to detect the contextual meaning of words or their ironic and sarcastic nuances—e.g., "mad" could be counted in the anger word category though its intended meaning was "senseless." The impact of this limitation, however, should be lessened in the case of this study since its most prevalent findings were in pronoun use categories.

This study has broad implications for two domains of adolescent suicide prevention research. First, the findings show that the overall narrative of *13RW* has many linguistic and psychological process parallels with both current research and adolescent suicide phenomenon.

Future corpus linguistic studies of *13RW* and other YA suicide fictions could help validate and potentially expand these findings using techniques such as sentiment or keyness analysis. In previous linguistic studies of suicide risk indicators, for example, keyness analysis was used (e.g., Bucur et al., 2021; Leonard Westgate, 2015). Such studies could help identify recurring terms and themes within YA suicide fiction narratives and their implications by identifying the most frequently used words and phrases in suicide fictions from 2000 to 2017.

 Second, the current study suggests a way to fill a gap in suicide research concerning social and interpersonal risk factors in the adolescent population. More quantitative and qualitative research is needed to understand how the adolescent population and various subgroups within it (Chu et al., 2010) differ in their experience of evolving suicidal processes such as those related to depression, interpersonal dynamics, relationship quality, and self-efficacy. Some researchers attribute the ineffectiveness of prevention and intervention efforts to a lack of research methodologies for understanding the dynamic nature of suicidal processes across the life course (e.g., Schiepek et al., 2011). Language analysis tools provide an effective means of tracing dynamic interactions between developmental and suicidal processes, as well as their cultural variations. This study also supports the importance of bringing verbal suicide indicator research to the field of school counseling, where these processes commonly occur and signal opportunities for intervention and prevention.

 Unlike other suicide risk factors that are static, verbal warning signs can aid identification and interruption of those that are malleable. There have been several major contributions toward identifying which psychological processes and developmental considerations help counter adolescent suicide risk. For example, prominent research has narrowed in on the impact of self-efficacy, (e.g., Valois et al., 2013), emotion regulation (e.g., Pisani et al. 2013), and social and

intrapersonal skills (e.g., Fernández-Cabana, Ceballos-Espinoza et al., 2015; King & Merchabnt, 2008; Williams, 2006) as key protective factors. In addition to detecting high-risk verbal indicators common to suicidality, corpus linguistic research may likewise reveal psycholinguistic measures that help identify and measure protective factor development.

Although this study sought to answer questions related to predicting heightened suicidality among adolescents, the research questions could be extended toward investigating verbal markers of protective factors known to reduce the likelihood of adolescent suicide as well. Some in the field argue that the distinction between suicide risk and protective factors is merely semantics. For example, a prominent researcher compared two scales for optimism and pessimism in their ability to predict hopelessness and found no significant difference between the one that was separated versus combined (Lester, 2021). However, as a potential means for measuring and promoting protective factors, corpus linguistic research grounded in IPTS could discover language features that tend to signal or solicit students' sense of school belonging. The results of a meta-analysis on the predictors of school belonging showed peer support (Ungar 2004), teacher support, and certain positive personal characteristics (Allen et al., 2018) to be the strongest predictors among high school students. As antidotes to Joiner's (2007) thwarted belonging or perceived burdensomeness, similarly designed research could help answer questions such as, What school counselor language features predict students' perceived social support? What characterizes inclusive language in students and teachers? What characterizes self-efficacy promoting language in the counselor's office or the classroom?

In terms of immediate implications for practice, the results of this study suggest two promising integrations for school suicide prevention programs. One is that schools should consider using *13RW* as a general staff training resource. This and related research (Esen &

Erbas, 2020; Pytash, 2013) show that *13RW* is a broadly applicable reference point for understanding and responding to the complex processes underlying adolescent suicide. Examples of ways to incorporate IPTS concepts and psycholinguistic indicators of suicidality into existing gatekeeper trainings include referencing themes and specific instances from *13RW*—for example, drawing on examples represented in *13RW* to highlight Hannah's risk factors, warning signs, and the process leading to her social disconnection.

A second implication applies to ways in which school counselors and other school staff involved in student risk-assessments might evaluate their protocols. Implementing minor changes to school mental health staff trainings and existing assessment forms based on IPTS and psycholinguistic indicator research can be an efficient means for improving school school-based practices. Recommendations include using questions that targeted to Joiner's (2007) three categories of suicide risk (thwarted belonging, perceived burdensomeness, and acquired capability) as well as paying attention to students' pronoun use and levels of negative and positive emotion words. Such adjustments may aid in the establishment of sustainable and relevant shifts for research-grounded suicide prevention practices in schools.

Although the generality of the current research must be established by future research, the present study provides clear support for the potential young adult fiction holds when it comes to increasing understanding of processes involved in adolescent suicide. Recognizing the specific psycholinguistic indicators offers an added tool for school counselors and others assessing students' academic writing, social media posts, statements to peers, or risk assessment responses. Importantly, incorporating the results of the current and related studies into existing school suicide programming could help hone skills for effective identification, intervention, and monitoring of high-risk students.

