# College Students' and Campus Counselors' Attitudes Toward Adopting Virtual Reality Therapy for Counseling Services and Preliminary Design Considerations

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April 2022

**ABSTRACT**

This study explores factors that impact the attitudes towards virtual reality teletherapy (VRT) adoption on college campuses. Five semi-structured interviews were conducted with 3 students and 2 counselors. Sessions also consisted of exploring a group therapy room via surrogate-aloud method. Participants generally responded openly to the idea of having VR as an option for campus counseling services. Three primary themes (physical, social, and clinical factors), 8 secondary sub-themes, and 9 tertiary sub-themes were identified in influencing participants' attitudes of counseling modalities and their attitudes toward adopting VR for remote counseling services. These insights suggest that VRT may be more openly adopted for improved access to services and for specific clinical use cases where students can translate learned skills to the real world. Main concerns of VRT include using VR for antithetical behavior and establishing trust with others. Preliminary design considerations for VRT counseling services are discussed from the perspectives learned.

**Additional Keywords and Phrases:** Virtual reality (VR), Virtual reality teletherapy (VRT), Teletherapy, Counseling services

## 1. INTRODUCTION & RELATED WORKS

A 2018 World Health Organization (WHO) survey (n=13,984) that sampled the prevalence and distribution of mental health disorders on college campuses showed that 35% of college students screened for at least one lifetime mental disorder and 31% screened for at least one 12-month disorder [1]. Research by Williams et al. shows that students want more efficient access to on-campus mental health resources and want to utilize peer support groups [23]. Dilgul et al. found that group treatments have poor attendance due to reasons that include not being accessible (i.e., time and location) and social anxiety within counseling groups [9]. While campuses offer a range of services to support students' mental health needs, there are still difficulties with engagement of in-person care such as limited resources, waitlists, or other engagement challenges encountered by individuals [1].

Since the 2019 coronavirus disease (COVID-19) pandemic, mental health services have increased use of digital tools (e.g, Zoom, WebEx) to provide counseling services and treatment [10, 19], also referred to as teletherapy, telepsychiatry, telepsychology, and cybercounseling. In general, teletherapy encompasses therapy services provided by remote tools and has shown to have numerous benefits such as increased convenient and flexible access to mental health care. A survey of 768 mental health professionals showed that since the COVID-19 pandemic, almost all therapists transitioned from only seeing patients in-person to adopting telecommunication tools [19]. An emerging tool for mental health care is virtual reality (VR) as it is becoming more commonplace with commercial buyers and the implementation of VR for mental health services may help provide cost-effective solutions [2].

A recent study by Mariana et al. began to explore the initial adoption and use of VR for telepsychology [19] (VRT). Their survey showed that out of 768 respondents, only 1 mental health professional indicated that they have used VR to treat patients.

Mariana et al. also argue that VR therapy could be a cost-effective method for increasing access to “effective psychological stress reduction treatments" that could include in-person and group sessions [19]. Additional benefits of VRT compared to other methods of teletherapy typically include providing custom, immersive, and engaging environments, customizable stimuli and treatments, and potential digital data collection of patient progress [31].

Different mental health VR environments are being researched, developed, or adjusted for mental health purposes [2, 12, 15, 21]. Previous research in this area has looked at how VR can be used as treatment for specific psychiatric disorders such as post-traumatic stress disorder (PTSD) [13, 20], anxiety disorders [3, 4, 10, 12, 16, 17], and phobias [18, 20, 24]. Stamou et al. looked at potential clinical applications of using VR in conjunction with cognitive behavioral therapy (CBT) to potentially enhance therapy outcomes [21]. CBT is a widely applied psychotherapy treatment that is used for issues such as sleeping difficulties, substance abuse, suicidal tendencies, general depression and anxiety [25]. A meta-analysis of VR effectiveness for anxiety and depression intervention by Fodor et al. saw that VR based interventions had better outcomes than control conditions such as relaxation, being waitlisted (placebo), and continuing treatment as normal [10]. Mindfulness-based intervention (MBI) for generalized anxiety disorder research by Navarro-Haro et al. show that compared to group MBI alone, participants that were in group MBI along with 10 minutes of VR dialectical behavior therapy (DBT) mindfulness skills training significantly adhered to treatment better [16]. Tikhonova et al. adapt an effective VR tool with aims to socially and psychologically support foreign students adapting to new educational environments [22]. Still, little research has been done in the area of VRT with a focus on both clinical and student users in the ecosystem of higher education of college campuses.

