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Using Video Conferencing to Deliver a Brief Motivational Intervention for Alcohol and Sex Risk to Emergency Department Patients: A Proof-of-Concept Pilot Study

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Abstract

Brief motivational intervention (MI) is an efficacious approach to reduce heavy drinking and associated sexual risk behavior among Emergency Department (ED) patients, but the intensity of demands placed on ED staff makes the implementation of in-person MIs logistically challenging. This proof-of-concept pilot study examined the acceptability and logistic feasibility of using video-conferencing technology to deliver an MI targeting heavy drinking and risky sexual behavior to patients in an ED setting. Rigorous screening procedures were employed to ensure that the pilot sample represents the target portion of ED patients who would benefit from this multi-target MI. Mixed qualitative and quantitative data from a sample of seven ED patients (57% Female; $M_{age} = 35$ years) who received MI by video conference consistently demonstrated high levels of satisfaction, engagement, and acceptability. The observed completion rate supports logistic feasibility, and patient feedback identified methods to improve the experience by using high-definition hardware, ensuring stronger network connectivity, and effectively communicating information regarding protection of privacy. Post-intervention patient ratings and independent ratings of the audio-recorded sessions (using the Motivational Interviewing Skills Coding system) were very high, suggesting that intervention fidelity and MI adherence was not compromised by delivery modality. Collectively, these data suggest video conferencing is a viable technology that can be employed to implement brief evidence-based MIs in ED settings.

Keywords

Telemedicine; Telemental Health; Acceptability; Feasibility; Motivational Interviewing; Adherence

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Introduction

It is well understood that alcohol contributes substantially to the global burden of disease (Rehm et al. 2009; Rehm & Frick, 2009), prompting a call for efforts to reduce harmful alcohol consumption globally (Caswell & Thamarangsi, 2009; World Health Organization [WHO], 2010). Alcohol's impact on the transmission of infectious diseases – including HIV – ranks highly among global public health priorities (WHO, 2014). The association between harmful alcohol use and sexual HIV risk behavior had been documented in the United States and internationally (Bryant, 2006; Fritz, Morojele, & Kalichman, 2010; Rehm, Shield, Joharchi, & Shuper, 2012; Woolf-King & Maisto, 2011; Woolf-King et al., 2013), underscoring the need to develop preventative interventions that can be delivered to individuals who engage in heavy drinking and sexual behaviors that carry risk for acquisition for HIV and other sexually-transmitted infections (STIs).

Heavy alcohol use and sexual risk behavior are known to co-occur in Emergency Department (ED) patients (Mastroleo et al., 2015), and these coexisting behaviors place individuals at higher risk for transmission of HIV and other STIs (Hendershot & George, 2007; Baliunas, Rehm, Irving, & Shuper, 2010; Rehm, 2011). Considering the fact the ED is the primary source of medical care for many patients (Tang, Stein, Hsia, Masalli, & Gonzales, 2010), it presents an opportune setting to intervene on heavy drinking and associated sexual risk taking. Brief motivational intervention (MI) conducted in person with a combined focus on alcohol and sex has been shown to reduce heavy drinking and condomless sex among ED patients (Monti et al., 2016). However, the competing demands placed on staff in ED settings (and health care settings, in general) makes the implementation of in-person MIs logistically challenging (Miller et al., 2006). Telemental health may offer a viable solution to transcend this barrier to the delivery of specialized brief interventions targeting heavy alcohol use and associated problems.

Telemental health is a subspecialty of telemedicine dedicated to the provision of mental health services from a distance (American Telemedicine Association, 2013). Typically delivered via telephone or video-conferencing technology, telemental health services are designed to connect patients with specific needs to providers with specialized training by circumventing common barriers to care (e.g., travel to specialized clinics). Telecommunication technology has been employed to deliver interventions for a wide range of mental health disorders in a variety of health care settings, with clinical outcomes comparable to in-person treatment (see Hilty, Liu, Marks, & Callahan, 2003; Hilty et al., 2013, for reviews). Furthermore, telemental health interventions have received favorable satisfaction ratings from both patients and providers (see Jenkins-Guarnieri, Pruitt, Luxton & Johnson, 2015, for review), supporting the general acceptability of the approach.