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Table 2.1

Descriptive and Inferential Statistical Results (RQs 2–5)

Category	Variable	Study corpus		Reference corpus		*LL*	RR
		Raw count	% of words	Raw count	% of words		
Ling.	1ps (I)	4943	7.86%	1728	2.63%	1760.50	2.99
	1pp (we)	484	0.77%	401	0.61%	11.88	1.26
	2p (you)	1710	2.72%	913	1.39%	282.39	1.96
	3ps (she/he)	1799	2.86%	3154	4.80%	318.21	0.60
	3pp (they)	421	0.67%	605	0.92%	25.58	0.73
Psych.	Pos. Emot.	1547	2.46%	1755	2.67%	5.55	0.92
	Neg. Emot.	962	1.53%	1367	2.08%	54.09	0.74
	Family	132	0.21%	256	0.39%	35.06	0.54
	Friends	138	0.22%	164	0.25%	1.24	0.88
	Causation	918	1.46%	677	1.03%	47.94	1.42
	Insight	1610	2.56%	1387	2.11%	27.93	1.21
	Anxiety	189	0.30%	289	0.44%	16.91	0.68
	Sadness	264	0.42%	361	0.55%	11.15	0.76
	Past	4239	6.74%	4640	7.06%	4.77	0.95
	Present	5754	9.15%	4081	6.21%	364.38	1.47
	Future	780	1.24%	782	1.19%	0.67	1.04
	Risk	314	0.50%	348	0.53%	0.57	0.94

Note. LL critical value at $p < .001$ is 10.83. Study corpus total $n = 62,886$; reference corpus total $n = 65,716$.

Chapter 3: Manuscript 2

Linguistic and Psychological Processes in the Dialogue of *13 Reasons Why* Netflix Series: Implications for School Mental Health Professionals

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Abstract

Unlike typical teen dramas streaming at the time, the 2017 season one premiere of *13 Reasons Why* (*13RW*) activated discourse, controversy, and impact studies on a global scale. Most of the public debate centered around the portrayal of Hannah Baker's suicide. The purpose of this study was to gain understanding of the significance of *13RW* in terms of known verbal indicators of suicidality and to consider related implications for current school-based prevention practice. The Linguistic Inquiry and Word Count software was used to analyze *13RW* season one dialogue across 21 relevant word use categories. The selected variables spanned three variable types: broad psycholinguistic processes, linguistic processes, and psychological processes. The statistical analysis was the log-likelihood ratio test with risk ratio utilized to determine effect size. Results revealed significant differences between *13RW* and modern television dialogue norms in nine of the postulated suicidality indicator variables. The most substantial differences were found in broad psycholinguistic and psychological process categories. By comparison, *13RW* featured low analytic thinking and high authenticity measures with references to friend (friend, neighbor, guys) and present focus (today, is, now) word categories over one and a half times greater than the reference norm. This study highlights the value of incorporating popular culture artifacts and current psycholinguistic research toward understanding complex societal problems such as adolescent suicide. Implications for school-based suicide prevention include support for the incorporation of core language analysis concepts to strengthen evidence-based practices and efficiency.

Keywords: LIWC, adolescents, suicide, *13 Reasons Why* dialogue, interpersonal-psychological theory of suicidal behavior

Linguistic and Psychological Processes in the Dialogue of *13 Reasons Why* Netflix Series:

Implications for School Mental Health Professionals

13 Reasons Why (*13RW*) made a dramatic entry into the public discourse on adolescent suicide with its record-breaking Netflix release in 2017. Few teenagers, their parents, educators, or mental health professionals had not heard of this controversial suicide fiction at the time. Responses to its dark and graphic content ranged from concerned outcry from parents, school officials, and public health experts on one end of the spectrum to interest and advocacy among proponents of young adult fiction and some child and adolescent mental health researchers on the other. Meanwhile, Hannah Baker's suicide tapes story resonated widely with its young viewers, with the majority finding it highly relatable (Lauricella et al., 2018; Walter & Boyd, 2019). This *13RW* popular culture phenomenon would eventually be known as one that ran tragically and concurrently through a decade of a near 60% increase in suicide among those aged 10 to 24 (Centers for Disease Control [CDC], 2020).

A main problem for school counselors and others charged with assessing and addressing suicidal behavior continues to reside in the elusiveness of its indicators. According to Joiner's (2007) prominent research, most individuals at high-risk repeatedly express their suicidality to others, yet it is clear the markers often go undetected or unaddressed. A significant body of linguistic analysis research now exists on the relationships between language patterns and suicidality in both personal and fictional texts. Although numerous studies have been conducted on the impact of *13RW*, no study to date has analyzed *13RW* for its psycholinguistic indicators of suicidality. The purpose of this research was to evaluate the conformity of *13RW* with known adolescent suicidality indicators and to consider its practical implications for new contexts of evidence-based suicide prevention practice in schools.

After an examination of the current literature on adolescent suicide, its psychosocial and linguistic indicators, and *13RW* discourse, six major topics emerged. These were (a) the impact of the *13RW* series upon school mental health practices, (b) the influence of the series *13RW* on the popular culture discourse of adolescent suicide as a social phenomenon, (c) the relationship between psychological processes and suicidality, (d) the relationship between linguistic dimensions and suicidality, (e) the relationship between broad psycholinguistic variables and suicidality, and (f) the significance of fictional language registers in linguistic comparisons. The research questions of this study are presented following a review of these key points in the literature.

Since its release on Netflix, *13RW* has made an undeniable impact on school mental health practitioners. In the wake of its widespread popularity among young viewers, many schools adopted a risk management approach. Such a response is in line with longstanding research of the contagion effects following publicity of suicide (Gould et al., 2003). Joining major medical institutions and suicide prevention experts, school mental health professionals disseminated warnings, resources, and opportunities for dialogue to families. Among these was a formal warning from the National Association of School Psychologists (NASP; 2017), which was reportedly its first on the subject of fictional media. Educators across the U.S. and abroad suddenly found themselves on the frontline of controversies playing out over the potential dangers of *13RW* versus psychoeducational benefits. The phenomenon of *13RW* renewed the call for community responsibility and increased suicide risk screening, prevention, and early intervention (Becker, 2017; O'Brien, 2017), all areas traditionally designated as domains of school policy and programming.