A study by Lattie et al. that aimed to better understand the rich, social ecosystem of college students argues that designing mental health technologies for this unique ecosystem has been inadequately understood, but deep understanding is necessary to meet students’ needs [14]. Tikhonova et al. writes on the topic of integrating VR into the ecosystem of college life, *“this topic will require additional study and adoption of educational strategies to particular universities’ needs and capabilities”* [22]. Boeldt et al. strongly recommend collaboration with mental health providers for continuing research on applying VR in a wide range of clinical settings since new tools can affect delivery models of treatment [4]. Research shows how mental health needs of college students are not fully met, but shows optimistic outcomes, demonstrating VR tools as a form of cost-effective mental health treatment. *However, there is room to further understand user attitudes and apply that understanding to design for user interactions in VR between college campus mental health counselors and students.*

This study aims to better understand the attitudes towards VR adoption for mental health services on college campuses, from the perspective of campus counselors and students together. As a result, this may help identify their needs when designing VR experiences for remote therapy in a higher education ecosystem. The main contributions of this work are two-fold: 1) Firstly, we conducted stakeholder interviews of both students and campus counselors to gain preliminary attitudes towards VR adoption for campus counseling services. 2) Secondly, we provide design considerations for VR use that may be adapted to this context. In this paper, we report preliminary findings of college students’ and counselors' experiences and perspectives with in-person, remote video-conferencing platforms (VCPs), and potential VR campus counseling modalities offered by universities. Specifically, we ask the research question: *RQ: What factors and considerations influence the attitudes of students and counselors toward adopting VR for remote counseling services on college campuses?*

## 2. METHODS

This work was approved by the institution's Institutional Review Board (IRB) for human subjects research ethics. As our main method, we aimed to interview college counselors and college students who have experience with on-campus counseling services. We studied campus counseling support use cases to gain a better understanding of the issues that campus mental health services

generally support (Table 1). Williams et al. found that the type of school students attended did not make a difference in their mental health care preferences [23], so we randomly analyzed 15 American colleges' counseling services websites (including universities and community colleges). The following issues were common issues campus counseling services websites encourage support: academic stress, substance use concerns, anxiety, depression, relationship problems, sleep, and support groups, among others (Table 1).

Table 1. List of college campuses counseling support use cases (non-exhaustive)

| **Individual Counseling** | | **Group Counseling** | |
|---|---|---|---|
| Personal concerns | Loneliness, guilt, self-esteem & confidence, significant difficult events, anxiety, depression, sleep, grief & loss | Interpersonal Process Group | Graduate Student Connection |
| Developmental concerns | Identity development, adjustment difficulties, life transitions | Psychoeducational & Skills Groups | |
| Academic support | Stress, time management | Affinity Groups | |
| Substance use | Concerns and/or addiction | Support Groups | Students of color support group, International Student groups |
| Cultural topics | Cultural identity, multicultural counseling | Grief & healing | |
| Gender topics | LGBTQ+, Women, men | Anxiety | |
| Title IX issues | Dating & domestic violence, gender equity, sexual harassment/assault, stalking | | |
| Relationship concerns | | | |

## 2.1 Recruitment

Participants with campus counseling experience as students (undergraduate or graduate) or counselors who have conducted sessions with at least either in-person or remote modes were recruited for this study. Students were recruited via social networks and recruitment posts in multiple relevant subreddits (e.g., r/collegestudents, r/SampleSize, r/GradSchool, r/CommunityColleges, etc.). Counselors were mostly recruited directly via their direct email posted on campus mental health services websites. No university, college, or campus types were intentionally excluded (for the purposes of this study, the terms 'colleges' and 'universities' are used interchangeably). Campuses were selected at random. The subreddit r/schoolcounseling was also used to recruit campus counselors.

## 2.2 Interviews

In-depth, semi-structured interviews were conducted from September 2021 to November 2021. The average length of an interview session is 69 minutes. To respect participants' privacy, they were provided the option to keep their camera off and consent to being recorded with audio and screen share only.