Within a growing body of literature on the application of telemedicine in ED settings (see Ward, Jaana, & Nataf, 2015 for review), two studies have evaluated the use of this technology to deliver brief motivationally-oriented interventions to reduce heavy drinking and associated problems among ED patients. Mello, Longabaugh, Baird, Nirenberg, and Woolard (2008) found comparable reductions in alcohol use for ED patients who received a brief MI by telephone ($n = 140$) and those who received standard care (i.e., no study

intervention; $n = 145$), but found significantly reduced rates of impaired driving among the MI group compared to standard care. Secondary analyses from this study showed that higher patient ratings of the therapist's MI skills were associated with greater motivation to change (Lee et al., 2015). Boudreaux, Haskins, Harralson, and Bernstein (2015) focused on the development and implementation of a telephone-based screening, brief intervention, and referral to treatment (SBIRT) program, with results supporting feasibility, high satisfaction among ED patients ($N = 50$), and high likelihood of utilization among ED-based clinicians ($N = 21$).

While these studies support the utility of telecommunication technology to deliver brief MIs to ED patients, they are limited in that both delivered the MI by telephone. Web-based video conferencing is a viable alternative to telephone, which allows the patient and provider to see each other throughout the intervention, and thus makes non-verbal communication cues observable to both parties. Findings from a pilot study conducted by Baca and Manuel (2007) examining the acceptability of a two-session alcohol-focused MI delivered either in person, by telephone, or by video conference to a community sample of treatment seeking adults ($N = 30$) showed comparable patient satisfaction ratings across these modalities. However, when asked to choose a long-distance mode of therapy, the majority of patients (64%) chose video conference over telephone. Given the acceptability and uptake of video-based telemedicine in ED settings (e.g., "Telestroke"; Levine & Gorman, 1999; Schwamm et al., 2004; Jhaveri, Larkins, & Sabesan, 2015), video conferencing appears to be a viable mode of connecting ED patients who screen positive for alcohol-related problems to highly skilled MI therapists. The current proof-of-concept pilot study serves as a demonstration of a novel protocol in which video-conferencing technology was used to deliver a single-session MI targeting heavy drinking and risky sex to at-risk ED patients. Our primary aim was to evaluate the acceptability and logistic feasibility of using a video-conference MI (vMI) in the ED setting.

Another key question that has not been addressed in the telemental health literature is whether the fidelity of MI is compromised when delivered using telecommunication technology. As part of evaluating the potential of vMI, it is necessary to determine whether the use of video conferencing for intervention delivery alters the counselor's adherence to MI principles in a meaningful way. Within MI, the therapeutic relationship is collaborative rather than instructive, but relies on counselor adherence to a particular set of principles. Process coding instruments such as the Motivational Interviewing Skills Code (MISC) provide a method for evaluating counselor adherence to MI principles, and thus the degree to which MI is actually being delivered (Moyers, Martin, Catley, Harris, & Ahluwalia, 2003). In light of the emphasis placed on the counselor's adherence to specific MI principles, the secondary aim of the current pilot study was to examine whether therapist adherence to MI principles was compromised when delivered by video conference.

Methods

Setting and Participants

All recruitment took place in the ED of a local community hospital from August 2015 through September 2015. The target population comprised English-speaking patients ages

18 to 65. Those receiving treatment for self-inflicted injury/suicide attempt, and those in police custody were not approached for screening. Potential participants were screened using the following inclusion criteria: (1) hazardous drinking (total score ≥ 8 for males; ≥ 6 for females) on the Alcohol Use Disorders Identification Test (AUDIT; Babor, Higgins-Biddle, Saunders, & Monteiro, 2001) or endorsing at least one episode of binge drinking (≥ 5 drinks for males; ≥ 4 drinks for females) in the past three months; and (2) engaging sex-risk behaviors in the past three months, including condomless sex, sexual activity under the influence of alcohol or drugs, or sexual activity with a non-steady partner(s). With regard to partner type, the term *non-steady* was explicitly defined as “a non-committed relationship, in which you have had sex one or more times, and you have the understanding that your partner may have sex with other people.”

Given that this multi-target MI has been developed for higher-risk patients, and reducing condomless sex with non-steady partners is a primary target for behavioral change, patients in a mutually monogamous relationship for longer than six months were excluded. Further, patients who did not have a phone with text messaging capability were excluded as this pilot also evaluated a novel follow-up procedure that is outside of the scope of the current manuscript.