This particular fictional suicide has continued to impact school mental health practices and research over multiple years. Four years after its initial release, the American School Counselor Association (ASCA; 2021) still maintained 26 different *13RW* resources on its website. Promising studies of the story's usefulness as a training tool for counselors (Esen, 2020) and teachers (Pytash, 2013) have been published. A large-scale study from Northwestern Center on Media and Human Development surveying 5,400 adolescents reported several positive findings regarding exposure to the *13RW* series (Lauricela et al., 2018). Specifically, individuals' comprehension of the content was high; the majority of adolescents reported relating to the characters; and viewing it promoted better understanding of tough topics, behavior change, and communication between adolescents and their parents, teachers, and counselors (Lauricela et al., 2018). Although these studies suggest support for evidence-based prevention, rising adolescent suicide rates and possible contagion effects for vulnerable youth exposed to *13RW* have also been reported and continue to raise concerns (Ferguson, 2019). The influence of *13RW* has expanded beyond professional domains and permeated other venues of dialogue as well.

The portrayal of adolescent suicide in *13RW* has pervaded popular culture discourse over the years since its release. It has been the subject of numerous news articles, blogs, culture critic commentary, and ongoing public outcry from respected professional organizations (e.g., Stanford University Department of Psychiatry and Behavioral Sciences, American Foundation of Suicide Prevention [AFSP]). In response, Netflix inserted trigger warnings and suicide hotline information into each episode and eventually added a post-viewing mini documentary featuring professionals, cast, crew, and activists talking about the topics addressed in the show. Media communication researcher Krebs (2020) asserted that it has become a vehicle for public understanding of suicide and that informational aspects of *13RW* are important to analyze.

The *13RW* public conversation has expanded to include the complexities of addressing adolescent suicide. Beyond traditional ways of educating the public on individual warning signs and risk factors of suicide, the story of Hannah Baker highlights certain psychosocial and environmental factors that have recently been the focus of suicide prevention recommendations (AFSP, 2019; Ayyash-Abdo, 2002; CDC, 2018; Cramer & Kapusta, 2017; Singer et al., 2019). Hannah's character arrives to Liberty High School with several commonly accepted suicide risk factors (recent move, financial insecurity, family history of mental illness) and then experiences additional risk factors in her new school environment (bullying, sexual assault, social rejection, unhelpful adults). The story arc aligns with the CDC's statement that a combination of individual, relationship, community, and societal factors contribute to the risk of suicide. In this sense, a more expansive responsibility and complex understanding of the problem of adolescent suicide may be a promising outcome to emerge from the *13RW* popular culture phenomenon.

This study sought to expand current adolescent suicide prevention practice and *13RW* discourse through replication of psycholinguistic research findings. Since the advent of computer-assisted language analysis and software programs such as Linguistic Inquiry and Word Count (LIWC), increasingly efficient research methods have helped detect verbal indications of the major psychological processes associated with suicidality. One area where Linguistic Inquiry and Word Count (LIWC) analysis has revealed several pertinent findings is in the relationship between psychological processes and suicidality. For example, text analysis of suicide notes (which in essence is what *13RW's* Hannah Baker has left in long form) has been a common methodology for understanding the cognitive processes and psychological states before suicide (Freuchen et al., 2012; Shneidman & Farberow, 1957), and compared to clinicians, LIWC software has been able to more accurately predict the genuineness of suicide notes

(Lester, 2008, 2009, 2014; Lightman et al., 2007; Pestian et al., 2010). Most consistently, language patterns related to expression of negative and positive emotions have been documented in the writings of those who have died by suicide (Baddeley et al., 2011). Even correlates with "perceived burdensomeness" and "lack of belonging"—Joiner's (2007) interpersonal states identified as those most associated with suicidal desire—have been replicated in LIWC text analyses (Fernández-Cabana, Ceballos-Espinoza et al., 2015; Williams, 2006). The data of language provides a unique means and context for revealing internal processes underlying adolescent suicidality.

Strong documentation also exists on the relationship between linguistic dimensions and suicidality. Studies of suicide completers' written language have revealed patterns, particularly in pronoun use, when compared with matched controls (Lester, 2009; Stirman & Pennebaker, 2001; Stone & Pennebaker, 2004). Numerous studies document higher use of the first-person singular in the language of those depressed or suicidal, suggestive of a heightened focus on the self (Baddeley et al., 2011; Fernández-Cabana, García-Caballero et al., 2013; Fernández-Cabana, Ceballos-Espinoza et al., 2015; Lester, 2009; Lester & McSwain, 2011; Pennebaker & Stone, 2003). Relatedly, these same writers showed significantly lower use of first-person plural pronouns thought to be suggestive of a focus on the self as part of a social group (Baddeley et al., 2011). Such corpus linguistic research continues to support new, potentially impactful contexts for identification and intervention in mental health arenas.