One set of interview questions were tailored for students. Another set was tailored for campus counselors. Sample interview questions for students include: *What are some challenges you experience during an individual and/or group session (in-person, VCP)? How has it affected your overall experience with campus counseling services? Do you see VR as a potential solution to any of the challenges that in-person modes or VCPs have?* Sample interview questions for campus counselors include: *What issues and treatment approaches do you specialize in (if any)? How has your practice changed since the COVID-19 pandemic? What is your experience with remote counseling modalities? Do you see VR as a potential solution to any of the challenges that in-person modes or VCPs have?*

Prior to the VR specific interview questions, a set of demonstration videos were shown to the participants to increase their familiarity with VR in the mental health space. The content and order of the clips were chosen intentionally for the following content: introduction to VR in mental health [27], a clip of a therapist interacting with a remote patient one-on-one via VR [6], a clip of a therapist interacting with two remote patients in a group via VR (Figure 1) [7], a clip of a player moderated group therapy scene in VRChat with different styles of avatars [26], and a curated perspective of a self-proclaimed anxious user using VRChat [28]. Content of the interview questions and the demonstration videos remained relevant to the issues commonly supported by campus counseling services (Table 1) and steered away from other use cases that fall outside of typical use cases for general campus counseling services (i.e., VR exposure therapy, stroke therapy, pain management, etc.).

**Figure 1. Therapist camera recording overlaid on VR screen capture. Therapist interacts in first person with two networked patients in a group VR environment [7]. [Public domain], via YouTube. (https://www.youtube.com/watch?v=OjZYXF6w6g4)**

Due to ongoing social distancing guidelines and geographic limitations, the selected video clips were viewed across a desktop monitor. The benefit of this method allowed participants to view real-life examples of how a licensed therapist interacts with patients using VR without having to put the participant themselves in an emotionally vulnerable scenario. It also allowed them to focus on the VR experience in context and in different use case scenarios. It freed participants of the need to have access to VR technologies and eliminated the potential impact of technical challenges distracting the session.

After watching the videos, participants were given about 5-10 minutes to explore an example, user-created VR group therapy environment (VRChat) using the surrogate-aloud method [11]. This method allows the remote participant to assume control via Think-Aloud Protocol over the video conference interview session. Irlitti et al. found this method to provide sufficient interactions to allow the remote participant to generate design ideas for VR [11]. For privacy, it was ensured that the VR room was without other external users. Finally, participants had the opportunity to describe any features or capabilities they wish they had that they didn't experience during the session. We looked at and discussed features of VCPs and VR and the importance of the features such as webcam support, collaborative white boarding, self-help environments, ability to hide other user's avatars, configuring custom personal space radius, and more.

### 2.3 Data Analysis

Qualitative analysis was used to interpret and code interview data. To analyze qualitative data from participant interviews, inductive thematic analysis was conducted [5]. The phases of data analysis include - acquiring data through conducting participant interviews, first read-through of collected data to gain a holistic view of the data, second read-through to break up quotes in to single ideas, generating initial codes, grouping of similar codes to identify preliminary themes, refining and reviewing emerging themes in an iterative process of affinity diagramming. The data, sub-themes, and themes were then given to an independent researcher outside of the study with an unbiased view to review for agreement. The feedback from the independent researcher was incorporated into the iterative process until 100% agreement was reached.

## 3 RESULTS

### 3.1 Participants

In total, five participants were interviewed in this study in addition to one pilot interviewee. Three of the participants (60%) were current students ranging from ages 18 - 34 who have counseling experience with either in-person, online VCP, or both modalities. Two students identified as female and one identified as gender-fluid. One student is an international student pursuing a graduate degree. All were familiar with VR (100%) and 1 claimed to use it often.

Two campus counselors (40%), one female and one male with contrasting levels of experience participated. One counselor has over 12 years of experience working with students, has special interest in both little "t" trauma and big "T" trauma and liberation psychology, and applies training of the following approaches – classic CBT, Exposure and Response Prevention therapy, Prolonged Exposure therapy, Narrative Exposure Therapy, Acceptance and Commitment Therapy (ACT), and Somatic Experiencing therapy. The other is completing their PhD in clinical psychology, has over 1 year of experience working with students, currently works largely with male populations, and mostly applies ACT and Emotion-Focused Therapy (EFT) as therapeutic approaches. All counselors were familiar with VR (100%) and only 1 has relevant exposure to VR in professional training. Table 2 summarizes the demographics of the interview participants.