Procedure

All procedures were approved by the appropriate Institutional Review Boards. Project staff worked in the EDs to identify eligible participants. If eligible, a mental status exam comprising items to assess orientation (8 items), memory (2 items), and attention (2 items) was conducted to ensure the patient was able to provide informed consent, and a breath alcohol concentration (BrAC) test was administered to ensure that the patient was not above 0.00g/dl. All participants were assigned to receive vMI. Prior to the vMI session, participants completed an interviewer-administered assessment battery that took 45–60 minutes. Measures were completed on the day of the participant’s ED visit or within two weeks ($n = 5$, within an average of 4 days).

After the assessment, the vMI session was conducted in a private office adjacent to the ED. The counselor was approximately four miles away in a private research office. The counselor was a Licensed Mental Health Counselor with specific and extensive training in MI and in delivering brief alcohol and sex-risk interventions to ED patients. The counselor had been delivering in-person MI interventions for approximately 4 years with weekly group supervision in which audio-recorded sessions were reviewed and specific feedback on MI skills and intervention delivery were discussed.

Workstations at both patient and counselor ends were set up based on the practice guidelines of the American Telemedicine Association (2013). The hardware consisted of a standard desktop PC, an 18-inch flat screen monitor, a peripheral web-cam with an internal microphone, and peripheral desktop speakers. Both workstations were hardwired to the local area network using Ethernet cable. A HIPAA-compliant online video-conferencing service was used to provide a secure line between the ED-based workstation and the off-site counselor workstation. Project staff in the ED set up the online connection and oriented the participant to the workstation, at which point the counselor (on screen) introduced herself

and reiterated the steps taken to ensure privacy. During the session, project staff remained outside the private office to manage technical issues should any arise.

The vMI session took 50 minutes on average (range: 33–63 minutes), and followed the same treatment manual as in Monti et al (2016). The goal was to help participants explore their alcohol use and sexual behavior and, for those interested in change, establish goals for reduced drinking (or abstinence), avoid risky sexual partners/situations, and decrease condomless sex. The session comprised open-ended exploration of pros/cons of drinking, personalized feedback of alcohol use and associated consequences, and discussion about how alcohol relates to risky sex. Feedback was generated using responses provided in the assessment battery, which were incorporated into a printed report, discussed, and provided in confidential take-home packets along with condoms and information about other resources for treatment within the community. All sessions were audio recorded using digital voice recorders located at both the patient and provider workstations.

Immediately after the session, the patient rated the characteristics/behavior of the study counselor using an intervention fidelity scale specifically designed to evaluate adherence to MI principles (Monti et al, 2014; Monti et al., 2016). Finally, patients completed a brief qualitative interview (administered by on-site project staff) which focused on the video-conference session. Patients were paid \$50 for participation.

Measures

Alcohol use screening—The AUDIT consists of ten items, each scored on a 4-point scale, with a cumulative score range of 0–40. A score of eight or higher reflects problematic alcohol use (Conigrave, Hall, & Saunders, 1995), but research suggests a more appropriate cut point of six or higher for females (Reinert & Allen, 2002). Frequency of binge drinking (i.e., 5 standard drinks for men; 4 standard drinks for women) over the past three months was assessed using a single item.

Sexual behavior screening—We used items that have been used to identify individuals at risk for HIV/STI transmission in prior research (Kalichman, Nachimson, Cherry, & Williams, 1998; Millstein & Moscicki, 1995). The first item assessed number of sexual partners over the past three months. If the participant indicated having only one partner, the second question assessed the length of the relationship. Three subsequent items evaluated specific sex-risk behaviors over the past three months, including frequency of condomless sex (i.e., vaginal or anal intercourse), frequency of consuming alcohol before or during sex, and frequency of using any drug before or during sex.

Demographics—Age, gender, and race were obtained in a self-report questionnaire.

Qualitative interview—A semi-structured post-intervention qualitative interview (see Appendix: Qualitative Interview Guide) was administered in person by on-site project staff to assess the acceptability of the vMI. This brief (i.e., approximately 10-minute) interview consisted of three main topics with the goal of eliciting constructive feedback based on the patient's experience in the video-conferenced MI session. To minimize potential bias, the interview started with an open-ended question about the patient's experience (e.g., "What

was it like for you to use the videoconferencing to meet and talk with the counselor?”). Next, each patient was asked her or his degree of satisfaction or dissatisfaction with the video conferencing solely to provide the interviewer with an indicator of how much to probe for information about likes and dislikes. Finally, patients were also asked to identify what they liked and what they disliked or would change about the video conferencing. Interviewers were instructed to probe further for additional dislikes (e.g., “What else did you dislike?”) to give the opportunity for patients to identify more characteristics that could be addressed to improve the vMI. All interviews were audio recorded for transcription purposes.