More recent LIWC studies have begun to detect patterns related to suicide within broad psycholinguistic processes as well. Aided by the addition of LIWC2015's four summary variables that analyze language patterns as composites of interpersonal and emotional states, several recent studies have noted these linkages. The summary variables measure overall analytic

thinking, clout, authenticity, and emotional tone within a text. To date, emotional tone, the relative use of both negative and positive emotion expressions, and clout, a person's relative social status, confidence, or leadership, have been cited as having distinguishable correlations with suicidality (O'Dea et al., 2017). Lumontod (2020) found both clout and emotional tone to have significant negative correlations with depression, and emotional tone to have a similar correlation with suicidal ideation. Still, there is a lack of explanation for patterns among LIWC summary variables and their potential proxies with known risk and protective factors of adolescent suicide.

There are theoretical reasons to believe these broader psycholinguistic processes may replicate or expand gains made in understanding of suicidal behavior. A focus on defined interpersonal and emotional states, for example, aligns with the current generation of suicide research prompted by Joiner's (2005) interpersonal theory of suicide (IPTS). It stands to reason that low levels of clout may hold meaningful parallels with both perceived burdensomeness and thwarted belonging. Similarly, clout may approximate the well-established protective relationship between youth suicide risk and social connections (Borowsky et al., 2001; Marraccini & Brier, 2017). Hannah Baker recounts her subjection to vicious rumors and eventual social rejection in *13RW* much like thwarted belonging in IPTS studies that support risk factors of adolescent suicide (Buchman-Schmitt et al., 2014; King & Merchant, 2008; Stewart et al., 2017) or the rumors, social isolation, and negative emotion found in studies of the linguistic features of suicide (Baddeley et al., 2011). Further investigation using all four LIWC summary variables may facilitate a broader psychosocial approach to understanding and addressing the underlying processes of adolescent suicidality.

An important component of corpus linguistics research and its appropriate application includes consideration of corpus register. The prominent linguist and researcher, Biber (2019) describes corpus registers as distinct language contexts within a culture. Language patterns are therefore most appropriately defined and compared within their registers. The register of *13RW*'s web series dialogue is spoken language and its subregister is fictional television series dialogue, which is scripted and performed to replicate naturally occurring speech. The resemblance between TV dialogue and natural speech has been well studied and increasingly supported as a suitable proxy among linguists (Bednarek, 2018; Forchini 2012, 2017, 2019). For example, the results of a detailed, large scope study completed by Bednarek (2018) led to a conclusion that 'TV dialogue successfully imitates unscripted conversation.' LIWC studies.

Fictional television dialogue has recently risen in relevance. Rather than dismissing it as artificial as some have in the past, several prominent sociolinguists, including Bednarek (2020), suggested "narrative mass media play a significant role in establishing, reflecting, recycling and changing language ideologies, language attitudes and sociocultural norms" (p. 4; e.g., Coupland et al., 2016; Queen, 2015; Richardson, 2010). The most recent and largest corpus published for fictional television series (e.g., comedies and dramas), television corpus (Davies, 2021), provides a major resource for advancing such understanding. It is within this convention also that *13RW* and the register of fictional television dialogue were selected for this study.

Given the aforementioned, the following research questions were developed to direct this study:

RQ1: What are the usage rates for the broad psycholinguistic processes known to be related to suicidality?

RQ2: What are the usage rates for linguistic processes known to be related to suicidality?

RQ3: What are the usage rates for psychological processes known to be related to

suicidality?

RQ4: Do linguistic processes known to be related to suicidality differ between the Netflix

Series *13RW* scripts and broad television dialogue norms?

RQ5: Do psychological processes known to be related to suicidality differ between the

Netflix Series *13RW* scripts and broad television dialogue norms?

Method

Design

A synchronic corpus linguistic design (Weisser, 2016) was applied to explore these

research questions. There were three types of variables used in this study: linguistic processes,

psychological processes, and broad psycholinguistic processes. In total, 21 variables across these

three types were measured. The level of measure was continuous for all variables with the unit of

analysis being individual words.

The research questions for the present study involved comparing proportions. The proper

effect size therefore was Cohen's *w*. The average Cohen's *w* from an outcome study on anxiety

disorders was used for the effect size input (Hung et al., 2020). The G*Power (Faul et al., 2009)

input parameters were as follows: (a) test family- χ2 tests; (b) statistical test - goodness-of-fit

tests: contingency tables; (c) type of power analysis - a priori: compute required sample size-

given α, power, and effect size; (d) $w = 0.37$; (e) power (1-β error probability) $= 0.90$; (f) α $=$

.05; and (g) degrees of freedom (*Df*) = 2. The G*Power 3.1 output suggested a sample size of 93

with an actual power of 0.90.

Study Corpus

Register, Scope, and Source

The register was fictional television/film dialogue, and subregister was fictional

American English television dialogue (Bednarek, 2012; Levshina, 2017). The scope was the

complete first season of the Netflix series *13RW*. The source was 8Flix's TV and Film Dialogue

Transcripts Database commercial website. The original broadcast date for the first of 13 weekly

episodes of season one was March 31, 2017.

Preprocessing

The 8Flix television dialogue transcripts were converted from PDF to a Word document

and then compiled from separate episode files into a single document containing all the episode

transcripts from season one. This Word document was then converted to .txt file format.

Nondialogue within the teleplay, such as stage and sound directions, were removed. In

preparation for text analysis, extraneous nondialogue script material was also removed, and

adjustments for nonfluencies and fillers, such as "uh huh" and "you know," were made as

recommended in the *LIWC 2015 Operator Manual*. After cleaning, the total word count of the

corpus text was 63,125.