Table 2. Participant demographics (PS*n*- students, PC*n*- counselors) including platforms used for online counseling (i.e., Zoom, Microsoft Teams (MST)).

| | Gender | Age Range | Housing | In-Person 1-on-1 | Online 1-on-1 | In-Person Group | Online Group | VR Experience |
|---|---|---|---|---|---|---|---|---|
| $PS_1$ | GF | 25-34 | Urban-Suburban, Near campus | Yes | Zoom | No | No | Familiar, tried 1-2x |
| $PS_2$ | F | 18-24 | Urban, Off campus | Yes | Zoom | No | No | Very familiar, use 2x / week |
| $PS_3$ | F | 18-24 | Off campus | Yes | Zoom | Yes | No | Somewhat familiar, have used few times |
| | Gender | Age Range | Campus Type | In-Person 1-on-1 | Online 1-on-1 | In-Person Group | Online Group | VR Experience |
| $PC_1$ | F | 45-54 | Commuter | Yes | Zoom | Yes | Zoom | Familiar, tried 1-2x |
| $PC_2$ | M | 25-34 | Rural | Yes | Zoom/ MST | Yes | MST | Familiar |

## 3.2 Themes

Quotes from the participants' own accounts and observations from the interview sessions were used to derive the following emerging themes that address what factors impact attitudes toward current college campuses counseling modalities and the idea of adopting VR for counseling services. Three primary themes, 8 secondary sub-themes, and 9 tertiary sub-themes are identified (Figure 2).

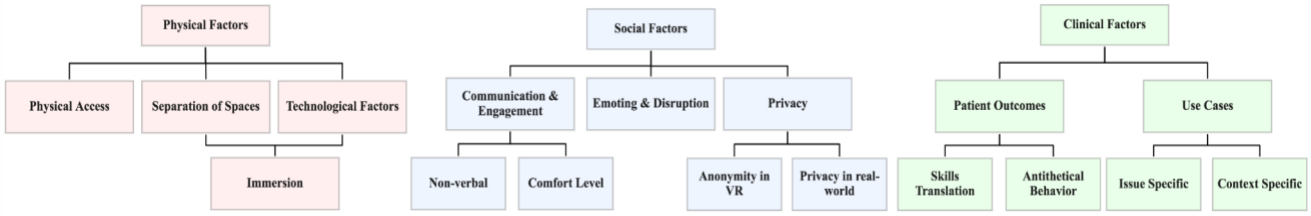


**Figure 2. Three primary themes (primary factors, social factors, clinical factors) and associated secondary and tertiary sub-themes.**

### *3.2.1 Physical Factors*

Physical factors have an impact on current experiences of in-person and online treatments for both students and campus counselors. These considerations also have an impact on participants' attitude toward adopting VR for campus counseling services.

*Separation of spaces.* With the COVID-19 pandemic still ongoing, having independent physical spaces for separating work, relaxation, and counseling is important for some students. $PS_1$ says, "I feel better about going in-person…being out helps me wind down. Doing therapy from my workspace kind of messes me up." $PS_1$ also agrees that the differences in the physical environment affect their level of therapeutic immersion. $PS_1$ adds, "going to therapy inside my house and then just doing it over audio doesn't really help me get into that safe space mindset." When considering VRT, some participants (PS1, PS3) were open to the idea of being more "immersed" with VR than they are with VCPs although both would be remote tools.

*Access (to services by students and to students by counselors).* $PC_2$ points out that they provide counseling services in a rural area where physical access is a barrier for some students who may need to drive an hour and a half to campus and plan

counseling sessions around their classes. In terms of physical access $PS_1$ says, "…if it's a bad day, I think having the option of remote is a really good tool for me because then I don't have to worry about what I look like or what I smell like." Considering VRT, $PS_1$ likes the idea of using "an avatar to show up rather than having to maybe dress up. You feel like you've shown up dressed up, but you're not and that's kind of nice." Both counselors ($PC_1$, $PC_2$) expressed concern of counselors' lack of physical access to a student patient to provide responsive support using remote modes if a patient was acutely symptomological. $PC_2$ says about safety concerns when not having physical access to their patients, "I don't have physical access to them, thus I do have to escalate to calling police officers to intervene a lot sooner so that's not pleasant." Similarly, $PC_1$ says, "I have to trust that they say where they say they are in physical space.... There's a level of advocacy and safety that I can provide them in space that I can't virtually."

