Conducting Virtual Suicide Risk Assessments: Implications for Research and Practice

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DISSERTATION ABSTRACT

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Title: Conducting Virtual Suicide Risk Assessments: Implications for Research and Practice

This study examines barriers and facilitators to conducting virtual suicide risk assessments (VSRAs) from the perspective of assessors, using implementation science frameworks. A multi-method design was employed, integrating qualitative interviews and quantitative measures collected at two time points from assessors (i.e., independent evaluators [IEs]) who were part of a larger randomized controlled trial (RCT) studying suicide treatment interventions for students (ages 18-25) within University Counseling Centers (UCCs).

Qualitative findings revealed key barriers and facilitators, highlighting the importance of structured training, clear protocols, and ongoing supervision in supporting assessor competence. Assessors also noted that the virtual format provided incidental benefits, offering a reflective opportunity for participants that may not typically occur in traditional therapy settings. Over time, assessors reported increased confidence in conducting VSRAs, as well as improvements in participant engagement, crisis management, and collaborative assessment processes.

Quantitative findings indicated increases in self-rated competence over time, with the largest effects observed in domains related to participant engagement and crisis response. Perceptions of feasibility remained high and stable across time points, while perceptions of acceptability and appropriateness increased over time, suggesting more favorable evaluations of the virtual modality with experience.

These findings suggest that VSRAs are most effectively implemented when supported by structured training and ongoing implementation supports, with implications for best practices across both research and clinical settings.

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CHAPTER I: INTRODUCTION

Suicide prevention, including the effective assessment, treatment, and management of individuals experiencing suicidal thoughts and behaviors (STBs), is recognized as a critical component of health care systems, with national strategies recommending integration of these practices across clinical settings (U.S. Department of Health & Human Services, 2024; Centers for Disease Control and Prevention [CDC], 2024). In the post-pandemic era, virtual care has remained a common mode of delivery within mental health care organizations, including services that involve the assessment and management of suicide risk (Fleddermann et al., 2025). Given the growing role of virtual care and the ongoing need for accurate assessment and effective treatment of suicidality, systematic investigation of virtual suicide risk assessment (VSRA) practices is warranted.

The research presented in this dissertation examines barriers and facilitators to conducting suicide risk assessments virtually with college students in a research setting, using an implementation science lens. To provide context, this chapter begins with an overview of suicidality in the United States, followed by a discussion of suicidality among college students and the role of university counseling centers in supporting students at risk. Next, this chapter reviews theories of suicide, the history of suicide risk assessment practices and contemporary approaches, and the significant transition to virtual care modalities prompted by the COVID-19 pandemic. The current study is then situated within the larger Comprehensive Adaptive Multi-Site Prevention of University Student Suicide (CAMPUS) Study, and the chapter concludes with a discussion of relevant implementation science frameworks.

Overview of Suicidality in the United States

Suicide is a major public health problem in the United States, claiming the lives of 49,316 people in 2023 (CDC, 2025b). Suicide is the second leading cause of death for people between the ages 10-34 and suicide was among the top eight leading causes of death for people ages 10-64 (CDC, 2025a). Additionally, the number of people who think about or attempt suicide is even higher. In 2021, an estimated 12.3 million American adults seriously thought about suicide, 3.5 million planned a suicide attempt, and 1.7 million attempted suicide (Substance Abuse and Mental Health Services Administration, 2022).

Despite decades of research, suicide death rates increased 37% between 2000-2018 and decreased 5% between 2018-2020. However, rates returned to their peak in 2022 (CDC, 2025b). Some demographic groups carry an excess burden due to health disparities (e.g., sexual minorities, veterans, non-Hispanic American Indian and Alaska Native people, non-Hispanic White people, non-Hispanic Black people, people with disabilities; CDC, 2024a).

Suicide deaths and attempts have profound human, emotional, and economic impacts, affecting not only those who die or attempt suicide but also their families, friends, coworkers, and broader communities. Suicide attempts, like deaths by suicide, affect both individuals and communities, and postvention efforts can support those impacted and help prevent future suicidal behavior (King, 2001). However, much of the existing research has focused on suicide deaths. It is estimated that for every death by suicide, 15-30 people are severely impacted (Cerel et al., 2019). When an individual dies by suicide, their surviving family and friends may experience prolonged grief, shock, anger, guilt, symptoms of depression or anxiety, and even thoughts of suicide themselves (Hamdan et al., 2020; Wagner et al., 2021). Cerel et al. (2019) also estimate that for every death by suicide approximately 135 people are exposed. This group is not as severely impacted as close family and friends, but includes a larger swath of people including

work colleagues, first responders, health care workers, community groups, etc. The average economic cost of lost life years, medical spending, lower quality of life, and work loss, and avoidable deaths from suicide and nonfatal attempts is $484 billion annually (Peterson et al., 2024).

Although suicide has profound emotional, social, and economic consequences for families, communities, and society at large, certain populations experience unique risk factors that require focused attention. College students face developmental, academic, social, and identity-related stressors that can increase vulnerability to STBs, making this population a critical focus for prevention, assessment, and intervention efforts.

Suicidality Among College Students

College students (i.e., students typically aged 18-24) experience unique stressors including academic pressure, living independently, financial insecurity, access to basic needs, and balancing new relationships while maintaining old relationships (Byrd & McKinney, 2012). College students may also be forming, actualizing, or solidifying their identities (e.g., race and/or ethnicity, gender, sexual orientation), which may cause distress depending on how accepting and affirming the students' community is (Syed & Azmita, 2009; Liu et al., 2019). Furthermore, many common mental health concerns pre-exist or onset within the traditionally aged college years (Blanco, et al., 2008; McGorry, 2011). College students experience high rates of anxiety, depression, and other mental health concerns (Xiao et al., 2017).

According to the most recent National College Health Assessment (American College Health Association, 2025), 25.5% of college students screened positive for significant risk for suicidal behavior. Each year, approximately 24,000 college students attempt suicide while 1,100 students die by suicide, making suicide the second-leading cause of death among college

students with the United States (Wilcox et al., 2010). Despite efforts to prevent and reduce deaths by suicide, rates have either remained static or increased, especially among young adults (Garnett & Curtin, 2024). The suicide rate for people aged 20–24 increased 63% from 2001 through 2021 (from 11.9 deaths per 100,000 to 19.4), with a greater pace of increase from 2012 through 2021 (4% annually, on average) than from 2001 through 2012 (1% annually; Curtin & Garnett, 2023).

Given the individual tragedy and collective loss, institutions of higher education are interested in how to more effectively prevent, support, and provide intervention for students at risk of STBs. Although this developmental period has a confluence of risk factors, it also presents a window of opportunity for prevention, health promotion, and early intervention (Duffy et al., 2019). Given this need for prevention and early intervention, colleges and universities have increasingly relied on campus-based mental health services, particularly university counseling centers (UCCs), to provide direct support and treatment for students at risk of suicidality.

Role of University Counseling Centers (UCCs) in Supporting Students Experiencing Suicidality

Colleges and universities have provided on-campus, outpatient mental health treatment and intervention for students for decades. UCCs play a central role in suicide prevention, intervention, and postvention efforts and have historically treated students with elevated suicide risk, including those with prior suicide attempts and non-suicidal self-injury (NSSI; Center for Collegiate Mental Health [CCMH], 2025). This important function of UCCs has expanded, as the percentage of students served at counseling centers with histories of STBs and/or NSSI has grown (CCMH, 2025).

Among students seeking mental health services on their campus, 34.1% (n = 35,471) seriously considered attempting suicide at least once in their life and of those, 37.6% (n = 12,733) seriously considered attempting suicide in the last year (CCMH, 2025). Also, according to the most recent CCMH (2025) annual report data, among students seeking mental health services on their campus, 10.9% (n = 11,352) have made a suicide attempt at least once in their lifetime, and of those 15.8% (n = 1,753) made a suicide attempt in the past year (CCMH, 2025).

Despite the magnitude of known STBs among college students, they are less likely to die by suicide than their same-age peers in the general population, which may be due in part to the collective services and comprehensive support systems available on college campuses (Scherer & Leshner, 2021). However, students with greater suicidal ideation (SI) tend to experience poorer academic performance (e.g., lower GPA), and STBs with onset prior to college are associated with greater likelihood of college attrition (De Luca et al., 2016; Mortier et al., 2018).

Given the high prevalence of STBs among college students, the protective role of university support systems, and the attrition associated with STBs, post-secondary institutions would benefit from investing in evidence-based practices and policies. These practices include screening for suicidality using validated measures, empirically informed risk assessment, and employing treatment and management rooted in theory across a range of situations, from acute crisis to short- and long-term care. Conducting effective suicide risk assessments is a crucial first step in identifying at-risk students and implementing interventions to prevent and treat STBs.

Assessing Suicide Risk in Clinical and Research Settings

Suicide risk assessment is a critical component of both clinical practice and research aimed at preventing STBs. Effective assessment practices are grounded in theoretical models that seek to explain the emergence and progression of SI and suicide behavior. Accordingly, this

section begins with an overview of major theories of suicide, followed by a discussion of suicide risk assessment practices in clinical and research contexts, and the experiences and competencies required of individuals responsible for conducting these assessments.

Theories of Suicide

There is no single or simple explanation for why individuals develop SI, nor why some individuals experience suicidal thoughts without acting on them while others go on to attempt or die by suicide. Nonetheless, these questions have been extensively examined across decades of empirical and theoretical work. A substantial body of literature has identified risk and protective factors across the lifespan, within ecological frameworks (e.g., Bronfenbrenner, 1979), and from social, biological, and psychological perspectives. Although the field has made significant advances in understanding suicide-related phenomena, this knowledge has not yet translated into substantial reductions in suicide attempts or deaths at the population level. Suicide theories are essential for conceptualizing STBs, thereby guiding the development of more targeted and effective prevention and intervention strategies.

Early or first-generation theories of suicide primarily emphasized broad psychological or sociological explanations for suicide risk. These theories conceptualized suicide as arising from disruptions in the individual–society relationship (e.g., social isolation; Durkheim, 1951/1897), pervasive hopelessness (Beck, 1967), a desire to escape from an aversive self-awareness (Baumeister, 1990), or overwhelming psychological pain, often referred to as psychache (Shneidman, 1993). While these foundational theories were instrumental in advancing research and prevention efforts, they largely focused on the emergence of SI rather than explaining why only a subset of individuals progress from ideation to behavior.

In response to this limitation, a second generation of suicide theories emerged in the early 2000s with a specific focus on distinguishing between SI and suicide attempts (Yöyen & Keleş, 2024). Collectively referred to as ideation-to-action frameworks (Klonsky & May, 2015), the theoretical underpinnings propose that the development of suicidal thoughts and the transition to suicidal behavior are governed by distinct processes. Prominent examples include the Interpersonal Theory of Suicide (Joiner, 2005) and the Integrated Motivational–Volitional Model (O'Connor, 2011), both of which account for the emergence of SI as well as the mechanisms that facilitate progression to suicide attempts.

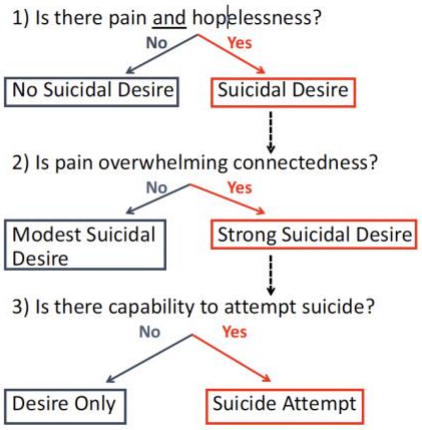
Building on both first- and second-generation theories, the Three-Step Theory of Suicide (3ST; Klonsky & May, 2015) integrates four central constructs: psychological pain, hopelessness, connectedness, and suicide capacity. As its name suggests, the 3ST conceptualizes STBs as unfolding across three sequential steps. First, SI develops when psychological pain is accompanied by hopelessness. Second, ideation becomes strong rather than moderate when pain exceeds an individual's sense of connectedness. Third, the progression from ideation to suicide attempts occurs when strong suicidal desire is coupled with sufficient suicide capacity, which may be dispositional, acquired, practical, or a combination (Klonsky et al., 2021). The 3ST is depicted in Figure 1.

Contemporary ideation-to-action theories underscore the complexity and dynamic nature of STBs, emphasizing that the development of SI and the progression to suicidal behavior are distinct mechanisms. These theoretical advances have important implications for clinical practice, particularly in how suicide risk is assessed and managed. As understanding of suicide has shifted from static, linear models toward more nuanced and person-centered, clinical approaches to suicide risk assessment have similarly evolved. The following section examines

the historical development of suicide risk assessment in clinical settings and how current practices reflect these theoretical insights.

Figure 1

The Three-Step Theory (3ST) of Suicide



Note. Figure from Klonsky et al. (2021) and used with permission.

Suicide Risk Assessment in Clinical Settings

The practice of conducting suicide risk assessments emerged within psychiatry in the 1960s (Litman et al., 1974) with the goal of predicting suicidal behaviors, including suicide attempts or death by suicide. Subsequent research, however, has demonstrated that suicide risk assessments do not reliably predict suicidal behavior for several reasons, including: (a) the presence of multiple, interacting risk and protective factors across individuals (Ryan & Oquendo, 2020; CDC, 2024b); (b) the fluctuating nature of STBs over time (Bryan et al., 2016); (c) limited understanding of the transitional mechanisms from suicidal thoughts to suicidal behavior (Klonsky et al., 2021); (d) the typically brief duration of acute suicidal crises (Deisenhammer et al., 2009; Simon et al., 2002); and (e) the relatively low base rate of suicide attempts and deaths, which limits predictive accuracy (Belsher et al., 2019; Chan et al., 2016).

Considering this more nuanced understanding, the field has moved away from conceptualizing suicide risk assessment as a predictive endeavor. Instead, contemporary clinical practice emphasizes a synthesis of an individual's broader risk and protective factors alongside the current intensity and immediacy of suicidal thoughts and feelings (Ryan & Oquendo, 2020; Obegi, 2025). The primary goal of this approach is to develop a comprehensive, individualized understanding of suicide risk in order to inform personalized intervention and treatment strategies that promote safety and enhance the well-being of the individual experiencing suicidality.

Building on prior conceptualizations (Bouch & Marshall, 2005; Pisani et al., 2016), Hawton et al. (2022) proposed a framework for organizing suicide risk and protective factors into four categories. This model, depicted in Table 1, categorizes risk factors into three domains: (a) predisposing factors, defined as historical or contextual factors that have already occurred and are not modifiable; (b) future factors, which include anticipated or potential events or circumstances; and (c) modifiable factors, encompassing current or future conditions that may be altered through intervention. The fourth domain comprises strengths and protective factors, which may buffer against or mitigate the impact of suicide risk.

Table 1

Categories of Suicide Risk and Protective Factors

Domains	Factors
Predisposing	Past self-harm
	History of mental health issues
	Family history of suicide
	Past abuse or trauma
	Bereavement and loss
	Exposure to suicide

Table 1 (continued).

Domains	Factors
Future	Anniversaries
	Criminal proceedings
	Discharge
	Loss
	Change in circumstances
	Stressful events
	Access to means
Modifiable[1]	Relationship issues
	Physical health
	Social circumstances
	Substance use
	Mood and mental health
	Psychological pain
	Access to means
Strength and Protective	Problem-solving skills
	Social support
	Familial support
	Engagement with services
	Insight
	Hope

Note. Acute exacerbation of any of these modifiable factors may constitute warning signs.

Suicide Risk Assessment in Research Settings

Given the lack of progress in reducing rates of suicide, research focused on better understanding of prevention and intervention of STBs is still a critical need to save lives. However, suicide research faces obstacles due to perceived liability (Pearson et al., 2001), lack of training among researchers (Linehan, 2012), and ethical and safety concerns research may pose to participants with lived experience of suicide (Andriessen et al., 2019; Lakeman & FitzGerald, 2009). The exclusion of participants with lived experience of suicide from clinical

research trials has also been a significant barrier to establishing evidence-based interventions (Linehan, 2012).

While suicide research does require special attention and thought to ensure participant safety, concerns associated with these factors may serve as additional barriers to conducting needed research. For example, a recurring concern from Institutional Review Boards (IRBs) is that discussing suicidality in research contexts might cause individuals to overly focus on suicidal thoughts and potentially result in them acting on their ideation (Brooke et al., 2025). This concern is despite evidence that discussing suicide does not lead to increased risk of STBs (DeCou & Schumann, 2018) and can instead generate benefits in terms of improved well-being (Blades et al., 2018; Omerov et al., 2014). It is possible for researchers to include participants with STBs in rigorous randomized controlled trials in ways that appropriately address ethical and safety concerns. Great care, thoughtful deliberation, and sensitivity should be taken in the research design, safety monitoring, and safety procedures. As Oquendo et al. (2004) emphasize, although such studies carry inherent ethical risks, they are both possible and necessary when conducted with strong safeguards and careful oversight to advance suicide prevention efforts.

Assessor Experience of Conducting Suicide Risk Assessments

While suicide risk assessment is a critical component of research involving individuals with STBs, relatively little is known about the experiences of those conducting these assessments. Most existing literature focuses on clinical professionals (e.g., therapists, doctors, nurses) in mental health or physical health care settings, such as outpatient therapy, hospitals, or primary care, with an emphasis on implications for clinical care (Jamison et al., 2025; McCabe et al., 2017; Roush et al., 2018; Simes et al., 2024). These studies consistently describe the

experience of conducting suicide risk assessments as anxiety-provoking and emotionally demanding and highlight gaps in training, self-efficacy, or perceived competence.

By contrast, there is limited research on the experiences of assessors in research settings, particularly for those who are not mental health or medical clinicians. Schatten et al. (2020) provides recommendations for non-clinician assessors, including comprehensive training and supervision, development of safety manuals, coordination with others to respond to risk, and thorough documentation.

Understanding assessor experiences in research contexts is critical not only for ensuring participant safety and well-being, but also for supporting assessors' ability to perform their roles effectively with appropriate training and ongoing support. As research increasingly incorporates virtual modalities for participant interactions, these considerations take on added importance, as modality-specific factors may shape assessor competencies, role demands, and perceptions of safety.

Virtual Modality and COVID-19 Impacts on Suicide Treatment and Research

The increasing adoption of virtual platforms in mental health research and care has significant implications for assessor experiences, particularly when conducting suicide risk assessments. Virtual modalities offer new opportunities to expand access to care for participants who might otherwise face barriers to in-person services, including individuals in rural communities, people of color, sexual and gender minorities, those with co-occurring disorders, and individuals with disabilities—especially when in-person providers may not reflect their cultural or identity background. The following section defines key terms, explores the historical and contemporary use of telemental health (TMH), and considers the impact of the COVID-19 pandemic on virtual service delivery.

Definition of Terms

Telemedicine first originated in the field of psychiatry and has been utilized since the late 1950s to increase access to care (Hyler & Gangure, 2002). Over time, multiple terms have been used to describe virtual mental health care, including telemental health, telepsychiatry, telepsychology, and virtual care. These terms are often used interchangeably, and their definitions may vary depending on factors such as timing (synchronous vs. asynchronous), scope (clinical vs. non-clinical), provider role (e.g., psychologist, psychiatrist, peer support), communication modality (phone, video, chat, email), and technology used (platforms, apps, wearable devices).

For the purposes of this study, TMH refers to synchronous sessions provided by mental health clinicians for clinical treatment using video calls on a HIPAA-compliant Zoom platform. Virtual suicide risk assessment (VSRA) refers to synchronous sessions conducted by non-clinical researchers to assess suicide risk using video calls on a HIPAA-compliant Zoom platform.

COVID-19 Impact on Implementation and Adoption of Virtual Modalities

To understand COVID-19's impact on virtual modalities, it is important to consider the pre-pandemic landscape. TMH was established but underutilized, with uneven adoption across providers and settings. Examining this context clarifies how the pandemic accelerated uptake and shaped experiences providing TMH and conducting VSRAs

Pre-Pandemic Telemental Health Utilization. Prior to the COVID-19 pandemic, TMH was primarily used to reach rural or underserved populations, and adoption among therapists was slow and fragmented (Lu et al., 2014; Lipschitz et al., 2023; Pierce et al., 2021). Studies suggested that just over 20% of psychologists had ever used TMH in their clinical practice (Glueckauf et al., 2018; Pierce et al., 2021). While the evidence base for TMH demonstrated

feasibility and effectiveness across a range of mental health conditions (Sorvaniemi & Santamaki, 2002; Jong, 2004; Lu et al., 2014; Myers et al., 2017), many providers had not fully embraced it, often citing policy barriers, privacy concerns, limited training, licensing restrictions, and questions about the effectiveness of care delivered remotely (Cowan et al., 2019; Douglass et al., 2023).

Provider Perceptions of Telehealth and Suicide Risk. Although suicidality is not considered an exclusion criteria for telepsychology services according to APA guidelines (Joint Task Force for the Development of Telepsychology Guidelines for Psychologists, 2013) or American Telemedicine Association (ATA) practice guidelines for telemental health (Yellowlees, Shore, & Roberts, 2010; Myers et al., 2017), many providers expressed concerns about their ability to assess risk and manage crises remotely. For example, Gilmore and Ward-Ciesielski (2019) found that clinicians often perceived it as difficult to conduct a thorough suicide assessment via telehealth due to challenges in reading body language and other nonverbal cues. The study also identified three key perceived risks: difficulties in assessment, lack of control over clients, and challenges in triaging clients if urgent intervention was needed. These findings highlight the nuanced clinical barriers that limited broader adoption of telehealth for high-risk populations prior to the COVID-19 pandemic.

COVID-19 as a Catalyst for Telehealth Adoption. With the onset of the COVID-19 pandemic, health systems, including UCCs, rapidly transitioned the majority of services to TMH (Garfan et al., 2021; Davis et al., 2023). Emergency public health orders, such as stay-at-home mandates and social distancing requirements, created both necessity and opportunity for widespread telehealth implementation. However, Bornheimer et al. (2022) found that many of the concerns identified by Gilmore and Ward-Ciesielski (2019) remained relevant: providers

reported difficulties in engaging clients remotely, conducting comprehensive suicide-risk assessments, accurately formulating levels of risk, and delivering evidence-based interventions via virtual platforms.

Because provider concerns have limited the use of a modality that has been shown to be effective, it is important to better understand the barriers and facilitators to conducting suicide risk assessments remotely. Virtual modalities offer a practical and increasingly important approach for engaging individuals who may face barriers to in-person services. Gathering empirical evidence on how clinicians and researchers experience conducting VSRAs can inform best practices, support continued use of virtual modalities, and help ensure that participants and clients receive timely and appropriate assessment and support. Establishing that VSRAs are feasible, acceptable, and appropriate is a critical step in ensuring that telehealth remains a reliable option for mental health services (Diebold et al., 2023).

Sustained Integration of Telehealth Post-Pandemic in UCCs. In the post-pandemic landscape, UCCs continue to offer a combination of virtual and in-person services. Approximately 23% of college students receive TMH exclusively, with an additional 24% participating in hybrid treatment models (Davis et al., 2024). This demonstrates the sustained adoption of virtual modalities in addressing student mental health needs. Policy, technology, and research developments—including insurance reimbursement, cross-state licensure, HIPAA-compliant platforms, and growing evidence for effectiveness—have supported this expansion (Edwards et al., 2024; Douglass et al., 2023).

COVID-19 Impacts on Suicide Research in UCCs

The rapid adoption of telehealth for clinical care during the pandemic also shaped suicide research in UCCs. In early 2020, the Comprehensive Adaptive Multi-Site Prevention of

University Student Suicide (CAMPUS) Study was underway when the pandemic necessitated rapid modifications to the original protocol to accommodate TMH services, including remote treatment, assessments, and participant monitoring. This shift not only altered service delivery but also highlighted the need to carefully evaluate the feasibility of TMH and VSRA particularly for assessing and supporting suicidal college students (Kassing et al., 2025). The current study leverages data collected from the CAMPUS Study, which is described in greater detail in the following Methods chapter.

The pandemic underscored both the opportunities and challenges of conducting suicide research in virtual settings. While TMH and VSRA increased accessibility and allowed research to continue during public health emergency orders, they also introduced new considerations for assessor competence, participant safety, and study procedures. Building on the adaptations required to conduct suicide risk assessments virtually during the pandemic, implementation science frameworks can inform understanding of how these evidence-based practices are effectively implemented, sustained, and scaled in real-world settings.

Implementation Science Frameworks

The field of implementation science is interdisciplinary and emerged, in part, from the need to decrease the 17–20 year delay between the development of evidence-based interventions and their routine use in practice, thereby increasing public health impact and improving the lives of recipients (Bauer & Kirchner, 2020). In healthcare, the evidence-based interventions that are the focus of implementation science include programs, practices, and organizational or public policies designed to improve health outcomes for individuals and populations (Rabin et al., 2008).

To meet its overarching aim, implementation science seeks to identify factors and strategies that influence or predict adoption, adaptation, implementation (or de-implementation of ineffective or harmful practices), sustained use, and scale-up and spread of evidence-based interventions (Qualitative Research in Implementation Science Group, 2018). It relies on multiple data methods and sources to understand the strategies and processes needed to implement an evidence-based change, the outcomes the change produces, and the barriers and facilitators to implementation across different contexts. Implementation scientists are dedicated to putting evidence-based practices to use in real-world settings (Brownson et al., 2018; Glasgow et al., 2003; Kessler et al., 2012).

For the purposes of this study, two complementary implementation science frameworks were employed: the Consolidated Framework for Implementation Research (CFIR), which provides a comprehensive structure for assessing contextual factors that influence implementation, and the Outcomes for Implementation framework, which assesses key outcomes of implementing evidence-based interventions in applied settings. These frameworks were selected because together they offer a comprehensive approach to understanding both the contextual determinants of implementation and the measurable outcomes of implementation efforts.

Consolidated Framework for Implementation Research (CFIR)

The CFIR provides a structured set of constructs used in implementation science research to evaluate factors influencing implementation success (Damschroder et al., 2009). Its overarching aim is to predict or explain barriers and facilitators to successful implementation (Reardon et al., 2025). The updated CFIR (Damschroder et al., 2022) is organized into five domains: (a) Innovation, which refers to the intervention or practice being implemented, such as

a clinical treatment, educational program, or service; (b) Outer Setting, which encompasses the broader context surrounding the implementation setting, including policies, local norms, and resources available to recipients, and may operate across multiple levels (e.g., institutional, state, or national); (c) Inner Setting, which refers to the organizational context in which the innovation is implemented, such as a hospital or university, and includes factors such as organizational culture, leadership engagement, and available resources; this domain may also involve multiple nested levels (e.g., unit or team); (d) Individuals: Roles and Characteristics, which captures both the roles of those involved in implementation (e.g., leaders, clinicians, or participants), whether internal or external to the inner setting, and their relevant characteristics, including knowledge, beliefs, and self-efficacy; and (e) Implementation Process, which includes the strategies and activities used to support implementation, such as planning, training, and ongoing evaluation.

Each domain contains multiple constructs and subconstructs that researchers can use to assess barriers and facilitators in real-world settings. Table 2 provides a summary of CFIR domains and their relevance to the current study.

Table 2

Summary Table of CFIR Domains and Relevance to Current Study

CFIR Domain	Definition	Sample of Constructs	Current Study
Innovation	The "thing" being implemented.	Evidence strength, complexity, and cost.	Virtual suicide risk assessments.
Outer Setting	The setting in which the Inner Setting exists.	Policies, local attitudes, needs and resources of innovation recipients.	University, city and state; COVID-19.
Inner Setting	The setting in which the innovation is implemented.	Structural characteristics, compatibility, culture, leadership engagement, and available resources.	University Counseling Center, research study.