Post-intervention patient ratings—Post-intervention patient ratings were obtained via a 9-item intervention fidelity scale that focused on the study counselor’s behavior. Each item reflected a core principle of MI (e.g., “The counselor did not push me into something I wasn’t ready for,” “The counselor respected my ideas about how I might make changes,” and “The counselor treated me like an equal”). Items were scored on a 4-point scale (1=strongly disagree, 4=strongly agree); higher scores denote greater intervention fidelity. Patients also rated their overall satisfaction (1=not at all satisfied, 5=very satisfied) and level of engagement in the session (1=not at all engaged, 5=very engaged).

MI adherence—In addition to post-intervention patient ratings, audio recordings of the vMI sessions were used to evaluate counselor adherence to MI. One of the seven pilot session recordings was inaudible. The remaining six were evaluated using the MISC (version 2.5; Houck, Moyers, Miller, Glynn, & Hallgren, 2010), which has been used to establish adherence to MI in clinical trials (e.g., Monti et al., 2014; Monti et al., 2016). Each audio recording was coded by an independent rater to establish adherence to MI. The independent rater (NRM) has expertise in MISC coding, achieved through completion of over 20 hours of coder training, and through supervisions of over 10 additional coders to reliably code brief MIs using the MISC.

MISC global scores were used as the primary indices of MI adherence, with the following six dimensions reflecting the core components of MI: Acceptance, Empathy, Direction, Autonomy Support, Collaboration, and Evocation (see Table 1 for descriptions of global score dimensions). To generate each global score, the independent rater listens non-stop to the session recording and assigns a single integer from a 5-point scale to characterize the counselor’s behavior for the entire session. Each dimension is then rated using a 5-point scale, with a score of 1 reflecting low adherence and 5 reflecting high adherence. For each unique global score, the MISC 2.5 manual provides “verbal anchors” as a standardized criterion for the independent rater to use when determining the numeric rating (Houck, Moyers, Miller, Glynn, & Hallgren, 2010).

Data Analyses

Descriptive statistics were employed to summarize relevant sample characteristics and other variables of interest. Patient enrollment data (i.e., the percent of eligible patients who enrolled) and qualitative interview data were used as the primary means of evaluating patient-level acceptability of the vMI session. Interviews were transcribed verbatim, and

transcripts were reviewed independently by two members of the project team (MAC and SMC). Analysis of patient feedback intentionally sought to find limitations or perceived weaknesses of the vMI, and also to highlight perceived strengths that may underscore acceptability. Verbatim responses were extracted for items focusing on what the participant liked about the videoconference session as well as what she or he disliked or would change. Summary statements reflecting the perceived strengths and weaknesses (and collectively, the acceptability) of the vMI were generated through discussion of these responses with the other authors. Completion rate (i.e., the percent of enrolled patients who completed the session) was used as a quantitative index of feasibility. In addition, qualitative interview data directly pertaining to logistic elements of the vMI session are discussed. Finally, summary statistics for post-intervention patient ratings and MISC global scores are presented as indices of intervention fidelity and counselor adherence to MI, respectively.

Results

Enrollment and Completion Rates

During active recruitment periods when research team members were on site, 334 age-eligible patients presented for treatment in the ED. Of those, 88 patients (26%) were screened. The most common reasons for not screening included discharge prior to approach (52%), the physician advised staff not to screen due to patient's presenting condition (30%), or the patient declined to screen (11%). In addition, 38 patients (11%) were deemed ineligible based on preliminary chart review, for documented reasons such as current suicidality or non-English speaking. Of the 88 patients screened, 12 (14%) met eligibility criteria, and 8 patients (67% of those eligible) enrolled. Though on a smaller scale, these enrollment statistics are comparable to those observed within a recent large-scale RCT with similar eligibility criteria related to alcohol use and sexual behavior (Monti et al., 2016). One participant withdrew for reasons unrelated to the project (change in employment and childcare arrangements) before completing the pre-intervention assessments, resulting in a sample of seven pilot participants. All participants (88% of those enrolled; 100% of those who initiated the session) completed the vMI session without experiencing any major technical difficulties that interfered with session completion.