*Technological factors.* All participants shared that technological challenges such as unstable internet connection and lag have a negative effect on the total time and quality of remote counseling sessions. $PC_2$ says, "because what I'm saying is coming in at them at inopportune times, they'll just stop in the middle because my voice is just reaching them…that lag is very not conducive to what we're working for." When considering VR for counseling services, $PC_2$ adds, "I'm also thinking about what internet capabilities they have out in the middle of nowhere and whether it will be able to process the amount of data that would have to be streamed." $PS_2$ says there could be "a lot of limitations using VR for therapy, especially if the session is just one hour or 45 minutes, I can't imagine how many things could go wrong." $PS_1$, $PS_2$, $PC_1$, and $PC_2$ also express the concerns of accessing VR technology in a way that won't be uncomfortable or prohibitive due to physical discomfort such as cyber sickness or use with prescription eyeglasses.

### *3.2.2 Social Factors*

There are differences in social factors that impact the experience of in-person and online campus counseling services that are shared between both students and campus counselors. These social factors are also considered by participants for potentially adopting VR for campus counseling services.

*Emoting and disruption.* Because the pandemic is still ongoing, both students and counselors confirmed that in-person services still require wearing masks and social distancing (at least 3 to 6ft apart from each other). These requirements impact the in-person experience in terms of emotional expression. $PC_1$ notes that masks make it more difficult for patients to cry as they now have to leave the room to blow their nose or wipe their faces. On the other hand, $PS_2$ describes crying during video-conferencing as awkward, "... it's awkward if I'm crying because I kind of hide from the camera. I can't look away or excuse myself to use the bathroom or something because it's on Zoom and it's weird." Similarly, $PS_1$ says about VRT, "Crying could be hard while wearing a [VR] headset. Tears would be difficult to wipe away. Taking off a [VR] headset to do so may disrupt the experience and [crying] couldn't be communicated unless picked up audibly."

*Communication and engagement.* Participants generally agree that non-verbal communication is easiest to convey, access, interpret, and trust during in-person sessions before COVID restrictions ($PS_2$, $PS_3$, $PC_2$). However, $PC_1$ explains their concern that still, now, "masks are limiting in terms of the barrier they create for clients to fully express themselves non-verbally and obviously, my ability to discern their unintentional facial expressions. In some ways, clients can hide their reactions either intentionally or unintentionally." $PS_1$ notes that masks aren't worn during video-conferencing counseling sessions, which make facial expressions more accessible. They also suggest that facial expressions in VR might be comparable to in-person expressions obscured by face masks, "I don't think that this is as expressive as maybe an in-person session could be, but folks now are wearing masks anyway." On the other hand, for $PS_3$, they noted their comfort level for in-person communication tends to be more "shy" when compared to remote online modes. $PS_2$ describes expressing emotions on camera as being "awkward" due to "some disconnect." Similarly, $PC_2$ points out that some of their "especially anxious clients" have mentioned that talking to them virtually is "easier" than in-person. $PS_3$ thinks that VR may also help others, "break out of their shells."

*Privacy.* For some students, privacy is a concern for remote counseling services, especially when considering different living situations of college students that might range from living on-campus in a dorm with at least one roommate to off-campus with other students, family members, or others with differing relationships. $PS_1$ said, "being in-person affords me time and space away from everybody else so whether my words might hurt them or I'm not comfortable sharing, my privacy won't be violated." $PC_2$ points out that counselors are required to confirm patients' answers to questions such as "are you alone in a private space" though patients may or may not be. $PC_2$ also shared that there are activities that their institution prohibits due to security concerns. "There are some tasks that I would like to do remotely that my current counseling center does not allow us to do because they don't trust the security of the platform we're using" ($PC_2$). $PC_2$ mentions, "My University has tried to combat that [issue of access to private spaces] by having specific rooms that we set aside that they can rent for the half hour, hour long session to meet with us, but not every student is aware of that at first." The issue of privacy with VR is still a consideration for at least 1 student. $PS_1$ says, similar to the use of video-conferencing for counseling at home, they wouldn't want to use VR for counseling at home in the potential presence of others. The same student says about using avatars in VR, "I quite like that it can afford anonymity."