Table 2 (continued).

CFIR Domain	Definition	Sample of Constructs	Current Study
Individuals: Roles and Characteristics	The roles of individuals.	High-level leader, innovation deliverer, and innovation recipient.	Independent evaluators.
	The characteristics of individuals.	Need, capability, opportunity, and motivation.	Clinical background, previous experience in research and suicide research.
Implementation Process	The activities and strategies used to implement the innovation.	Teaming, assessing needs and context, tailoring strategies, reflection, and evaluation.	Initial training, ongoing training, site team meetings, whole study team meetings, and adherence.

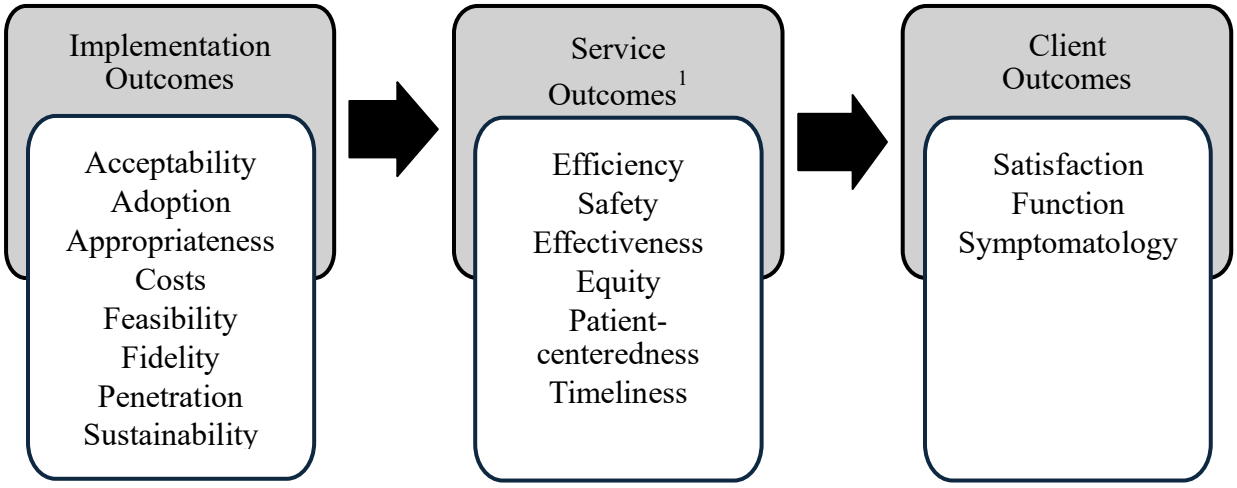
Implementation Outcomes Framework

While CFIR focuses on determinants that influence implementation, outcomes for implementation research assess the measurable effects of implementing evidence-based interventions in real-world settings (Proctor, 2011). Implementation outcomes are one of three interrelated types of outcomes in implementation research, along with service outcomes and client outcomes (Proctor, 2009). Because an innovation cannot be effective if it is not implemented well, measuring and understanding implementation outcomes is a necessary prerequisite for evaluating subsequent effectiveness in clinical or service outcomes (Proctor, 2011; see Figure 2).

Implementation outcomes have three important functions: (a) they serve as indicators of implementation success (i.e., shows if an innovation is working as intended); (b) they are proximal indicators of implementation processes (i.e., provides early feedback on implementation progress to allow adjustments before full-scale rollout); and (c) they are key intermediate outcomes (Rosen & Proctor, 1981) to service and client outcomes (i.e., first indicator of if service and client outcomes will be achieved; Proctor 2011).

Figure 2

Implementation Outcomes Framework



Note. [1]Institute of Medicine Standards of Care

In a scoping review, Proctor et al. (2023) explored how each of the eight implementation outcomes identified in their 2011 paper had been studied. They found that more than half (52%) of the included studies (n = 400) examined acceptability, followed by fidelity at 38.8%, feasibility at 36.9%, adoption at 24.0%, and appropriateness at 20.1%. Three of the eight were studied less frequently, including penetration at 15.4%, sustainability at 15.1%, and cost at 7.5%. Implementation outcomes were analyzed quantitatively 48.5% of the time, qualitatively 17.5%, and less than a third of studies used mixed or multiple methods (32.5%; Proctor et al., 2023).

Several standardized measures are commonly used to assess key implementation outcomes (Weiner et al., 2017). The Acceptability of Intervention Measure (AIM) assesses stakeholder satisfaction with an innovation; the Intervention Appropriateness Measure (IAM) evaluates its perceived fit in context; and the Feasibility of Intervention Measure (FIM) examines whether the intervention can be implemented given available resources, time, and infrastructure. These measures are widely cited as proximal indicators of implementation success and provide

insights into potential barriers or facilitators that can influence adoption, integration, and sustainability of evidence-based practices (Weiner et al., 2017; Proctor, 2011). However, a search of the literature did not identify any published studies applying AIM, IAM, or FIM specifically to virtual or in-person suicide risk assessments, highlighting a gap that the current study seeks to address.

Both CFIR determinants and implementation outcomes can be assessed using qualitative, quantitative, or mixed and multi-method approaches (Reardon et al., 2024, 2025; Proctor, 2011). Qualitative methods, such as semi-structured interviews or focus groups, allow researchers to explore participants' experiences, perceptions, and contextual factors in depth. Quantitative methods, including surveys or structured questionnaires, enable systematic assessment of constructs across larger samples. Employing a combination of qualitative and quantitative methods provides both rich, contextual insights and measurable patterns relevant to implementation.

Research Questions

Given the ongoing and urgent need to improve suicide prevention and intervention practices for young people, the rapid expansion of TMH and VSRA during COVID-19, and the continued integration of virtual care in its aftermath, it is critical to examine both the factors influencing implementation and the outcomes of conducting VSRAs. Guided by the CFIR and implementation outcomes frameworks, this study employed a multi-method approach to capture a comprehensive understanding of implementation processes and results. The following research questions displayed in Table 3 were developed to investigate barriers and facilitators, training needs, and perceptions of implementation outcomes over time, using qualitative interviews and quantitative survey measures at two time points (T1 and T2).

Table 3

Current Study Research Questions

Research Question	Method	Data Source or Measure	Hypothesis
RQ1: What barriers do assessors experience when conducting suicide risk assessments virtually?	Qualitative	Semi-structured interviews (T1 and T2)	Exploratory: Aim is to identify barriers.
RQ2: How do assessor experiences of barriers conducting virtual suicide risk assessments change over time?	Qualitative	Semi-structured interviews (T1 and T2)	Exploratory: Expect some barriers to decrease over time as assessors gain experience.
RQ3: What facilitators do assessors experience when conducting suicide risk assessments virtually?	Qualitative	Semi-structured interviews (T1 and T2)	Exploratory: Aim is to identify facilitators.
RQ4: How do assessor experiences of facilitators conducting virtual suicide risk assessments change over time?	Qualitative	Semi-structured interviews (T1 and T2)	Exploratory: Expect some facilitators to increase over time as assessors gain experience.
RQ5: What training elements do assessors identify as important for increasing competence in conducting virtual suicide risk assessments?	Qualitative (primary), quantitative (descriptive)	Semi-structured interviews (T1 and T2) and quantitative competency measure (T1 and T2)	Assessors will identify training elements related to knowledge, skills, and structured support as important to increasing competence.
RQ6: Do assessor perceptions of acceptability, appropriateness, and feasibility of conducting virtual suicide risk assessments change over time?	Quantitative	AIM, IAM, and FIM measures (T1 and T2)	Perceptions of acceptability, appropriateness, and feasibility will improve from T1 to T2 as assessors gain experience conducting virtual assessments.

Together, these research questions and hypotheses leverage implementation science frameworks to examine both the determinants and outcomes of implementing VSRAs, as well as how these processes evolve over time.

CHAPTER II: METHODS

CAMPUS Study

The current study is an ancillary sub-study of the CAMPUS Study. The CAMPUS Study was approved by a Single Institutional Review Board of Record at the lead site (Duke University; approval number: Pro00104815) and monitored by a National Institute of Mental Health Data and Safety Monitoring Board (NIMH-DSMB). Four UCC's participated in the study: three large public universities and one private university, located across the West (2), Southeast (1), and Northeast (1) regions of the United States. All sites offered both undergraduate and graduate degree programs.

CAMPUS Study Design

The CAMPUS Study used a sequential multiple assignment randomized trial (SMART; Almirall et al., 2012) design. In SMART designs, students at participating sites were randomized at multiple time points (e.g., stage one, stage two), producing sequences of treatments called adaptive treatment strategies (ATSs; Murphy, 2005).

College students were recruited to participate in the randomized controlled trial at each of the four UCC sites. Eligibility requirements included that they (a) sought treatment services at their UCC; (b) were eligible to receive counseling services from their university (e.g., did not require higher levels of care); (c) were officially enrolled at their university; (d) had not received treatment services at their counseling center within the previous 3 months; (e) were between the ages of 18-25 years; (f) endorsed moderate to severe SI (i.e., 2 or higher) on the Counseling Center Assessment of Psychological Symptoms (CCAPS; Locke et al., 2017) or via self-report to the clinician during intake; (g) presented with SI considered severe enough to be a focus of

treatment as determined by the intake counselor; and (h) agreed to video or audio recording of all therapy and assessment sessions.

In Stage 1, students were randomized to receive 4–6 weeks of either Treatment as Usual (TAU) or Collaborative Assessment and Management of Suicidality (CAMS; Jobes, 2016). Students who responded to Stage 1 treatment concluded CAMPUS Study treatment and entered a maintenance phase. Non-responders continued to Stage 2 and were randomized again, to either CAMS or a modified form of Dialectical Behavior Therapy (DBT; Linehan, 1993, 2015) for 1–8 weeks. DBT was adapted for the UCC setting (CC-DBT) and included individual therapy alongside six weeks of group skills training. For CC-DBT, therapists providing study treatment were encouraged to provide between-session phone coaching as permitted by UCC policies. Depending on treatment response, students could receive up to 14 weeks of treatment. For additional details on the study protocol, see Blalock et al. (2025).

CAMPUS Study Assessments

Regardless of treatment response, students completed six assessment sessions conducted by independent evaluators (IEs) who were masked to treatment condition. The six time points were Week 0 (baseline), Week 3 (mid-Stage 1), Week 6 (end of Stage 1), Week 10 (mid-Stage 2), Week 14 (end of Stage 2), and Week 26 (3-month follow-up). A scheduling window of ±1 week around each assessment date was allowed. Assessments were conducted in-person or over Zoom, depending on the site and time of year (e.g., summer break). Each assessment session lasted 1–3 hours. The assessments and schedule can be found in Table 4.

All assessment data were collected and managed using Research Electronic Data Capture (REDCap) hosted at Duke University (Harris et al., 2009; Harris et al., 2019). REDCap is a secure, web-based software platform designed to support data capture for research studies,

providing: (a) an intuitive interface for validated data capture; (b) audit trails for tracking data manipulation and export procedures; (c) automated export procedures for seamless data downloads to common statistical packages; and (d) procedures for data integration and interoperability with external sources.

Table 4

Assessment Schedule for CAMPUS Study Participants Conducted by IEs

Assessment	Week 0	Week 3	Week 6	Week 10	Week 14	Week 26
University of Washington Risk Assessment Protocol (UWRAP)	X	X	X	X	X	X
Treatment History Interview (THI)	X				X	X
Beck Scale for Suicidal Ideation (SSI)	X	X	X	X	X	X
Self-Injurious Thoughts and Behaviors Interview (SITBI)	X		X	X	X	X
Clinical Global Impressions Severity (CGI-S)	X	X	X	X	X	X
Clinical Global Impressions Improvement (CGI-I)		X	X	X	X	X
Global Assessment Scale (GAS)	X	X	X	X	X	X

University of Washington Risk Assessment Protocol (UWRAP). The UWRAP was developed by Linehan et al. (2012) to utilize when research included participants with STBs for three purposes: (a) to reduce anxiety of assessors by prompting them to both follow and document standards of care in their assessment and management of suicide risk; (b) to standardize protocols so that management of suicide risk during clinical research assessments could be both documented and applied by assessors; and (c) to create a generic crisis protocol

that would both instruct and induce good clinical care applicable across treatment conditions in clinical trials.

In the CAMPUS Study, IEs conducted the UWRAP pre-assessment at the beginning of each of the six assessment sessions and the UWRAP post-assessment at the end of each session. During the UWRAP pre-assessment, IEs asked the student if they have ingested medications, drugs, and/or alcohol on the day of the assessment. If so, IEs asked about the type(s) of substance(s) used, the dosage amount(s), and whether they believe that the substance(s) would affect their performance on the assessment. IEs also asked the student to rate their level of stress, urge for self-harm, suicide intent, and urge to use drugs or alcohol on a 1–7 point rating scale (1 = low, 7 = high). Lastly, IEs asked how the student could manage or mitigate distress throughout the assessment session. The IE documented the student's strategies and informed the student they may implement if distress was high.

At the end of the assessment session, IEs conducted the UWRAP post-assessment and debriefing to re-assess stress, self-harm, suicidality, drug/alcohol use, anger, and intent to harm. Regardless of student responses during the re-assessment, IEs completed a mood improvement protocol with the student which included questions such as, "How will you cope with any of the negative emotions that came up during the assessment session?" and "Do you have any fun activities planned for the rest of the day?"

If the student rated themselves a 4 or higher on the question, "What is your intent to kill yourself right now?," or had an increase by 3 or more points (i.e., 1 at pre-assessment and a 4 at post-assessment), or reported that they are unsure of their ability to control suicidal urges, the IE completed the acute risk factor assessment form followed by the implementation of suicidal

behavior strategies. The UWRAP was used solely to guide risk monitoring and clinical response during assessments and was not analyzed as a psychometric measure.

Treatment History Interview (THI). The THI (Linehan & Heard, 1987) is a structured interview designed to gather detailed information about clients' psychiatric and medical treatment over time. Section 1 assesses utilization of professional psychotherapy, comprehensive treatment programs (e.g., substance use treatment, day treatment), case management, self-help groups, and other nonprofessional treatments. Section 2 assesses utilization of inpatient units (psychiatric and medical), emergency services (e.g., emergency department visits, paramedic visits, police wellness checks), and other medical services (e.g., physician and clinic visits). Section 3 assesses use of psychotropic and non-psychotropic medications.

In the CAMPUS Study, IEs conducted the THI at only three of the six assessment sessions: Baseline, Week 14 (end of stage 2), and Week 26 (3-month follow-up). At the baseline session, treatments received both in the past year and outside of the past year (e.g., lifetime) were collected. If applicable, IEs asked students about reasons for each treatment, as well as the number of nights hospitalized/number of treatment sessions conducted. At the Week 14 and Week 26 assessment sessions, the THI collected information since the last assessment. THI data were used to characterize students' treatment exposure and service utilization over time and were not conceptualized as a psychometric scale.

Beck Scale for Suicidal Ideation (SSI). The SSI was designed as a clinical research instrument to assess the extent of suicidal thoughts and their characteristics as well as the participant's attitude towards them, the extent of the wish to die, the desire to make an actual suicide attempt, and details of plans (if any), internal deterrents to an active attempt, and subjective feelings of control and/or "courage" regarding a proposed attempt (Beck et al., 1979).

The SSI consists of 19 items and is conducted in a semi-structured interview format. Each item is comprised of three answer statements graded in intensity from 0 to 2, with higher scores reflecting more intense ideation. For example, one item is "Desire to make suicide attempt" and the answer choices are 0 = None, 1 = Weak, and 2 = Moderate to strong. Due to the semi-structured interview format, the assessor has the option to follow different lines of inquiry which can elicit specific information needed to complete each item of the scale.

In the CAMPUS Study, IEs conducted the SSI to capture the intensity and characteristics of the student's highest level of SI in the past 2 weeks, including attitudes, plans, and behaviors at each of the six assessment sessions. If a student denied any suicidality, they were asked to report about the day they felt the worst off emotionally. IEs asked the first five items which include (a) wish to live; (b) wish to die; (c) reasons for living or dying; (d) wish to die by suicide; and (e) self-protection in case of a life-threatening event. If a score of 0 was given, the remaining 14 questions were not asked. Although the SSI is a well-validated psychometric instrument, SSI scores were not analyzed in the present study; therefore, internal consistency estimates are not reported.

Self-Injurious Thoughts and Behaviors Interview (SITBI). The SITBI (Nock et al., 2007) is a structured interview that assesses the presence, frequency, and characteristics of a wide range of STBs, including: (a) suicidal ideation; (b) suicide plans; (c) suicide gestures; (d) suicide attempts; and (e) NSSI. The SITBI is intended to be administered by master's- and doctoral-level clinicians and researchers, as well as closely supervised bachelor's-level research assistants.

The SITBI comprises five modules that correspond to the five types of STBs. Each module begins with a screening question that asks about the lifetime presence of that thought or

behavior. If the initial screening question is endorsed, then the module is included in the interview. If the initial screening item is denied, then the questions from that module are skipped. For example, if a respondent denies ever having SI, this participant is not asked additional questions about various aspects of SI, and the interviewer proceeds to the screening question for the next module. Administration of the SITBI takes approximately 5-20 minutes, depending on the number of questions asked in each module.

In the CAMPUS Study, IEs conducted three of the five SITBI modules, including NSSI, suicidal ideation, and suicide attempts (with separate questions for attempts that were aborted or interrupted). The modified SITBI was administered at each of the six assessment sessions, except at the Week 3 session. Following the baseline (Week 0) administration, all subsequent assessments evaluated STBs occurring since the previous assessment. If a student reported any suicide attempts, IEs recorded the age at each attempt, methods used, consequences (e.g., physical injuries or scars, emotional consequences), and any hospitalization or services utilized. SITBI data were used to characterize the presence and features of STBs and were not analyzed as a psychometric scale.

Clinical Global Impressions (CGI) Scale. The CGI was developed for use in NIMH-sponsored clinical trials to provide a brief, stand-alone assessment of the clinician's view of the participant's global functioning prior to and after initiating a study medication (Guy, 1976). The CGI provides an overall clinician-determined summary measure that takes into account all available information, including knowledge of the participant's history, psychosocial circumstances, symptoms, behavior, and the impact of symptomology on the participant's ability to function (Busner & Targum, 2007). The CGI is comprised of two one-item measures evaluating severity (CGI-S) and change (CGI-I) from the initiation of treatment.

Clinical Global Impressions Severity (CGI-S). In the CAMPUS Study, IEs completed the CGI-S at the end of each of the six assessment sessions. This rating is based upon observed and reported symptoms, behavior, and function in the past seven days. Because symptoms and behavior can fluctuate over a week, scores reflected the average severity of suicidality over the previous seven-day period. IEs rated the student participant's severity of suicidality on a 7-point scale (1 = nonexistent, 7 = extremely suicidal).

Clinical Global Impressions Improvement (CGI-I). In the CAMPUS Study, IEs completed the CGI-I at all assessment sessions except baseline (Week 0). IEs rated overall change in suicidality from baseline on a 7-point scale (1 = very much improved, 7 = very much worse). CGI ratings were used to characterize global severity and change in suicidality and were not analyzed as a psychometric scale.

Global Assessment Scale (GAS). The GAS (Endicott et al., 1976) is a single-item rating scale for evaluating overall functioning during a specified time period, ranging from "psychological or psychiatric sickness" to "health." Scale values range from 1 to 100 and are divided into ten equal intervals, each with an accompanying definition. For example, the 41–50 range is defined as: "Any serious symptomatology or impairment in functioning that most clinicians would think obviously requires treatment or attention (e.g., suicidal preoccupation or gesture, severe obsessional rituals, frequent anxiety attacks, serious antisocial behavior, compulsive drinking)." Most individuals in treatment are rated between 1 and 70, most outpatients between 31 and 70, and most inpatients between 1 and 40.

In the CAMPUS Study, IEs determined a GAS rating at each of six assessment sessions. Ratings were based on students' functioning during the previous seven days, informed by data collected at the corresponding assessment session. Evaluators rated the lowest level of

functioning observed during this period. GAS ratings summarized overall functioning at each assessment and were not analyzed as a psychometric scale.

Current Study Design

The current study is an ancillary sub-study of the CAMPUS Study. CAMPUS Study research staff conducted semi-structured qualitative interviews with IEs, alongside quantitative measures at two time points to explore IE's' experience of conducting suicide risk assessments virtually to college students. Consistent with a multimethod design, qualitative and quantitative data were collected concurrently but analyzed separately to address distinct research questions.

Participants and Procedures

Inclusion criteria for participants were: (a) being a current IE in the CAMPUS Study and (b) having completed the required training for their role prior to the T1 qualitative interview and quantitative measures. The training that IEs completed prior to participating in the current study included: (a) reading all study-related materials, including the study protocol, IE manual, and description of assessments; (b) attending a 2-day online training covering each of the IE-administered assessments, provided by CAMPUS research staff; (c) completing at least 3 full practice sessions administering assessments on their own; (d) watching and scoring a standardized video of an assessment with feedback from a trained, licensed psychologist; (e) practicing administering an assessment with a standardized practice participant who was a trained, licensed psychologist. After completing all of the training, IEs had to be signed off by a trained, licensed psychologist. After completing training, IEs attend regular cross-site IE supervision meetings.

CAMPUS Study research staff attended one of the cross-site IE supervision meetings to briefly share information about the current sub-study and subsequently followed up individually

with each IE via email to confirm participation. All IEs agreed to participate and completed an electronic informed consent. Participation required 40–80 minutes per time point, including a 30–60 minute interview conducted over Zoom and 10–20 minutes to complete quantitative measures. IEs received a $25 gift card at each time point for a total of up to $50.

The majority of T1 data collection occurred in spring 2023. Some IEs joined the CAMPUS Study after this initial round, and their T1 interviews were conducted following completion of training. Interviews were conducted over Zoom and were video and audio recorded for qualitative data analysis. To maintain participant confidentiality, all names used in the study are pseudonyms. IEs created a unique identifier to link survey responses with interview data across T1 and T2. Survey measures were administered via University of Oregon Qualtrics.

Most T2 data collection occurred in spring 2024; however, when an IE was leaving their position before the intended approximate one-year follow-up, T2 interviews were conducted at the end of their role. The interval between T1 and T2 interviews ranged from 4 to 16 months (M = 10.66 months; see Table 5). Due to rolling onboarding and variability in interview timing, IEs differed in their experience conducting VSRAs at T1, having completed at least one assessment with 0–15 students prior to T1 (M = 5.1, SD = 5.5; median = 3.5).

Table 5

IE Interview Schedule, Interval Between Time Points, and Number of Students Assessed Prior to T1

IE	T1	T2	Time Between	Number of Students Assessed Pre-T1
Andrea	August 2023	May 2024	9 months	0
Catherine	March 2023	May 2024	14 months	1
Kathleen	March 2023	June 2024	15 months	9
Katrina	April 2023	May 2024	13 months	15

Table 5 (continued).

IE	T1	T2	Time Between	Number of Students Assessed Pre-T1
Ken	April 2023	May 2024	13 months	14
Lindsey	March 2023	April 2024	13 months	8
Margaret	March 2023	July 2024	16 months	0
Marjorie	March 2023	July 2023	4 months	0
Monique	December 2023	May 2024	5 months	6
Quillyn	March 2023	April 2024	13 months	1
Sabrina	August 2023	April 2024	7 months	0
Sandy	March 2023	August 2023	5 months	0
Sasha	March 2023	May 2024	14 months	11
Sigourney	March 2023	May 2024	14 months	6
Tianna	March 2023	August 2023	5 months	1

Data Management

Researchers were aware that the information and perspectives collected were personal and sensitive and were committed to protecting participant privacy. All study data were stored securely on encrypted, password-protected servers accessible only to authorized study personnel. IEs were assigned unique identifiers and pseudonyms to de-identify all data. After audio recordings were transcribed, the corresponding video recordings were deleted to further protect confidentiality. Electronic survey data were linked to interviews only via the unique identifiers, and no personally identifying information was included in analytic datasets.

Measures

The measures described below were included in the existing dataset and provide both descriptive information about the IE sample and data relevant to the study's research questions. Collectively, these measures offer contextual information about IEs as well as quantitative and qualitative data for examining experiences, competencies, and implementation outcomes associated with conducting VSRAs.

Participant Demographics

IEs completed a brief self-report demographic questionnaire at T1 (see Appendix A for full questionnaire). Demographic questions included university site, race and ethnicity, gender, and clinical background. IEs could select multiple responses for race and ethnicity and gender to reflect their identities. IEs who reported a clinical training background completed two follow-up questions regarding their highest degree earned and years of professional experience. Demographic data were collected to describe the sample and contextualize study findings. Participant demographics are presented in the Results section.

Qualitative Interviews

The interview questions were developed using implementation science frameworks, including the CFIR and the Implementation Outcomes Framework, to capture factors influencing implementation and key domains of interest, such as barriers, facilitators, and training-related considerations. At T1, sixteen semi-structured questions were created to examine assessors' experiences conducting VSRAs, organized into three topic areas: feasibility, facilitators and barriers, and training and support. T1 questions explored assessors' perceptions of their role, the appropriateness and safety of conducting VSRAs, potential barriers and facilitators, and confidence in handling challenging situations. At T2, the same topic areas were revisited to explore changes in assessors' experiences and perceptions over time. The full T1 and T2 interview protocols are provided in Appendix B.

Qualitative Interview Coding Team and Positionality. Interviews were conducted by trained research staff, including the investigator and a research assistant, who have experience in qualitative interviewing. The investigator, who also served as the CAMPUS study coordinator at one of the sites, brings over a decade of experience in suicide prevention and college student

mental health research and practice to this study. She has worked in suicide prevention and higher education mental health initiatives since 2013, including eight years in a UCC, and is currently serving as a leader for a statewide suicide prevention consortium of post-secondary institutions. Her background includes a master's degree in couples and family therapy and doctoral training in prevention science. She also acknowledges that her personal experiences and social identities may shape her perspectives.

The coding team consisted of the aforementioned investigator, research assistant, and four doctoral-level students in prevention science. To mitigate potential bias and maintain analytic rigor, the team adhered to the semi-structured guide, engaged in reflective memoing, participated in regular debriefing sessions, and consulted with supervisors throughout data collection and analysis (Levitt et al., 2017).

For a multi-method evaluation of IE experiences and VSRA, quantitative measures were administered at both T1 and T2 to assess competencies and perceptions of conducting VSRAs, allowing for the examination of implementation outcomes and changes over time.

Quantitative Measures

The American Association of Suicidology and the Suicide Prevention Resource Center (SPRC)-led Task Force on Suicide Prevention identified 24 core competencies across seven domains relevant to assessing and managing suicide risk (Pisani et al., 2011; SPRC, 2006). These domains include attitudes and approach, understanding suicide, collecting accurate assessment information, risk formulation, treatment and services planning, management of care, and legal–regulatory issues. Because the focus of the current study is specifically on suicide risk assessment, rather than treatment or broader management, a modified 10-item measure was created by integrating items from the Suicide Competency Assessment Form (SCAF; Cramer et

al., 2013) and the Gatekeeper Minimum Standards of Competency (Hawgood et al., 2022) to assess IE competence in conducting VSRAs.