Reference Corpus

Register, Scope, and Sources

The register and subregister were the same as for the study corpus. The television corpus,

the most recent and largest collection of television dialogue, served as the reference corpus for

comparison to the *13RW* output variable data (Davies, 2021). This corpus is made up of subtitles

from 75,000 different episodes totaling 325 million words and hundreds of English-language

television series spanning the period of 1950–2017. It was compiled from the OpenSubtitles

database (Lison & Tiedmann, 2016). Although subtitles have some production restraints related to the number of words per line, researchers have found subtitles to closely approximate the informal nature of television dialogue (Levshina, 2017; Veirano Pinto, 2018).

Preprocessing

The preprocessing was the same as for the study corpus. After preprocessing, the final reference corpus contained 309,664,997 words.

Measures

Overview

The measures used were preset scales within the most recent LIWC software (Pennebaker, Boyd et al., 2015). Satisfactory validity and reliability for the LIWC scales have been reported by Pennebaker, Boyd et al. Each variable was reported as a percentage of all words used in the studied text and scaled in relation to established measures of linguistic and psychological processes.

Broad Psycholinguistic Variables

Analytic. Analytic is a summary variable often representing categorical thinking. High scores indicate formal, logical, or hierarchical processes, while low scores indicate informal, personal, or narrative thinking.

Clout. Clout is a summary variable that may be indicative of social status, confidence, or power. A high score is associated with a perspective of high expertise, whereas a low score is associated with a more tentative or humble style.

Authentic. Authentic is a summary variable. A high score is associated with the qualities of being open and honest (or personal, humble, and vulnerable). A low score indicates a more guarded or distanced form of discourse.

Tone. Tone is the summary variable for overall emotional tone or sentiment. A score >50 indicates positive emotion. A score <50 indicates negative emotion—specifically, greater anxiety, sadness, or hostility. A score at or close to 50 suggests either a lack of emotionality or different levels of ambivalence.

Linguistic Processes

There were five linguistic processes assessed. These were the following types of pronouns: first-person singular, first-person plural, second person, third-person singular, and third-person plural.

Psychological Processes

There were 12 psychological processes assessed. Selected psychological process categories and an example word were as follows: positive emotion (love), negative emotion (hurt), anxiety (worried), causation (because), family (daughter), friends (neighbor), future focus (may), insight (know), past focus (ago), present focus (today), risk (danger), and sadness (crying).

Apparatus

LIWC is a software tool that counts words through a processor. Its dictionaries are based on psychometric and linguistic research. For the purposes of this study, the standard dictionaries and most current version (LIWC2015) were used. LIWC2015 offers new dictionaries including adding more social words and cognitive process words (Pennebaker, Booth et al., 2015). LIWC has been in use extensively since 1993 as a linguistic analysis tool in psychology research and other fields of study.

Data Analysis

The first three research questions were descriptive in nature. For RQ1, the standard score for each broad psycholinguistic variable is provided. For RQs 2–3, raw count and normalized count (percentage of all words) are noted for all variables. The final two research questions (RQs 4–5) were inferential in nature. For both, the log-likelihood ratio test was used. In terms of effect size, risk ratio (RR) was employed. An RR value above one indicates that the study corpus has a higher rate of that word category than the reference corpus. If a value is far from one, it represents a strong effect. For example, a value of two would indicate that the rate in the study corpus is double that of the reference corpus. All analyses were conducted using R using an alpha level of .001.

Results

For RQ1, analysis of the four broad psycholinguistic summary variables revealed the following score comparisons: analytic was much lower in *13RW* compared to the reference norm (12.54 to 42.19), clout was similar (80.61 to 84.13), authentic was higher (50.08 to 32.00), and overall emotional tone was slightly lower (46.52 to 53.24). In terms of RQs 2–5, all LIWC analysis results can be found in Table 3.1. Regarding RQs 4–5, the two strongest effect sizes were found in psychological process categories. Specifically, the frequency of friend (friend, neighbor, guys) and present focus (today, is, now) references were over one and a half times greater in *13RW* compared to television series dialogue norms.

Discussion

The purpose of this study was to analyze season one dialogue in *13RW* and compare it to known language indicators of suicidality derived from corpus linguistic research. RQ1 focused on broad psycholinguistic comparisons among LIWC's four summary variables in *13RW* and

general television dialogue norms. RQ2–3 then analyzed both corpora in terms of their usage rates across 21 psychological and linguistic process variables informed by the literature. RQ 4–5 analyzed resulting differences between the two corpora in each of the 21 suicidality variables to determine their statistical significance. Because descriptive statistics are contained within the results of inferential analyses of the same variables, the reasons for the obtained results for RQ2 and RQ4 are addressed together. The same applies for RQ3 and RQ5

In terms of RQ1, obtained results for two of the four broad psycholinguistic variables highlight differences in the overall interpersonal and emotional climate of *13RW* compared to television series norms. The findings characterize *13RW* as overall lower in analytical thinking and higher in authenticity. These results did not concur with the few previous studies involving summary variables and suicidality which found only significant correlations with low clout and emotional tone in suicide notes and online posts (Baddeley et al., 2011; Lumontod, 2020; O'Dea et al., 2017). Interesting, however, is that low analytic (Pennebaker et al., 2014) and high authentic (Newman et al., 2003) are characteristic of people who focus more on the here-and-now and personal experiences. Taken together with the other key findings of this study, these results appear to correspond with the more present- and self-focused tendencies common in those at higher risk of suicide. An alternate explanation for the lower analytic and higher authentic counts may be a stylistic one based on *13RW*'s genre norms or the preferences of its intended young audience, but such an analysis is beyond the scope of the present study. Additional applications of the summary variables in both real-world and popular fiction contexts specific to adolescent populations would aid in drawing conclusions from these results.