Demographics and Sample Characteristics

The sample was predominantly female (57%) and White (86%) with an average age of 35 years ($SD = 9.95$; range: 24–53). The average AUDIT score was 10.28 ($SD = 9.32$; range: 1–27). Using gender-specific AUDIT score thresholds (i.e., 6 for women; 8 for men), 57% of the sample were hazardous drinkers. Binge drinking was pervasive, with 100% of the sample reporting at least one binge drinking occasion in the past three months. Regarding risky sexual behavior over the past three months, 100% of the sample reported having condomless sex with risky partners, 86% reported using alcohol before or during sex, and 29% reported using other drugs before or during sex.

Qualitative Data

All participants who experienced the vMI provided qualitative feedback in the in-person individual interview. Representative verbatim responses to questions regarding what the

patient liked and what she or he disliked or would change about the vMI are provided from all seven patients (see Table 2)¹. Collectively, the data demonstrate high acceptability and overall satisfaction. Of the seven patients interviewed, three patients provided only positive feedback despite the interviewer probing for what they disliked or would change about the vMI. One theme that emerged across interviews was that vMI session felt the same as an in-person interaction, and that it was easy to forget you were interacting with a person on a computer screen. The interaction was perceived as “comfortable,” and one participant (female, age 31) suggested that meeting by video conference was less anxiety provoking than “being in a room one-on-one with somebody.” Some participants reported that the experience was familiar to prior experiences they have had with popular forms of video-based communication (e.g., FaceTime, Skype).

Regarding patients’ comments about what they would like to see changed, another theme that emerged (mentioned by four of seven participants) was a call for higher-quality audio and video hardware. One patient (male, age 53) – who identified as “a bit of a computer geek” – suggested that high-definition equipment (i.e., webcam, speakers, and screen) would improve the interaction. Furthermore, restrictions set on the hospital-based workstation prohibited changes to the power settings, and consequently participants had to be periodically reminded to touch a key or move the mouse to avoid a lapse in communication. Several participants identified this as an important feature to change; however, those who experienced a brief lapse (i.e., ~ 5 seconds) reported that it was not a barrier to engagement. Despite using a hardwired connection for all sessions, internet connectivity was an issue for one patient (female, age 31), who indicated that she found herself asking the counselor to repeat several points that she was unable to hear due to the connection “cutting in and out.” Finally, although none of the patients expressed concern regarding the security of data transmitted online (i.e., the audio and video content of the session), one patient noted that she disliked “not knowing if there was anyone else in the room” with the counselor.

Post-intervention Patient Ratings

The average score on the participant-rated intervention fidelity scale was 3.97 out of 4 (range: 3.78 – 4), suggesting that participants perceived the counselor’s behavior as highly consistent with MI principles. Post-intervention satisfaction ratings were unanimously high, with all participants indicating they were “very satisfied” (i.e., 5 out of 5) and “very engaged” (i.e., 5 out of 5).

MI Adherence

MISC global scores for the vMI sessions are presented in Table 1; all were very high, suggesting that the counselor’s adherence to MI was not compromised when delivering the intervention by video conference.

¹Verbatim transcripts of qualitative interviews will be made available upon request to the corresponding author.

Discussion

Telecommunication technology provides a means to transcend barriers to delivering efficacious brief MIs for heavy alcohol use and associated problems to patients presenting for treatment in ED settings. Using mixed qualitative and quantitative methods, the current study clearly demonstrates that a vMI to reduce heavy drinking and associated risky sexual behavior was highly acceptable among ED patients, as well as logistically feasible. Importantly, this is the first study to demonstrate that intervention fidelity and counselor's adherence to MI principles – as indexed by both patient ratings and independent coding of audio recorded sessions, respectively – are not compromised when the MI is delivered by video conference. This finding is consistent with a relatively small body of literature suggesting that the *therapeutic alliance* achieved in telemental health is comparable to the alliance achieved through in-person intervention (see Jenkins-Guarnieri, et al., 2015, for review). The current study advances this literature by focusing specifically on brief MI (i.e., versus multi-session individual or group intervention programs), but more so by employing a formal coding system (i.e., the MISC) to measure specific counselor behaviors that provide the foundation for the therapeutic alliance based on the theory of motivational interviewing (Miller & Rollnick, 2013).