Suicide Competency Assessment Form (SCAF). The SCAF was developed to provide a structured framework for suicide prevention skills training by identifying core clinical competencies most frequently cited for training purposes (Cramer et al., 2013). It originally included ten competencies that are rated on a 4-point scale (1 = incapable, 2 = working toward competency, 3 = competent, 4 = advanced). A total score can be calculated by summing the item ratings, with higher scores reflecting greater perceived competency (Cramer et al., 2020).

For the purposes of the current study, four of the original SCAF competencies were removed, and one was substantially modified to maintain focus on suicide risk assessment and align with the scope of the IE role. The remaining five competencies underwent minor wording adjustments to ensure clarity and relevance in a research setting.

Gatekeeper Competencies. The term "gatekeeper" in suicide prevention originated from the public health approach, referring to individuals positioned to identify people at risk, provide initial support, and link them to appropriate services (Burnette et al., 2015; Isaac et al., 2009). Osteen et al. (2014) distinguish between community gatekeepers, such as teachers, clergy, and co-workers, and professional gatekeepers, who are health or other professionals likely to encounter at-risk individuals through their work. The IEs in this research are "professional gatekeepers." Professional gatekeepers should be trained in the identification of at-risk individuals, screening for risk level, provision of brief interventions, immediate risk management such as safety planning, and referral to behavioral health providers (Osteen et al., 2014).

Hawgood et al. (2022) proposed four core domains of gatekeeper competencies—knowledge, skills and abilities, attitudes, and self-efficacy—encompassing a total of 22 specific

competencies. To reduce participant burden, four competencies were selected for inclusion in this study (three from skills and abilities, one from knowledge) based on alignment with professional gatekeeper responsibilities and relevance to suicide risk assessment. Minor wording adjustments were made to reflect the research setting. Additionally, one competency from the self-efficacy domain, which overlapped with a SCAF item, was combined with that item.

For the current study, the competency measure included five SCAF items, four Gatekeeper items, and one additional item specific to conducting assessments virtually. IEs self-rated their competence on each of the ten items using a 5-point Likert scale (1 = completely incompetent, 5 = completely competent) at both T1 and T2. Since the items were drawn from different sources, they were combined to create an overall measure of perceived competence in conducting VSRAs rather than a single standardized scale. See Appendix C for the full competency measure.

Implementation Outcomes. Implementation outcomes were assessed using the Acceptability of Intervention Measure (AIM), Intervention Appropriateness Measure (IAM), and Feasibility of Intervention Measure (FIM; Weiner et al., 2017). Each measure includes four items rated on a 5-point Likert scale (1 = completely disagree to 5 = completely agree). Typically, analysis involves calculating the mean score across the 4 items for each measure, with higher scores indicating greater acceptability, appropriateness, or feasibility, respectively.

These outcomes are particularly salient during early-stage implementation, demonstrate strong psychometric properties across diverse contexts, and provide insight into factors influencing stakeholder adoption of new practices (Proctor et al., 2011; Mettert et al., 2020). Conceptual definitions by Proctor et al. (2011) of each outcome are presented in Table 6.

Table 6

Implementation Outcome Definitions

Implementation Outcome	Definition
Acceptability	The perception among implementation stakeholders that a given treatment, service, practice, or innovation is agreeable, palatable, or satisfactory.
Appropriateness	Perceived fit, relevance, or compatibility of the innovation or evidence-based practice for a given practice setting, provider, or consumer; and/ or perceived fit of the innovation to address a particular issue or problem.
Feasibility	The extent to which a new treatment, or an innovation, can be successfully used or carried out within a given agency or setting.

For the current study, all original items were retained. Two additional items were added to assess VSRA appropriateness (Conducting suicide assessments virtually is appropriate for this population) and feasibility (Conducting suicide assessments virtually facilitated the process). IEs self-rated all 14 items on a 5-point Likert scale (1 = completely disagree to 5 = completely agree). Measures were administered at both T1 and T2. See Appendix D for the full set of items.

When combined alongside the competency measure and qualitative interviews, these implementation outcomes contribute to a comprehensive understanding of IE's' experiences, including perceived barriers and facilitators and changes in perceptions over time.

Data Analysis

The following section outlines the analytic approach used to address the current study's research questions, beginning with descriptive analyses of IE demographic characteristics, followed by qualitative procedures and quantitative analyses organized by research question.

Demographic Characteristics

Descriptive statistics are calculated to summarize IE characteristics, including university site, race and ethnicity, gender, and clinical background. For IEs with clinical training, additional information on the highest degree earned and years of professional experience is reported. These data provide context for interpreting IEs experiences and perceptions related to barriers and facilitators of VSRAs (RQ1–RQ4), training and competence (RQ5), and implementation outcomes including acceptability, appropriateness, and feasibility (RQ6). Demographic variables are not included in subsequent analyses.

Qualitative Procedures

Interviews from both time points were recorded, transcribed using Otter.ai (2024), and cleaned to ensure accuracy and remove identifiable information. Pseudonyms were assigned to protect participant privacy. Qualitative content analysis was used to identify themes in IEs' experiences conducting VSRAs. A deductive coding approach was guided by CFIR constructs, including the Assessing Context construct within the Implementation Process domain for barriers and facilitators (RQ1–RQ4) and the Access to Knowledge and Information construct within the Inner Setting domain for training and support (RQ5). Although initial coding was guided by pre-set categories, coders also remained open to inductive codes that emerged from the data. When data reflected additional nuance within categories, or when unanticipated concepts or experiences emerged, new codes were developed to capture these themes and sub-themes as patterns emerged. These emergent codes were discussed between coders, defined, and incorporated into the codebook, allowing the analytic framework to evolve iteratively in response to the data (Saldaña, 2021). This approach reflects a hybrid deductive–inductive analytic strategy, in which pre-specified constructs guided initial coding while maintaining flexibility to capture novel or context-specific findings.

Two coders independently coded each transcript using Dedoose (Version 10.0.59, 2024). A multi-phase approach to qualitative content analysis was used, including iterative coding, reflective memoing, and codebook refinement (Saldaña, 2021; Miles et al., 2020). Reflective memos were used to document insights, clarify code definitions, and capture nuances in participant responses. Coders met regularly to compare their coding and identify discrepancies across transcripts. Disagreements were discussed in detail, with attention to how codes were applied and interpreted, until a shared decision was reached. In parallel, the codebook was iteratively refined, with updates to code definitions, inclusion and exclusion criteria, and illustrative examples to improve clarity and consistency. Revisions were documented and applied to previously coded excerpts. This process continued until consensus was reached on all coded excerpts, ensuring consistent interpretation of themes across transcripts and time points (Miles et al., 2020). After T1 coding, member checking was conducted to validate identified themes with IEs (Lincoln & Guba, 1985).

Quantitative Analysis

Quantitative survey data from T1 and T2 were exported from Qualtrics and imported into RStudio (RStudio Team, 2026). Data were cleaned to remove metadata and test cases generated by research staff. The T1 and T2 datasets were merged using a unique participant identifier to create a longitudinal dataset for analysis. Analyses were conducted separately by research question using a combination of composite, scale-level, and item-level approaches as appropriate. An a priori benchmark of 4 or higher on the 5-point scale was applied across all quantitative measures, with values at or above this threshold interpreted as being favorable.

For RQ5, the competency items described above were used to construct a composite competence score of perceived competence in conducting VSRAs. Given that these items were

drawn from multiple sources, internal consistency was evaluated at each time point to support combining them into a single score and revealed acceptable reliability (T1 $\alpha = .77$; T2 $\alpha = .72$). The composite score was calculated as the mean of all competency items at each time point. Descriptive statistics (means and standard deviations) were computed for both the composite competence score and individual competency items. Paired-samples *t*-tests were conducted to examine changes in the composite competence score between T1 and T2. Item-level paired *t*-tests were conducted as exploratory analyses to provide additional context for specific competency domains.

For RQ6, scale scores for the AIM, IAM, and FIM were computed using their original four items, consistent with standard scoring procedures for these measures. IAM and FIM scale scores were additionally computed with one VSRA-specific item included in each scale (IAM: Conducting suicide risk assessments virtually is appropriate for this population; FIM: Conducting suicide risk assessments virtually facilitates the process). These scores were reported alongside the standard scale scores to describe whether responses differed when the additional items were incorporated. Descriptive statistics (means and standard deviations) were calculated at T1 and T2. Paired-samples t-tests were conducted to examine changes in implementation outcomes between T1 and T2.

With a sample size of 15 participants, two-tailed $p = .05$, the study had 80% to detect effects of Cohen's $d = .80$ or larger (i.e., large effect size). Because the study was underpowered to detect potential meaningful effects (i.e., small-to-moderate effect size), a threshold of $d \geq .35$ used to interpret meaningful effects.

CHAPTER III: RESULTS

This chapter presents findings from semi-structured interviews and analysis of the quantitative measures with IEs conducted at two time points. Results are organized by research question, highlighting barriers and facilitators to conducting VSRAs and changes over time, training elements that enhance competence in conducting VSRAs, and IEs' perceptions over time of the acceptability, appropriateness, and feasibility of conducting VSRAs.

Participant Demographics

All invited IEs chose to participate in the current study. The sample represents the four CAMPUS Study sites. IEs were distributed across sites as follows: University 1 (n = 4, 26.7%), University 2 (n = 5, 33.3%), University 3 (n = 3, 20.0%), and University 4 (n = 3, 20.0%). The sample was predominantly White (73.3%, n = 11), with additional representation from Hispanic (26.7%, n = 4), Asian (6.7%, n = 1), and Black or African American (6.7%, n = 1) participants. The majority of participants identified as women (93.3%, n = 14), with one participant identifying as a man (6.7%, n = 1).

Just over half of the sample reported having a clinical training background (53.3%, n = 8). Among those with clinical training, most held a doctorate degree (62.5%, n = 5), while the remainder held a master's degree (37.5%, n = 3). IEs with clinical training reported a range of experience levels, including unlicensed trainee with 1–3 years of experience (37.5%, n = 3), unlicensed trainees with 3 or more years of experience (25.0%, n = 2), licensed clinician with 1–3 years of experience (12.5%, n = 1), and licensed clinician with 5–9 years of experience (25.0%, n = 2). Demographic characteristics of the sample are summarized in Table 7.

Table 7

Self-Reported Demographics of IE Participants (n =15)

Characteristic	Category	IEs (*n*)	Percentage
Site	University 1	4	26.7
	University 2	5	33.3
	University 3	3	20.0
	University 4	3	20.0
Race and Ethnicity[1]	Asian	1	6.7
	Black or African American	1	6.7
	Hispanic	4	26.7
	White	11	73.3
Gender[1]	Man	1	6.7
	Woman	14	93.3
Clinical Training	No	7	46.7
	Yes	8	53.3
Highest Level of Training[2]	Master's Degree	3	37.5
	Doctorate Degree	5	62.5
Years of Experience[2]	Unlicensed trainee for 1-3 years	3	37.5
	Unlicensed trainee 3 or more years	2	25.0
	Licensed clinician 1-3 years	1	12.5
	Licensed clinician 5-9 years	2	25.0

Note 1. Participants could select multiple responses for race, ethnicity, and gender to reflect their identities; no participants selected multiple genders. Percentages for race and ethnicity sum to more than 100%.

Note 2. Only participants reporting a clinical training background (n = 8) completed the Highest Level of Training and Years of Experience items.

Qualitative Results

For RQs 1–5, which rely on qualitative interviews, only codes endorsed by three or more IEs (≥ 20% of the sample) are discussed in the text. Given the small sample size and repeated interviews, emphasis is placed on the number of IEs endorsing each code, rather than the raw frequency of mentions, to highlight shared experiences while still capturing meaningful variation. To protect confidentiality, all quotes presented in this section have been anonymized

using pseudonyms. Additionally, quotes have been edited or shortened only for clarity, without altering their meaning.

The full codebook (see Appendix E) provides detailed information on the number of IEs endorsing each barrier, facilitator, training element, or change at T1, T2, and across both time points. The codebook is organized hierarchically, with higher-order categories (parent codes) representing broad domains derived deductively from the CFIR framework. Within each category, lower-order themes (child codes) capture more specific concepts and were developed inductively from the data. In some cases, themes include more nuanced sub-themes (grandchild codes) that further elaborate on these experiences. This structure allows for a transparent presentation of findings, combining qualitative depth with quantitative clarity.

RQ1–2: What Barriers Do Assessors Experience When Conducting Suicide Risk Assessments Virtually and How Do They Change Over Time?

Analysis of qualitative interviews at T1 and T2 identified multiple barriers to conducting VSRAs, along with changes in IEs' ability to navigate these barriers over time. Themes included (a) student-level barriers, (b) virtual safety concerns, (c) virtual interaction barriers, (d) student group or demographic group barrier, and (e) technology barriers. Table 8 displays an overview of the barrier codes used to categorize these challenges. Within each theme (child codes), sub-themes (grandchild codes) are presented to capture more specific experiences and illustrative components of each barrier.

Table 8

Summary of VSRA Barrier Themes, Definitions, and Sub-Themes Across T1 and T2

Themes	Definition	Sub-Themes
Student-Level Barriers	Barriers reported by the student or observed by the IE that interfere with participation or engagement in virtual assessments.	▪ Private space barrier ▪ Stigma ▪ Time constraints ▪ Multitasking or distraction ▪ Confidence in responses ▪ Benefits of external location ▪ Promotes VSRA attrition
Virtual Safety Concern	Concerns about managing student safety in virtual assessments, including high-risk suicidality, self-harm, co-occurring disorders, and limitations of the virtual setting.	▪ IE unease ▪ Transition to higher level of care ▪ Vulnerability to intentional student exit ▪ Lethal means access ▪ High-risk students ▪ Emergency contact and location challenges
Virtual Interaction Barrier	Challenges in interacting with students during virtual assessments, including reading cues, managing distress, and building trust or rapport.	▪ Rapport and interpersonal connection ▪ Behavioral and environmental cues ▪ Distress management
Student Group or Demographic Group Barrier	Barriers to participating in VSRAs that arise from structural, contextual, or design factors interacting with students' identities, backgrounds, or circumstances, which may limit engagement, comfort, or accessibility.	Examples: ▪ Speech or hearing impairment ▪ Body dysphoria ▪ Gender dysphoria ▪ Psychopathology
Technology Barrier	Challenges or obstacles arising from the technology used in virtual assessments, including devices, internet connectivity, cameras, and Zoom links.	▪ Proper device and/or charger ▪ Wi-fi ▪ Camera ▪ Zoom link

Student-Level Barriers

The first theme IEs identified were student-related barriers that impacted engagement in VSRAs. These barriers reflect environmental, social, and behavioral factors that interfered with students' ability to fully participate in or engage with the assessment process or concerns student-level concerns from the assessor perspective. Key sub-themes included (a) students' access to private spaces, (b) stigma, (c) time constraints, (d) multitasking or distraction, (e) concerns about the accuracy of student responses, (f) benefits of external location, and (g) promotion of VSRA attrition. Although these barriers were consistently reported across both time points, IEs also described developing strategies over time to mitigate their impact and support more effective assessment.

Private Space Barrier. A majority of IEs reported that students' access to private, uninterrupted spaces posed a significant challenge and sometimes limited disclosure and engagement (T1 n = 13, T2 n = 13). Students often completed assessments in shared living environments, such as with family or roommates, which created concerns about being overheard or interrupted. Over time, some IEs implemented strategies such as providing guidance on identifying private spaces and navigating interruptions during assessments, though access to an appropriate environment remained a persistent challenge. Margaret (T2) shared:

> The biggest [barrier], has been finding a private space. For some folks, that's really easy. For other folks, it's really challenging if they aren't comfortable doing it in their place of living, for whatever reason, then finding a place on campus can sometimes be difficult…I've had a student who went to the library…They were walking around walking around for 20 minutes trying to find a study room that was open.

Stigma. Stigma—including internalized shame, concerns about mental health disclosure, cultural norms, and family pressures—also influenced student engagement in VSRAs (T1 *n* = 8, T2 *n* = 7). IEs described how fear of judgment—both internal and external—could limit students' willingness to speak openly during assessments, especially when conducted in shared or non-private spaces. As Sandy (T2) described, "There's a lot of shame around those [suicidal] feelings…And so that can be [difficult]— 'Okay, I need to have you talk to me openly about these things that your life has taught you are so wrong…'" Over time, IEs recognized that some students required extra thoughtfulness and care, adjusting their communication and approach to create a safe, supportive environment that helped students feel more comfortable and engaged.

Time Constraints. Several IEs highlighted challenges related to students allocating sufficient time for assessments, particularly given the length of the sessions (T1 *n* = 7, T2 *n* = 7). Competing academic, work, and personal responsibilities made it difficult for some students to commit to the full assessment, especially for longer baseline sessions. These time demands sometimes contributed to scheduling difficulties or reduced engagement. As Ken (T1) noted: "I think the barrier might just be the time investment for the students…an hour, two hours, potentially three hours of just sitting down and talking."

Multitasking or Distraction. Students engaging in other activities during the VSRA occasionally reduced focus and engagement (T1 *n* = 8, T2 *n* = 3). IEs described instances in which students appeared distracted by their environment or engaged in competing tasks, which could affect the depth and quality of responses. At the same time, some IEs noted increased ability over time to identify and address these behaviors by setting expectations and redirecting attention during sessions. Quillyn (T2), referring to a specific student, noted:

> I think this happened more frequently at the beginning of our work together because of the timing of the semester. And I think at one point, I did ask [whether] she was working on something else. I described to her what I observed, 'I see you're looking [in] that direction, and then I see you taking notes. I just want to make sure that I understand what's going on here. And we want to make efficient use of our time.'

Confidence in Responses. IEs expressed concerns about the accuracy, completeness, and honesty of student responses (T1 n = 4, T2 n = 4). These concerns were often tied to limited visibility into students' environments and the potential influence of privacy constraints or distractions on disclosure. Some IEs also noted the inherent challenge of assessing sensitive topics such as suicidality, where underreporting may occur regardless of modality. Andrea (T1) shared:

> I think people very reasonably lie to [assessors], I get the reasons why people would lie. They don't want to be hospitalized. And I get that. So I think there is some amount of fear of like, someone might lie, and not disclose that they are having serious ideation…

Benefits of External Location. Some IEs reported that being in a physical, in-person setting supported student emotional regulation and disclosure (T1 n = 2, T2 n = 4). While not a barrier per se, this contrast highlighted potential limitations of virtual settings, particularly the absence of structured environments that may facilitate emotional processing before and after assessments. These reflections informed how IEs conceptualized the role of setting in supporting student engagement. Margaret (T2) said, "I can envision students, where walking to the counseling center and walking back home, that walk is actually pretty essential to helping them restabilize after talking about their suicidality."

Promotes VSRA Attrition. A small subset of IEs observed decreased follow-through in virtual sessions (T1 *n* = 1, T2 *n* = 2). Although less commonly endorsed, this barrier highlighted challenges with maintaining engagement over time, including missed appointments or difficulty re-engaging students after initial contact. These experiences underscored the importance of proactive scheduling and follow-up strategies. Tianna (T2) said, "I guess the only thing is that sometimes it can be harder to get people to actually show up…But I think that it's kind of easier to skip out on things when they're online."

Virtual Safety Concerns

Another major theme was virtual safety concerns. IEs described multiple challenges related to managing student safety in VSRAs. These challenges included (a) unease, (b) difficulties coordinating higher-level care, (c) fear of student exit, (d) access to lethal means, (e) working with high-risk students, and (f) emergency contact and location challenges. While many barriers were most prominent at T1, IEs described growth in comfort, confidence, and procedural strategies over time, reflecting adaptation to the virtual setting.

IE Unease. Many IEs reported feeling apprehensive about conducting assessments virtually, particularly given the inherent risks of working with suicidal individuals (T1 *n* = 9, T2 *n* = 6). Sasha (T1) shared: "I think originally, I was actually pretty hesitant about performing them virtually given the nature of a study and working with suicidality. And there can be a lot of fear around that." Over time, some IEs described developing greater comfort and trust in their ability to manage risk in a virtual setting, reflecting familiarity with the virtual format and confidence in safety protocols. Sigourney (T1) noted: "The risk management, virtually, it has turned out, I think, to be less of a concern than like I thought it was going to be."

Transition to Higher Level Care. IEs described challenges in ensuring students reached higher-level care when needed, noting that virtual assessments made it harder to coordinate access to and confirm follow-through (T1 *n* = 7, T2 *n* = 2). However, IEs emphasized that these situations were relatively infrequent. Sandy (T1) explained:

> [If] they need to go to a hospital, it's a little bit more challenging to confirm someone's gotten to where they need to go in that case. Versus if I'm in that room with you, I can call campus services or whatever. So I would say that's the only thing that I could see being an issue, but the base rate of that, to me is very low.

Over time, some IEs described growing comfort with virtual procedures for connecting students to care, though the inherent limitation of physical distance remained a consideration.

Vulnerability to Intentional Student Exit. IEs noted that students could leave or disconnect from the virtual session intentionally, which created concern about the ability to intervene during critical moments (T1 *n* = 4, T2 *n* = 3). As Quillyn (T1) explained, "Because they are not within a clinic or within the room, we have less control over where they are, and how quickly they hang up and things like that." Similarly, Sabrina (T2) described, "I think, on the evaluators' [end], [VSRAs] somewhat increases the risk of the interview, if they are able to turn off their camera, and we can't see them. Just having that one last layer of contact with them." While some IEs became more confident in managing sessions and maintaining engagement over time, the potential for a student to exit unexpectedly remained a unique challenge of the virtual format.

Lethal Means Access. Some IEs expressed concern about students' access to lethal means (e.g., medications, weapons) during virtual assessments, which heightened perceived risk compared with in-person settings in which current means access can be more easily detected (T1

n = 5, T2 *n* = 1). Catherine (T1) shared, "When we first started doing [virtual] assessments, I was very nervous because you didn't have the person in the room. What if they were really, really high risk, they had the means with them right then. What would you do?" IEs noted that while such situations were rare, the inability to directly control the environment or monitor means increased vigilance and emphasized the importance of clear safety protocols.

High-Risk Students. IEs noted additional concerns when conducting virtual assessments with students who presented higher risk factors, such as severe suicidality, co-occurring disorders, or impulsivity (T1 *n* = 0, T2 *n* = 4). Catherine (T2) explained: "I think that it might be a little more difficult with maybe individuals who are inpatient or maybe with some higher-risk co-occurring disorders, more impulsivity too." These concerns reflected the perceived limitations of virtual assessments for managing complex clinical presentations. IEs considered whether the virtual format was appropriate for these students and emphasized the need for careful monitoring, structured check-ins, and readiness to escalate care if necessary.

Emergency Contact and Location Challenges. Some IEs described difficulty in confirming students' precise location or obtaining reliable emergency contact information during virtual assessments (T1 *n* = 3, T2 *n* = 2). Lindsey (T1) shared:

> They're in their dorm or another building on campus, and they may not know the exact room number. So I had some concerns about if we were to need to use that information for safety purposes…It was always just a little bit more nerve-racking that I wouldn't know exactly where they were.

Similarly, Monique (T2) noted, "[I had a client] that did not want to provide an emergency contact, they definitely were someone that I did not believe it was appropriate to be conducting the assessment, virtually, because they didn't want to provide emergency contact."

These challenges highlighted the added uncertainty of remote assessment settings. IEs emphasized the importance of being ready to adapt to unique locations (e.g., car) and thoroughly following protocol to confirm emergency contacts and location details at the start of the session to ensure timely response in case of a crisis.

Virtual Interaction Barriers

Another theme that emerged was virtual interaction barriers. IEs identified several challenges related to interacting with students in virtual settings, including (a) establishing rapport and interpersonal connection, (b) difficulties interpreting behavioral and environmental cues, and (c) managing student distress. Although these barriers were commonly reported at T1, fewer IEs endorsed them at T2, suggesting improvements in comfort and skill with virtual interaction over time.

Rapport and Interpersonal Connection. Building rapport and establishing a sense of interpersonal connection emerged as a barrier particularly at T1 (T1 n = 12, T2 n = 6). IEs described difficulty building rapport in virtual settings, which sometimes limited student openness and engagement. Some noted that the lack of physical presence contributed to feelings of distance or awkwardness, particularly early in the assessment process. Lindsey (T1) said:

> I also wonder about, this is me speculating here probably, but they [student] never get to meet the IE at [University 1] in person. They don't meet me, they don't meet my other IEs. And we ask them a lot of really personal information. And I wonder about their degree of trust or comfort, particularly in the beginning.

Over time, several IEs reported increased comfort and effectiveness in building rapport virtually, often by adapting their communication style (e.g., being more intentional with tone,

pacing, or verbal validation), reflecting growth in interpersonal delivery skills. Lindsey (T2) demonstrates her growth over time:

> The more that I've done virtually, the more competent I've gotten. Doing [them] kind of associated with that increased confidence in managing things allows me to be more present with the student and that helps me with rapport and asking about these sensitive topics.

Behavioral and Environmental Cues. IEs reported difficulty observing and interpreting students' behavioral and emotional cues during virtual assessments (T1 n = 9, T2 n = 5). Limitations in visibility (e.g., camera angle, lighting) and restricted view of the student's environment and body language sometimes made it harder to assess contextual factors and affect. Some IEs expressed concern that indicators of distress or risk may be missed in virtual settings, but with the influx of virtual modality usage, this skill can be improved upon. Catherine (T1) shared, "It's definitely significantly harder to read body language though, but I think as we continue doing this and get more use to Zoom, we'll pick up on that better."

Distress Management. Managing student distress during virtual assessments was also identified as a barrier (T1 n = 6, T2 n = 2). IEs reported challenges in effectively supporting or grounding students when they became emotionally distressed, particularly due to the lack of physical presence and limited ability to intervene directly. Monique (T2) describes the barrier to virtual distress management:

> I think that I had to do a session where I was doing more verbal de-escalation, distress tolerance. And that took a lot longer than other instances where I've done it in person. Because in person there's something to be said about doing physical changes, to kind of help de-escalate individuals. And when you're doing that virtually it's hard to explain, or

> to even acknowledge or notice, if they're doing it right…And I think that could be really frustrating for the clients too, if you're trying to do that, and they don't feel like it's helpful.

Over time, fewer IEs endorsed this barrier, and some described increased confidence in using verbal grounding techniques and structured check-ins to manage distress remotely. Sasha (T2) shared:

> I think if a student was distressed by the questions we were asking, I mean, there's a lot of, obviously, really personal questions that can get some students, can stress some students out more than others. And just the fear that I wouldn't be able to give the student what they needed in that moment, or wouldn't have sort of the skills to navigate that, but I think what I've actually learned is a lot of them, like we do the UWRAP before and after, and a lot of them actually decrease in stress after the assessments.

Student Group or Demographic Group Barriers

Another theme identified by IEs was related to student demographic characteristics, cultural backgrounds, and personal circumstances that may affect engagement in VSRAs (T1 n = 12, T2 n = 12). These barriers arose not from the inherent characteristics themselves, but from how structural, contextual, or design factors interacted with these identities and backgrounds, limiting engagement, comfort, or accessibility. In particular, aspects of the VSRA environment, format, or expectations often created additional challenges for certain groups.

IEs described accessibility-related challenges for students with hearing or speech impairments, where virtual platforms sometimes limited communication clarity or required additional accommodations. IEs also noted that students with body image concerns, eating disorders, or gender dysphoria could experience discomfort with the virtual format, particularly

when being on camera heightened self-awareness. As Katrina (T1) explained, “I think the biggest thing is I did have [students] with a lot of body image concerns, and eating concerns, and a lot of them would be like, ‘I don't like looking myself on the screen’.”