Results for RQ2 and RQ4 demonstrated the clearest alignment with previous research regarding linguistic patterns in suicidality. High first-person singular pronoun use has been an

early and persistent psycholinguistic indicator of heightened suicidality. Substantially increased first-person singular pronouns in *13RW* fits with previous studies that associated this change with low social integration—an interpersonal state asserted across major suicide theories (Baddeley et al., 2011; Fernández-Cabana, García-Caballero et al., 2013; Stirman & Pennebaker, 2001). Compared to non-suicide fiction television, this result suggests that self-focused attention and social isolation are characteristic of current teen suicide fiction narratives as well.

The higher second person finding in *13RW* is also suggestive of parallels with previous corpus linguistic research and several major suicide theories. Tausczik and Pennebaker (2010) traced a seemingly counterintuitive pattern that second person pronouns ("you"), rather than first-person plural ("we"), is more important in predicting low-quality relationships. Perhaps this finding reveals more about the portrayal of low social connection than individual social-word references do within the harsh, social media-fueled climate of Liberty High. The explanation for higher second-person pronoun use likely connects themes in Hannah Baker's story to *13RW* and current understanding of adolescent suicide phenomenon connecting the lack of close relationships with adolescent suicide risk.

In terms of the psychological process results obtained for RQ3 and RQ5, it is noteworthy that the two strongest findings were in friend (friend, neighbor, guys) and present focus (today, is, now) references. The higher-than-average friend references in *13RW* were in one sense surprising since friend is a subcategory of social words that both intuitively and empirically (Pennebaker & Stone, 2004; Tausczik & Pennebaker, 2010) have been negatively correlated to suicidality. However, a nearly equal number of studies have detected similar (Barnes et al., 2007; O'Dea, 2017) or increased (Li et al., 2014) levels of social reference words in suicidality. Taken together, these discrepancies may imply a limitation in drawing conclusions from social-focused

word frequencies in isolation since they may not adequately indicate relationship quality or dynamics (social words versus social support). Another reason for the elevated friends results may simply be a contextual one since the majority of the dialogue of *13RW* takes place within the shared social context of a high school and the social ripple effect of so many characters connected to her suicide. Between these two explanations, the former seems more likely and interesting due to the measurement challenges and complexities of social dynamics.

In terms of higher-than-average present-focus words found in *13RW*, this has been a prominent finding in language studies of suicide completers as well (Kim et al., 2019; Lester, 2010, 2017). There are three potential interpretations for this pattern in *13RW*. First, it may convey that much like those who reach highly suicidal states, Hannah Baker and others in her narrative are perceiving their present problems as overwhelming and inescapable. The second is the related interpretation that when combined with increased first-person singular, present focus is thought to convey social withdrawal and a sense of hopelessness about the future (O'Dea, 2017). Both explanations are supported by adolescent suicide theory. More so than a negative fixation on the past or the future, researchers have identified higher risk relationships to a present time perspective—e.g., those who experience a constricted temporal focus (Baumeister, 1990) or a fatalistic present (Laghi et al., 2009). A third potential reason for this result may relate to Lester's (2010) comparatively higher findings for present-tense words in the suicide notes written by females; however, this explanation seems less plausible within this holistic context of television dialogue comparison.

It is important to note two major limitations of this study. The first limitation is inherent to the registers of the selected corpora. In choosing to analyze a popular suicide fiction, by nature it is a holistic investigation that combines the entirety of the season one dialogue and not just that

of its suicidal protagonist. In this respect, previous corpus linguistic methodology focused on linguistic and psychological processes of suicidal individuals should be considered a less direct comparison. A second limitation exists in the mechanical process restrictions of the software used (LIWC2015) to analyze the texts. In its attribution of word categories, the computerized scoring system cannot always detect contextual meanings of words or their ironic and sarcastic nuances. For example, the word "mad" could be counted in the anger word category though its intended meaning was senseless.

This study reveals multiple implications for future school suicide prevention research. It is the first known demonstration of the popular culture artifact *13RW*'s linguistic and psychological processes congruent with well-researched indicators of adolescent suicide. As such, it suggests future corpus linguistic research as a promising direction toward understanding the rapidly changing relationship between teenagers and media relative to mental health issues. For example, future studies could generate further understanding by conducting separate analyses of the dialogue of different characters in *13RW* or other fictional media across gender, race, and other social and cultural identity factors and their associations with suicidal behaviors. Continued research on story-driven conversations leading to positive outcomes such as those found to result for many adolescent viewers of *13RW*.

Additionally, the results of this study suggest that the incorporation of psycholinguistic assessment strategies and socioenvironmental approaches into existing school plans may add effectiveness to current suicide prevention practices. For example, adding core psycholinguistic indicators and IPTS concepts to existing risk crisis team trainings, assessment questions, monitoring tools, and school climate/social emotional learning programming may help synthesize and evaluate the different components of a school's comprehensive, research-driven

suicide prevention plans. Such an approach may help target second-level interventions available in the school community as well in efforts to reduce potential barriers to a student's sense of belonging (e.g., increasing social support, social engagement, adult mentoring, self-efficacy, and social-emotional skill development).

In summary, this study investigated two resources—a major popular culture fiction and a current application of psycholinguistic research—as potential means toward increasing relevance and effectiveness in school-based suicide prevention practices. The results of this study and their generalizability to suicide risk assessment and mental health promotion in schools require further research. However, the results suggest promising applications for adolescent suicide prevention education and more effective intervention and monitoring of high-risk students.