The qualitative data – paired with the observed enrollment rate (i.e., 67% of eligible patients enrolled) – demonstrate a high degree of acceptability of vMI within this sample of ED patients. Video-conferencing technology provided the opportunity to both see and hear the study counselor, resulting in a high level of engagement, with most patients reporting that they ultimately lost sight of the fact that the counselor was on screen. The constructive feedback provided by patients appears to cluster around the theme of making changes that would produce a more seamless and high-definition interaction. That is, patients reported that they were reminded the counseling was not in person when they had to either physically interact with the computer (e.g., to adjust volume) or when the quality of the audio/video feed was compromised.

These observations underscore the importance of using high-definition hardware (i.e., webcam, speakers, microphone), as well as a large computer screen with high-definition display. The hardware used in the current pilot study met the specifications provided in the practice guidelines of the American Telemedicine Association (2013), but would likely be qualified as “basic” relative to other currently available devices. Ongoing advances in digital media technology have made higher resolution devices available at a reasonable cost. The overall success of the current pilot suggests that investment in higher resolution hardware is worthwhile.

The current study also demonstrates the logistic feasibility of using telecommunication technology to deliver a brief MI focused on multiple risk behaviors in the ED setting. This includes our ability to secure a dedicated and private room adjacent to the ED with the standard equipment (e.g., a desktop PC with Ethernet connectivity) necessary to establish a video-conferencing workstation. Once initiated, 100% of vMI sessions were completed without major interruption. The qualitative data served to identify key logistic considerations for future use. For example, it is critical to ensure privacy during screening, assessment, and

intervention. While screening for heavy alcohol use and risky sexual behavior can be accomplished via self-report questionnaire in shared waiting areas, it is ideal to have a private space for follow-up assessment and intervention. The patients in the current study did not express concern regarding the privacy of the web-based telecommunication service employed. One patient did suggest that sufficient information was not provided about the privacy of the off-site study counselor's workspace, which prompted the counselor to integrate a statement about the privacy of her office in subsequent pilot study sessions.

As a proof-of-concept pilot, the primary limitation of the current study is the small sample size. Combined with the fact that the sole study counselor was a highly trained and skilled MI therapist, the small sample size and restricted scales may have produced a ceiling effect in the observed data. We would expect to see more variability in responses with a larger sample, and with a more varied counselor staff. That said, the current findings illustrate the mode of intervention delivery did not compromise our counselor's adherence to MI. Given that the ultimate goal is to demonstrate the use of telemental health to link patients to skilled offsite counselors in settings where specialized services are not available, the current findings from this small sample serve as adequate proof of concept. It is worth noting that the observed enrollment rates are nearly identical to those observed in the context of a recent RCT with similar eligibility criteria regarding alcohol use and sexual behavior (Monti et al., 2016), suggesting that this small sample likely represents the target portion of the ED patient population that would benefit from this dual-focused MI.

A secondary limitation is the current pilot was not designed to provide the outcome data necessary to examine whether vMI is as effective as in-person MI. Whereas other research has found no differences in efficacy when in-person and video-conference interventions are compared (Hilty et al., 2013), future work must establish that this is also the case for brief interventions in the ED. This pilot work established the infrastructure for a larger trial that will be sufficiently powered to both replicate the current analyses and extend the group-level comparisons to intervention outcome.

Conclusion

Collectively, the findings of the current study demonstrate the feasibility and acceptability of using video-conference technology to deliver a single-session MI targeting heavy drinking and risky sex to ED patients. Most importantly, the data suggest that the video-conference platform did not compromise the counselor's adherence to the principles of MI. Although the current MI focused on reduction of heavy drinking and risky sexual behavior, these results could have implications for a variety of health behaviors, as MI has received wide acceptance in the treatment of a broad range of behavioral problems and diseases (Rubak, Sandbaek, Lauritzen, & Christensen, 2005). Telemental health services will be a valuable asset in the ongoing effort to implement evidence-based interventions in high-intensity healthcare settings, or to provide specialized care in rural areas with limited resources nationally and internationally. While the demands placed on staff in ED settings makes implementation of in-person MI less practical, vMI is quite scalable and accessible, enabling a "warm hand-off" from busy ED staff to a competent assistant who could prepare the patient for a vMI with a highly-trained counselor located off site.

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Appendix. Qualitative Interview Guide

Open-ended Evaluation

Intention

The goal of this section is to allow the patient to share feedback on their experience in the video-conferenced MI session without biasing initial feedback by asking directly for what they liked or disliked.