More broadly, IEs referenced contextual factors such as cultural background, family dynamics, and living situations that could shape students’ comfort with disclosure and participation, underscoring the importance of flexibility when conducting VSRAs across diverse student populations.

Technology Barriers

The final theme identified was technology barriers. IEs described several technology-related challenges that occasionally disrupted virtual assessments, including (a) access to devices and chargers, (b) wi-fi access or internet connectivity issues, (c) camera use, and (d) Zoom link functionality. While most issues were logistical and solvable, they sometimes interrupted the flow of assessment or required additional prompting.

Proper Device & Charger. Some IEs reported that students occasionally lacked a charged or functional device, which caused delays during the session (T1 n = 9, T2 n = 6). IEs noted that these situations, though minor, highlighted the importance of preparing students in advance and checking that devices were ready before starting. Sabrina (T2) explained:

> [If] somebody forgot their chargers, they'd have to go get it and come back. That was pretty solvable. They just had to go grab it and come back, but [it] interrupted the interview, which wouldn't have necessarily happened if we were in person.

Wi-Fi. IEs described a range of connectivity issues that sometimes disrupted the flow of virtual assessments (T1 n = 9, T2 n = 6). Problems included poor or inconsistent Wi-Fi, audio or

video lag, difficulty connecting or staying connected, and situations where students needed to change locations or switch networks to maintain a stable connection. Sasha (T1) shared:

> Sometimes internet connection can be an issue…But there have been a couple of times where internet has cut out or I can't hear the individual. And so that can pose an issue sometimes when there is not reliable, either, cell service or internet access.

These connectivity issues were primarily accidental and technology-related rather than intentional disconnections. Given the virtual environment and the possibility of unexpected connectivity disruption, IEs noted the importance of anticipating potential breaks in communication and having contingency plans in place to re-establish contact.

Camera. Maintaining student camera visibility was sometimes challenging, affecting the IE's ability to observe cues and maintain engagement (T1 n = 5, T2 n = 5). Quillyn (T1) described:

> I'm thinking about…somebody, again, who is in and out of camera view. So during this virtual assessment, what I needed to do is constantly during the meeting saying, 'I'm still here. Can you hear me? Um, can you come back? Can you show your whole face?' and things like that. There's a lot of prompts that I had to give.

Over time, IEs described establishing clearer expectations about camera use and following protocols for when it was or was not acceptable for a student to complete a VSRA with their camera off.

Zoom Link. Technical issues with Zoom links occasionally caused delays or confusion when transitioning between assessment components (T1 n = 3, T2 n = 2). Andrea (T2) noted: "With one person, we couldn't get the Zoom link to work correctly for switching from consent over to doing the baseline. So I had to have one of our research assistants make a new link, and

that slows things down." Overall, IEs described technology barriers as largely procedural, but recognized that careful planning and proactive communication were important for maintaining assessment flow and minimizing interruptions.

Summary of Changes in Virtual Assessment Barriers

IEs reported notable shifts in how they experienced and managed barriers from T1 to T2, reflecting both the challenges and adaptations that occurred over time. Several barriers, including connectivity issues, camera-related problems, and difficulties with virtual rapport-building, were either reported less frequently or were described as more manageable at T2. For instance, while connectivity issues were initially common at T1 (with 9 IEs endorsing these challenges), they decreased by T2 (endorsed by 6 IEs) as IEs grew more adept at troubleshooting or preparing students for potential technical disruptions. Similarly, managing student distress and building rapport, which were substantial challenges early in the process (reported by 12 IEs at T1), became less of a concern at T2, with only 6 IEs mentioning it. This shift suggests that, over time, IEs refined their communication strategies and became more confident in navigating emotional and interpersonal dynamics in virtual spaces.

Furthermore, safety concerns—particularly around managing high-risk students and ensuring adequate follow-up care—were initially more pronounced at T1 (endorsed by 9 IEs) but lessened at T2 (endorsed by 6 IEs). This change likely reflects increased familiarity with virtual safety protocols and enhanced confidence in managing risk remotely. IEs expressed greater comfort in assessing suicidality virtually, noting that although some initial concerns about the limitations of virtual safety protocols remained, they had developed strategies that helped mitigate these concerns over time.

RQ3–4: What Facilitators Do Assessors Experience When Conducting Suicide Risk Assessments Virtually and How Do They Change Over Time?

Analysis of qualitative interviews at T1 and T2 identified multiple facilitators that supported IEs in conducting VSRAs, along with changes in their experience of these facilitators over time. Themes included (a) student-level facilitators, (b) live consultation, (c) improved access, (d) virtual communication benefits, (e) student group or demographic group benefit, and (f) efficiency. Table 9 displays an overview of the facilitator codes used to categorize these supporting factors. Within each theme (child codes), sub-themes (grandchild codes) are presented to capture more specific experiences and illustrative components of each facilitator.

Table 9

Summary of VSRA Facilitators Themes, Definitions, and Sub-Themes Across T1 and T2

Themes	Definition	Sub-Themes
Student-Level Facilitators	Student characteristics or experiences that enhance comfort, engagement, or participation in VSRAs.	▪ Comfort of personal space ▪ Unique opportunity to share experience or reflect on progress ▪ Repetition
Live Consultation	The ability for IEs to consult with supervisors or team members in real time during virtual assessments to and support decision-making in high-risk situations, confirm procedures, and troubleshoot challenges.	▪ Real-time support for urgent or crisis situations ▪ Structured communication systems ▪ Improved decision making
Improved Access	Logistical or structural advantages of virtual delivery that make participation in VSRAs more feasible or possible.	▪ Scheduling flexibility and convenience ▪ Virtual-enabled access ▪ Technology flexibility

Table 9 (continued).

Themes	Definition	Sub-Themes
Virtual Communication Benefits	Advantages of virtual delivery that improve communication, interaction, and information exchange between the student and IE during assessments.	▪ Reduced interaction intensity ▪ Accurate disclosure ▪ Virtual communication tools ▪ Student environment observation
Student Group or Demographic Group Benefit	Facilitators of participation in VSRAs that arise from structural, contextual, or design factors interacting with students' identities, backgrounds, or circumstances, which may enhance engagement, comfort, or accessibility.	Example: ▪ Exceptionally busy students ▪ Psychopathology ▪ Off-campus students
Efficiency	Virtual delivery streamlines assessment processes, allowing IEs and students to complete tasks more efficiently before, during, and after assessments.	▪ Workflow for IEs ▪ Quicker transitions

Student-Level Facilitators

The first theme IEs identified was several student-related facilitators that supported engagement in VSRAs. These facilitators reflect environmental, social, and behavioral factors that enhanced students' ability to participate fully and engage meaningfully with the assessment process. Key sub-themes included (a) students' comfort and safety of their own space, (b) opportunities to share experiences or reflect on progress, and (c) the benefit of repetition. IEs noted that these factors often contributed to greater openness, ease in responding to sensitive questions, and richer insight into students' experiences.

Comfort of Personal Space. IEs described students' access to private, familiar, and personally comfortable environments as a key facilitator of engagement in virtual assessments (T1 n = 14, T2 n = 8). Being in their own space allowed students to regulate emotions, use

coping strategies, and feel more at ease during sensitive discussions. As Sigourney (T2) explained:

> The participant is in their kind of naturalistic setting, for example, their dorm room or their apartment, things that they could do for coping, like they have their things right there. And it's easy. So I had a participant who often was like knitting while we did the assessments as sort of like a way of soothing and calming and coping. I've had participants who had pets with them, while they were doing their assessment, which they found comforting. Or they could be like, 'Well, after this, I'm going to exit my room and go talk to my roommate' or whatever. So that has potentially been one other benefit is that if they have some coping strategies, they're more readily available in their own setting.

Unique Opportunity to Share Experience or Reflect on Progress. A notable, though unanticipated, finding was the uniqueness of the assessment sessions for students to explore and reflect on their mental health experiences. This participant-level benefit may not be unique to virtual assessments, but IEs reported that students were able to share personal experiences, gain perspective, and engage in reflective thinking (T1 n = 4, T2 n = 11). For some, the assessment served as their first exposure to discussing mental health in a structured, non-therapeutic context, leading to increased self-awareness and insight. As Tianna (T2) noted:

> I think a lot of the students that I interacted with, this was like their first introduction to mental health treatment in general. And I think there's something positive to be said about having assessments as your first experience, because it's just kind of a time to talk about your experiences, and tap into things that people have probably never asked you about before. And even though that's really...that can be really uncomfortable at the beginning,

> I think, by the end of even the first assessment, people are happy to be able to talk about those things.

In addition, Katrina (T1) describes an observation that students often felt less pressure compared to therapy sessions, allowing for disclosure of important information that may not typically surface in therapeutic contexts:

> I don't think [students] felt as concerned about disappointing me as if it with their therapist, and I always felt like we asked such specific questions that might not come out in therapy. And so I also saw it as being helpful with any risk questions that may not have really been gotten at in therapy.

This unexpected finding suggests that the virtual assessments may have created a unique environment that benefited the student and could help support treatment outcomes, which warrants further exploration.

Repetition. IEs described how repeated exposure to assessment questions helped students build familiarity and comfort with the process (T1 n = 1, T2 n = 4). As with the previous subtheme, this may not be unique to virtual suicide assessments, yet this repetition allowed students to anticipate what was coming, reducing anxiety and supporting more thoughtful, engaged responses. As Sabrina (T2) noted: "I think once participants are familiar with the questions, I think it's a lot easier for them to have a little more sense of comfort and answering the questions, because they know what to anticipate a little bit more."

Live Consultation

A second facilitator theme identified by IEs was the ability to access real-time support from supervisors or team members during virtual assessments (T1 n = 14, T2 n = 13). This resource was crucial in enhancing confidence and decision-making, particularly in high-risk

situations. Knowing that consultation was immediately available and easily assimilated into virtual procedures allowed IEs to feel more prepared and supported when navigating uncertainty or responding to student distress. As Sasha (T1) explained:

> I think that knowing that my team was available in those times, made me feel more comfortable. In the beginning, when I first started doing these, I was like, 'I don't know how I am going handle it, I don't know what that's gonna look like.' And then having had a couple of those, one, I think having far less of them occur than I expected, made me just feel more comfortable in general. And two, knowing that if I did, my team was right there and available, and that we've also set up protocols in place for that. So for example, we have a Teams chat that if a student is in crisis, I can message that and it's to the counseling center and to the project coordinator, and everyone, so everyone is immediately informed. So yeah, I think things like that helped.

IEs noted that these systems of real-time communication and established protocols enhanced their ability to respond effectively, reinforcing both procedural confidence and maintaining the priority of student safety during virtual assessments.

Improved Access

Another key theme IEs identified was improved access, which included several logistical and structural advantages of virtual delivery that made participation in suicide risk assessments more feasible and accessible for students. Key sub-themes included (a) scheduling flexibility and convenience, (b) virtual-enabled access, and (c) technology flexibility. Each of these factors helped reduce practical obstacles and facilitated student engagement by enabling participation in diverse circumstances.

Scheduling Flexibility and Convenience. IEs highlighted the ways in which virtual delivery improved access by reducing logistical barriers and supporting consistent participation. Scheduling flexibility and convenience were frequently reported, as students could join assessments from a variety of locations and coordinate sessions around academic, work, or personal commitments (T1 n = 14, T2 n = 15). This flexibility also eliminated transportation challenges, removing the need to commute to campus, navigate parking, or rely on public transit and associated financial considerations. Additionally, virtual delivery helped prevent assessment gaps, enabling students to participate even when off-site, traveling, or otherwise unable to attend in-person sessions. As Margaret (T2) explained:

> I think that the virtual [modality] just helped the consistency of being able to check in because again, it gave students more flexibility of being at the [assessment], if they had class, they could go to a study room next to that classroom. If they were at home and didn't want to come to campus, they could stay home. So that was a beneficial piece of the of the virtual side.

These features collectively supported continuity, reduced missed sessions, and made participation more feasible for students across diverse circumstances.

Virtual-Enabled Access. IEs described situations in which virtual delivery was essential for students to participate in assessments, particularly when personal, situational, or mental health barriers would have made in-person participation difficult or impossible (T1 n = 6, T2 n = 6). For some students, the virtual format served as an important first step toward engagement, easing anxiety and allowing students to become familiar with the assessment process before in-person interactions. Monique (T2) shared:

> I'm reflecting back on the client that I saw that was really anxious to seek out treatment. I think that this was super beneficial for them to be able to get to meet me virtually kind of like put a face to the name and get a good understanding of what it would be like to participate in the study and do the assessments to then do them in person. So it was a good introduction, I think, for them and eased their anxiety.

For other students, more severe mental health challenges created substantial barriers to physically attending sessions, making virtual assessment not just helpful but essential. Quillyn (T1) explained:

> My only participant [so far] has been experiencing quite severe depression that makes it difficult for her to get out of bed. Oftentimes, we do assessment when she's in bed, and she's wrapped in a towel and things like that. So if the assessment wasn't virtual, I don't think we'll be able to get her come in, or we [would] have a really hard time doing that.

These examples highlight how virtual delivery can enable access for students who might otherwise be hesitant or unable to participate and therefore do not benefit from services.

Technology Flexibility. IEs noted that the virtual format allowed students to complete assessments using a range of devices and from a variety of locations, increasing flexibility and supporting participation under diverse circumstances (T1 $n = 1$, T2 $n = 2$). Sasha (T1) explained:

> Especially since, pretty much, most students have smartphones, even if they don't have a laptop, they can access from their smartphone. And even if they're on the go, like I've had some students who are sitting in their car doing it in between things. And so I think it just makes it a lot more convenient.

This flexibility not only accommodated students' preferred technology but also allowed assessments to occur in moments and places that fit students' schedules and lifestyles, reducing barriers related to device access and location constraints.

Virtual Communication Benefits

Moving from logistical factors that facilitated access, IEs also identified key aspects of the virtual format that enhanced communication and interaction during assessments. These benefits, which helped create a more comfortable and effective environment for both IEs and students, are captured in the following sub-themes: (a) reduced interaction intensity, (b) accurate disclosure, (c) virtual communication tools, and (d) student environment observation. These features collectively allowed students to engage more openly and facilitated effective information exchange between IEs and students.

Reduced Interaction Intensity. IEs described how the virtual format reduced the perceived intensity of interactions, making it easier for students to discuss sensitive and highly personal topics (T1 n = 11, T2 n = 6). The physical distance created by the screen appeared to lessen feelings of pressure or vulnerability that might arise in face-to-face settings. As Margaret (T2) explained:

> And then I think also, there's just less intensity, because it's not in person. I think it's hard to tell somebody in person who's sitting across from you staring at you, 'Like, yeah, I'm thinking about killing myself. And here's the ways in which I'm thinking about that.' That's really vulnerable. And it can be very intense.

Accurate Disclosure. IEs reported that virtual delivery allowed for the collection of information that was comparable in accuracy and completeness to in-person assessments (T1 n = 8, T2 n = 9). Despite initial concerns about potential limitations of the virtual format, IEs

generally felt confident in the honesty and reliability of student responses. As Tianna (T1) shared: "I really think it's super, it was super comparable to doing them in real life. And I did not have any concerns that people were withholding more so than they would in real life or anything like that." These observations reinforced IEs' confidence in the validity of VSRAs as an effective method for gathering sensitive information.

Virtual Communication Tools. IEs highlighted the ways in which virtual platform features enhanced communication, comprehension, and participation during assessments (T1 n = 6, T2 n = 6). Tools such as screen sharing, chat functions, captions, and simultaneous visual and auditory presentation of materials allowed IEs to guide students through assessments more effectively than might be possible in-person. As Katrina (T1) explained:

> Oh, for sure, the control with being able to show certain questions on the screen, share my screen. In person, I just don't have this same ability with the anchor documents for the SITBI and the SSI. And it was nice that I could move the paper around on the screen. So the participant was forced to read what I showed, versus in person they can sometimes just want to read through everything at once.

In some cases, platform features also supported accessibility and comprehension. For example, one IE Sigourney (T2) described:

> I've had a participant who, or maybe more than one, who is an international student, and I believe that they may be using some captioning or something on there. And, you know, she speaks English, but just from [my observation it] almost looks like her eyes are sometimes reading a little bit. So I wonder if she's using the captioning feature or some other add-on feature that she may be using to help. And so there may actually be situations where the appropriateness may actually be enhanced…the virtual [modality]

may enhance the experience of the assessment for the participant because of the ability to use that feature.

These features not only supported student engagement but also helped ensure that critical assessment materials were shared effectively and that students could access the assessment in ways that matched their individual needs.

Student Environment Observation. IEs noted that virtual assessments provided a unique opportunity to observe students in their natural environments, offering context that could inform risk assessment, rapport, and overall understanding of the student's situation (T1 n = 2, T2 n = 3). Seeing students in their personal spaces allowed IEs to notice subtle cues about daily functioning, self-care, and coping strategies, as well as to engage in informal, neutral interactions that might not emerge in in-person settings. As Marjorie (T2) described:

> Sometimes you can get some more information when the student is at home in their environment. Like did it look like they showered today? Or not showered? And sometimes, there's a little bit more small talk in virtual assessments, because something like an animal might come on screen, and then we're talking about something else that's more neutral.

This observational insight helped IEs contextualize student experiences and supported a more holistic understanding of their well-being and aided in a more accurate measurement of global functioning.

Student Group or Demographic Group Facilitators

Another theme identified by IEs was related to student demographic characteristics, cultural backgrounds, and personal circumstances that could support engagement in VSRAs (T1 n = 13, T2 n = 15). These facilitators arose not from the inherent characteristics themselves, but

from how structural, contextual, or design factors interacted with these identities and backgrounds to enhance engagement, comfort, and accessibility. Aspects of the VSRA environment, format, or expectations were seen to create opportunities for more effective participation and deeper engagement for certain groups.

IEs frequently noted that virtual assessments were particularly beneficial for students with demanding schedules, including those balancing academic, work, and extracurricular commitments. Exceptionally busy students were often better able to participate due to the flexibility of the virtual format, which reduced scheduling conflicts and allowed them to integrate assessments into their daily routines. Similarly, students living off-campus, on satellite campuses, or in different locations benefited from the ability to engage without needing the barrier to travel, increasing accessibility and consistency of participation.

IEs also described how virtual delivery supported students' mental health needs by reducing barriers associated with attending in-person appointments. For some students, participating from a familiar environment or avoiding the stress and barriers of navigating to and from a physical location facilitated initial engagement and sustained participation. More broadly, IEs referenced contextual factors such as cultural background, living situation, and personal circumstances that could shape students' comfort and accessibility, underscoring the potential for virtual assessments to enhance inclusivity and responsiveness to diverse student needs.

Efficiency

The final theme that emerged as a facilitator was the role of virtual delivery in streamlining assessment processes, which allowed both students and evaluators to complete tasks more efficiently (T1 n = 5, T2 n = 7). For students, virtual assessments reduced the time and

effort associated with attending brief sessions, particularly when follow-up assessments required less time. As Sigourney (T2) noted:

> I think also the efficiency, you know, the baseline assessments are usually scheduled like two hours, but sometimes the follow up assessments only take 20 or 30 minutes if they're endorsing very little. And so I feel like if I can save them, if they have just been saved from trekking over to [the UCC] for like a 20-minute thing that could kind of feel silly to spend, you know, like 20 minutes making their way over and then it's so brief.

IEs also highlighted efficiencies in their own workflow, noting that the virtual format allowed them to more easily manage multiple tasks during assessments and transition between responsibilities. Sigourney (T2) further explained:

> Definitely the efficiency on my end, again, between like being able to more easily transition between assessments and other aspects of my work. When we're in the virtual format, and the participant is working on their questionnaires, I can more readily work on reviewing their responses, looking back at the baseline to come up with my CGI, emailing the person that handles the payments and that kind of thing. Not that those things couldn't be done if the person was sitting right there, but it just feels like you know, I don't know, more professional or whatever, you're not just clicking away while they're sitting there where you are, but they can't hear and see that.

These efficiencies supported smoother assessment flow and allowed IEs to allocate time and attention more effectively across assessment tasks.

Summary of Changes in Virtual Assessment Facilitators

All facilitator themes were consistently endorsed across both time points. For instance, scheduling flexibility and convenience were highlighted by 12 IEs at T1 and increased to 15 IEs

at T2. IEs noted that virtual sessions allowed for easier coordination across locations, minimizing logistical barriers such as transportation and scheduling conflicts. The ability to engage students from various environments—home, study rooms, or even cars—was especially valuable, and this increased accessibility remained a key facilitator over time.

Another consistently endorsed facilitator was the availability of live consultation, which was mentioned by 14 IEs at T1 and 13 IEs at T2. IEs emphasized the ability to consult with supervisors or team members in real time during assessments, particularly in high-risk or ambiguous situations. The presence of real-time consultation enhanced IEs' confidence in their decision-making and provided critical support for navigating complex or urgent scenarios. Similarly, virtual communication benefits—such as the ability to reduce interaction intensity and increase clarity through tools like captions, chat, and screen sharing—were consistently endorsed by IEs (T1 = 14, T2 = 12). As IEs gained greater familiarity with these tools, they reported increased confidence in using them to facilitate communication and support engagement, especially in emotionally charged or sensitive conversations.

One notable sub-theme that increased in salience was the unique opportunity for students to share personal experiences and reflect. This was more pronounced at T2 (endorsed by 11 IEs) than at T1 (endorsed by 4 IEs). Although this opportunity for reflection may not be exclusive to the virtual modality, IEs perceived it as a distinct benefit for students participating in VSRAs, particularly in discussions related to STBs.

Efficiency emerged as a slightly stronger facilitator over time (T1 = 5, T2 = 7). IEs described how virtual assessments streamlined procedural tasks, allowing assessments to be completed more quickly and with fewer interruptions. This efficiency reduced time and energy

demands for both students and IEs, and follow-up assessments were often less time-intensive, contributing to a smoother overall process.

Overall, these findings suggest that the facilitators supporting virtual assessments were maintained and, in some cases, strengthened over time. As IEs gained experience, they were better able to leverage virtual tools, communication strategies, and real-time consultation to support assessment processes. This increased ability to integrate and apply these supports contributed to more fluid interactions, enhanced decision-making, and more effective and efficient VSRAs over time.

RQ5: What Training Elements Do Assessors Identify as Important for Increasing Competence in Conducting VSRAs?

To address this research question, qualitative interviews conducted at both T1 and T2 provided the primary data, revealing several key training elements that IEs identified as crucial for enhancing their competence in conducting VSRAs. In addition to the qualitative insights, quantitative data derived from the combined SCAF and Gatekeeper items were also analyzed to provide a broader context for IEs' perceived competence. Descriptive statistics and paired-samples *t*-tests were used to assess changes in the composite competence score over time, offering a more quantitative perspective on training effectiveness. These statistical findings are presented after the qualitative results to further contextualize and enrich IEs' reported experiences of training and competence development.

IE Training Elements and Gaps

The qualitative analysis highlighted several key elements that IEs felt were essential for increasing their competence in conducting VSRAs, as well as gaps in training that could be improved. Themes included (a) training elements that enhance competence, (b) training gaps and

suggestion for improvement, and (c) self-care and managing uncertainty. Table 10 displays an overview of the themes related to training elements that enhanced competence and the gaps in training that were identified. Within each theme (child codes), sub-themes (grandchild codes) are presented to capture more specific experiences and illustrative components. Consistent with prior qualitative analyses, emphasis is placed on the number of IEs endorsing each training element to highlight shared experiences across assessors.

Table 10

Summary of Training Elements and Gaps Themes, Definitions, and Sub-Themes Across T1 and T2

Themes	Definition	Sub-Themes
Training Elements that Enhance Competence	Captures training content, experiences, or supports—across initial onboarding, ongoing consultation, site-specific meetings, or reference materials—that IEs reported as enhancing their competence, confidence, or comfort in conducting VSRAs.	▪ Site meeting or site team ▪ Initial training elements ▪ Standardized protocols and resources ▪ Support from cross-site consultation meetings ▪ Repeated training or repetition of practice ▪ Shared safety monitoring ▪ Previous training
Training Gaps and Suggestions for Improvement	IE feedback on aspects of initial or ongoing training that reduced confidence, preparedness, or competence in conducting VSRAs, or suggestions for how training could be improved.	▪ Suggestions to improve initial training ▪ Suggestions to improve cross-site consultation meetings ▪ Gaps in study or assessment protocol ▪ IE expectations or role ▪ Training dosage ▪ Previous training
Self-Care and Managing Uncertainty	The emotional preparation, coping strategies, and uncertainty management that IEs employ before, during, and after conducting VSRAs.	▪ Pre-assessment emotional preparation ▪ Post-assessment processing ▪ Navigating emotional uncertainty

Training Elements that Enhance Competence

The first theme identified in the qualitative analysis focused on several key training elements that IEs reported as essential for enhancing their competence in conducting VSRAs. These elements spanned various aspects of training, including initial onboarding, ongoing consultation, structured protocols, and prior experience. IEs described how these elements contributed to their knowledge, skills, and confidence in conducting VSRAs. Key sub-themes included (a) site meetings or site teams, (b) initial training elements, (c) standardized protocols and resources, (d) support from cross-site consultation meetings, (e) repeated training or repetition of practice, (f) shared safety monitoring, and (g) previous training. Each of these components was seen as contributing to different aspects of the assessment process, from increasing familiarity with protocols to boosting confidence in handling complex or high-risk situations.

Site Meeting or Site Team. Nearly all IEs described site-specific meetings and team-based support as critical to building competence in conducting VSRAs (T1 n = 14, T2 n = 15). These meetings and access to site personnel provided consistent opportunities for supervision, problem-solving, and logistical coordination. They also gave IEs regular access to supervisors and team members (e.g., other IEs, research staff) to discuss challenges, clarify procedures, and reflect on their experiences, helping IEs feel prepared to manage both routine and complex aspects of VSRAs. Catherine (T2) emphasized the support she received from her team, noting the availability and responsiveness of her colleagues:

> And as for our site specifically, I feel like I could always contact [Sam] or [Kara] if I needed anything. They're always available, and other IEs on our team are also always available. Everyone's really good at checking Teams and being there if you need support.

Monique (T2) offered more specific examples of how these meetings helped her manage both emotional and logistical aspects of her assessment caseload. She explained:

> I think what I would keep the same is I would definitely make sure that, the IE meetings that I had every other week with my local team, and every other week that I met with my supervisors, were great, because not [only] was I able to maybe even talk about countertransference, with my supervisor…[but] I was also able to just talk logistics, right? Like, 'Hey, this person didn't show up here and I wasn't able to contact them here, how do I go about the next steps?' So I think that that was just crucial to managing the caseload. So I would definitely not change that.

This consistent and accessible support network not only facilitated procedural guidance but also promoted a sense of confidence in handling both logistical and emotional aspects of assessments. These findings suggest that ongoing site-level meetings played a central role in enhancing IE competence by providing structured, consistent support for skill development, reflection, and protocol implementation.