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Table 3.1

Descriptive and Inferential Statistical Results (RQs 2–5)

Category	Variable	Study corpus		Reference corpus		*LL*	RR
		Raw count	% of words	Raw count	% of words		
Ling.	1ps (I)	4224	6.66%	16366237	5.29%	209.40	1.26
	1pp (we)	958	1.51%	4050660	1.31%	18.92	1.15
	2p (you)	3634	5.73%	13673164	4.42%	226.62	1.30
	3ps (she/he)	1243	1.96%	6313098	2.04%	1.96	0.96
	3pp (they)	368	0.58%	2055312	0.66%	6.95	0.87
Psych.	Pos. Emot.	2473	3.90%	10674939	3.45%	36.05	1.13
	Neg. Emot.	1763	2.78%	6147689	1.99%	179.10	1.40
	Social	10407	16.41%	42274995	13.65%	331.54	1.20
	Family	311	0.49%	1887107	0.61%	15.81	0.80
	Friends	457	0.72%	1329370	0.43%	103.88	1.68
	Causation	964	1.52%	4133896	1.33%	15.56	1.14
	Insight	1934	3.05%	7332479	2.37%	113.93	1.29
	Anxiety	140	0.22%	782586	0.25%	2.68	0.87
	Sadness	400	0.63%	1320580	0.43%	53.98	1.48
	Past	3057	4.82%	12049612	3.89%	130.61	1.24
	Present	10629	16.76%	33752472	10.90%	1712.80	1.54
	Future	1015	1.60%	3897181	1.26%	54.19	1.27
	Risk	368	0.58%	1692004	0.55%	1.30	1.06

Note. LL critical value at $p < .001$ is 10.83. Study corpus total $n = 63,421$; reference corpus total $n = 309,664,997$.

Chapter 4: A General Conclusion

This dissertation investigated two resources, a major popular culture fiction and a current application of psycholinguistic research, both to increase relevance and effectiveness in school-based suicide prevention practices. In this chapter, I summarize the major findings, limitations, and practical implications of the two dissertation studies together. I then present recommendations for future research as well as my own personal agenda and reflections for subsequent studies in this area.

Summary of Findings

The first study investigated language patterns linked to heightened levels of suicidality within the novel *13RW* (Asher, 2007) and compared them to general novel norms. The results showed statistically significant differences in 12 of the 17 hypothesized variables for which statistical significance was measurable. Most notably, *13RW's* first-person singular references were approximately three times higher than average (2.99) and second person references nearly two times higher than average (1.96). For the remaining four summary variable processes, statistical significance could not be quantified since these are unpublished composite values. However, differences appear meaningful in results for two of the four summary variable comparisons—specifically, lower analytic and higher authentic in *13RW*.

The second study also investigated language patterns associated with heightened levels of suicidality using the same variables. However, rather than a comparison within written language norms, the second study focused on spoken language norms. The scale of this study was different in several ways. The Netflix series was a multiple authored adaptation intended for a more entertainment-defined medium. The series also had a record-breaking, international viewership and therefore became the source of broad impact and research much more than the novel. Finally, the reference corpus itself was much larger so the statistical power differed from the

novel study comparison. Regarding results for the dialogue study, they showed lower analytic and higher authentic features compared to the novel analysis. Results also showed high first-person singular and second-person pronoun use in *13RW* similar to the novel study but not as strong in effect size. The two strongest effect sizes of the dialogue study were found in the frequency of friend (friend, neighbor, guys) and present focus (today, is, now) references which were over one and a half times greater in *13RW* compared to television series dialogue norms.

Limitations

There are two important limitations of these studies. The first is inherent to the corpus register selections. When analyzing and comparing the language features of fictional texts, the analysis includes the entirety of the text, and in the case of *13RW*, not just the thoughts and expressions of the suicidal main character. In this regard, previous corpus linguistic methodology focused on linguistic and psychological processes of suicidal individuals should be considered a less direct comparison. A second limitation exists in a restriction of the analysis software used (LIWC2015). The computerized scoring system is unable to distinguish contextual meanings of words or their ironic and sarcastic nuances. For example, the word "fine" could be counted in the positive emotion category though its intended meaning was closer to "whatever, stop talking."

Thematic Links

One area of thematic linkage between manuscripts one and two is that they are both grounded in the theoretical model of IPTS and its increasing validation in community-based adolescent populations (Calear et al., 2021; Sallee et al., 2021). Also, both studies utilized the same language analysis methodology due to its unique ability to detect indicators of otherwise unconscious and difficult-to-detect processes underlying interpersonal states, including those related to suicidality. Finally, both studies employed an alternative approach for understanding

adolescent suicide by focusing on its representation in popular fiction media which stresses the cultural location (Bates, 2019) and perhaps also the chronosystem (Bronfenbrenner, 1974) of the phenomenon.

Recommendations for Future Research

Recommendations for future research drawn from the results encompass two different domains, one regarding future study of popular fiction artifacts, and the other regarding future studies of psycholinguistic applications in school mental health. The first domain regards serious attention toward representations of societal problems in popular culture media and their interactions with knowledge, attitudes, and behaviors around youth mental health phenomena. Although there has been a recent shift toward interest in this area of research, the language of popular culture remains underrepresented and understudied (Schubert & Werner, 2022).