#### *3.2.3 Clinical Factors*

While campus counselors are more familiar with clinical factors than students, there are clinical factors considered by both counselors and participants that influence their attitudes towards campus counseling services and VR adoption.

*Patient Outcomes.* Based on relatively recent professional experience, $PC_1$ says that they now have student clients that they have never met in person and that treatment outcomes may be better for some students due to services being remote, especially those with elevated anxiety. $PC_2$ believes that VR for group counseling could be beneficial especially for "students that otherwise physically wouldn't be able to be there." With VRT applications research still being relatively new, both counselors express concern on how therapeutic skills learned in VR would translate to the real world. $PC_1$ explains, "part of the healing properties of talk therapy is to be in a room with another human nervous system. That can be soothing and help co-regulate and is frankly hard to achieve on screen." $PC_2$ says, "you would want to really make clear that [VR] was the first step in establishing a safe environment as though it were training wheels on a bike, but make it very clear those training wheels have to go away at some point because there are parts that just do not translate to actual functioning in the world." On the other hand, both counselors and one student emphasize concerns with VR use in a way that is antithetical. $PC_1$ says, "I see the way in which [VR] could definitely collude with their symptomatology by way of avoidance. There's a huge disconnect there and I worry about amplifying existing problems."

*Use cases.* Student participants like the idea of having the option to use VR for counseling services when considering anxiety symptoms and for convenient access to remote services. Both counselors provided an array of additional use cases they believe VR could be helpful with including mindfulness exercises, phobias, graded exposure therapy, group therapy, social skills building, chair work, and potentially gaining insight into patient self-perception or issues such as self-esteem or self-consciousness. Many of these use cases are similar or may be applied to issues that campus counseling services support (Table 1).

## 4 DISCUSSION

### 4.1 Comparison with Literature

The derived themes and comments made by participants in this study suggest that there could be benefits to having VR as an option for a counseling service modality on college campuses. For comfortable users, those that are less likely to experience simulator sickness, may have the option of using a headset whereas other users, using desktop viewing is still a beneficial alternative [30]. The findings also suggest other valid concerns. These observations from the participant interviews and the derived themes reflect similar observations made in previous studies that aimed to adapt VRT in similar contexts.

Yoshima and Borst studied students' (undergraduates and graduates) experiences using social VR for remote learning [30]. When comparing VR to in-person and video conferencing experiences, the students in their study selected positive trade-offs such as "Less anxiety presenting", "Increased interaction", and "not being seen/no webcam" in addition to others that are similar to the themes of increased access and engagement. Most negative trade-offs listed were "Technical difficulties". Overall, there was more strong agreement with reasons to support VR use and low agreement with reasons against VR-based learning [30].

Boeldt et al. highlight barriers to adopting VR in the mental health space and present some ideas on how to address these barriers [4]. The authors point out that adoption of new technology by therapists is generally slow which may be due to historical therapeutic training that emphasizes in-person treatments and assessment. Comments from $PC_1$ parallels this as they said, "I would say that my experience probably maps pretty closely to a lot of therapists who have similar training, similar duration of tenure in the counseling mental health field where most of us, this is anecdotal, but most of us were not interested in telehealth. We all had zero interest or ability." Both $PC_1$ and $PC_2$ regarded training and learning resources for VRT to be very important. Boeldt et al. argues that effective adoption of new technology for mental health practitioners requires clinically relevant training that addresses their needs both during training and through continuing education [4]. This may potentially address the gap in training to help providers feel more confident with helping patients to *translate learned skills* in VR to real life and differentiate efficient use of VRT versus using it *antithetically*.