Initial Training Elements. IEs emphasized the importance of receiving structured, targeted training in the use of assessment tools and systems that were essential for conducting VSRAs (T1 n = 14, T2 n = 3). Positive feedback was received regarding the initial detailed training on assessment measures, protocols, and virtual platforms used during the study. For example, the review of assessment tools helped IEs feel more prepared to navigate the assessment process with confidence. As IEs described, training on systems like REDCap and understanding the specifics of study protocols were particularly beneficial. These elements of training ensured that IEs could apply their knowledge accurately in virtual settings. Additionally, the relevance of the material to the real-world demands of conducting VSRAs was seen as

crucial in fostering preparedness. A focus on understanding the tools and systems, rather than solely on theoretical content, was highlighted as essential for successful implementation. Lindsey (T2) explained:

> I think training in doing these assessments in the virtual classroom. So going through the training process with other people, virtually, as we're practicing was helpful. I think that that would continue to be helpful in the future, as opposed to practicing the assessments in person and then trying to administer them virtually. Again, because some of the practice comes into play of like, how do I copy and paste from this document over to the Zoom chat? And how do I flip back and forth, and still appear to be present and listening to the student?

Standardized Protocols and Resources. IEs highlighted that clear, structured protocols and accessible resource materials were critical for supporting competence and confidence in conducting VSRAs (T1 n = 12, T2 n = 13). Having well-developed, living procedures in place helped IEs navigate unfamiliar virtual assessment contexts, ensured consistency across cases, and facilitated accurate risk evaluation. As Ken (T1) explained: "I never had any experience doing it virtually before so I guess I didn't know what to expect, but I think that we tried our best to have a lot of protocols and systems in place so that things would go smoothly." Similarly, Lindsey (T2) noted: “And I feel good about our ability to accurately assess a student’s risk via the format, again, especially with all the procedures and protocols we have in place to go through that." These structured supports allowed IEs to approach virtual assessments with confidence, reduce uncertainty, and maintain fidelity to study protocols while addressing student needs and safety effectively.

Support from Cross-Site Consultation Meetings. IEs highlighted the value of ongoing cross-site consultation meetings in enhancing their competence, confidence, and comfort in conducting VSRAs (T1 *n* = 12, T2 *n* = 9). These meetings provided opportunities for collaborative problem-solving, discussing challenging cases, and receiving peer feedback, which helped standardize practices and clarify study protocols. As one IE Sandy (T2) explained: "And I do see the purpose and benefit of the IE [cross-site consultation meetings], especially when you're going through the more complicated things. Like the cases that were like, 'Oh, this is kind of iffy. Where does this fall?' It definitely has a benefit." These cross-site meeting and discussion not only supported IE skill development but also fostered consistency and accuracy in VSRAs across sites.

Repeating Trainings or Repetition of Practice. IEs emphasized the value of repeated practice opportunities in building competence, confidence, and comfort with VSRAs (T1 *n* = 13, T2 *n* = 1). Practicing assessments multiple times allowed them to refine their skills, receive feedback, and troubleshoot challenges in a supportive environment. As Margaret (T1) emphasized: "Practice. Practicing with other IEs particularly, and getting feedback from them throughout the process." This iterative practice not only strengthened technical proficiency with virtual platforms but also enhanced relational and communication skills, helping IEs feel prepared for real assessment interactions.

Shared Safety Monitoring. IEs emphasized the importance of shared safety monitoring in supporting their comfort, confidence, and competence during VSRAs (T1 *n* = 7, T2 *n* = 5). Knowing that multiple team members—including UCC therapists and research staff—were actively monitoring student progress and safety provided reassurance and reduced the burden on any single IE. As Sasha (T1) described:

> I think that was a big piece of feeling comfortable is knowing that it's not just me. I have the counseling center, I have our CAMPUS team, and everyone who's available when or if something more urgent were to occur. I think I would feel a lot less comfortable if that were not the case and it were all on me.

This multi-layered monitoring structure not only enhanced IEs' confidence in handling potentially high-risk situations but also reinforced adherence to study protocols and student safety standards.

Previous Training or Experience. IEs reported that prior training, professional experience, and familiarity with virtual platforms contributed to their comfort, confidence, and competence in conducting VSRAs (T1 n = 14, T2 n = 7). Clinical backgrounds, previous suicide or crisis assessment experience, and prior research or assessment roles provided a foundation for understanding risk factors, protocols, and communication strategies. Additionally, prior exposure to virtual modalities—such as TMH or research assessments conducted over the phone—helped IEs navigate technology, manage workflow, and maintain engagement in virtual settings.

Training Gaps and Suggestions for Improvement

In contrast to the training elements that enhanced competence, IEs also identified several areas where initial or ongoing training could be strengthened to better support competence and confidence in conducting VSRAs. Key sub-themes included (a) suggestions to improve initial training, (b) suggestions to improve cross-site consultation meetings, (c) gaps in study or assessment protocol, (d) IE expectations or role, (e) training dosage, and (f) previous training. IEs offered feedback on how training structure, dosage, and resources could be improved, with specific notes for onboarding IEs mid-study and supporting accessibility needs. These insights

provide a foundation for refining training practices to enhance IE readiness and effectiveness in conducting VSRAs.

Suggestions to Improve Initial Training. IEs made several suggestions for improving initial training to better prepare them for conducting VSRAs. These suggestions emphasized the importance of targeted preparation for complex cases, increasing experiential learning, training on soft skills like empathy and communication, and deepening knowledge about suicide and STBs. They also noted the need to address burnout and self-care strategies earlier in the training process.

Preparation for Complex and High-Risk Cases. A primary suggestion was a need for more preparation for complex or high-risk cases (T1 n = 10, T2 n = 7), with Andrea (T2) stating:

> I guess probably more role plays of high-risk situations. I feel like the training very well prepared [us] for all of the standard things you expect to see. But more of those unexpected ones, or the person's like, 'Yeah, I tried to kill myself last night. Here I am showing up to this assessment this morning.' Those types of things are always helpful to get.

Similarly, Sabrina (T1) reflected on how practicing scenarios involving imminent risk in a low-pressure setting would be helpful, especially for IEs who did not previously have exposure to supporting someone experiencing STBs:

> Had I not had experience working with suicidal patients in the past, I think it would have been really helpful to do a practice where the patient is at imminent risk in the moment to get the feel for what that looks like in a very safe low stakes scenario.

These reflections suggest that while standard scenarios are well-covered in initial training, more targeted preparation for high-risk, unexpected, or acute cases could better equip IEs to respond confidently and effectively under pressure.

Interpersonal Skills and Suicide-Related Knowledge. Another key area identified by IEs was the need for training that extends beyond procedural competence to include interpersonal communication skills and foundational knowledge of suicide and STBs (T1 n = 6, T2 n = 9). While the initial training effectively addressed logistics, protocols, and virtual practice, several IEs noted that interacting with students in a compassionate and supportive manner requires additional preparation. With regard to interpersonal or "soft" skills, IEs emphasized the importance of learning how to engage participants in a way that feels natural, empathetic, and person-centered. As Margaret (T1) reflected:

> When I practiced with other IEs they were very helpful in reminding me that it's like totally okay to be personable…obviously, I have to touch on all the points in our scripts and read those, but I don't have to be robotic about it. So that was particularly helpful, especially because starting out, you're nervous, and you want to make sure you don't mess up, or you don't miss anything. So my inclination always is to be like, 'Okay, I'm going to go down the list and check everything off.' But they were like, 'You can laugh, it's okay. You can be yourself.' And so that that was particularly helpful.

Her experience highlights the tension between adhering to structured protocols and communicating with warmth, as well as the value of guidance in using skills such as validation, normalization, and empathy during assessments.

In addition to interpersonal skills, IEs identified a need for more comprehensive training in suicide-related knowledge. As Tianna (T2) explained:

> I think that there could be a little bit more about just general suicide risk psychoeducation and…getting a little bit [more] at not just what we're assessing for, but global risk and things to be concerned about, or things that are like a little bit more normative or "normative" within the scope of people experiencing suicidal thoughts. I think, as a new assessor and as a person that's not familiar with suicide risk, it could feel a little bit daunting anytime anyone says anything about having [suicidal] thoughts or self-injury.

This perspective underscores the importance of establishing a shared baseline understanding of STBs, including risk factors, normative experiences, and common misconceptions, particularly for those without prior exposure to suicide risk assessment. Looking across these insights, they suggest that effective training should integrate both interpersonal skill development and foundational suicide knowledge. Strengthening these areas may help IEs engage more confidently and compassionately with students, better interpret nuanced responses, and maintain supportive interactions while adhering to assessment protocols.

Experiential Learning. Another suggestions focused on experiential learning, emphasizing interactive practice opportunities such as role-playing or demonstration videos to build skills in a virtual context (T1 n = 7, T2 n = 4). IEs also highlighted the importance of improving mid-study onboarding, ensuring that individuals joining after study initiation have sufficient synchronous training and opportunities to practice experientially.

Burnout and Self-Care Training Timing. Finally, some IEs indicated that burnout and self-care training, which was delivered at the midpoint of the study, could be improved by introducing this content earlier rather than mid-study (T1 n = 0, T2 n = 3).

Suggestion to Improve Cross-Site Consultation Meetings. In this sub-theme, IEs highlighted multiple opportunities to enhance cross-site consultation meetings to better support

competence in conducting VSRAs (T1 n = 1, T2 n = 8). A primary recommendation was for group coding or collaborative case discussions, which helped standardize ratings, address differences in caseload severity, and build confidence across sites. Monique (T2) described this experience:

> And I think that like, the severity of the population, maybe was different from site to site. And so when presenting, I felt like I came across a couple instances where my rating was very different from everybody else's because of the severity of my caseload. And so subjectivity of rating based on caseload and things like that.

IEs also noted that some meetings lacked meaningful feedback or that the purpose of meetings occasionally shifted away from consultation, reducing their perceived value. Collectively, these suggestions emphasize that well-structured, consistent, and collaborative consultation meetings are essential for supporting IE skill development, confidence, and alignment in assessing suicide risk across sites.

Clinical-Research Role Tension. A nuanced sub-theme that emerged was that IEs, particularly for those with clinical licenses, emphasized the importance of understanding and maintaining the boundaries of their role, particularly distinguishing research responsibilities from clinical support (T1 n = 9, T2 n = 6). Sabrina (T1) described:

> I've had to be really mindful of, you know, this isn't my patient, it's not my role to help them through this. They have a therapist that's going to be there… I do have to, like, consciously be like, 'Okay, this is not my clinician hat. This is my research hat.'

At the same time, IEs acknowledged that consciously maintaining this separation could be challenging in practice. Marjorie (T1) reflected: "I would say that sometimes I feel like I'm walking a thin line. Am I being too therapeutic?...That's the only time where I'm rattled. Am I

doing too much? Or am I doing too little? And I'm not really sure." These reflections illustrate how IEs strive to support students in a compassionate and empathetic way, while also remaining mindful of the limits and expectations of their role. Over time, a few IEs described increased clarity about their professional boundaries and role expectations, although the research-clinical balance remained a recurring theme throughout.

Training Dosage. IEs highlighted the influence of training amount, timing, and pacing on their competence and comfort with conducting VSRAs (T1 n = 0, T2 n = 7). Feedback focused on both initial onboarding and ongoing consultation meetings, noting that the number and spacing of sessions could affect preparedness and confidence. Some IEs observed that additional sessions at the beginning or periodic booster trainings later could strengthen skill retention and protocol adherence. Others reflected that overly long or frequent meetings might be less effective, suggesting the importance of balancing sufficient training with cognitive load. Overall, these observations underscore that training dosage is a key factor in ensuring IEs feel competent and supported throughout the study.

Previous Training or Experience. IEs reported that a lack of prior experience in virtual modalities, misalignment about best practices for VSRAs (e.g., early in the pandemic when in-person was not an option), variations in conceptualization of suicide severity sometimes reduced confidence when applied to the IE role (T1 n = 3, T2 n = 2). These experiences underscore the need to address training gaps, refine best practices for virtual modalities, and ensure alignment in suicide risk assessment to support assessor confidence.

Self-Care and Managing Uncertainty

The final theme identified under RQ5 pertains to self-care and managing emotional uncertainty. Although the concept of self-care for personnel working in the suicide field is not

new, the qualitative data from this study suggests a unique nuance: self-care in the context of suicide risk assessments is inseparable from the emotional challenge of confronting uncertainty and risk. The nature of this work means that IEs must accept that total competence will always (and should) remain out of reach due to the literal life-and-death consequences. The emotional intensity of the job, particularly when dealing with high-risk situations, will always bring a certain degree of anxiety and fear, regardless of experience. This dynamic speaks to a broader theme of vulnerability in this work and highlights the importance of preparing IEs for the emotional labor involved, not just in terms of technical proficiency but also in fostering emotional resilience.

IEs emphasized the importance of emotional preparation before assessments and the need for self-care and debrief afterward, particularly when students shared distressing information or when improvement was not occurring (T1 n = 3, T2 n = 7). Kathleen (T2) shared her preparatory process:

> There are participants that I knew are having a harder time and it was consistent. Every time I met with them that it was going to be, they were going to be a five or a six. So [I gave] myself 20 minutes before I met with them to kind of ground myself because I don't want to react negatively, or be like, “Whaaaat?” Like, being able to accept information and be calm about it to them.

Given the serious nature of suicide risk assessments, many IEs acknowledged that emotional self-care and managing uncertainty were essential to both their own well-being and ability to perform in their IE role. In addition to managing their emotional responses, they expressed a need for strategies to cope with the stress of anticipating high-risk situations that may or may not arise during virtual assessments. Margaret (T2) reflected:

> It felt pretty daunting at first. But I think that it would have felt daunting if I was in person as well, just in a different way. And I think, now I feel pretty great about it. It's really nice. I have my routine to do before and after assessments. And so I'm able to build in self-care as I need to, but more importantly, I'm able to kind of understand what I can and cannot provide in a virtual setting to students.

This quote highlights the importance of finding a balance between self-care and understanding the limitations of virtual assessments. IEs also recognized that, given the serious and unpredictable nature of suicidal thoughts and behaviors, complete confidence in delivering assessments was not possible to attain (T1 n = 3, T2 n = 9). Andrea (T1) noted,

> I think I feel as confident as anyone can, in a stressful situation. I'm not going to be completely confident, I don't think ever, and I feel like that is to be expected [when] someone's safety is in question. Why would we feel comfortable?

This sentiment underscores the emotional complexity of suicide risk assessments and reflects the inherent uncertainty that accompanies these high-stakes situations. A significant theme that emerged from IEs' reflections was the anticipatory anxiety associated with potentially encountering acute suicidality or other high-risk scenarios during virtual assessments. However, several IEs expressed relief when their concerns did not materialize (T1 n = 6, T2 n = 7). Katrina (T1) described this feeling of anticipatory anxiety:

> I mean, at first, I was really concerned about being with a client experiencing more distress during the assessment, and then just like suddenly shutting off, and me not being able to contact them. And it just being a whole mess. But in my experience, I mean, I had very distressed clients, I won't downplay that. But they all hung in there with me. They never—I didn’t have anyone who just suddenly left and couldn't continue or follow

through with the assessment. So, even though I had those concerns, initially, I did not experience them, per se.

This illustrates the emotional burden IEs carry while anticipating high-risk cases, only to experience relief when those concerns do not materialize. It highlights the psychological labor involved in managing uncertainty during virtual assessments, as IEs navigate the emotional complexities of engaging with students who may be in crisis. These reflections suggest that training programs should emphasize strategies for self-care and managing emotional uncertainty. Helping IEs balance their competence with emotional resilience will not only support their well-being but also improve their effectiveness in conducting high-stakes assessments while maintaining student safety.

Competency Quantitative Results

Descriptive statistics were calculated for each competency item and the composite competence score derived from the SCAF and Gatekeeper measures. Table 11 presents means, standard deviations, and pre–post differences for each competency, along with paired-samples t-test results and Cohen's *d* effect sizes. An a priori benchmark of 4 or higher on the 5-point Likert scale was used to indicate favorable self-rated competence.

Table 11

Means, Standard Deviations, Paired t-Test, and Effect Sizes for Self-Rated Competence in Conducting VSRAs at T1 and T2

Competency	Mean ± SD T1	Mean ± SD T2	M Difference (T2-T1)	*t*(14)	*p*	Cohen's *d*
Composite Competence	4.35 ± .32	4.65 ± .24	.30	-4.71	.001***	1.22†

Table 11 (continued).

Competency	Mean ± SD T1	Mean ± SD T2	M Difference (T2-T1)	*t*(14)	*p*	Cohen's *d*
Attitudes and Reactions[SCAF]	4.27 ± .46	4.60 ± .51	.33	-2.09	.055	.54†
Engaging and Connecting[GK]	4.27 ± .46	4.80 ± .41	.53	-4.00	.001**	1.03†
Collaborative Space[SCAF]	4.40 ± .51	4.73 ± .46	.33	-2.65	.019*	.68†
Identify Emergency Contact	4.60 ± .63	5.00 ± 0	.40	-2.45	.028*	.63†
Asking About STBs[SCAF]	4.93 ± .26	4.93 ± .26	0	—	—	—
Determining Level of Risk[SCAF]	4.13 ± .52	4.40 ± .51	.27	-1.74	.104	.45†
Response to Crisis[GK]	3.87 ± .74	4.33 ± .72	.46	-2.82	.014*	.73†
Connecting to University Services[GK]	4.20 ± .56	4.40 ± .51	.20	-1.38	.189	.36†
Connecting to Regional or National Resources[GK]	4.27 ± .80	4.53 ± .83	.26	-1.74	.104	.45†
Debrief and Self-Care[SCAF & GK]	4.53 ± .52	4.80 ± .41	.27	-1.74	.104	.45†

Note. SCAF = Suicide Competency Assessment Form; GK = Gatekeeper Competencies. * $p < .05$, ** $p < .01$, *** $p < .001$; † Cohen's $d \geq .35$ interpreted as a meaningful effect.

The composite competence score showed a meaningful increase from T1 to T2 ($d = 1.22$, $p < .001$), exceeding the predefined threshold ($d \geq .35$), indicating a strong practical improvement in overall self-rated competence.

Across items, IE ratings were generally high at both time points, with most competencies meeting or exceeding the 4 or higher benchmark at T1 and all competencies meeting the threshold at T2. All analyzable competencies showed meaningful effects over time (all $d \geq .35$). Several competencies demonstrated meaningful improvements. Notably, engaging and connecting showed a large meaningful effect ($d = 1.03$), and responding to a participant in crisis also demonstrated a meaningful improvement ($d = 0.73$). Additional competencies, including maintaining a collaborative space ($d = 0.68$) and identifying an emergency contact ($d = 0.63$), showed smaller but still meaningful effects.

All remaining competencies also demonstrated meaningful increases over time (all $d \geq .35$), indicating positive gains across items. One exception was the item assessing IE's competence in asking participants about their STBs, which showed no variability across time points, resulting in no interpretable change. This may reflect consistently high baseline ratings and a potential ceiling effect. Overall, findings indicate that while baseline competence was generally high across competencies, several domains demonstrated meaningful effects over time, particularly in relational engagement and crisis response skills.

Summary of Qualitative and Quantitative Results for RQ5

The qualitative findings indicated that IEs generally felt competent in conducting VSRAs. Key training elements—such as site-specific meetings, initial training, standardized protocols, and ongoing cross-site consultation—were identified as important contributors to the development of both competence and confidence. At the same time, IEs highlighted areas for

further strengthening, including increased opportunities to practice with complex cases, greater emphasis on active listening and other interpersonal communication skills, establishing a shared baseline knowledge of STBs, and incorporating early training and discussion around self-care. Quantitative results showed overall improvements in competence over time and were broadly consistent with the qualitative findings.

RQ6: Do Assessor Perceptions of Acceptability, Appropriateness, and Feasibility of Conducting VSRAs Change Over Time?

To examine changes in IE perceptions of acceptability, appropriateness, and feasibility of VSRAs over time, quantitative data from the AIM, IAM, and FIM measures were analyzed at T1 and T2. Each standard scale consists of four items rated on a 5-point Likert scale (1 = completely disagree to 5 = completely agree), with higher scores indicating stronger agreement. An a priori threshold of 4 or higher was used to indicate favorable ratings.

In addition to standard scoring procedures, IAM and FIM scale scores were additionally computed with one current study specific item included in each scale (IAM: Conducting suicide risk assessments virtually is appropriate for this population; FIM: Conducting suicide risk assessments virtually facilitates the process; see Table 12.)

Table 12

Means, Standard Deviations, Paired t-Test, and Effect Sizes for Perceptions of Acceptability, Appropriateness, and Feasibility of VSRAs at T1 and T2

Scale	Mean ± SD T1	Mean ± SD T2	M Difference (T2-T1)	*t*(14)	*p*	Cohen's *d*
AIM Scale	3.93 ± .82	4.37 ± .67	.44	-2.27	.040*	.58†
IAM Scale	3.90 ± .72	4.17 ± .78	.27	-2.26	.041*	.58†
FIM Scale	4.32 ± .66	4.48 ± .62	.16	-.90	.384	.23

Table 12 (continued).

Scale	Mean ± SD T1	Mean ± SD T2	M Difference (T2-T1)	*t*(14)	*p*	Cohen's *d*
IAM with VSRA Item	3.93 ± .73	4.20 ± .76	.27	-2.32	.036*	.60†
FIM with VSRA Item	4.22 ± .62	4.52 ± .57	.30	-1.74	.104	.45†

Note. * $p < .05$; † Cohen's $d \geq .35$ interpreted as a meaningful effect.

AIM and IAM scales demonstrated meaningful effects from T1 to T2 based on the predefined effect size threshold ($d \geq .35$), indicating improved perceptions of acceptability and appropriateness over time. In contrast, FIM showed a small, non-meaningful change, suggesting that feasibility perceptions remained relatively stable across time points and may reflect a ceiling effect, as mean scores at T1 were already above 4.

When the VSRA-specific item was included, a similar pattern emerged for the IAM scale, which continued to show a meaningful increase over time, with a comparable effect size to the IAM scale without the VSRA item. For the FIM scale, the inclusion of the VSRA-specific item was associated with an increase in effect size from a small, non-meaningful change (d = .23) to a meaningful effect (d = .45), crossing the predefined threshold for meaningful effects. Across all scales, mean scores exceeded the benchmark of 4 at T2, indicating generally favorable perceptions of VSRAs following implementation experience.

Overall, these findings indicate that IEs' perceptions of acceptability and appropriateness for conducting VSRAs became more favorable over time, suggesting that assessors increasingly viewed the VSRAs as acceptable, satisfactory, and well-suited to the purpose and context of suicide risk assessment. Feasibility remained high and relatively stable across time points, with changes that did not meet the threshold for meaningful effects, indicating that IEs viewed

VSRAs as feasible from the outset and continued to perceive them as practical and implementable over time.

CHAPTER IV: DISCUSSION

This study examined barriers and facilitators to conducting VSRAs, as well as changes in these experiences over time, from the perspective of assessors. Using a longitudinal, multi-method design, the findings offer insight into how assessors navigate barriers and leverage facilitators within a virtual modality, develop competence, and perceive the acceptability, appropriateness, and feasibility of VSRAs over time. More broadly, these findings contribute to a limited but growing literature on assessor experiences in suicide research contexts, highlighting key processes that may shape the successful implementation of VSRAs beyond a single study context.

These findings are situated within the broader context of the rapid expansion of virtual service delivery, particularly during and following the COVID-19 pandemic, which accelerated the adoption of virtual modalities across both clinical and research environments (Davis et al., 2024; Edwards et al., 2024). Although suicide risk assessment is a well-established component of both clinical care and research protocols, much of the existing literature has focused on in-person contexts or on clinical providers (e.g., Jamison et al., 2025; McCabe et al., 2017; Roush et al., 2018; Simes et al., 2024), with relatively less attention to how these practices translate to virtual settings or to assessor experiences in research contexts. Prior research has identified concerns related to conducting suicide risk assessments virtually, including reduced access to nonverbal cues, uncertainty in managing risk remotely, and reduced control over client safety (Gilmore & Ward-Ciesielski, 2019; Bornheimer et al., 2022). The present findings extend this literature by demonstrating how these anticipated challenges evolve with experience and by highlighting the role of training and support in shaping assessor competence and confidence over time.

From an implementation science perspective, these findings support key propositions of both CFIR and the implementation outcomes framework. Consistent with CFIR (Damschroder et al., 2022), constructs within the inner setting and individual domains emerged as important determinants of assessor experiences conducting VSRAs. At the same time, improvements in acceptability and appropriateness over time align with the implementation outcomes framework (Proctor et al., 2011), suggesting that exposure and experience may function as proximal mechanisms supporting implementation success. Together, these findings underscore the importance of both contextual supports and time in role in facilitating successful implementation of VSRAs.

RQ1-2 Interpretation of Findings: Barriers to Conducting VSRAs and Changes Over Time

Findings from RQ1 and RQ2 indicate that IEs experienced a range of barriers when conducting VSRAs, many of which align with previously documented concerns regarding suicide risk assessment and suicide treatment via virtual modalities. The current findings also extend this work by demonstrating that, while these concerns are commonly anticipated, they may not be as pervasive in practice as initially expected.

Consistent with broader research on suicide risk assessment, IEs reported challenges related to student disclosure and managing distress. From a CFIR perspective, these experiences reflect the inherent complexity of suicide risk assessment as a practice and the ways in which this complexity interacts with the virtual modality of delivery, rather than being attributable solely to the virtual modality itself. This distinction highlights that some perceived limitations of VSRAs arise from the demands of suicide risk assessment more broadly, rather than from mode of delivery alone.

At the same time, several barriers were more clearly tied to the virtual modality as the innovation, including difficulty interpreting behavioral and environmental cues, challenges managing distress without physical in-presence, and uncertainty regarding the ability to ensure safety remotely. Technology-related issues, such as connectivity disruptions and inconsistent camera use among participants, reflected recipient-level and contextual constraints affecting implementation. Additionally, many IEs reported initial unease about conducting suicide risk assessments virtually, highlighting the role of individual characteristics, including beliefs, confidence, and prior experience, in shaping early implementation experiences.

A central contribution of the current study is the distinction between anticipated and experienced barriers. Many of the most salient concerns at T1, particularly those related to safety and worst-case scenarios, were rarely encountered in practice. IEs described fears such as abrupt student disconnection during acute risk, yet these scenarios seldom materialized. This pattern is consistent with broader concerns in suicide research, where apprehension about potential harm often exceeds empirical observation. From a CFIR perspective, these findings suggest that individual perceptions and expectations may initially amplify perceived barriers in the absence of direct experience, particularly when implementing a high-stakes innovation in a novel context.

Changes over time further support this interpretation. Many barriers decreased in salience from T1 to T2, particularly those related to virtual interaction and safety. IEs described increased comfort in building rapport, improved ability to interpret limited cues, and greater confidence in managing distress using verbal and procedural strategies. These changes reflect adaptation over time through experience, consistent with CFIR's emphasis on implementation as a dynamic, iterative process influenced by ongoing learning and the interaction between context and individuals**.** Importantly, structured safety protocols emerged as a key mechanism underlying

this shift. Clear procedures for risk assessment, established emergency response protocols, and access to real-time consultation represent critical implementation supports that enhanced preparedness and reduced uncertainty.

Taken together, these findings suggest that while VSRAs introduce unique challenges, many barriers are modifiable, diminish with experience, and can be mitigated through comprehensive training and well-defined safety procedures. More broadly, the findings highlight the dynamic interplay between the innovation (virtual modality), individual characteristics, and implementation supports in shaping how barriers are experienced over time. This has important implications for both research and practice, particularly in addressing hesitancy around VSRA.