The second domain indicated for further research concerns improving effectiveness in school-based suicide prevention practices. These and other studies point to the need for research targeting school-based programming to prevent or intervene at the point when high-risk interpersonal states and suicidality are developing. Further study is required to validate the efficacy of incorporating IPTS model and psycholinguistic research into school-based suicide prevention standards.

Implications for Practice

The results of these studies suggest important implications for the education and professional practices of school counselors and others charged with addressing adolescent suicidality. Language analysis in conjunction with interpersonal processes and school climate considerations offer several ways to strengthen evidence-based practices. In addition, the current studies application of these concepts within the context of *13RW* provides a broadly understood

reference point, which may, in turn, encourage attention to other cultural representations pertinent to a counselor's understandings of worldviews within a certain age/generation. Together the studies support the incorporation of research-based psycholinguistic indicators and IPTS concepts to add efficiency to existing conventions since both aid in the identification of high-risk students and appropriately targeted interventions. Examples of a comprehensive evaluation of existing prevention program areas and these potential enhancements include: (a) training materials (e.g., incorporation of IPTS theory into gatekeeper and crisis team trainings), (b) assessment materials (e.g., IPTS into risk-assessment forms by including direct questions about thwarted belonging, perceived burdensomeness, and acquired capability, , (c) measuring and monitoring risk (e.g., use of verbal indicators for initial and ongoing assessment of individual students such as shifts in pronoun use or negative emotion and positive emotion), and (d) targeted school-wide programs and interventions (e.g., target individual interventions and support for school climate and new or transitioning student programs, and social-emotional learning).

Personal Research Agenda

Doing this dissertation research generated a preliminary plan for future research. The types of studies I am interested in pursuing from this point can also be categorized into the two domains mentioned previously—roughly, fiction studies and population studies. My drive toward additional studies of popular fiction texts was likely influenced by my interest in literary and artistic expression and my belief that language and narrative matter. Learning about corpus linguistic research sparked a world of inquiry completely new and interesting to me. I quickly saw how understanding different language features and variations could have important implications for counseling. Likely next steps are to conduct further corpus linguistic studies of

13RW to see whether they can identify further evidence for verbal indicators of suicidality and possible differences revealed by separating character dialogue. For example, separating and comparing the dialogue of Hannah Baker or other characters based on gender, sexual minority status, race, or other cultural and social identity factors and their potential relationship to verbal indicators of suicidality. I am also interested in the meaning that might be derived from understanding these indicators in terms of their changes over time. For example, I could investigate potential shifts by conducting a comparison of *13RW* and other majorly popular fiction published before and after *13RW*.

The second domain of related research on my agenda involves human subjects in a community setting rather than a fictional one. There are several studies I consider potentially helpful toward increasing the use of relevant, evidence-based suicide prevention practices in schools. Such research would be necessary to define and validate the incorporation of core IPTS and psycholinguistic research concepts for school counselor educational or professional development applications. These studies would require developing a story-based educational unit referencing *13RW* to pilot with both counselors-in-training cohorts as well as practicing school counselors within controlled settings. Measures for engagement, knowledge acquisition, counselor efficacy, and utilization perceptions could be conducted as well as follow up utilization and program fidelity data. Beyond the subject of suicide, I have also considered language analysis applications as an additional means for measuring social-emotional learning outcomes related to protective factors of suicide and their duration. Through the research review for this dissertation, I came across several studies supporting how story-driven conversations can raise awareness, reduce stigma, shift attitudes, normalize certain behaviors and strengthen

supportive relationships among not just educators (Pytash, 2013) and counselors (Esen & Erbas, 2020), but students as well (Uhls et al., 2021).

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APPENDICES

Appendix A: IRB Approval

Oregon State University
Research Office

Human Research Protection Program
& Institutional Review Board
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Date of Notification	08/31/2018	Study Number	8773
Notification Type	Oversight Determination		
Principal Investigator	Cass Dykeman		
Study Team Members	Rachel Ware Zooi		
Study Title	A Corpus Linguistic Study of Gender and Help-Seeking in the Popular Teen Suicide Fiction 13 Reasons Why		
Funding Source	None	Cayuse Number	N/A

DETERMINATION: RESEARCH, BUT NO HUMAN SUBJECTS

It has been determined that your project, as submitted, does meet the definition of research but **does not** involve human subjects under the regulations set forth by the Department of Health and Human Services 45 CFR 46.

Additional review is not required for this study.

Please do not include HRPP contact information on any of your study materials.

Note that amendments to this project may impact this determination. Please submit a _new_ request if there are changes (e.g., funding, data sources, access to individual identifiers, interaction with research subjects, etc.).

The federal definitions and guidance used to make this determination may be found at the following link: Human Subject

Appendix B: Author Biography

Rachel Ware Zooi is a Professional School Counselor in Los Angeles, California. She received her Bachelor of Arts degree in English from Scripps College, and her Master of Science degree in Counseling from California State University, Los Angeles. Her professional experiences include counseling in a variety of K–12 public-school settings with a focus on prevention and intervention programming. Most recently she was asked to lead the planning and implementation of a district wellness center to expand student mental health services and programs. Her current focus is on district suicide risk assessment training, crisis counseling/response planning, grief and loss counseling, peer counseling and mentoring programs, and prevention/wellness programs. Rachel Ware Zooi is completing her Ph.D. in Counselor Education and Supervision at Oregon State University. Starting in 2018, she also became a part-time faculty member at Loyola Marymount University in Los Angeles teaching Crisis Counseling, Prevention and Intervention, and Child Welfare and Attendance Fieldwork for their counseling master's program.