Suggested prompt

“What was it like to use the videoconferencing to talk to meet and talk with the counselor?”

Satisfaction Rating

Intention

The goal of this section is allow the patient to indicate her or his degree of satisfaction or dissatisfaction with the video conferencing using a numeric scale from 0 (not satisfied at all) to 10 (completely satisfied). The moderator should use the patient’s numeric response as an indicator of how much to probe further for additional information about likes and dislikes in subsequent sections.

Suggested prompt

“On a scale from 0 to 10, with 0 being “not satisfied at all” and 10 being “completely satisfied,” how satisfied are you with the video conferencing?”

Likes and Dislikes

Intention

The goal of this section is to allow the patient to share feedback on those characteristics of the video-conferenced MI session that they liked and/or disliked. Based on the satisfaction rating above, the moderator can choose to discuss likes first among those who seem generally satisfied, or dislikes first among those who seem generally dissatisfied. Moderators should use additional probing for dislikes, to give opportunities for patients to identify characteristics that can be improved in future adaptations of this delivery method.

Suggested prompt (Likes)

“What are some of the things you liked about the video conferencing?”

Suggested prompts (Dislikes)

“What are some things that you didn’t like about the videoconferencing?” “What are some of the things you would change about the video conferencing?”

Probing prompt

“What else did you like/dislike?” “Tell me more about what you liked/disliked.”

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Table 1
MISC global rating scores reflecting counselor adherence to MI within the vMI sessions

MISC Global Rating Scale	Description	Mean (SD); Min - Max
Acceptance	The counselor communicates unconditional positive regard.	4.67 (0.52); 4.00 – 5.00
Empathy	The counselor attempts accurately understand the client’s perspective.	4.17 (0.41); 4.00 – 5.00
Autonomy Support	The counselor actively fosters choice as opposed to attempting to control the client’s behavior or choices.	4.50 (0.55); 4.00 – 5.00
Evocation	The counselor conveys an understanding that motivation for change resides mostly within the client.	4.33 (0.52); 4.00 – 5.00
Direction	The counselor maintains focus on a target behavior or concerns tied to it.	5.00 (0.00); 5.00 – 5.00
Collaboration	The counselor behaves as if the interview is occurring between two equal partners.	4.17 (0.75); 4.00 – 5.00

Table 2

Representative verbatim comments from post-session qualitative interviews about the video conference MI

vMI Pilot Case		Response to Interviewer Prompt	
Sex	Age	What are some things you liked about the video conference session?	What are some things you disliked or would change?
Female	24	"Um, she told me a lot. Like I could express my feelings to her. Like she said, was everything confidentially, I don't know. I feel like I had that bond with her."	"Nothing. I loved it."
Female	42	"I actually thought it was easier to open up to her, like in the beginning I was kind of like nervous, but she, the way she presented herself really made me feel comfortable. So it wasn't, kind of – I kind of forgot about that she was on a video kind of thing."	"Not knowing if there was anyone else in the room." "Um...Just that I had to keep moving the mouse [laughs]. That kind of brought it back to reality."
Male	37	"It was pretty cool. Interesting. Instead of face timing, you know? It was still like, human interaction with the conversation. Like being in an office with somebody."	"Nope. They should keep it going."
Female	31	"I will say this: it probably alleviates some anxiety for people who are anxiety ridden. Because being in a room one-on-one with somebody, it does cause that. You tend to kind of, you know, when you don't know anybody you wring your hands around; you're sweating. Versus on here it wasn't as bad because you know you're not face to face."	"There was a couple points where I could barely hear her. Where it kind of kept cutting in and out and it became choppy. So I mean, there was an effect, I didn't hear things and I'd have to say, 'What?'"
Female	31	"It was cool. I liked it. I like that fact that you could see the person and talk to the person and the computer stayed on for most of the time, so I liked it."	"When it went off. It didn't interrupt the flow because she had told me previously it was going to happen and what to do. So when it happened, I just did it."
Male	27	"It's the same thing, though. It's like, it's really her and it's really me. It's just that she's on a screen. I would feel that same way if I was in person. The same exact way."	"There's nothing I didn't like about it. We talked the whole time. It was like no silence. All talk."
Male	53	"Oh, it was very comfortable. Very, very comfortable."	"The quality of the sound, eh, could be a little better." "But if the voice were clearer, and the picture...you know, to be more human-like, to look more real, to sound more real, would definitely knock it home."