RQ 3-4 Interpretation of Findings: Facilitators of Conducting VSRAs and Changes Over Time

Findings from RQ3 and RQ4 highlight several factors that supported both assessor performance and participant engagement in VSRAs. These facilitators were closely tied to characteristics of the virtual modality as the innovation, as well as to implementation processes and supports that remained constant or strengthened over time as assessors gained experience.

The most prominent facilitator was the convenience and flexibility of virtual assessments. Assessors consistently noted that the ability to schedule sessions without travel, accommodate participant availability, and manage time efficiently reduced logistical burden. From a CFIR perspective, these advantages reflect favorable characteristics of the innovation, particularly in terms of adaptability and relative advantage compared to in-person assessment. This flexibility appeared to enhance both the feasibility and acceptability of VSRAs, allowing assessors to focus more fully on the assessment process itself.

Assessors also described virtual assessments as comparable to, and in some cases more effective than, in-person interactions. The virtual modality did not appear to meaningfully hinder rapport-building, information gathering, or safety management. In some instances, it appeared to enhance engagement, as participants were situated in familiar and comfortable environments. This suggests that aspects of the outer settings may function as facilitators by promoting openness and reducing intensity and formality. The relative comfort of these environments appeared to support disclosure and communication, which are critical components of effective suicide risk assessment.

A notable finding was that suicide risk assessments appeared to provide a unique opportunity for participant reflection that was distinct from participants' typical clinical treatment experiences. Assessors described instances in which students were able to share personal experiences, gain perspective, and engage in reflective thinking within the assessment context. This reflective space was not viewed as exclusive to the virtual modality; rather, it may reflect features of the assessment context more broadly. In particular, assessors suggested that the structured yet non-therapeutic nature of the VSRA may have supported opportunities for self-expression and reflection alongside its primary assessment function.

Over time, facilitators became more pronounced as assessors reported increased comfort and confidence in conducting VSRAs. These changes align with the CFIR implementation process domain, particularly learning through experience and ongoing engagement with the innovation. Repeated practice, structured safety protocols, and access to supervision served as key implementation supports, reinforcing skill development and enhancing assessors' ability to build rapport, manage distress, and interpret cues within a virtual environment. These

experiences also reflect changes in characteristics of individuals, including increased self-efficacy and reduced initial uncertainty related to the virtual modality.

Taken together, these findings indicate that VSRAs offer multiple facilitators that support both assessor effectiveness and participant engagement. The flexibility and accessibility of the virtual modality, combined with supportive environmental contexts and structured implementation processes, contributed to positive assessment experiences. Over time, these facilitators were strengthened through experience and support, suggesting that the benefits of VSRAs may become more pronounced as familiarity with the modality increases. More broadly, these findings highlight the importance of considering innovation characteristics, contextual factors, and implementation supports in understanding how and why VSRAs can be successfully implemented across settings.

RQ 5 Interpretation of Findings: Training for Conducting VSRAs

Findings from RQ5 underscore the central role of training in preparing assessors to conduct VSRAs, contributing to competence, confidence, comfort, and procedural fidelity. Across qualitative data, both initial and ongoing training, as well as well-developed protocols, emerged as a key implementation supports for conducting VSRAs**,** consistent with CFIR Inner Setting influences related to access to knowledge and information.

IEs emphasized the importance of structured initial training components, including logistical training such as system and platform orientation, as well as applied practice opportunities such as role plays. This training helped them anticipate challenges and reduced initial anxiety about conducting suicide risk assessments virtually. These elements also helped clarify expectations, reduce initial uncertainty, and support navigation of the procedural demands of conducting suicide risk assessments in a virtual format.

Over time, IEs described continued growth in competence and confidence that was reinforced through experience and ongoing supervision. Access to consultation and support functioned as an extension of training, allowing IEs to reinforce skill acquisition, enhance rapport, and improve the ability to manage distress and interpret nonverbal cues within a virtual setting. Together, these supports reflect ongoing implementation processes that reinforce learning over time and strengthen individual capacity.

Some areas for continued development were also identified. IEs suggested that additional opportunities to practice managing complex or high-acuity cases would further strengthen preparedness. In particular, more targeted practice scenarios involving acute risk situations were recommended to enhance readiness for less common but higher-stakes scenarios. This feedback highlights the importance of ensuring that training covers both "routine" and high-complexity cases to fully prepare assessors for the range of situations they may encounter.

An important theme that emerged throughout the training discussions was the challenge of managing emotional uncertainty and the emotional labor inherent in conducting suicide risk assessments. Assessors highlighted the psychological toll of managing their own anxiety about potential crises and navigating high-risk situations. The need for emotional self-care before, during, and after assessments was consistently emphasized, particularly when faced with the unpredictability of virtual assessments. As the quantitative data suggest, IEs' competence improved over time, yet the emotional uncertainty of conducting assessments remained a significant aspect of the role. Training that addresses not only technical skills but also prepares IEs to manage these emotional challenges and engage in self-care practices is critical for ensuring their long-term effectiveness and well-being. From a CFIR perspective, these

experiences reflect the ways emotional responses to high-stakes work intersect with the skills and self-regulatory demands required to carry out the role.

Overall, these findings suggest that training and ongoing support are central to the successful implementation of VSRAs by enhancing access to knowledge, supporting skill acquisition, and reinforcing procedural confidence. Consistent with implementation strategy taxonomies such as Expert Recommendations for Implementing Change (ERIC; Powell et al., 2015), structured training, ongoing consultation, and applied practice opportunities work synergistically to enable the safe and effective implementation of complex assessment procedures in virtual settings.

RQ6 Interpretation of Findings: Perceptions of Acceptability, Appropriateness, and Feasibility

The results from RQ6 indicate that IEs perceived VSRAs as acceptable, appropriate, and feasible, with favorable ratings at both T1 and T2. Increases in acceptability and appropriateness were observed over time, suggesting a shift toward more favorable evaluative judgments of these implementation outcomes over time. Feasibility remained consistently high across time points, indicating that VSRAs were viewed as practical and implementable from the outset.

These findings can be understood within Proctor et al.'s (2011) implementation outcomes framework, which conceptualizes acceptability, appropriateness, and feasibility as proximal indicators of implementation success. From this perspective, consistently high feasibility ratings suggest that structural and procedural conditions were sufficient early in implementation. In contrast, increases in acceptability and appropriateness may reflect evolving evaluative judgments of satisfaction and perceived fit as assessors gained experience with the implementation process and innovation context.

Together, these findings suggest that while feasibility may be established early through structural readiness, acceptability and appropriateness may be more sensitive to experiential exposure and interaction with the innovation over time.

Limitations

Several limitations should be considered when interpreting the findings of this study. First, the sample size was relatively small and limited to assessors from a larger study, which will not fully represent all individuals conducting VSRAs. As a result, the quantitative analyses were underpowered to detect smaller effects, and findings should be interpreted with caution in terms of statistical inference and generalizability. Additionally, while the qualitative data were rich and informative, they may not capture the full range of IE experiences across different institutions, populations, or virtual assessment contexts.

Second, the study relied on self-report measures of competence, acceptability, appropriateness, and feasibility which could be influenced by social desirability, personal bias, or recall limitations. In addition, the competence measure was adapted from existing competency frameworks and items rather than a fully validated, standardized scale, although internal consistency was examined within the present sample to support its use.

Third, the timing between T1 and T2 varied across participants, and prior experience conducting VSRAs differed. These factors may influence longitudinal comparisons, limit generalizability of observed changes over time, and reduce confidence in causal interpretations, as changes from T1 to T2 may also be influenced by unmeasured variables.

Fourth, the study was conducted within a structured research protocol that included training, supervision, and safety procedures. While these features support the feasibility and

acceptability of VSRAs in this context, they may not fully reflect conditions in clinical or other applied settings, potentially limiting generalizability.

Finally, rigorous qualitative coding procedures were employed, it is possible that some nuances, unanticipated experiences, or subtle differences in IE perspectives were not fully captured.

Taken together, these limitations suggest that the findings should be interpreted with caution but also provide a foundation for future research to replicate and expand understanding of VSRAs across diverse settings, assessors, and participant populations.

Implications for Research Settings

The findings from this study offer important implications for VSRAs in research settings. First, the study demonstrates that VSRAs can be successfully integrated into research protocols without compromising assessor performance or participant safety. Assessors reported high ratings for feasibility, acceptability, and appropriateness, indicating that VSRAs are practical, well-received, and suitable when supported by clear procedures, structured training, and ongoing supervision. These findings align with recommendations from Schatten et al. (2020) for non-clinical assessors, emphasizing the importance of comprehensive training and supervision for successful implementation of high-stakes assessments.

Second, the study underscores the importance of designing research protocols that account for the unique experiences of both clinical and non-clinical assessors. While clinical assessors may struggle with balancing their research and clinical roles, non-clinical assessors may experience lack of training in interpersonal skills or a lack of tools to manage participant distress. For both groups, comprehensive training, repeated practice, and well-defined safety protocols can mitigate these challenges. Qualitative data further revealed that assessors' self-

reported competence and perceived adequacy of their role improved with experience, pointing to the need for targeted training that addresses the needs of both clinical and non-clinical assessors.

Finally, incorporating these insights into research protocol design is critical for reducing attrition, improving data quality, and ensuring the ethical handling of participants with suicidal thoughts and behaviors (STBs). By addressing the unique needs of both clinical and non-clinical assessors, research teams can create a supportive environment that facilitates effective and ethical VSRAs, benefiting both the assessor and the participant.

Implications for Practice Settings

Although the current study was conducted in the context of a research setting, the findings have clear and transferable implications for practice in clinical, university, and other applied contexts. First, the results indicate that VSRAs can be safe, feasible, and effective when supported by structured protocols and access to consultation. High feasibility, acceptability, and appropriateness ratings, along with qualitative reports of increased confidence over time, suggest that the virtual modality can maintain assessment quality and participant safety.

Second, thoughtful preparation and continuous assessor support are key to ensuring successful implementation. Comprehensive training, repeated practice, and clearly defined emergency procedures help mitigate initial concerns about safety, managing distress, and interpreting limited cues. These strategies not only enhance assessor confidence but also promote thorough and consistent risk assessment.

Third, the virtual format offers practical advantages that can enhance service delivery. Convenience and scheduling flexibility were consistently cited as key facilitators, and in some instances, virtual sessions were experienced as equal to—or even superior to—in-person assessments in terms of rapport and engagement. Applied settings can leverage these benefits to

expand access, reduce logistical barriers, and provide individuals with a structured space for reflection, fostering self-awareness and personal growth, which may complement their ongoing treatment and support their mental health journey.

Taken together, these findings suggest that, although derived from a research context, VSRAs can be successfully integrated into real-world practice when supported by clear procedures, training, and supervision. Organizations implementing virtual assessments can draw on these insights to optimize both assessor performance and participant safety, demonstrating that lessons learned in research settings are highly relevant for applied care.

Future Directions

The current study highlights several avenues for future research aimed at strengthening the evidence base for VSRAs. First, while the present study examined quantitative perceptions of acceptability, appropriateness, and feasibility, future work could incorporate a qualitative perspective to more deeply explore these constructs and how they are experienced and enacted in practice over time. Understanding the nuanced experiences, concerns, and insights of assessors over time may reveal additional factors that influence implementation success, training needs, and participant engagement.

Second, the interplay between assessor characteristics and experiences warrants further investigation. Some assessors in the current study had prior clinical training while others did not, which may have influenced perceptions of confidence, comfort, and perceived barriers. Future research could examine how assessor background, prior experience, or training intensity affects both implementation and outcomes in virtual assessments.

Third, additional research could explore the potential therapeutic or reflective benefits of VSRAs for participants. While the primary aim of VSRAs is risk assessment, qualitative findings

suggested that providing a structured space for students to share their experiences or reflect on progress may carry incidental positive effects. Understanding how and under what circumstances these benefits occur could inform the design of both research and applied protocols to maximize participant well-being.

Finally, future research could focus on the development and evaluation of standardized best practices, protocols, and institutional guidelines for conducting VSRAs. Although this study demonstrates feasibility, acceptability, and appropriateness in a research context and with a university student population, systematically codifying procedures for assessor training and participant safety monitoring could support consistency, quality, and scalability across settings. Such work would not only inform research protocols but also provide evidence-based guidance for policy and administrative decisions, helping institutions integrate VSRAs safely and effectively into routine practice.

Conclusion

This study makes a unique contribution by capturing the experiences of research assessors conducting VSRAs, a perspective largely absent from the literature. Findings demonstrate that VSRAs are feasible, acceptable, and appropriate. Practical advantages—such as improved access for participants and the benefit of live consultation for assessors—emerged as key facilitators, while initial concerns about safety, engagement, and interpreting cues were largely alleviated through structured training, repeated practice, and robust safety protocols. By integrating quantitative and qualitative data, this work provides actionable guidance for implementing VSRAs safely and effectively, supporting assessor training, participant engagement, and overall assessment quality. Beyond research contexts, these insights offer

transferable lessons for clinical and applied settings, advancing both the science and practice of suicide risk assessment in virtual environments.

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APPENDIX A

DEMOGRAPHIC SURVEY

Question	Answer Options
1. Which site are you an IE for?	o [University 1] o [University 2] o [University 3] o [University 4]
2. Were you an IE in Feasibility 1.0 (2020-2021)?	o Yes o No
If yes: 2a. How many participants did you assess as part of Feasibility 1.0 (2020-2021)?	[Blank to type in number]
2b. Is the answer to the previous question exact or an estimate?	o Exact o Estimate
3. Were you an IE in Feasibility 2.0 (2021-2022)?	o Yes o No
If yes: 3a. How many participants did you assess as part of Feasibility 2.0 (2021-2022)?	[Blank to type in number]
3b. Is the answer to the previous question exact or an estimate?	o Exact o Estimate
4. Are you an IE in the Randomized Control Trial (2022-2023)?	o Yes o No
If yes: 4a. How many participants have you assessed as part of the Randomized Control Trial (2022-2023)?	[Blank to type in number]
4b. Is the answer to the previous question exact or an estimate?	o Exact o Estimate
5. How do you identify your race/ethnicity? Check all that apply.	☐ American Indian or Alaskan Native ☐ Asian ☐ Black or African American ☐ Hispanic ☐ Native Hawaiian or Pacific Islander

	☐ White ☐ Additional or add specificity to above _____
6. How do you identify your gender? Check all that apply.	☐ Woman ☐ Man ☐ Transgender Woman ☐ Transgender Man ☐ Non-Binary ☐ Additional or add specificity to above _____
7. Do you have a clinical training background (e.g. you have participated in professional activities to gain licensure)?	o No o Yes
If yes: 7a. What is the highest level of clinical training you have received?	o Master's Degree (MA, MS, MEd, MSW, etc.) o Doctorate Degree (PhD, PsyD, etc.)
7b. How long have you been working in a clinical role?	o Unlicensed trainee for 1-3 years o Unlicensed trainee 3 or more years o Licensed clinician 1-3 years o Licensed clinician 3-5 years o Licensed clinician 5-9 years o Licensed clinician 10 or more years

APPENDIX B

QUALITATIVE INTERVIEW QUESTIONS TIME 1

Feasibility	
1.	What are your perceptions about your role and responsibilities as an IE?
	a. How do you feel about the task of conducting suicide risk assessments virtually?
	b. What are your perceptions about the appropriateness of conducting suicide risk assessments virtually?
2.	What concerns do you have about participant safety while conducting suicide risk assessments virtually? Your own safety?
3.	Did you feel conducting virtual suicide risk assessments will be successful? Why or why not?
Facilitators & Barriers	
4.	What was helpful about conducting suicide risk assessments virtually?
5.	How did conducting suicide risk assessment virtually benefit the participant?
	a. Which participants (e.g., specific demographics) do you believe especially benefited from doing suicide risk assessments virtually?
6.	What was not helpful about conducting suicide risk assessments virtually?
7.	What were barriers to conducting suicide risk assessments virtually?
	a. Which participant (e.g. specific demographics) do you believe would faced additional barriers doing suicide risk assessments virtually?
8.	What suicide risk assessments that you have administered, seemed particularly cumbersome or beneficial to conduct virtually?
9.	If we asked participants about their experience doing suicide risk assessments virtually what do you think they would say was the biggest benefit? Biggest barrier?
10.	Without making overgeneralized points about participant experiences, what did you experience as a difference between administering suicide risk assessments to participants from diverse cultural and identity backgrounds versus those from the dominant culture?
11.	What do you see as a benefit of conducting suicide risk assessments virtually or in person for participants from diverse cultural and identity backgrounds?
Training & Support	
12.	What part or parts of your IE training made you feel prepared to conduct virtual suicide risk assessments?
	a. If applicable, how did previous training guide your approach to conducting suicide risk assessments virtually?
13.	Are you comfortable conducting suicide risk assessments virtually? What would make you feel more comfortable? Less comfortable?
14.	How does ongoing support (e.g., supervisor and/or consultation calls) change your feelings of preparedness, confidence, and readiness to conduct suicide risk virtual assessments?

15.	How confident did you feel to handle a participant who had an urgent or crisis mental health need while conducting virtual suicide risk assessments? What elements of your initial training and/or ongoing support would change your feeling of confidence?
16.	What suggestions would you make for future trainings?

QUALITATIVE INTERVIEW QUESTIONS TIME 2

Feasibility	
1.	How have your perceptions about your role and responsibilities as an IE changed since our last interview with you?
	a. *If you've delivered assessments virtually,* how did you feel about the task of performing assessments virtually?
	b. *If you've delivered assessments virtually,* what were your perceptions about the appropriateness of performing assessments virtually?
	c. *If you've delivered both in person and virtual assessments,* which mode do you think is most feasible? Appropriate?
2.	Have your concerns about participant safety changed? / Has anything happened since our last interview that has changed your thoughts on participant safety? If so, what?
3.	Overall, do you feel performing virtual assessments was successful? Why or why not?
Facilitators & Barriers	
4.	What have you noticed that has been helpful about performing assessments virtually over time?
5.	What benefits have you seen for the participant about doing the assessments virtually over time?
	a. Have you noticed any groups of participants (e.g. specific demographics) that you believe especially benefited more over time from doing assessments virtually?
6.	What has **not** been helpful about performing assessments virtually over time?
7.	What barriers have participants encountered doing assessments virtually over time?
	a. Have you noticed any groups of participants (e.g. specific demographics) that you believe faced additional barriers over time doing assessments virtually?
8.	Have there been any changes in the difficulty or ease of administering particular assessments virtually over time?
	a. Did you notice any particular assessment that participants seemed to find especially burdensome or beneficial?
	b. Did any assessment become easier to administer or seem more helpful for the participant over time?
9.	Without making overgeneralized points about participant experiences, what did you notice from the perspectives of participants with historically marginalized identities about their experience doing assessments?
10.	Any new insights as to what you see as a benefit conducting assessments virtually OR in person for participants from diverse cultural and identity backgrounds?

11.	What have participants told you about why they like the assessments or what they get out of the assessments or reported to you why they do or do not like the study?
Training & Support	
12.	What additional training would have been beneficial to increase your feeling of preparedness to perform virtual assessments?
13.	Reflecting on the ongoing support (e.g., supervisor and/or consultation calls, local teams) you received, what would you change and what would you keep the same?
14.	How has your confidence changed to handle a participant who had an urgent or crisis mental health need?
	a. What factors facilitated that change?
16.	What suggestions would you make for future trainings?

APPENDIX C

COMPETENCY MEASURE

Developed from Suicide Competency Assessment Form (SCAF; Cramer et al., 2013) and Gatekeeper Competencies (GK; Hawgood et al., 2022).

1= Completely incompetent, 2= Incompetent, 3= Neither competent nor incompetent, 4= Competent, and 5= Completely competent

	1	2	3	4	5
How competent do you feel that you know and can manage your attitudes and reactions toward suicide? SCAF					
How competent do you feel you are at engaging and connecting with a suicidal participant? GK-SA					
How competent do you feel you are at maintaining a collaborative and empathetic space for a participant? SCAF					
How competent do you feel asking participants to identify an emergency contact?					
How competent do you feel asking participants questions about their suicidal ideation and/or behaviors? SCAF					
How competent do you feel making a determination about a participant's level of risk? SCAF					
How competent do you feel you are at identifying and using appropriate responses to a participant in crisis? GK-SA					
How competent do you feel connecting participants to university specific crisis services? GK-SA & K					
How competent do you feel connecting participants to regional or national crisis services? GK-SA					
How competent do you feel you are at debriefing and engaging in self-care? SCAF/GK-SE					

Note. Each competency is labeled with which original measure it came from. The Gatekeeper Competencies are also labeled with the corresponding area of core competency. SA= Skills and abilities, K= Knowledge, and SE= Self-efficacy.

APPENDIX D

IMPLEMENTATION OUTCOMES MEASURE

1= Completely disagree, 2= Disagree, 3= Neither agree nor disagree, 4= Agree, and 5= Completely agree

Acceptability of Intervention Measure (AIM)					
	1	2	3	4	5
1. Conducting suicide risk assessments virtually meets my approval.					
2. Conducting suicide risk assessments virtually is appealing to me.					
3. I like conducting suicide risk assessments virtually.					
4. I welcome conducting suicide risk assessments virtually.					
Intervention Appropriateness Measure (IAM)					
	1	2	3	4	5
1. Conducting suicide risk assessments virtually seems fitting.					
2. Conducting suicide risk assessments virtually seems suitable.					
3. Conducting suicide risk assessments virtually seems applicable.					
4. Conducting suicide risk assessments virtually seems like a good match.					
5. Conducting suicide risk assessments virtually is appropriate for my clients.[1]					
Feasibility of Intervention Measure (FIM)					
	1	2	3	4	5
1. Conducting suicide risk assessments virtually seems implementable.					
2. Conducting suicide risk assessments virtually seems possible.					
3. Conducting suicide risk assessments virtually seems doable.					
4. Conducting suicide risk assessments virtually seems easy to use.					
5. Conducting suicide risk assessments virtually facilitate the process.[1]					

Note. [1] Additional question not originally part of the measure.

APPENDIX E
QUALITATIVE CODEBOOK

Parent Code	Child Code	Grandchild Code	Definition	Inclusion Criteria	Exclusion Criteria	CFIR Domain	IEs at T1 (*n*)	IEs at T2 (*n*)	Total IEs (*n*)
VSRA Barrier			**Captures challenges or obstacles that hinder conducting VSRAs. Child and grandchild codes specify the type and source of the barrier.**				15	15	15
VSRA Barrier	**Student-Level Barrier**		**Barriers reported by the student or observed by the IE that interfere with participation or engagement in virtual assessments.**	**Any student-level factor—environmental, social, personal, or behavioral—that impedes completing or engaging in the assessment.**	**Issues caused solely by the IE, study procedures, or institutional factors, or student traits unrelated to assessment participation.**		14	14	15
VSRA Barrier	**Student-Level Barrier**	**Private Space Barrier**	When a student struggles to find or cannot find a private, uninterrupted, or comfortable space to participate in a virtual assessment due to environmental or social constraints.	• Student lives with family, roommates, or peers and cannot secure privacy • Student uses semi-public or unconventional spaces (e.g., car, dorm common area) for privacy • Interruptions occur during assessment (people walking in, roommates/family nearby) • Cultural, familial, or social factors limit ability to maintain confidentiality	• General distractions without privacy concern • Technology/connectivity issues (e.g., Wi-Fi, audio/video lag) • Engagement or motivation issues unrelated to privacy • Student anxiety, discomfort, or difficulty with trust/rapport unrelated to privacy	Individuals	13	13	14
VSRA Barrier	**Student-Level Barrier**	**Stigma**	Student concern or discomfort about social, cultural, or familial judgment that hinders openness, disclosure, or engagement, including barriers related to marginalized identities or cultural norms.	• Student expresses worry about family, cultural, or social judgment, including stigma around mental health or suicidal thoughts • Reports cultural, societal, or identity-based barriers that limit openness or engagement • Experiences marginalization or generational/cultural influences (e.g., trauma, collectivist values) that contribute to discomfort or caution in participation	• General privacy concerns not tied to judgment or stigma. • Technical or logistical barriers (e.g., Wi-Fi, device issues) • Engagement or motivation issues unrelated to stigma	Individuals	8	7	11
VSRA Barrier	**Student-Level Barrier**	**Time Constraints**	Challenges related to allocating sufficient time for assessments.	• Difficulty finding uninterrupted time for assessments • Conflicts with work, classes, or personal responsibilities • Assessment length or time burden	• Only technology or privacy barriers unrelated to time • Comfort or engagement issues unrelated to time commitment	Individuals	7	7	11
VSRA Barrier	**Student-Level Barrier**	**Multitasking or Distraction**	Captures descriptions of reduced focus, divided attention, or engagement during VSRAs due to performing other tasks simultaneously or being in distracting environments.	• Mentions of students multitasking during the assessment (e.g., working on homework, taking other surveys, using devices) • References to environmental distractions (e.g., pets, roommates, background noise, interruptions) • Student behaviors or IE perceptions of reduced attention or engagement due to distractions	• General technology problems unrelated to student attention (e.g., Wi-Fi lag, audio/video issues) • Lack of privacy without distraction (e.g., just a public space) • Engagement challenges related to rapport or motivation without multitasking • Distinct from disability or neurodivergence	Individuals	8	3	10
VSRA Barrier	**Student-Level Barrier**	**Confidence in Responses**	IE concern about the accuracy, completeness, honesty, or reliability of information provided by the students during a VSRA.	• Doubts about honesty or disclosure • Environmental factors (e.g., lack of privacy, interruptions) affecting answer reliability • Missing nonverbal cues affecting interpretation	• Rapport issues • Technical, scheduling, or logistical issues not affecting accuracy	Inner Setting	4	4	6