Similarly, Dilgul et al. sought to understand barriers and facilitators of group counseling attendance and found that some patients were motivated by complete *anonymity and confidentiality* [8, 9]. In our study, one participant ($PS_1$) says about using avatars in VR, "I quite like that it can afford anonymity." Yoshimura and Borst suggest that remote settings in general, may be less socially stressful because students aren't required to be seen socially [30]. Interestingly, Dilgul et al. also found that therapists believe that anonymity could increase a patient's willingness to *engage* more openly [8]. To help the issues of attendance and effectiveness of group treatments, Dilgul et al. encourage removing barriers and investing in facilitators. They recommend that services should capture the patients' interest in group modality, make the service location and time as *accessible* as possible, and contain group sizes between six to eight attendees among other recommendations [9]. Attributes of VR provide the potential to address these ideas and recommendations from previous research. However, to the best of our knowledge, there is still one study that researches the use of VR for group treatment [8].

Comments from $PC_1$ explain that for them, the level of immersion experienced is dependent on the quality of technology. They say, "I've seen it done poorly and I've seen it done well where some of it is very immersive with high enough graphics where I think I would be able to suspend my disbelief and believe I am in this place and some places I've seen where I'm like, this is just a bunch of squares…I think [VRT] has the possibility of doing good things, but it's dependent on the quality of technology." Current literature shows that not all users are able to feel immersed in VR environments which may reflect current technological limitations [3], differences in the ability of different users, or lack of clinical VR content [4]. Benbow and Anderson suggest that therapeutic VR environments could be designed in a way that maximizes stimuli for patients and could emphasize symbolism over realism [3] to enhance the immersive experience. Boeldt et al. encourages continued research that incorporates input from therapy providers in diverse clinical settings to design for expansive VRT *use cases* [4], which ideally will also include use cases for college students utilizing campus counseling resources.

### 4.2 Design Considerations

Based on the participant interviews and derived themes in this study, the following initial design considerations (DCs) are shaped when considering VR as a campus counseling service tool.

DC1: *Design for trust (of information and between users)*. When considering VR for teletherapy, there is a balancing act between trust and privacy. While the nature of using avatars in VR provides *anonymity*, establishing trust between counselors and

students and between members in group counseling is necessary and is even more critical to adopt VRT in this context. This includes designing the user experience in a way that counselors can acquire and trust the necessary information they need from their patients and vice versa. The ability for therapeutic VR to not only improve detection of facial movements, emotion and gesturing, but also to accurately reflect shoulder tension and general posture can also be something to aim for. $PC_2$ expresses the need for seeing holistically, patients' non-verbal body language and communication. They say, "this might just be where we'd be able to go with it in the future, but like how they're holding their shoulders if that's something detectable or whether they're leaning forward leaning back because general posture is something to look into."

DC2: *Design to discourage antithetical therapeutic behavior*. For example, one student participant ($PS_2$) expressed the concern for boundaries and being able to keep others at a comfortable distance in the virtual environment. During the surrogate-aloud portion of the interview, all student participants identified features of VR systems such as "configuring personal space" and "ability to hide others' avatars" to be very important. On the other hand, both counselors ($PC_1$, $PC_2$) have a slightly opposite perspective. Their comments of such features echo the concerns for antithetical behavior. $PC_1$ says, "if you can't tolerate another group member, that's a therapeutic issue. If you can't communicate your needs that's a therapeutic issue…it'd be a lot for the clinician to monitor and if we were supposed to monitor that." Similarly, $PC_2$ says, "Being comfortable with others in their space could be something a person should learn in therapy. Allowing somebody to hide people they dislike is antithetical to a lot of therapies."

DC3: *Incorporate favorable features from VCPs for therapeutic VR use.* All participants identified several features considered native to VCPs as important to apply in VRT systems. These features include the user's ability to mute microphone, the option for webcam support, the option to utilize chat over the microphone, secure rooms, virtual whiteboard, and custom host controls. Interestingly, one student writes, "chat can be a great way to communicate if audio is not an option, especially for deaf/hard of hearing folks" ($PS_1$). For webcam support, $PS_1$ expresses, "[counselors] need to present in a certain way for me to be able to trust them…it would be nice to see the therapist instead of an avatar!" $PC_2$ expresses a similar sentiment, "it could be the sort of design, where it was showing their avatar, but then also showing their actual face cam. You can discuss with the client and say, 'I think it'd be useful if we had this on, would you feel comfortable with that?' That could be something varying from session to session." Similar to our observations, Dilgul et al. found in their participants that therapists that had experience conducting one-on-one counseling sessions through VCPs expressed the desire for a potential VRT platform to have a document share feature [8]. They also found that relatively more junior therapists were concerned about not being able to use worksheets or whiteboard virtually [8]. Many of these comments echo what Yoshimura and Borst found in their study [30]. Similar to this study, Yoshima and Borst asked students what VR features students would like that were missing from what they experienced in the research [30]. Some responses included "better ways to view media", "a way to read the chat logs", and "better video support".