Parent Code	Child Code	Grandchild Code	Definition	Inclusion Criteria	Exclusion Criteria	CFIR Domain	IEs at T1 (*n*)	IEs at T2 (*n*)	Total IEs (*n*)
VSRA Barrier	**Student-Level Barrier**	**Benefits of External Location**	Benefit of being in a physical, in-person setting (e.g., counseling center, leaving home) that support emotional regulation, disclosure, or engagement beyond the assessment itself.	• Mentions of movement to/from a location (e.g., walking, leaving house) as helpful • UCC setting or research setting providing emotional support, grounding, or containment • In-person environment enhancing processing, recovery, or comfort after assessment • Presence of tangible supports (e.g., office space, objects, atmosphere) aiding experience	• Rapport, comfort, or connection without link to physical setting • Privacy or confidentiality tied to location • Safety or risk management concerns (e.g., monitoring after session)	Outer Setting	2	4	6
VSRA Barrier	**Student-Level Barrier**	**Promotes VSRA Attrition**	Captures IE descriptions of decreased follow-through with assessment participation due to virtual modality.	• Mentions of students rescheduling or not showing up • Descriptions of students being less accountable	• General multitasking or environmental distractions • Lack of private/confidential space • Technical difficulties causing disconnection	Inner Setting	1	2	3
VSRA Barrier	**Student-Level Barrier**	**Zoom Etiquette**	Student engages in a session from an inappropriate location or in an incongruent manner due to poor planning, not lack of privacy or mental health issues.	• Attending VSRAs appointments from inappropriate or distracting locations by choice (e.g., grocery store, bed) • Being partially dressed or in unprofessional attire during the session	• Lack of access to a private space • Issues caused by mental health symptoms or clinical needs	Individuals	1	2	2
VSRA Barrier	**Virtual Safety Concern**		**Concerns about managing student safety in virtual assessments, including high-risk suicidality, self-harm, co-occurring disorders, and limitations of the virtual setting.**	**IE concerns about student safety or managing high-risk behavior during virtual assessments.**	**Issues unrelated to student safety (e.g., technical, scheduling, or procedural concerns).**		15	9	15
VSRA Barrier	**Virtual Safety Concern**	**IE Unease**	IE anticipated or experienced feeling of worry, fear, or stress about student safety during or related to a VSRA.	• IE emotional reaction (fear, worry, stress, anxiety) specifically triggered by concerns about student safety • Emotional responses tied to challenges in contacting student, managing high-risk behavior, or responding to emergencies remotely. • Emotions could be experienced in the presence or absence of perceived risk	• General stress or frustration unrelated to student safety (e.g., technical difficulties, scheduling) • Student-reported anxiety about their own safety — focus is on the IE's perspective	Individuals	9	6	10
VSRA Barrier	**Virtual Safety Concern**	**Transition to Higher Level of Care**	Instances where IE report that being physically present makes it easier to connect student to higher-level care (e.g., mental health professionals, hospital services) or manage high-risk situations, compared with virtual assessments.	• IE explicitly mentions easier coordination with clinicians, crisis services, or emergency interventions in person	• General comfort or rapport statements not linked to higher-level care • Advantages of in-person unrelated to safety or escalation (e.g., scheduling, privacy, convenience)	Inner Setting	7	2	8
VSRA Barrier	**Virtual Safety Concern**	**Vulnerability to Intentional Student Exit**	Fear that a student may intentionally exit the virtual session (e.g., disconnect or turn off the camera) during critical moments, particularly in high-risk situations, which prevents follow-up or timely intervention. While this could happen in-person too, virtual settings amplify the unpredictability.	• Fear that a student will intentionally leaving the VSRA if they get too distressed • The ability for student to exit the session at will, without the IE being able to immediately intervene • Description of feeling a lack of control over the session due to the virtual setting	• Other comments about camera unrelated to safety (coded under Camera) • Accidental disconnections (e.g., Wi-Fi issues) • Student leaving for non-distress-related reasons (e.g., schedule conflicts)	Inner Setting	4	3	6

Parent Code	Child Code	Grandchild Code	Definition	Inclusion Criteria	Exclusion Criteria	CFIR Domain	IEs at T1 (*n*)	IEs at T2 (*n*)	Total IEs (*n*)
VSRA Barrier	**Virtual Safety Concern**	**Lethal Means Access**	Concerns about the increased risk of student having access to lethal means (e.g., weapons, medications, hazardous substances) during virtual assessments.	• Worries about access to lethal means (e.g., weapons, medications) • Anxiety about being unable to ensure safety virtually due to lethal means access • Concerns about active self-harm risks due to unmonitored setting	• General safety concerns not related to lethal means • Non-virtual assessment safety issues	Inner Setting	5	1	6
VSRA Barrier	**Virtual Safety Concern**	**High Risk Students**	This code reflects IE heightened concerns about conducting virtual assessments with student who are at higher risk (e.g., history of severe suicidality, self-harm) and/or co-occurring disorders (e.g., substance use, eating disorders).	• Increased anxiety or worry from the IE about conducting VSRAs with high-risk student • Concerns about the limitations of virtual assessments for managing these risks • Discussion of specific high-risk behaviors or conditions (e.g., impulsivity, history of self-harm, or severe suicidality) that heighten concerns for IE	• General virtual assessment concerns unrelated to increased worry about student risk or co-occurring disorders • Non-clinical issues such as logistical challenges or general assessment preferences	Inner Setting	0	4	4
VSRA Barrier	**Virtual Safety Concern**	**Emergency Contact and Location Challenges**	Challenges in pinpointing student location or securing reliable emergency contacts during virtual assessments, impacting the ability to respond to safety concerns.	• Uncertainty about student location (e.g., moving vehicles, multi-unit buildings, or missing apartment numbers) • Refusal or lack of emergency contacts • Lack of emergency contact in close enough physical distance to intervene if necessary	• Technical issues unrelated to location/emergency contact • Safety concerns not tied to location or contacts • Trust/rapport issues	Inner Setting	3	2	3
VSRA Barrier	**Virtual Interaction Barrier**		**Challenges in interacting with students during virtual assessments, including reading cues, managing distress, and building trust or rapport.**	**Any difficulty in observing, interpreting, or responding to student behaviors, emotions, or interactions due to the virtual format.**	**Barriers unrelated to interpersonal interaction (e.g., technical issues, scheduling, or procedural logistics).**		15	8	15
VSRA Barrier	**Virtual Interaction Barrier**	**Rapport and Interpersonal Connection**	Challenges in building trust, rapport, or a sense of connection between the IE and student.	• Student hesitancy or reluctance to share personal thoughts or feelings due virtual distance • Difficulty in establishing connection or building trust • Comments about awkwardness, discomfort, or feeling emotionally distant	• Technical problems (internet, device issues) • Scheduling, procedural, or environmental barriers unrelated to interpersonal connection • Related to stigma	Inner Setting	12	6	12
VSRA Barrier	**Virtual Interaction Barrier**	**Behavioral and Environmental Cues**	Difficulties noticing or interpreting student' behaviors, emotions, or environmental factors during virtual assessments.	• Difficulty reading body language, gestures, facial expressions, or engagement cues through the screen • Environmental factors visible to the IE (lighting, camera angle, background activity) that affect interpretation of student state or engagement	• Student behaviors or multitasking captured elsewhere at the student-level • Pure technical issues not affecting observation (e.g., temporary Wi-Fi lag that doesn't affect interpretation)	Inner Setting	9	5	11
VSRA Barrier	**Virtual Interaction Barrier**	**Distress Management**	Challenges in effectively supporting, calming, or managing student distress during the assessment due to the limitations of the virtual setting.	• Difficulty calming or grounding a distressed student • Reduced ability to provide support due to not being physically present • Virtual format limits effectiveness of typical de-escalation strategies	• Difficulty detecting distress due to limited cues • General high-risk concerns not tied to managing distress in the moment • Rapport or emotional connection issues when student is not actively distressed	Inner Setting	6	2	7

Parent Code	Child Code	Grandchild Code	Definition	Inclusion Criteria	Exclusion Criteria	CFIR Domain	IEs at T1 (*n*)	IEs at T2 (*n*)	Total IEs (*n*)
VSRA Barrier	**Student Group or Demographic Group Barrier**		**Barriers to participating in VSRAs that arise from structural, contextual, or design factors interacting with students' identities, backgrounds, or circumstances, which may limit engagement, comfort, or accessibility. Includes instances where aspects of the VSRA environment, format, or expectations create additional challenges for certain groups (e.g., accessibility barriers).** *^Codes below are for tallying purposes only.*	• Any student-reported or IE-observed challenge where features of the VSRA (e.g., format, environment, expectations) create barriers that differentially affect students based on their identities, backgrounds, or circumstances • Considerations related to culture, language, accessibility, or social context that interact with the design or delivery of virtual assessments • Situations where accommodations, modifications, or additional supports are needed due to a mismatch between VSRA structures and students' needs or contexts	• Barriers not linked to structural/contextual interaction with identity or circumstance (e.g., general technology issues, scheduling conflicts, or broad rapport challenges affecting all students similarly) • Individual-level challenges that are not shaped by or connected to broader contextual, cultural, or structural factors	Inner Setting	12	12	15
		^General Cultural Concerns							8
		^Psychopathology							7
		^Living Situation							6
		^Collectivist Cultures/Family Concerns							5
		^SES							4
		^Speech or Hearing Impairment							4
		^International/First Gen Students							4
		^Incongruent cultural identity with IE							4
		^Neurodivergence							3
		^Gender/Sexual Orientation							3
		^Race/Ethnicity							3
		^ESL							2
		^Student Workers							2
		^Blindness or Sign Disability							1
VSRA Barrier	**Technology Barrier**		**Challenges or obstacles arising from the technology used in virtual assessments, including devices, internet connectivity, cameras, and Zoom links.**	**Issues with devices, chargers, internet/Wi-Fi, cameras, or Zoom links, that hinder virtual assessments.**	**Barriers unrelated to technology (e.g., private space, environmental distractions, rapport issues, student behavior, or safety concerns).**		15	11	15
VSRA Barrier	**Technology Barrier**	**Proper Device & Charger**	Student lacks necessary, functional devices and chargers for virtual assessments.	• Lack of access to necessary devices (e.g., laptops, phones) • Device charging problems (e.g., dead battery or forgotten chargers) • Issues arising from using mobile devices instead of computers • Student needing to switch devices or locations (to charge) during assessments	• Barriers unrelated to devices or chargers (e.g., private space issues, Wi-Fi problems)	Inner Setting	9	6	11

Parent Code	Child Code	Grandchild Code	Definition	Inclusion Criteria	Exclusion Criteria	CFIR Domain	IEs at T1 (*n*)	IEs at T2 (*n*)	Total IEs (*n*)
VSRA Barrier	**Technology Barrier**	**Wi-Fi**	Barriers related to poor, unreliable, or unstable internet connection during virtual assessments.	• Poor or inconsistent Wi-Fi affecting participation • Audio/video lag due to internet issues • Trouble connecting or staying connected • Student needing to change location (for better wi-fi) or switch networks (e.g., mobile data)	• Non-internet technical issues (software or device problems) • Audio/video problems caused by hardware • Privacy concerns or environmental distractions • Impacts on rapport or data quality	Inner Setting	9	6	10
VSRA Barrier	**Technology Barrier**	**Camera**	Refers to issues related to the use or non-use of cameras during virtual assessments. This includes challenges student face when seeing themselves on camera, the impact of visibility on student comfort and privacy, and the influence of camera use on the assessment process.	• Student reluctance or discomfort with being on camera, especially when related to body image concerns or body dysmorphia • Situations where student turn off their cameras during assessments, potentially affecting rapport building or the ability to observe non-verbal cues	• Camera being off was a safety concern (coded under Vulnerability to Intentional Student Exit) • Technical issues unrelated to the camera itself, such as poor internet connection, that may affect the overall quality of the virtual interaction • Concerns about camera use that are not specific to virtual assessments (e.g., general discomfort with being on video in any setting) • Behavioral or environmental cues or observations	Inner Setting	5	5	7
VSRA Barrier	**Technology Barrier**	**Zoom Link**	This code refers to barriers related to issues with Zoom links used during virtual assessments.	• Problems with access to Zoom links for virtual assessments • Student or IE encountering issues with using the wrong Zoom link or session overlap • Technical difficulties related to Zoom links, such as links not working, not being sent, or incorrect links being shared • Instances where a Zoom link confusion caused delays or disruptions in the assessment process	• Any issue not related specifically to the Zoom link (e.g., general internet or technical issues) • Problems that arise with other virtual assessment tools (e.g., REDCap, other software) • Rapport building • Gathering accurate assessment data	Inner Setting	3	2	5

^ Codes are for tallying purposes only.

Parent Code	Child Code	Grandchild Code	Definition	Inclusion Criteria	Exclusion Criteria	CFIR Domain	IEs at T1 (*n*)	IEs at T2 (*n*)	Total IEs (*n*)
VSRA Facilitator			**Captures factors reported by the IE that support or enhance conducting VSRAs. Child and grandchild codes specify the type and source of the facilitator.**				15	15	15
VSRA Facilitator	**Student-Level Facilitator**		**Student characteristics or experiences that enhance comfort, engagement, or participation in VSRAs.**	**Any student-level factor that makes participation feel easier, more comfortable, or more engaging (e.g., personal environment, familiarity with virtual interaction, repetition, or opportunities for reflection).**	**Benefits driven by external factors (e.g., technology features, scheduling flexibility, or study/team processes) rather than the student's own experience or context.**		15	15	15
VSRA Facilitator	**Student-Level Facilitator**	**Comfort of Personal Space**	Factors related to students being in a safe, private, and personally comfortable environment during virtual assessments.	• Student being in a familiar or private space • Access to personal comfort items that reduce stress or anxiety (blankets, pets, knitting, comfortable clothing, etc.) • Environmental factors that enhance comfort and facilitate engagement in the session	• Technical comfort or ease of using the platform • Comfort related solely to rapport with the IE, not environment • Scheduling or transportation benefits (coded under Improved Access)	Outer Setting	14	8	15
VSRA Facilitator	**Student-Level Facilitator**	**Unique Opportunity to Share Experience or Reflect on Progress**	Assessments provide students a space to share their experiences, reflect on changes over time, and gain insight into their progress outside of therapy setting.	• Students noticing changes in their responses across assessment time points • Assessments offering a chance to tell their story in a different space than therapy • Any mention of increased self-awareness or reflection due to the assessment process	• Comments that repeated assessments made it easier for the student (coded under Repetition) • Formal therapy or counseling sessions • Benefits unrelated to reflection or insight (e.g., purely logistical convenience)	Individuals	4	11	11
VSRA Facilitator	**Student-Level Facilitator**	**Repetition**	Opportunities for students to experience repeated exposure to the assessment flow, increasing their comfort and understanding of what information is being gathered.	• Any scenario where students become familiar with the assessment process through repetition, such as hearing questions more than once, seeing answer formats multiple times, or practicing responses	• If repetition is also paired with a benefit to the student (e.g., increased insight, seeing progress over time) (coded under Unique Opportunity to Share Experience or Reflect on Progress) • Repetition unrelated to learning the assessment flow or increasing comfort, like casual conversation or off-topic prompts	Inner Setting	1	4	4
VSRA Facilitator	**Student-Level Facilitator**	**Familiarity with Virtual Interaction**	Students are accustomed to interacting with others through virtual platforms, making the assessment experience feel familiar, natural, and less intimidating.	• Student routine use of video conferencing tools for school, work, or social interactions • Comments that students are comfortable communicating, sharing information, or following instructions virtually	• Comfort or engagement unrelated to virtual platforms (e.g., general confidence or rapport with the IE) • Benefits stemming from technology or platform features, rather than the student's familiarity with virtual interaction • Situations where comfort arises from prior assessment repetition, structured guidance, or therapeutic support (coded elsewhere)	Individuals	1	1	2
VSRA Facilitator	**Live Consultation**		The ability for IEs to consult with supervisors or team members in real time during virtual assessments to and support decision-making in high-risk situations, confirm procedures, and troubleshoot challenges.	• IEs seek real-time input from supervisors or team members during an assessment • Use of messaging or other virtual methods to consult during or immediately after the session • Situations where consultation supports risk assessment, safety planning, or connection to care (e.g., UCC or other services) • Real-time guidance during high-risk or ambiguous situations	• Scheduled supervision or debriefing outside the assessment • Consultation that is not time-sensitive or not directly tied to a specific assessment • Student-facing communication features (coded under Virtual Communication Tools)	Inner Setting	14	13	14
VSRA Facilitator	**Improved Access**		**Logistical or structural advantages of virtual delivery that make participation in VSRAs more feasible or possible.**	**Any factor where virtual delivery enables, facilitates, or sustains participation by reducing logistical barriers (e.g., location, scheduling, transportation, continuity, or technology access).**	**Benefits related to student comfort, communication, or personal experience rather than access (e.g., privacy, rapport, or ease of interaction).**		15	15	15

Parent Code	Child Code	Grandchild Code	Definition	Inclusion Criteria	Exclusion Criteria	CFIR Domain	IEs at T1 (*n*)	IEs at T2 (*n*)	Total IEs (*n*)
VSRA Facilitator	**Improved Access**	**Scheduling Flexibility and Convenience**	Virtual delivery allows students and IEs to coordinate assessment times more easily across locations, campuses, or personal schedules, reducing conflicts and logistical challenges for both parties. **Subcodes below represent more specific (great-grandchild) dimensions of this category and are used for additional detail and tallying.*	• Virtual option simplifies navigating overlapping commitments for students and IEs • Students and IEs are in different locations or campuses and can meet virtually • Scheduling is easier when students or IEs are traveling, on break, or otherwise off-site	• Comfort, privacy, or environmental factors unrelated to scheduling	Inner Setting	14	15	15
VSRA Facilitator		**Eliminates Transportation Barriers*	Virtual delivery removes the need for students and/or IEs to physically travel to complete assessments, including driving, public transportation, parking, or commuting.	• Students and/or IEs avoid commuting entirely because of virtual delivery • Reduces travel-related effort, time, or financial burden for students or IEs • Circumstances where transportation logistics (e.g., parking, driving, public transit) would make attending in person inconvenient for either party	• Logistical challenges that are unrelated to transportation (e.g., personal conflicts, technology issues)	Outer Setting	13	12	14
VSRA Facilitator		**Prevents Assessment Gaps*	Virtual delivery supports continuity of assessments and reduces missed sessions or attrition by enabling participation despite scheduling, travel, or location barriers.	• Students who are off-site, on satellite campuses, or engaged in activities (e.g., internships) that would prevent in-person assessment • Students who would miss assessments due to travel during academic breaks (summer, winter, spring) • Virtual format allows participation despite scheduling challenges (e.g., running late, forgot)	• Attrition unrelated to scheduling or travel (e.g., voluntary withdrawal, loss of interest, health issues)	Outer Setting	5	8	9
VSRA Facilitator	**Improved Access**	**Virtual-Enabled Access**	Factors where virtual delivery is essential for students to engage in assessments. This includes situations where, without the virtual option, the student would likely not attend or participate due to personal, situational, or mental health barriers.	• Students who would forgo participation entirely without the virtual option • Situations where virtual sessions enable first-time engagement or continuity in completing assessments that would otherwise be impossible • Circumstances where mental health symptoms, environmental limitations, or life logistics prevent in-person participation	• Benefits of virtual delivery related solely to comfort, privacy, or convenience • Scheduling flexibility or transportation ease that facilitates but is not essential to participation (captured in separate codes) • Technology preference without impact on whether assessments occur	Outer Setting	6	6	8
VSRA Facilitator	**Improved Access**	**Technology Flexibility**	Virtual delivery allows students to complete assessments using a range of technology devices and platforms, increasing flexibility and supporting study procedures.	• Students can join on their preferred device (e.g., phone, tablet, or computer) • Students completing assessments from unconventional locations (e.g., car) • Zoom or other platform recordings providing higher-quality documentation than in-person recordings	• Technical comfort or skill unrelated to the option to use different devices • Software features unrelated to completing the assessment or supporting study documentation	Inner Setting	1	2	3
VSRA Facilitator	**Virtual Communication Benefits**		**Advantages of virtual delivery that improve communication, interaction, and information exchange between the student and IE during assessments.**	**Any IE- or student-reported benefit of virtual assessment that enhances clarity, comfort, accuracy, or accessibility of communication (e.g., reduced interaction intensity, platform tools, accurate disclosure, environmental observation)**	**Benefits unrelated to communication or interaction, such as general engagement, administrative convenience, or non-communication-based support.**		14	12	14
VSRA Facilitator	**Virtual Communication Benefits**	**Reduced Interaction Intensity**	The virtual format reduces the perceived intensity or awkwardness of the interaction, making it easier for students to engage in assessments.	• Students appear more comfortable or less intimidated in the virtual setting • Virtual format described as less awkward, less intense, or easier than in-person interaction • References to the screen or physical distance making difficult, personal, or sensitive conversations feel more manageable	• Statements about accuracy or completeness of responses • Use of virtual tools to support communication • General rapport-building unrelated to reduced intensity	Inner Setting	11	6	12

Parent Code	Child Code	Grandchild Code	Definition	Inclusion Criteria	Exclusion Criteria	CFIR Domain	IEs at T1 (*n*)	IEs at T2 (*n*)	Total IEs (*n*)
VSRA Facilitator	**Virtual Communication Benefits**	**Accurate Disclosure**	Virtual delivery allows IEs to collect information that is as accurate, complete, and reliable as in-person assessments.	• Statements that student responses are as honest, thorough, or accurate as in-person assessments • Observations that virtual assessments yield comparable quality of information • Situations where IEs express confidence in the validity or reliability of student responses in the virtual format	• Increased comfort or reduced intensity leading to more disclosure • Communication tools that facilitate understanding • Environmental insights	Inner Setting	8	9	11
VSRA Facilitator	**Virtual Communication Benefits**	**Virtual Communication Tools**	Use of virtual platform features that enhance communication, comprehension, or participation during assessments, sometimes improving on in-person methods.	• Use of chat or screen share to present or reinforce assessment content • Students can hear and see information simultaneously (e.g., answer choices read aloud and displayed) • Tools that make delivery as effective or more effective than in-person methods (e.g., paper materials) • Use of captions or translation features to support understanding, especially for non-native English speakers, deaf or hard-of-hearing, or visual learners	• General communication quality or rapport not linked to specific tools • Reduced intensity or comfort unrelated to platform features	Inner Setting	6	6	8
VSRA Facilitator	**Virtual Communication Benefits**	**Student Environment Observation**	The IE can observe the student in their natural environment during virtual assessments, providing context that may inform risk assessment, rapport, and overall understanding of the student's situation.	• Instances where seeing the student's living or working space gives insight into their behavior, mood, or safety • Observations that support rapport-building or "small talk" that facilitates engagement • Situations where environmental context informs global assessment, risk evaluation, or general understanding of the student	• Access to student comfort items (blankets, pets, music, etc.) • Observations unrelated to assessment or understanding of the student (e.g., incidental background items with no relevance) • Information obtained solely from student disclosure rather than environmental observation	Inner Setting	2	3	4
VSRA Facilitator	**Student Group or Demographic Group Benefit**		**Facilitators of participation in VSRAs that arise from structural, contextual, or design factors interacting with students' identities, backgrounds, or circumstances, which may enhance engagement, comfort, or accessibility. Includes instances where aspects of the VSRA environment, format, or expectations create advantages or supports for certain groups (e.g., accessibility features).** *^Codes below are for tallying purposes only.*	**• Any student-reported or IE-observed advantage where features of the VSRA (e.g., format, environment, expectations) support or enhance participation for students with particular identities, backgrounds, or circumstances • Situations where culture, language, accessibility, or social context interact with the design or delivery of virtual assessments in ways that improve participation, communication, or comfort • Instances where VSRA structures align well with students' needs or contexts, reducing barriers or providing added**	**• Benefits not linked to structural/contextual interaction with identity or circumstance (e.g., general technology ease, scheduling convenience that applies broadly) • Advantages that are not shaped by or connected to differential experiences across groups**	Inner Setting	13	15	15
		^Exceptionally Busy Students							10
		^Supports Mental Health Needs							9
		^Off-Campus Students							9
		^Lower Risk							8
		^Low income							5
		^First Time Therapy Users							4
		^General Cultural Benefit							4
		^LGBTQIA+							3

Parent Code	Child Code	Grandchild Code	Definition	Inclusion Criteria	Exclusion Criteria	CFIR Domain	IEs at T1 (*n*)	IEs at T2 (*n*)	Total IEs (*n*)
		^Neurodivergent or Disability							3
		^Non-native English Speaker or International Students							2
		^Graduate or Professional Students							2
		^Higher Insights							1
		^Congruent Cultural Identity with IE							1
VSRA Facilitator	**Efficiency**		Virtual delivery streamlines assessment processes, allowing IEs and students to complete tasks more efficiently before, during, and after assessments.	• IEs can access protocols, materials, or external information (e.g., medications) in real time during assessments • IEs can document or take notes during the session rather than after • Smoother navigation of assessment procedures compared to in-person formats • Easier transitions between assessment components or between sessions • Students can more easily complete or switch to self-assessments	• Benefits related to communication quality • Scheduling or access-related efficiencies • Technology use that supports communication rather than workflow	Inner Setting	5	7	10

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Parent Code	Child Code	Definition	Inclusion Criteria	Exclusion Criteria	CFIR Domain	IEs at T1 (*n*)	IEs at T2 (*n*)	Total IEs (*n*)
Neutral		**Captures IE descriptions of VSRAs that are not clearly experienced as barriers or facilitators.**				11	9	12
	Modality Equivalence	IEs describe virtual and in-person suicide risk assessment as functionally equivalent, with no meaningful difference in effectiveness or experience.	• Statements that modality "doesn't matter" • VSRA described as similar to in-person • No expressed preference or concern	• Statements indicating a modality preference • Context-dependent responses	Inner Setting	5	5	8
	Context-Dependent Modality Fit	IEs describe how the effectiveness of virtual versus in-person assessment depends on characteristics of the student or situation.	• "It depends on the student" • Certain populations do better in one modality • Context-specific appropriateness	• Clear disadvantage of virtual • Clear advantage of virtual	Inner Setting	6	5	8
	Modality Uncertainty	IEs explicitly express uncertainty about whether VSRA is more or less effective than in-person assessment.	• Direct statements of uncertainty • Lack of enough experience to evaluate	• Indirect ambiguity • Mixed but interpretable statements	Inner Setting	3	1	3

Parent Code	Child Code	Grandchild Code	Definition	Inclusion Criteria	Exclusion Criteria	CFIR Domain	IEs at T1 (*n*)	IEs at T2 (*n*)	Total IEs (*n*)
Training Increase			**Captures training content, experiences, or components that enhanced IE comfort, confidence, or competence in conducting VSRAs.**				15	15	15
Training Increase	**IE Training Elements that Enhance Competence**		**Captures IE training content, experiences, or supports—across initial onboarding, ongoing consultation, site-specific meetings, or reference materials—that IEs reported as enhancing their competence, confidence, or comfort in conducting VSRAs.**	**Any feedback indicating that training, consultation, or resources directly improved IE ability, confidence, or comfort in conducting VSRAs (e.g., case review, repetition, protocol clarity, site support, or safety monitoring).**	**Training experiences or components that decreased competence, confidence, or comfort.**		15	15	15
Training Increase	**IE Training Elements that Enhance Competence**	**Site Meeting or Site Team**	IE feedback on the support provided by site-specific meetings or site teams, and how these contributed to their competence, confidence, and effectiveness in conducting VSRAs.	• Feedback on how site meetings or site team interactions helped IE feel more prepared and supported in their assessments • Positive feedback regarding local site support, such as team-based problem-solving, protocol clarification, or logistical assistance • Perceived benefits of site-level collaboration or team communication in improving the quality of VSRAs	• Live consultation during an assessment • Support or training unrelated to site-specific teams or meetings, such as cross-site meetings or initial training	Inner Setting	14	15	15
Training Increase	**IE Training Elements that Enhance Competence**	**Initial Training Elements**	IE feedback on specific elements or topics covered in initial or onboarding training that contributed to their competence, confidence, or comfort in conducting VSRAs.	• Feedback on how reviewing the assessments measures helped IE feel prepared • Positive feedback about initial training on key assessment tools, systems, or platforms used during the study • Specific topics covered during initial training that were perceived as beneficial (e.g., understanding suicide risk, using assessment platforms, or reviewing protocols) • Relevance of the training material to the specific demands of conducting VSRAs	• Feedback related to training after initial or onboarding training • Problem solving issues that arose after the study began	Inner Setting	14	3	15
Training Increase	**IE Training Elements that Enhance Competence**	**Standardized Protocols and Resources**	IE feedback on the availability and quality of clear, well-developed, and comprehensive protocols and resource materials that supported their competence and confidence in conducting VSRAs, including the ability to reference these materials in complex or unique situations.	• Feedback that protocols were clear, structured, and well-developed from the outset • Positive feedback on having accessible reference materials (e.g., guides, resource lists, protocols) to use during or after assessments • Use of protocols or resources to guide decision-making in complex or unique	• Feedback about missing, unclear, or evolving protocols • General feedback about training content rather than the presence or quality of protocols/resources	Inner Setting	12	13	15
Training Increase	**IE Training Elements that Enhance Competence**	**Support from Cross-Site Consultation Meetings**	IE reported elements of ongoing cross-site consultation meetings that increased their comfort, confidence, or competence in their skill to effectively and accurately conduct VSRAs. **Subcodes below represent more specific (great-grandchild) dimensions of this category and are used for additional detail and tallying.*	• Positive feedback on problem-solving discussions, case presentations, or opportunities for peer feedback that increased competence • IE perception that the ongoing consultation meetings helped clarify study protocols and provided actionable feedback to improve performance	• Feedback primarily about logistics or administrative aspects of consultation meetings (e.g., scheduling or meeting duration) • Feedback about initial training	Inner Setting	12	9	14
Training Increase		**Case Review and Scoring Alignment*	IEs reviewed cases, demonstration videos, or scoring practices during consultation meetings to standardize understanding and improve accuracy in conducting VSRAs.	• Review of cases, examples, or videos to improve scoring accuracy or interpretation • Activities aimed at standardizing assessment practices across IEs or sites • Calibration efforts that increase consistency or reliability in scoring	• Case discussion focused on resolving a specific issue rather than alignment • Feedback about training or protocols not tied to scoring or standardization	Inner Setting	7	9	12

Parent Code	Child Code	Grandchild Code	Definition	Inclusion Criteria	Exclusion Criteria	CFIR Domain	IEs at T1 (*n*)	IEs at T2 (*n*)	Total IEs (*n*)
Training Increase		**Problem Solving Specific Issues*	IEs received guidance or collaboratively addressed challenges related to specific assessment or protocol issues, improving their ability to implement VSRAs effectively.	• Discussion of anticipated or previously encountered challenges in assessments or protocol implementation • Collaborative problem-solving where IEs seek or share guidance to address specific issues for future application • Instances where discussion of a challenge contributed to shared learning or preparedness	• Real-time support during an active assessment • General discussion not tied to a specific issue or challenge • Case review focused on scoring consistency or standardization	Inner Setting	5	5	8
Training Increase	**IE Training Elements that Enhance Competence**	**Repeating Trainings or Repetition of Practice**	IE feedback on the value of repeating training sessions or practicing skills multiple times to improve competence, confidence, and comfort in conducting VSRAs.	• Feedback that repeating training (e.g., refresher or booster trainings) helped IE build or reinforce their competence • Feedback indicating that repetition of training or skills practice improved comfort or confidence in conducting VSRAs	• Desire for more practice or additional training sessions • Feedback on non-repetitive aspects of training (e.g., initial training content, case reviews, experiential learning)	Inner Setting	13	1	13
Training Increase	**IE Training Elements that Enhance Competence**	**Shared Safety Monitoring**	Multiple team members, including therapists and research staff, monitor student progress and safety, independent of the IE.	• Students have interactions with both their IE and therapist during the study • Research staff track student responses, symptoms, or engagement, independent of the IE • Student safety or study protocol adherence is reinforced by multiple team members	• Communication or monitoring unrelated to student outcomes or safety • Administrative-only interactions (scheduling, reminders) without oversight of well-being or response	Inner Setting	7	5	8
Training Increase	**Previous Training Increase**		**IE feedback on how previous training, experience, or professional background enhanced comfort, confidence, or competence in conducting VSRAs.**	**Prior professional, clinical, research, or virtual experience that directly improved preparedness, confidence, or competence in conducting VSRAs.**	**Benefits resulting from study-provided training, consultation, or site-specific support.**		14	7	14
Training Increase	**Previous Training Increase**	**Previous Suicide/Crisis Training**	IE feedback on how previous experience assessing suicidal thoughts, behaviors, or crisis situations increased their comfort, confidence, or competence in conducting VSRAs.	• Prior experience assessing suicide risk or crisis in research or clinical contexts • Experience that enhanced competence or confidence in evaluating suicidal thoughts, behaviors, or crisis management	• General clinical experience not specific to suicide or crisis	Individuals	10	3	11
Training Increase	**Previous Training Increase**	**Clinical Background**	IE feedback on how a clinical background (e.g., training or experience in mental health or counseling) increased their comfort, confidence, or competence in conducting VSRAs.	• References to clinical training or roles (e.g., therapist, counselor, psychologist) supporting competence • Perception that clinical skills (e.g., rapport building, risk assessment) improved assessment quality • Statements linking clinical background to increased confidence in handling student interactions	• General or non-clinical prior experience • Experience specific to research or assessment roles • Training or support received during the study • The suggestion that clinical training should be required	Individuals	10	5	10
Training Increase	**Previous Training Increase**	**Previous Assessment/Research Experience**	IE feedback on how prior experience conducting assessments or working in research (not as a study student) increased their comfort, confidence, or competence in conducting VSRAs.	• Experience administering assessments in research or clinical-research contexts • Prior roles as a research staff or IE in studies, contributing to data collection, coding, or protocol adherence	• Clinical or mental health practice experience • Experience specific to crisis, suicide, or STB • Prior virtual/telehealth experience	Individuals	10	1	10
Training Increase	**Previous Training Increase**	**Previous Virtual Modality Experience**	IE feedback on how prior experience conducting assessments remotely—via virtual platforms (e.g., Zoom) or phone—increased their comfort, confidence, or competence in conducting VSRAs.	• Experience conducting assessments or interviews remotely, using video or phone • Prior remote experience that improved ease, confidence, or skill in virtual assessments	• In-person clinical or research experience unrelated to virtual modality	Individuals	7	1	7
Training Increase	**Previous Training Increase**	**General Previous Experience**	IE feedback indicating that prior experience increased their comfort, confidence, or competence in conducting VSRAs, without specifying the type or nature of that experience.	• Vague or general references to previous experience improving competence (e.g., "my prior experience helped") • Statements where no specific type of experience (clinical, research, virtual, etc.) is identified	• References to specific types of prior experience	Individuals	4	1	4

Parent Code	Child Code	Grandchild Code	Definition	Inclusion Criteria	Exclusion Criteria	CFIR Domain	IEs at T1 (*n*)	IEs at T2 (*n*)	Total IEs (*n*)
Training Increase	**Previous Training Increase**	**Integration with UCC**	IE feedback on how being integrated within their site UCC influenced their comfort, confidence, or competence in conducting VSRAs and facilitating IE support or student connection to care.	• References to being integrated within a UCC as part of the study context • Feedback that UCC integration influenced ability to support student, connect to care, or navigate referrals • Statements that integration positively affected IE comfort, confidence, or competence in their role	• General clinical background or UCC familiarity not tied to site integration • Feedback about study training, protocols, or resources rather than structural integration	Inner Setting	0	1	1

*Subcodes represent more specific (great-grandchild) dimensions of this category and are used for additional detail and tallying.

Parent Code	Child Code	Grandchild Code	Definition	Inclusion Criteria	Exclusion Criteria	CFIR Domain	IEs at T1 (*n*)	IEs at T2 (*n*)	Total IEs (*n*)
Training Decrease			**Captures gaps or limitations in IE initial and ongoing training, conflicts with prior training, and suggestions for improving training to increase IE competence in conducting VSRAs.**				15	15	15
Training Decrease	**IE Training Gaps and Suggestions for Improvement**		**IE feedback on aspects of initial or ongoing training that reduced confidence, preparedness, or competence in conducting VSRAs, or suggestions for how training could be improved.**	**Any IE-reported gap, limitation, or recommendation related to training content, structure, delivery, or dosage that affected competence or confidence in conducting VSRAs.**	**IE training experiences or components that improved competence, confidence, or comfort. Previous training experiences that reduced competence or at odds with IE role expectations.**		15	15	15
Training Decrease	**IE Training Gaps and Suggestions for Improvement**	**Suggestion to Improve Initial Training**	Recommendations or identified gaps in initial training content, structure, or delivery that suggest a need for additional preparation, skill-building, or standardization. **Subcodes below represent more specific (great-grandchild) dimensions of this category and are used for additional detail and tallying.*	• Suggestions to improve initial training content or coverage (e.g., high-risk cases, measures, resources, accessibility features) • Indications of insufficient preparation or skill-building, including need for experiential learning (e.g., role play, videos) or communication and relational skills, or psychoeducation about suicide • Concerns about training structure or delivery, including inconsistency or challenges for IE joining mid-study	• Decreases in comfort, confidence, or competence due to previous training or experience	Inner Setting	15	12	15
Training Decrease		**Preparation for Complex/High-Risk Cases*	Desire for additional preparation or practice with cases that were more complex or higher-risk than those initially provided in training.	• Desire for additional preparation, examples, or guidance for handling complex or high-risk scenarios • Situations where training cases were perceived as not representative of real-world or study-congruent complexity • Requests for more nuanced decision-making guidance in high-risk contexts	• Concerns about role boundaries or liability • General lack of confidence not specifically tied to complex/high-risk cases • Protocol ambiguity rather than training preparation	Inner Setting	10	7	11
Training Decrease		**Empathetic Communication and Shared Baseline STB Knowledge*	Desire for training to improve IE' relational skills, cultural responsiveness, and knowledge about suicidal thoughts and behaviors, beyond what was initially provided in training.	• Desire for improved relational, communication, or rapport-building skills in VSRAs • Requests for foundational knowledge or psychoeducation about STBs • Need for greater cultural responsiveness or sensitivity in communication	• Concerns about clinical responsibility or scope • General confidence issues not tied to communication or STB knowledge • Protocol-specific or procedural confusion	Inner Setting	6	9	11
Training Decrease		**Experiential Learning*	Desire for more interactive training opportunities, including role-playing, watching demonstration videos, or other exercises that allow IE to practice skills in a virtual context, beyond those initially provided in training.	• Requests for role-play, mock assessments, or practice • Desire for demonstration videos or modeled examples of VSRAs • Feedback that learning-by-doing opportunities were insufficient or missing	• General training gaps unrelated to interactive or practice-based learning • Requests for more content coverage rather than practice opportunities • Protocol or role clarity issues	Inner Setting	7	4	9
Training Decrease		**Site Specific Resources*	Need for training tailored to individual site procedures or local context.	• Need for training tailored to local site procedures, resources, or referral systems • Challenges navigating site-specific differences (e.g., campus services, workflows) • Requests for location-relevant examples or guidance	• General protocol confusion across all sites • Training gaps unrelated to local context • Role clarity or responsibility concerns	Inner Setting	3	1	4
Training Decrease		**Mid-Study Onboarding Challenges*	Challenges experienced by IE who joined after initial study start, requiring catch-up or additional guidance, and including a desire for synchronous, interactive training.	• IE experiences of needing to catch up on training or procedures after joining mid-study • Gaps in onboarding related to timing, sequencing, or lack of access to prior training materials • Desire for more synchronous, interactive, or structured onboarding support after study start • Challenges integrating into existing workflows, expectations, or team practices	• General training gaps unrelated to timing of entry into the study • Issues with training content (e.g., missing topics) rather than onboarding timing • Protocol confusion unrelated to onboarding	Inner Setting	1	4	4

Parent Code	Child Code	Grandchild Code	Definition	Inclusion Criteria	Exclusion Criteria	CFIR Domain	IEs at T1 (*n*)	IEs at T2 (*n*)	Total IEs (*n*)
Training Decrease		**Burnout Training Timing*	IE feedback that burnout or self-care training should be provided earlier in the study rather than mid-study.	• Feedback that burnout, wellness, or self-care training should occur earlier or at different points • Perception that timing of this training reduced its usefulness or impact • Suggestions for re-sequencing or integrating burnout-related content differently	• General comments about burnout without reference to training timing • Requests for more burnout content (quantity) rather than timing • Broader training dosage issues (unless explicitly about timing of this topic)	Inner Setting	0	3	3
Training Decrease		**Access to Specific Measure Protocols*	Desire to review the original protocols or instructions for study-specific assessment measures.	• Requests to review, revisit, or access original assessment protocols or measure instructions	• General confusion about procedures not tied to specific measures • Broader protocol gaps or inconsistencies • Training delivery issues unrelated to access to materials	Inner Setting	1	1	2
Training Decrease	**IE Training Gaps and Suggestions for Improvement**	**Suggestion to Improve Cross-site Consultation Meetings**	IE recommendations or feedback on how cross-site consultation meetings could be modified or enhanced to better support competence in conducting VSRAs. **Subcodes below represent more specific (great-grandchild) dimensions of this category and are used for additional detail and tallying.*	• Suggestions for more meaningful feedback or improved discussion during consultation meetings • Recommendations for increased opportunities to review or code cases together across sites	• Feedback focused on initial or ongoing training content rather than consultation meetings or site-specific meetings • Comments about individual role responsibilities or protocol issues	Inner Setting	1	8	8
		**Group Coding or Case Discussion*	Desire for collaborative review or discussion across sites.	• Requests for collaborative coding, shared case review, or discussion across sites • Desire for learning through group analysis or comparison of cases • Suggestions to increase interactive or peer-based learning in meetings	• Requests for general feedback • Training content gaps unrelated to collaborative learning • Individual supervision needs outside group context	Inner Setting	0	5	5
		**Purpose Shifted Away from Consultation*	Perception that meetings were not focused on intended goals.	• Perception that meetings drifted away from intended consultation goals • Meetings being used for administrative/logistical purposes instead of skill-building or discussion • Misalignment between expected vs. actual meeting purpose	• Feedback about lack of participation or engagement (unless tied to purpose shift) • General training concerns unrelated to consultation meetings • Protocol or role clarity issues	Inner Setting	1	2	3
		**Lack of Meaningful Feedback*	Meetings not facilitating useful discussion or feedback.	• Reports that consultation meetings did not provide actionable, specific, or useful feedback • Perception that feedback was too vague, limited, or absent • Desire for more individualized or detailed input on case presentations	• General dissatisfaction with meetings unrelated to feedback quality • Requests for different meeting structure (unless tied to feedback) • Training content issues outside consultation meetings	Inner Setting	0	2	2
Training Decrease	**IE Training Gaps and Suggestions for Improvement**	**Gaps in Study or Assessment Protocol**	Aspects of the study or assessment protocol that were unclear or unanticipated at study start, requiring IE to request clarification, scaffolding, or additional guidance from research staff on procedures or protocols. **Subcodes below represent more specific (great-grandchild) dimensions of this category and are used for additional detail and tallying.*	• Protocol elements that were unclear or evolving and required follow-up clarification from research staff • Issues not anticipated at study onset that IE had to address during the study with support from research staff • Mid-study changes or additions that required IE to adjust understanding or procedures with guidance from research staff	• Concerns about training or preparation rather than the protocol itself • Issues related to IE roles, expectations, or scope • Challenges stemming from prior experience or skill level, not protocol design	Inner Setting	5	5	7

Parent Code	Child Code	Grandchild Code	Definition	Inclusion Criteria	Exclusion Criteria	CFIR Domain	IEs at T1 (*n*)	IEs at T2 (*n*)	Total IEs (*n*)
		**Inconsistency*	Variability or ambiguity in how protocols or procedures were implemented over time, including differences between initial training and actual practice.	• Contradictory information or evolving protocols that created uncertainty for IEs • Situations where IEs had to seek clarification due to unclear or inconsistent procedures • Perceived lack of standardization between training and real-world implementation • Differences in training for IEs who joined mid-study	• Challenges related to personal skill, comfort, or prior experience rather than protocol inconsistencies • Technical difficulties unrelated to protocol presentation • Role boundary or liability concerns not tied to variability in protocol	Inner Setting	3	4	5
		**Accessibility Feature Challenges*	Difficulties or uncertainty in using accessibility features during assessments, such as supporting student with hearing, visual, or other accessibility needs, beyond what was initially covered in training.	• Challenges in implementing accessibility accommodations (e.g., screen readers, captioning, interpreters) • Uncertainty about how to adjust assessment procedures to meet student accessibility needs • Situations requiring improvisation or clarification from research staff due to gaps in training on accessibility features • Difficulty ensuring equitable participation for students with disabilities	• General technical issues unrelated to accessibility (e.g., platform glitches, internet connectivity) • Concerns about student behavior or engagement that are not linked to accessibility features • Issues about role boundaries, responsibilities, or clinical skills	Inner Setting	2	1	3
		**Beginning or End of Assessment Concern*	Concerns arising at the start or end of assessments, including uncertainty about connecting student to support resources (e.g., UCC) when therapists were not yet assigned or student were off-campus, and guidance on appropriately ending the IE-student relationship.	• Questions or challenges related to study procedures that occur at the beginning or end of an assessment • Uncertainty about how to connect students to support resources (e.g., UCC) when therapists are not yet assigned • Need for guidance from research staff on how to appropriately end the IE-student relationship	• Concerns about general training, preparation, or skill deficits unrelated to study protocols • Issues solely about IE roles, responsibilities, or boundaries • Challenges arising from prior experience or personal comfort rather than the study protocol	Inner Setting	2	2	2
Training Decrease	**IE Training Gaps and Suggestions for Improvement**	**IE Expectations/Role**	IE perceptions or questions about their study role, including clarity on responsibilities, scope, and whether their background or skills affected their competence to perform VSRAs. **Subcodes below represent more specific (great-grandchild) dimensions of this category and are used for additional detail and tallying.*	• Confusion or limitations stemming from blinding or restricted information • Concerns about role expectations relative to clinical vs. non-clinical background, including cross-state assessments or need for clinical skills even when the role is non-clinical • Explicit suggestions or opinions that the role should be designated as clinical	• Issues about training or protocol content rather than role clarity • Challenges stemming solely from prior experience or skill level	Individuals	9	6	10
		**Clinical-Research Role Tension*	Concerns about the boundaries, responsibilities, and potential liabilities of the IE role, particularly when assessment activities blur the line between research and clinical practice.	• Worries about navigating dual expectations between research and clinical roles, especially for IEs with clinical training or licensure • Concerns about legal responsibility, liability, or duty of care • Uncertainty about scope of practice, including what falls within or outside the IE role • Questions about applying clinical skills in a non-clinical research context • Concerns about conducting assessments across state lines or within varying regulatory contexts	• General concerns about research procedures or logistics not tied to role boundaries or professional responsibility • Personal safety concerns unrelated to professional scope or liability •Questions about risk management protocols that do not involve ambiguity about the IE's role or responsibilities	Individuals	8	6	10

Parent Code	Child Code	Grandchild Code	Definition	Inclusion Criteria	Exclusion Criteria	CFIR Domain	IEs at T1 (*n*)	IEs at T2 (*n*)	Total IEs (*n*)
		**Being masked*	Challenges arising from not having access to certain student, treatment, or study condition information due to blinding procedures.	• Frustration or difficulty related to not knowing participants' treatment condition or group assignment • Perceived impact of not knowing if a student is getting support or treatment	• General uncertainty or lack of confidence not specifically tied to blinding • Concerns about inadequate training or knowledge unrelated to withheld study information	Inner Setting	2	2	3
		**Suggestion That Role Should be Clinical*	Explicit opinion that the IE role should formally include clinical responsibilities.	• Direct suggestions that the IE role should be clinical in nature • Beliefs that a licensed clinician should fill the role or that clinical training should be required	• Concerns about role boundaries, liability, or scope without explicitly recommending the role become clinical (code under Clinical–Research Role Tension) • Requests for more training in interpersonal or "soft" skills without suggesting a formal clinical role • Suggestions for improved protocols, supervision, or safety procedures that do not imply a shift to a clinical role • General discomfort with handling risk that does not include a recommendation to make the role clinical	Individuals	0	2	2
Training Decrease	**IE Training Gaps and Suggestions for Improvement**	**Training Dosage**	IE feedback on the amount, timing, or pacing of training, including both initial onboarding and ongoing consultation meetings, and how it affected their competence or comfort with VSRAs.	• Comments that training or consultation meetings were too few, too many, too long, or too short, at any stage • Suggestions for adjusting timing or spacing of sessions (e.g., more at the beginning, boosters later) • Observations that dosage affected preparedness, confidence, or ability to follow protocols	• Feedback about training content or quality rather than quantity/pacing • General feedback unrelated to training meetings or consultation dosage	Inner Setting	0	7	7
Training Decrease	**Previous Training Decrease**		**IE feedback on how previous training (or lack thereof) in suicide risk assessment, telehealth, or coding practices led to decreased confidence in conducting suicide risk assessments due to the lack of or incompatibility of prior experience.**	**Conflicts, gaps, or incompatibilities between previous training/experience and current study requirements that reduce confidence or require adjustments.**	**Previous training that supports or enhances competence with VSRAs.**		3	2	4
Training Decrease	**Previous Training Decrease**	**No Previous Virtual Modality Experience**	IE feedback related to a lack of prior experience with virtual modality impacting their confidence in their competence in conducting suicide risk assessments virtually.	• IEs with no prior experience using virtual platforms (e.g., video calls, online tools) for conducting assessments or research	• Issues related to technology malfunctions or platform issues	Individuals	2	2	3
Training Decrease	**Previous Training Decrease**	**Best Practice Deviations Due to COVID**	IE feedback on how best practices established pre-COVID could not be applied during the study due to overlapping with the pandemic.	• IEs and research study staff adapting protocols in a rapidly changing environment, impacting their confidence in delivering high-quality assessments • Inability to incorporate guidelines on best telehealth practices into study protocol	• Concerns about lack of training or insufficient virtual modality experience • Issues stemming from study-specific protocol or role expectations rather than the applicability of best practices	Inner Setting	2	1	2
Training Decrease	**Previous Training Decrease**	**Variability in Coding Practices**	IE needing to adjust conceptualization of suicide severity, functioning, or other assessment elements based on the study's specific research protocol, rather than their previous coding practices or prior training.	• IE reported that their prior training (e.g., clinical training, past research experiences) influenced their approach to coding and needing to make adjustments to align with current study protocol	• Issues related to lack of clarity in coding instructions or study-specific inconsistencies	Individuals	1	1	2

*Subcodes represent more specific (great-grandchild) dimensions of this category and are used for additional detail and tallying.

Parent Code	Child Code	Grandchild Code	Definition	Inclusion Criteria	Exclusion Criteria	CFIR Domain	IEs at T1 (*n*)	IEs at T2 (*n*)	Total IEs (*n*)
Change Over Time			**Changes in the IE's skills, comfort, confidence, or overall experience delivering virtual assessments over time.**				13	15	15
Change Over Time	**Skills or Knowledge Acquired or Increased**		**Captures ways in which IEs gained new skills, techniques, or knowledge that improved their ability to conduct virtual suicide risk assessments effectively, accurately, and empathetically.**	**Any skill, strategy, procedural knowledge, or understanding gained that enhanced IE competence, comfort, or confidence in delivering virtual assessments.**	**General confidence, comfort, or experience unrelated to virtual assessment skills, knowledge, or protocols.**	Individuals	9	14	15
Change Over Time	**Skills or Knowledge Acquired or Increased**	**Improved Delivery**	Enhanced skill and effectiveness in conducting virtual assessments, including smoother interactions, adaptive communication, and proficient use of technology to facilitate accurate and efficient assessment delivery.	• Use of flexible language, re-phrasing questions, scaffolding, or adapting explanations to improve student understanding • Improved navigation of technology, assessment platforms, or tools, allowing smoother session flow • More natural, less scripted interaction; anticipating student questions or confusion to maintain engagement and clarity	• Improvements related to risk assessment or balancing student care	Individuals	4	13	14
Change Over Time	**Skills or Knowledge Acquired or Increased**	**Risk Assessment and/or Management Skills**	Improved ability to identify, evaluate, and manage student risk during virtual assessments, including recognizing risk indicators, making judgment calls, and responding appropriately to potential high-risk situations.	• Increased skill or confidence in detecting and evaluating student suicide risk or other high-risk behaviors • Improved ability to respond to potential high-risk scenarios during virtual assessments • Enhanced judgment and decision-making related to student safety	• Balancing procedural accuracy with student comfort, empathy, or validation (coded under Balancing Assessment Completion and Student Care) • Skills improvements unrelated to assessing or managing student risk	Individuals	6	9	13
Change Over Time	**Skills or Knowledge Acquired or Increased**	**Balancing Assessment Completion and Student Care**	Ability to complete virtual assessments thoroughly and accurately while simultaneously attending to the student's emotional needs, showing empathy, and providing validation.	• Statements about providing emotional support or showing care during assessment • Balancing procedural fidelity with student comfort and engagement • Strategies to normalize or validate the student's experiences while collecting data • Efforts to normalize, validate, or empathize with the student's experiences during assessments	• Emotional support, rapport, or empathy not specific to balancing the task of assessments and care for the student • Improvements in risk assessment skills or procedural knowledge	Individuals	3	4	6
Change Over Time	**Skills or Knowledge Acquired or Increased**	**Know Systems and Protocols Better**	Improved understanding and use of study protocols, procedures, and systems.	• Mastery of study-specific assessment protocols, scoring guidelines, or procedural steps • Increased ability to navigate documentation, referral systems, or study tools efficiently	• Other mentions of systems or protocols unrelated to change over time (e.g., suggestions to improve)	Individuals	0	4	4
Change Over Time	**IE Increased Confidence Over Time**		IE feels more self-assured in conducting virtual assessments and managing student interactions.	• Reports confidence in completing assessments accurately and efficiently • Mentions being capable of handling unexpected situations during virtual assessments	• Confidence unrelated to virtual assessment (e.g., general professional confidence, unrelated teaching skills) • Overconfidence	Individuals	4	13	14
Change Over Time	**Fear of High Risk Situation Not Experienced**		IE reflects on anxiety or concern about potential high-risk situations (e.g., acute suicidality) that were anticipated but did not occur.	• Instances where IE anticipated a challenging or high-risk scenario that ultimately did not occur or occurred very rarely • Reflections on reduced worry or relief from the absence of anticipated high-risk events	• Actual high-risk events that did occur • Stress or anxiety related to anticipated high-risk assessment situations (coded under IE Unease)	Individuals	6	7	10
Change Over Time	**IE Increased Comfort Over Time**		IE feels more at ease conducting assessments virtually, experiencing less stress or anxiety compared to prior experiences.	• IE mentions feeling more comfortable or less stressed during virtual assessments • Comfort specifically relates to interacting with the student or following assessment protocols • Comfort improves with repeated virtual assessment experience	• Comfort unrelated to virtual assessment (e.g., general home or work comfort) • Comfort related solely to navigating technology, not the assessment process (coded under Improved Delivery)	Individuals	7	6	9

Parent Code	Child Code	Grandchild Code	Definition	Inclusion Criteria	Exclusion Criteria	CFIR Domain	IEs at T1 (*n*)	IEs at T2 (*n*)	Total IEs (*n*)
Change Over Time	**Need for Self-care**		IEs' strategies or reflections on preparing mentally and emotionally before assessments and processing afterward, especially when encountering sensitive or distressing student information.	• Preparation routines or strategies used before assessments to manage stress or emotional load • Post-assessment debriefing, reflection, or recovery practices to process emotionally heavy content • Any mention of balancing personal well-being with professional responsibilities during the assessment process	• Routine administrative or logistical preparation unrelated to emotional/mental well-being • General stress or workload not tied to conducting assessments	Individuals	3	7	7
Change Over Time	**Never Fully Confident**		IE recognition that, due to the inherent seriousness and complexity of assessing suicide risk, complete confidence in outcomes is neither expected nor appropriate; maintaining careful attention and concern for the student's well-being is essential.	• Reflections on the unavoidable uncertainty in assessing suicide risk • Awareness that complete confidence would be inappropriate or potentially risky • Statements highlighting the ongoing need for vigilance, caution, or attentiveness to the student	• Confidence unrelated to suicide risk assessment (e.g., confidence with technology, scheduling, or procedures) • General self-doubt not tied to the topic of the assessment	Individuals	3	9	9