### 4.2 Limitations and Future Work

Although the preliminary findings of our study begin show trends in user attitudes toward adopting VR on college campuses, this study only had five participants due to recruiting challenges and limited scheduling availability of counselors. Future work should aim to gather more participant data with at least between 6-10 campus counselors and 6-10 students or potentially more to encompass the wide range of demographic traits and experiences of each participant group [5]. This will allow for increased confidence to generalize themes and findings and reduction of potential bias. Social distancing guidelines also did not allow for researchers and participants to be together in the same room in order for participants to use VR headsets and to experience VR firsthand. Instead, participants watched curated demonstration videos and explored a VR platform using the surrogate-aloud method. While participants seemed to have a good idea on the VR experience, the lack of first hand interaction may have limited their perspective especially for those who have only experienced VR between zero to two times. Future research could have

participants experience VR first hand with scenarios and environments specially designed for campus counseling evaluation. One scenario that could be interesting for future work is comparing the student experience to the counselor experience in different viewing conditions such as the student using an avatar in VR while the counselor is seen on a video webcam in VR, vice versa (perhaps using a similar video-capture VR technology as seen in [29]), and both participants using avatars. Some studies have found desktop VR and headset VR to be more beneficial depending on the context of the use [30]. Another future study can compare user experiences using desktop VR compared to headset VR for virtual counseling appointments. Future research directions may also consider how augmented reality (AR) might be used for counseling treatment in the college ecosystem, what benefits it could provide compared to VR modes, and what contexts or use cases would be supported by AR tools [32].

## 5 CONCLUSION

In this study, we interviewed 3 college students and 2 campus counselors. These in-depth conversations begin to reveal insight on university students' and campus counselors' experiences with existing modalities of treatment and technology that institutions embrace and provide for mental health services in an increasingly remote world. We begin to outline how these insights may begin to help guide design for VR platforms for campus mental health counseling services. At the very least, we hope that this will further provoke future conversations and questions in this problem space. For VR to be designed and applied for these users in this clinical context, consideration for users' attitudes, expectations, and concerns should be accounted for.

## ACKNOWLEDGEMENTS

I would like to express my gratitude to Professor Roshan for his support in this project as my capstone chair and for believing in this project for submission into publication venues. Additionally, I would like to thank Professor Mingming for his support as part of my capstone committee. Finally, I would like to thank all of the participants for their passion in taking part in this study.

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# A APPENDICES

Additional materials and content from this study.

### A.1 Websites Referenced for Campus Counseling Services

1. Rochester Institute of Technology, Rochester, NY: https://www.rit.edu/counseling/counseling-services-overview
2. University of Portland, Portland, OR: https://www.up.edu/healthcenter/counseling/index.html
3. Monroe Community College, Rochester, NY: https://www.monroecc.edu/depts/counsel/
4. Portland Community College, Portland, OR: https://www.pcc.edu/counseling/resources/
5. Portland State University, Portland, OR: https://www.pdx.edu/health-counseling/counseling
6. Clackamas Community College, Oregon City, OR: https://www.clackamas.edu/campus-life/student-services/counseling
7. Arizona State University, Phoenix, AZ: https://eoss.asu.edu/counseling
8. Ohio State University, Columbus, OH: https://ccs.osu.edu/
9. Dallas College Brookhaven Campus (CC), Farmers Branch, TX: https://www.dallascollege.edu/resources/counseling/pages/default.aspx
10. Ball State University, Muncie, IN: https://www.bsu.edu/campuslife/counseling-center
11. University of Michigan, Ann Arbor, MI: https://caps.umich.edu/

12.Michigan State University, East Lansing, MI: https://caps.msu.edu/
13.Harvard University, Cambridge, MA: https://camhs.huhs.harvard.edu/our-services
14. California State University, Los Angeles, CA: https://www.csun.edu/counseling
15.Massachusetts Institute of Technology, Cambridge, MA: https://medical.mit.edu/services/mental-health-counseling